EL PASO COUNTY
COLORADO

Community Wildfire Protection Plan for Unincorporated El Paso County

June 2011

Approved by:

Amy Lathen, Chair
El Paso County Board of County Commissioners

October 6, 2011
Date

ATTEST: Deputy County Clerk

Larry Long, District Forester
Colorado State Forest Service

9/20/2011
Date

Terry Maketa, Sheriff
El Paso County

9.21.2011
Date

EL PASO COUNTY
WILDLAND FIRE PREPAREDNESS PLAN
2020

El Paso County Sheriff's Office
Wildland Fire Management

AUTHORITIES

WHEREAS, pursuant to **C.R.S. 30-10-512, Sheriff to act as Fire Warden,** 29-22.5-104 and 30-10-512 the Sheriff is the fire warden of the county and is responsible for the planning for, and the coordination of, efforts to suppress wildfires occurring in the unincorporated area of the county outside the boundaries of a fire protection district or that exceed the capabilities of the fire protection district to control or extinguish in accordance with the provisions of section 30-10-513, C.R.S., and

WHEREAS, pursuant to C.R.S. 29-22.5-103 the chief of the fire department in each fire protection district in the state is responsible for the management of wildfires that occur within the boundaries of his or her district to control or extinguish in accordance with the provisions of section 32-1-1002 (3) (a).C.R.S., and

WHEREAS, pursuant to C.R.S. 29-1-201, et. seq., and 29-5-101, *et.* seq., as amended, provide statutory authority for such interchange of mutual aid; and

WHEREAS, pursuant to C.R.S. 30-10-513(3) & (4) grants the Board of County Commissioners authority to determine what, if any, appropriation of funds shall be granted for controlling fires within the county, and

WHEREAS, pursuant to Homeland Security Presidential Directive (HSPD-5), Management of Domestic Incidents, the President directed the Secretary of Homeland Security to develop and administer a National Incident Management System (NIMS).
The El Paso County Sheriff hereby develops and adopts the following Wildland Fire Preparedness Plan in cooperation with the following participants:

Palmer Lake VFD
Tri-Lakes Monument FPD
Elbert FPD
Donald Westcott FPD
Black Forest FPD
Peyton FPD
Calhan FPD
Big Sandy FPD
Falcon FPD
Green Mountain Falls FPD
Cascade FPD
Crystal Park VFD
Cimarron Hills FPD
Ellicott FPD
Tri County FPD
Edison FPD
Hanover FPD
Security FPD
Stratmoor Hills FPD
South West 115 FPD
Colorado Springs Fire Department
Manitou Springs Fire Department
Fountain Fire Department

This agreement is to remain in effect until the plan is modified by the El Paso County Sheriff and signed by participants. Any terms contained herein that are also defined in C.R.S. 29-22.5-102 shall have the same Definitions as those contained in the statute. For all purposes herein the term "wildfire" as used herein shall mean wildland fire as defined in the statute.

Purpose

The purpose of this County Wildfire Preparedness Plan is to clarify roles and responsibilities of Fire Protection Districts, Fire Departments, the El Paso County Sheriff and the Colorado Division of Fire Prevention and Control (DFPC) in responding to wildfires, to establish standard operating guidelines, to implement cooperative fire protection on all lands in El Paso County and identify a process for transfer of an incident from District to County and if needed County to State.

Wildfire Roles and Responsibilities

Fire protection within El Paso County is provided by 28 fire departments, the El Paso County Sheriff's Office, the United States Department of Agriculture - USFS, the United States Department of the Interior (BLM) and The Department of Defense (DoD). Of the 28 fire departments, 17 are Fire Protection Districts, 3 Municipal Fire Departments, 3 Volunteer Fire Departments, and 5 DOD Installations. The Federal Land Management Agencies USFS / BLM, the CO Division of Fire Prevention and Control and the El Paso County Sheriff's Office utilize the El Paso County Annual Operating Plan to establish standard operating procedures and responsibilities to implement cooperative fire protection outside of Fire Protection Districts or Municipalities.

El Paso County Sheriff Office (EPSO)

The Sheriff is the fire warden of the county (C.R.S. 30-10-512) and is to assume the responsibility for coordinating fire suppression efforts in the case of any wildfire occurring in the unincorporated area of the county outside the boundaries of a fire protection district or that exceed the capabilities of the fire protection district to control or extinguish. A Delegation of Authority will be executed for transfer of Command and Control. (see page Appendix A, pg.7)

Fire Protection Districts (FPD's)

The fire protection district is responsible for the management of wildfires that occur within the boundaries of the district and that are within the capability of the fire district to control or extinguish.

Volunteer Fire Departments (VFD)

Volunteer Fire Departments will respond to wildfires within their designated boundary to provide size up information, suppression operations and assist the El Paso County Sheriff's Office

Municipal Fire Departments/City Fire Departments

The municipal fire department is responsible for the management of wildfires that occur within the boundaries of the city and that are within the capability of the municipal fire department to control or extinguish.

Department of Defense

The Military Installations fire protection organizations consist of military and civilian assets. Fire protection on these lands are not included in the El Paso County AOP and are addressed through Mutual Aid Agreements.

CO Division of Fire Prevention and Control (DFPC)

_The CO Division of Fire Prevention and Control will, upon request, assist the El Paso County Sheriff's Office with fire management on wildfires within El Paso County.

Wildfires on Federal Land Management Agencies (USFS, BLM)

All parties of this Wildfire Preparedness Plan are aware that standard operating procedures, agreed procedures and responsibilities to implement cooperative fire protection on all federal lands are identified within the El Paso County Annual Operating Plan (AOP).

United States Forest Service (USFS)

The United States Department of Agriculture, United Forest Service is responsible for all management activities on National Forest lands.

Bureau of Land Management (BLM)

The United States Department of the Interior, Bureau of Land Management (BLM) is responsible for wildfire suppression activities on BLM lands. In El Paso County, through cooperative agreement with the BLM, the USFS has initial attack responsibilities for theselands.

Wildfires on Department of Defense Lands (DoD)

Wildfire protection on Federal DOD lands is the responsibility of that DOD installation and is outside the authority of the Sheriff

Operations

Wildfire Progression

Reports of wildfires are received by one of the dispatch centers that operate in El Paso County. The dispatch center will notify the jurisdictional authority based on current boundary maps and may notify El Paso County Sheriff's Office Emergency Services Division.

Fire Protection Districts and Departments will respond to provide size up information and suppression operations. Incident information will be coordinated with the jurisdictional dispatch center.

If the Chief of the Fire Protection District or representative desires to maintain management of the wildfire, El Paso County Sheriff's Office will respond Firefighters with equipment if requested and provide mutual aid.

If a Chief of the Fire Protection District or representative desires to transfer management of a wildfire to the Sheriff or Sheriff's representative, it is the responsibility of the Chief of the Fire Protection District or representative to request Fire Management assistance from the Sheriff or Sheriff's representative.

If the fire exceeds the capabilities of the District. The El Paso County Sheriff or Sheriff's representative may assume management of the incident when a Delegation of Fire Management (appendix A), an Incident Complexity Analysis (appendix D), and a Cost Share agreement (Appendix E) have all been completed and signed by the Chief(s), current IC and incoming IC and a Acceptance of the incident has been granted by the assuming Sheriff's Office **IC.**

Criteria utilized in determining if a wildfire exceeds the capabilities of a District are:

A. When a District is asking for mutual aid from outside their normal mutual aid request areas or,
B. When air resources are requested and ordered properly or,
C. When the current management of the fire is exceeding the District's tactical or organizational capabilities, which may create safety or control issues or,
D. When a Complexity Analysis of the incident can show need for an increase in management level of the fire.

If the fire is transferred to the Sheriff or Sheriff's representative by the District, or exceeds the capabilities of the District, the Sheriff or representative and the Chief of the Fire Protection District or representative shall enter into a delegation of authority (Appendix A) detailing incident command, incident objectives, cost share (appendix E), fire suppression responsibilities, and turn back standards.
A Delegation of Authority for Management of Incidents template is in Appendix A.
The El Paso County Sheriff may not assume Management responsibility from a District if

A. The complexity analysis (Appendix D) of the fire is low,
B. The fire is contained,
C. The fire is in mop up status, or
D. Accountability of firefighters and equipment cannot be provided.

If the wildfire has been delegated to the Sheriff or Sheriff's representative, and exceeds the capability of the county to control, the Sheriff or Sheriff's representative shall be responsible for seeking the assistance of the State by requesting assistance from the CO Division of Fire Prevention and Control. The Sheriff, Board of County Commissioners, and CO DFP&C or their representative shall enter into agreements detailing transfer of control, cost share, responsibility for fire suppression and the retention of responsibility using guidelines in the El Paso County **AOP.**

Incident Command System (ICS)
All parties to this preparedness plan will use the Incident Command System during all incidents. ICS is consistent with the National Incident Management System (NIMS). Where fire crosses jurisdictional boundaries, jurisdictional representatives shall convene as soon as possible to mutually agree on control objectives, strategy, cost sharing and appoint an Incident Commander.

Communication
All parties to this Wildfire Preparedness Plan agree that each other may use the other's radio frequencies as needed to conduct emergency management business.
If the incidents exceed initial attack the EPSO Type 3 IMT Communications plan may be utilized (See Appendix B VHF and 800) with authorization from dispatch.

Mutual Aid
All parties to this Wildfire Preparedness Plan agree that mutual aid is the assistance provided by a supporting agency at no cost to the jurisdictional agency.
No party is under any obligation to respond to a call from another of the parties when conditions exist which would prevent response because of priority responsibility in its own jurisdiction, and no party shall be required to deplete unreasonably its own resources, facilities and services in furnishing such mutual aid.
Each agency will assume responsibility for initial response of its own expenses for the first 24 hours unless negotiated by the jurisdictional agencies.

Resource Requests
All parties to this Wildfire Preparedness Plan agree to coordinate all requests for additional resources or supplies beyond mutual aid with Incident Command. Any resources not coordinated with Incident Command will be the responsibility of the ordering agency.
All parties to this Wildfire Preparedness Plan agree to coordinate any air resource request with the Deputy or Assistant Fire Marshal and will be ordered through El Paso County Sheriff's Office Dispatch.

Resource Qualifications/PPE
All parties to this Wildfire Preparedness Plan agree that all personnel involved with wildfire suppression shall keep documentation of qualifications (incident qualification card, red card, or local records) issued by their Fire Protection District/Department, that each District/Department will be responsible for providing PPE Utilizing NFPA 1977 as a guideline for their personnel and insuring it is worn on all incidents. Those not agreeing to this standard must clear the incident or be placed in a non-operational position.
Wildfires that the Sheriff assumes command of will require that Firefighters assigned to Operations have a current Incident Qualification Card issued by their agency, and have all PPE required by NWCG standards (Nomex pants and shirt, Fire Shelter, hard hat, gloves, and boots). The representing Fire Protection District may request relief from this requirement in writing for specific personnel, and the IC may grant this relief in writing.

Engine Requirements
All parties to this Wildfire Preparedness Plan agree that for operations that extend past mutual aid, each engine (Type 1, 3, 4 or 6) will be staffed with one red-carded Engine Boss and two red-carded Wildland Firefighter Type 2 (three firefighters type 2, for Type 1 engines) unless otherwise authorized by the Incident Commander. Assigned personnel will stay with the engine for the duration of the operational period. Individuals will not accept other overhead position assignments unless staffing and qualifications can be maintained. Fire Districts may be allowed to assist in operations with minimal qualifications if the fire is within their district and authorized by the Incident Commander.

Equipment Destroyed or Excessively Damaged
All parties to this Wildfire Preparedness Plan agree that if equipment is destroyed or excessively damaged, an investigation will be made by the Sheriff and a representative of each agency involved in the wildfire incident. This group will investigate the circumstances in connection with and damage of such equipment and make recommendations for reimbursement, replacement, or repair to Incident Command or the jurisdictional agency.

Fire Investigation / Law Enforcement
All parties to this Wildfire Preparedness Plan agree to conduct a fire investigation to determine origin and cause. El Paso County Sheriff's Office may assist if requested by the jurisdictional agency.

Wildfire Preparedness Plan Amendment Procedure
The sheriff or Sheriff's representative reserves the sole right to amend this plan from time to time hereafter for clarification of terms or procedures, to address fire hazards not covered in this plan, or to comply with state statutory mandates adopted after the effective date of this plan.
The Sheriff or Sheriff's representative shall transmit written notice of the proposed effective date and the terms of the amendment to all participants not less than 30 days before the effective date.

The amendment shall, without further action, automatically become effective and in full force and effect on the effective date described in the notice as to all participants who do not object as provided below.
If any participant who does not agree with the proposed amendments may file with the sheriff or Sheriff's representative a written objection to the proposed amendment on or before the effective date of the amendment provided that the objection is based solely on additional or increased duties or responsibilities imposed on the objector over and above those contained in this plan prior to the adoption of the amendment. The sheriff or Sheriff's representative and the objecting participant shall attempt to resolve the differences. In the event that they are unable to resolve their differences, the objector shall not be bound to perform the additional duties or responsibilities, but the original plan remains in full force in all other respects as to the objector.

THIS WILDLAND FIRE PREPAREDNESS PLAN IS AGREED UPON THIS DATE BY:

_____ Date _ _ _ _ _ _
Sheriff, El Paso County

_____ Date _ _ _ _ _ _
Chief, Fire Department

_____ Date _ _ _ _ _ _
City or Town

Appendix A

DELEGATION of AUTHORIY

A Delegation of management for the _ _ _ _ _ _ _ _ _ _ _ Incident.

To: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Incident Commander.

From: _ _ _ _ _ _ _ _ _ _, Fire Chief of _ _ _ _ _ _ _ _ _ _ _ _ Fire District

From: _ _ _ _ _ _ _ _, Representative of _ _ _ _ _ _ _ _ City/Town (if applicable)

Effective_: _ hours on___/____, 2020 you are hereby delegated authority for management of the resources, costs, and the rehabilitation of suppression actions directly associated with this incident at the time of signing and until the incident is responsibility is assumed by you.

The assigned Incident Command Team will work within all legal statutes and current policy of the responsible agencies, the broad direction provided at your in-briefing, and in the attached Letter of Leader's Intent.

Name: ____________________ Name: ____________________

Fire Chief Incident Commander

_ _ _ _ _ _ _ Fire Department El Paso County, CO

____________________ ____________________

Date Date

____________________ ____________________

Time Time

Isl ____________

NAME

_ _ _ _ _ _ _ City/Town

____

Date

Community Wildfire Protection Plan for Unincorporated El Paso County

"A Continuing Process"



El Paso County Sheriff's Office
Emergency Services Division
101 West Costilla Street, Colorado Springs, CO 80903

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Acknowledgements

In the development of this Community Wildfire Protection Plan, El Paso County received major assistance from the Coalition for the Upper South Platte (CUSP). The work of CUSP was funded by the American Recovery and Reinvestment Act (ARRA) of 2009, through a sub-grant awarded by the Colorado State Forest Service (CSFS).

From the beginning of the planning process in January 2010, through final approval, the staff of CUSP provided essential guidance, research, and GIS mapping. The El Paso County Office of Emergency Management gratefully acknowledges CUSP's many contributions to this CWPP.

Supporting agencies

Throughout 2010, the following organizations enthusiastically gave of their time, energy, and resources to assist the development of this CWPP. The El Paso County Office of Emergency Management gratefully acknowledges their contributions to this effort.

Fire Departments

Big Sandy Fire Protection District
John Hillman, Fire Chief

Black Forest Fire/Rescue Protection District
Dave Ury, Fire Chief

Broadmoor Fire Protection District
Ron Ruckdeschel, Fire Chief

Calhan Fire Protection District
Shane Gattis, Fire Chief

Cascade Fire Protection District
Steve Lewis, Fire Chief

Cimarron Hills Fire Department
Matt Love, Fire Chief

Colorado Centre Fire Department
Tom Byes, Fire Chief

Colorado Springs Fire Department
Steve Cox, Fire Chief

Crystal Park Volunteer Fire Department
John Hennessy, Fire Chief

Donald Wescott Fire Protection District
Jeff Edwards, Fire Chief (ret)
Vinnie Burns, Fire Chief

Edison Fire Protection District
Mark Anderson, Fire Chief

Elbert Fire Protection District
John Gresham, Fire Chief

Ellicott Fire Protection District
Nellie Roop, Fire Chief

El Paso County Sheriff's Office Wildland Fire Crew
Bobby White, Superintendent

Falcon Fire Protection District
Trent Harwig, Fire Chief

Fort Carson Fire Department
Glen Silloway, Fire Chief

Green Mountain Falls Chipeta Park Fire Protection District
Steve Murphy, Fire Chief

Hanover Fire Protection District
Carl Tatum, Fire Chief

NORAD-Cheyenne Mountain Fire Department
Chris Miller, Fire Chief

Peterson Air Force Base Fire Department
Cindy Litteral, Deputy Chief

Palmer Lake Volunteer Fire Department
Shawna Ball, Fire Chief

Peyton Fire Protection District
Jack Rauer, Fire Chief

Schriever Air Force Base Fire Department
Michael Haynes, Fire Chief

Security Fire Protection District
R. Ski Stambaugh, Fire Chief
Dennis Carlson, Assistant Chief

Southwest Hwy. 115 Fire Protection District
Mel Ryan, Fire Chief

Stratmoor Hills Fire Protection District
Ian Bruzenak, Fire Chief

Tri-County Fire Protection District
Jeremy Gardner, Fire Chief

Tri-Lakes Monument Fire Protection District
Rob Denboske, Fire Chief

United States Air Force Academy Fire and Emergency Services
Ernst Piercy, Fire Chief
Kent Halverson, Deputy Chief

Woodmen Valley Fire Protection District
Barry Pleshek, Fire Chief

Forestry and Natural Resources

Coalition for the Upper South Platte
Carol Ekarius, Executive Director
Marti Campbell, CWPP Facilitator
Bruce Metzger, GIS Coordinator

El Paso County Parks and Leisure Services
Jerry Westling, Parks Manager

Colorado Springs Fire Department, Wildfire Mitigation Section
Christina Randall, Senior Analyst, Wildland Risk Section Manager
Andrew Notbohm, Wildland Fuels Program Coordinator

Natural Resource Conservation Service
Greg Langer, District Conservationist

United States Air Force Academy, Natural Resources Department
Diane Strohm, Natural Resource Planner and Forester
Steve Wallace, Forestry Technician

US Fish and Wildlife Service
Leslie Ellwood, Wildlife Biologist

Emergency Management

El Paso County Sheriff's Office, Emergency Services Division
Scott Campbell, Assistant Deputy Fire Marshal

United States Air Force Academy
Steve Reed, Emergency Manager

Fort Carson
Russ Roux, Emergency Manager

Land Use and Planning

El Paso County Development Services Department
Elaine Kleckner, Current Planning Manager
Raimere Fitzpatrick, Planner II

El Paso County Information Technology
Mike Duysen, GIS Specialist II

Utilities

Colorado Springs Utilities
Eric Howell, Water Natural Resource Planner

Mountain View Electric Association
Darryl Edwards, Member Services Manager
Claud Hugley, Operations Manager
John Gresham, Inspector

Local Community Wildfire Protection Plans in Unincorporated El Paso County

At this writing, in May 2011, the following communities in unincorporated El Paso County have completed their own Community Wildfire Protection Plans. These plans were valuable sources of information during the development of this CWPP for the unincorporated County.

Black Forest CWPP (2007)

Carroll Lakes CWPP (2007)

Crystal Park CWPP (2006)

Palmer Lake CWPP (2008)

Southwestern Highway 115 Fire Protection District CWPP (2007)

Ute Pass CWPP (2007)

Wissler Ranch CWPP (2010)

Woodmoor CWPP (2006)

An up to date list of all approved CWPPs is maintained on the Colorado State Forest Service web site[1].

Communities are highly encouraged to work together to create new local CWPPs that are tailored to the needs and priorities of their residents. These local plans provide the specific detail necessary to plan and execute local mitigation projects.

[1] "Colorado Community Wildfire Protection Plans," 3 May 2011 <http://csfs.colostate.edu/pages/CommunityWildfireProtectionPlans.html>

Introduction

Purpose, constraints, and goals

This Community Wildfire Protection Plan (CWPP) was created to comply with a mandate of the Colorado Legislature, while also meeting the requirements of CWPPs as defined in the Healthy Forest Restoration Act (HFRA). It was intended to do both of these things in a way that provides useful information to local communities as they plan for their own wildfire protection.

The Legislative mandate: A CWPP for the unincorporated County

Colorado Senate Bill 09-001, "Concerning the Establishment of Community Wildfire Protection Plans by County Governments," requires each county government to prepare a CWPP "to address wildfires in fire hazard areas within the unincorporated portion of the county."

In SB 09-001, the Legislature directed that this CWPP should only address the unincorporated portion of the county. This plan adheres to this direction, and does not set goals for municipalities.

However, we also recognize that small towns are the most significant values at risk in some rural fire protection districts, and that a wildfire that escapes control in an unincorporated area can quickly threaten municipal neighborhoods.

Municipalities are also important pieces of the overall picture of wildfire mitigation and suppression. For example, all of the County's municipal fire departments maintain strong mutual aid relationships with fire departments in unincorporated areas.

This plan does not replace local CWPPs

At the beginning of this planning process, the Colorado State Forest Service (CSFS) advised El Paso County that this all-County plan would not replace any existing CWPPs that have already been completed by local communities. As a matter of fact, existing local CWPPs were used as reference sources in the development of this plan.

The CSFS also directed that this all-County CWPP does not remove the need for small local communities to develop their own CWPPs.

Local community CWPPs – prepared for individual towns, neighborhoods, or fire protection districts – capture the level of detail needed to take specific local actions. The development of local CWPPs brings together the neighborhood groups that plan mitigation projects and, in many cases, do the hands-on work.

Therefore, CSFS directed that this all-County CWPP should not be so detailed that it leaves nothing for local community planners to do. This approach respects the spirit of the national standards for CWPPs, which require local plans

to be specific about wildfire hazards, community values at risk, and the projects needed to protect those values.[2]

The special role of military installations

Community Wildfire Protection Plans are intended for non-Federal lands. Military installations prepare wildfire management plans for their own lands, but these plans are not the same as CWPPs.

However, El Paso County is home to five military installations, some of which control large areas of land in or near the wildland-urban interface. Because of this intimate relationship, the CSFS also directed the County to include the military in the planning process. Our military communities graciously participated in the development of this plan.

An umbrella… or a foundation

To comply with both the Legislative mandate for an all-County plan, and the spirit of the ideal CWPP as a detailed local product, the CSFS directed that this all-County CWPP should serve as an "umbrella plan" that encompasses more specific local plans.[3] We prefer the image of this CWPP as a foundation that provides a common body of information to aid small communities as they develop their own, more detailed, CWPPs.

This plan uses a broad brush to paint a basic picture of wildfire behavior in El Paso County, and document the public policies and other issues that affect wildfire mitigation and suppression. We have also attempted to point out issues that local CWPPs should consider, and identify reference documents that local planners may find useful.

As each local community develops its own CWPP, it can avoid duplicating this research by referring to this foundation plan. The local CWPP can then focus on the details of its small area, documenting its specific wildfire hazards, community values at risk, and projects that can protect those values.

According to SB 09-001, "CWPPs can be as simple or complex as a local community desires." In that spirit, we have aimed for this plan to be as simple as possible, while achieving the purposes described above.

[2] Society of American Foresters, "Preparing a Community Wildfire Protection Plan: A Guide for Wildland Urban Interface Communities" March 2004
[3] Colorado State Forest Service, "Minimum Standards for Community Wildfire Protection Plans (CWPP)" 18 November, 2004

The process of developing this CWPP

The standard guidance for developing a CWPP advises a community to first form a core team that includes all local stakeholders. That team then meets frequently to guide every step of the process, from research through draft writing, then public comment and eventual adoption.

Some counties have successfully used this approach to develop all-County CWPPs. However, El Paso County is large, highly populated, and politically diverse.

Its jurisdictions (some of which overlap) include eight municipalities, twenty-one fire protection districts, two metropolitan districts with fire departments, five military installations, a state park and a national forest. Some parts of the County have many active citizen groups, while other areas have very few.

Its 2,158-square-mile area consists of arid plains, dense forests, and high alpine environments, each with different wildfire concerns. A person from the southeastern grasslands would be challenged to represent or understand the interests of someone in the northwestern foothills.

As we looked at this complex picture, we quickly saw that a core team that included all stakeholders would be too large and cumbersome to be effective. But to form one that was small enough to be manageable would require selecting representatives who still might not be able to represent all local concerns.

We settled on a hybrid approach that took all the traditional steps of CWPP development, but in an untraditional order.

The Steering Team

Kathy Russell, Emergency Preparedness Planner for the El Paso County Office of Emergency Management, worked with the County's many local fire chiefs to gather their input and concerns. She served as the lead researcher and principal author.

Marti Campbell, CWPP Facilitator for the Coalition for the Upper South Platte (CUSP), served as an overall consultant to ensure that the process and the final product would meet the published requirements for CWPPs. She also coordinated the production of the plan's maps, working with the GIS staff of CUSP. She facilitated each public meeting, and ensured that the public input process gathered the right type of information. Marti also located the state and federal subject matter experts who provided key input about land management and critical infrastructure protection.

Dave Root, Assistant District Forester for the Colorado State Forest Service (CSFS), made sure that the plan we were developing would meet CSFS requirements. A veteran of many CWPP projects, he helped us develop a valid planning process that worked for El Paso County.

A small steering team

We began by forming a very small steering team of only three people. This team concentrated on guiding the project through the process of gathering initial public input, conducting research, producing maps, and writing the draft, and submitting that draft for public comment and eventual adoption. The steering team functioned as staff for larger groups of community participants. However, the steering team did not made decisions about wildfire hazards or community values at risk, and did not determine priorities for mitigation.

Initial data gathering: Fire protection districts and sub units

One of the steering team's first tasks was to gather data and local concerns from community participants.

We gathered survey information from individual fire protection districts (FPDs), and metropolitan districts that operate fire departments. This made the most sense, because most unincorporated areas are not represented by a homeowners' association, but almost all are served by a local fire department.

We also needed to have initial face-to-face discussions with local communities, to gather their input about local wildfire hazards and the community values they want to protect.

It was impractical to hold a separate meeting in each of these special districts, so we settled on a middle-ground approach that divided the County into three "sub units" based on terrain and vegetation types. These sub units also tended to reflect the mutual-aid arrangements of local fire protection districts.

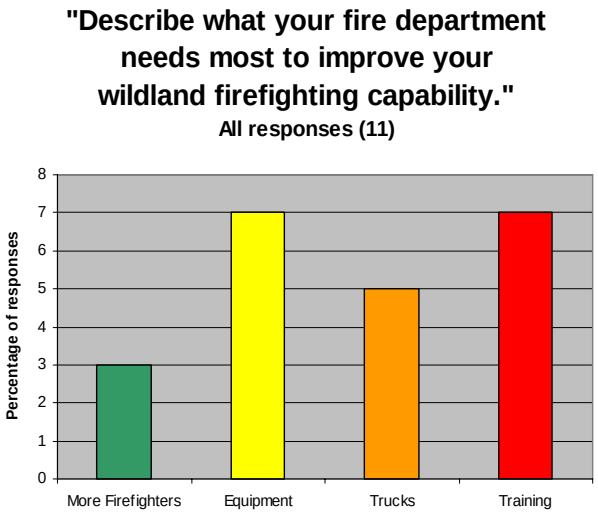
El Paso County CWPP Sub Units

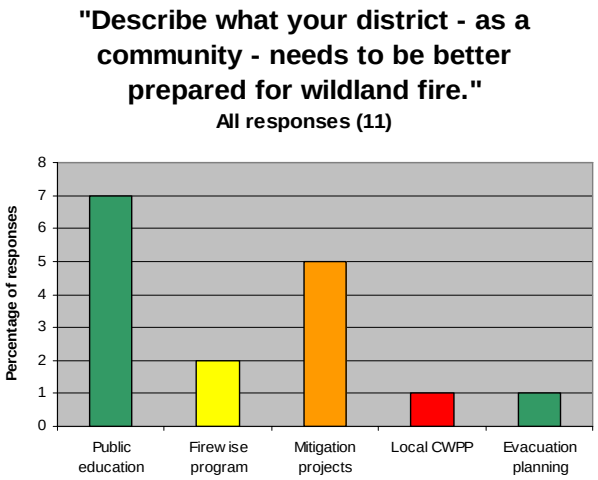
Northeast: Hwy. 24 Corridor
Big Sandy FPD
Calhan FPD
Cimarron Hills FPD
Elbert FPD
Falcon FPD
Peyton FPD
Southeast
Colorado Centre Metropolitan District
Edison FPD
Ellicott FPD
Hanover FPD
Security FPD
Stratmoor Hills FPD
Tri-County FPD
Foothills
Black Forest FPD
Cascade FPD
Crystal Park Metropolitan District
Donald Wescott FPD
Green Mountain Falls Chipeta Park FPD
Southwestern Hwy. 115 FPD
Tri Lakes – Monument FPD
Woodmen Valley FPD
(Broadmoor FPD was not included in this sub unit because almost all of its territory is overlapped by the city of Colorado Springs.)

When presented with this two-level approach, the county's fire chiefs agreed that the surveys allowed each of them to express their individual ideas, while the sub unit meetings provided a way to discuss local issues without meeting with each individual FPD.

Fire Chiefs' surveys and maps

We began by sending a simple survey to each fire protection district; those surveys asked the fire chiefs to describe their district's readiness to respond to wildland fire, and list resources that they need to better respond. Each chief also received orthographic and topographic maps, and was asked to mark those maps with areas of concern.

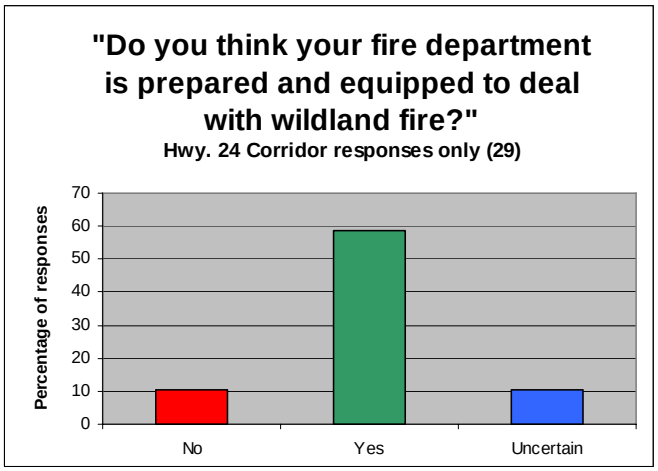




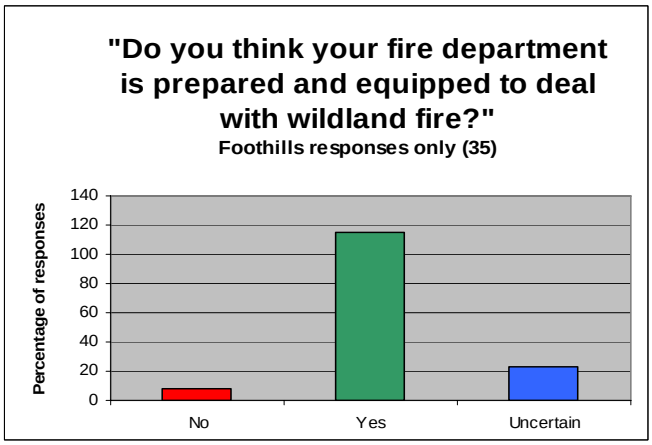
Citizen surveys

We also prepared a different survey for citizens, and asked each fire chief to distribute as many of these as possible. These surveys asked citizens to describe known local wildfire hazards, and describe community values that should be protected from wildfire.

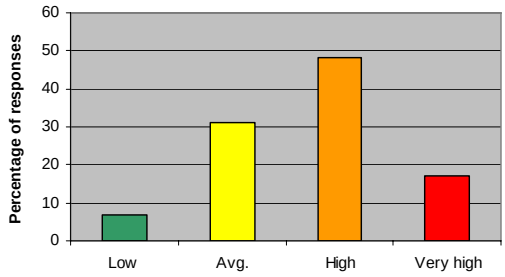
We also asked questions to determine the level of citizens' confidence in their local first responders. It was gratifying to see that most citizens have a high opinion of their local fire departments, and are confident of their ability to respond to wildfire.



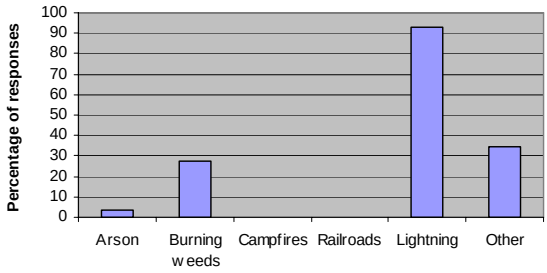




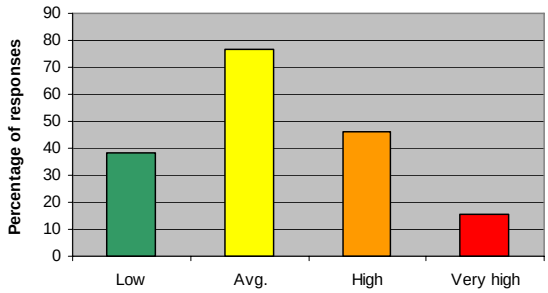
"How would you rate the wildfire risk in the area where you live?"
Hwy. 24 Corridor responses only (29)



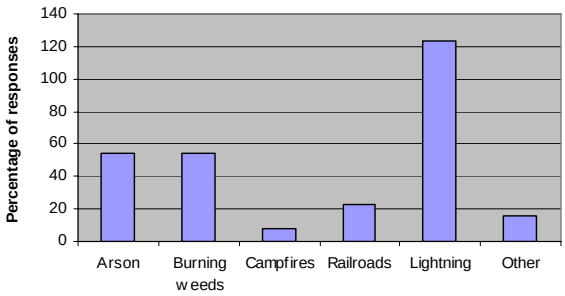
"What factor do you think is most likely to cause a wildfire in your area?"
Hwy. 24 Corridor responses only (29)



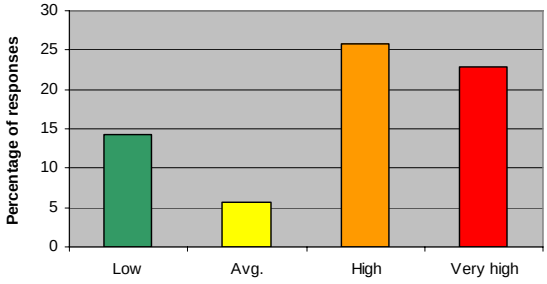
"How would you rate the wildfire risk in the area where you live?"
Southeast responses only (13)



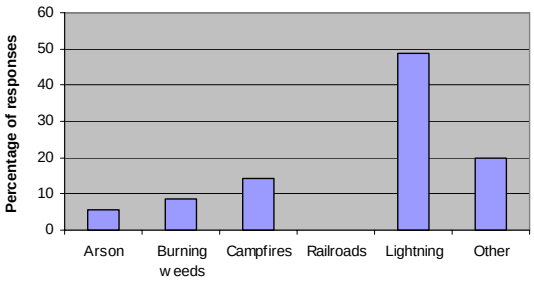
"What factor do you think is most likely to cause a wildfire in your area?"
Southeast responses only (13)



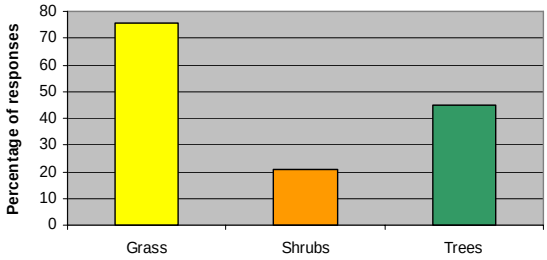
"How would you rate the wildfire risk in the area where you live?"
Foothills responses only (35)



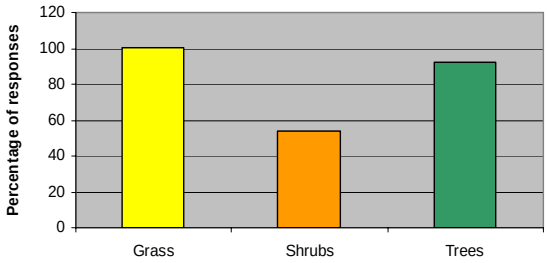
"What factor do you think is most likely to cause a wildfire in your area?"
Foothills responses only (35)



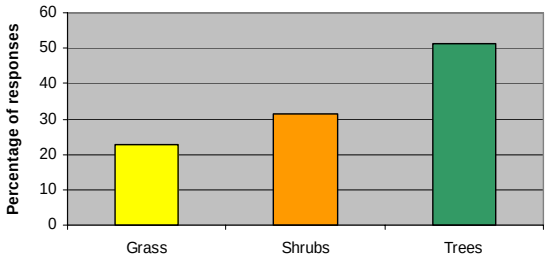
"What type of vegetation poses the greatest risk of wildfire in your area?"
Hwy. 24 Corridor responses only (29)



"What type of vegetation poses the greatest risk of wildfire in your area?"
Southeast responses only (13)



"What type of vegetation poses the greatest risk of wildfire in your area?"
Foothills responses only (35)



Public meetings to gather concerns



After most of the surveys had been returned and tabulated, we held a public meeting in each of the three sub units. At each meeting, we explained the goals of the CWPP and the process that would be used to develop it. We then presented the results of the survey to date.

The most important activity of each meeting was gathering input about each sub unit's specific wildfire hazards and values at risk. Citizens were provided with a large map of their sub unit, and asked to mark the map with known hazards and values at risk. Local community values typically included public buildings, such as schools or fire stations. Citizens also identified unique values at risk; for example, one Southeast community noted that its historic cemetery has wooden grave markers that could be destroyed by fire.

Even though the all-County CWPP does not describe local wildfire hazards or specify local projects, we felt that asking for local data could potentially help us identify patterns that applied to the County as a whole.

We looked for geographical patterns, such as wildfire hazards that extend across the boundaries of communities. We also looked for conceptual patterns, such as concerns about unsafe uses of fire, gaps in public education, or needs of local firefighters.



Public Meeting: **Northeast Sub Unit**: **Hwy. 24 Corridor**
Thursday, July 1, 2010
Host: Falcon Fire Protection District

By capturing local data early in the process, we also saw another opportunity to help community leaders develop local plans. We made a commitment to preserve all of the local data gathered in surveys and meetings, and return the compiled data to each fire protection district for use in creating future local CWPPs.

These sub unit meetings brought together the people who would most likely work together on local wildfire mitigation projects. Not all local fire chiefs in each sub unit were able to



Public Meeting: Southeast Sub Unit
Thursday, July 8, 2010
Host: Ellicott Fire Protection District



Public Meeting: Foothills Sub Unit
Thursday, July 15, 2010
Host: Stratmoor Hills
Fire Protection District

attend each of these meetings. However, because of the way the sub units had been created, they were comfortable that their concerns would be represented by one of their local mutual aid partners.

To create the most complete picture possible, we requested that all fire protection districts participate in the surveys and meetings, even if a fire protection district already had a CWPP. Several districts with existing CWPPs took the extra time to provide data and participate in meetings.

Research

Before, during, and after the process of gathering initial public input, the steering team researched published literature, existing CWPPs, and hazard mitigation plans. We also consulted subject matter experts for technical guidance. These sources are noted in the footnotes.

Draft review process

The steering team sent the near-final draft of this CWPP to every person or agency that had participated in the development process to date, as well as some who had expressed interest, but had not been able to attend meetings. A total of 68 participants received copies of the draft.

Along with the draft, the steering team also sent a list of proposed implementation actions. These proposed actions were developed based on the input gathered from sub-unit meetings, surveys, and meetings with stakeholders and subject matter experts.

Reviewers were asked to complete a short online survey, within two weeks, to prioritize the proposed implementation actions and provide comments on the draft.



The steering team incorporated the comments and prioritized actions into the final draft, which was presented for approval to the Colorado State Forest Service, the El Paso County Sheriff's Office, and the El Paso County Board of County Commissioners.

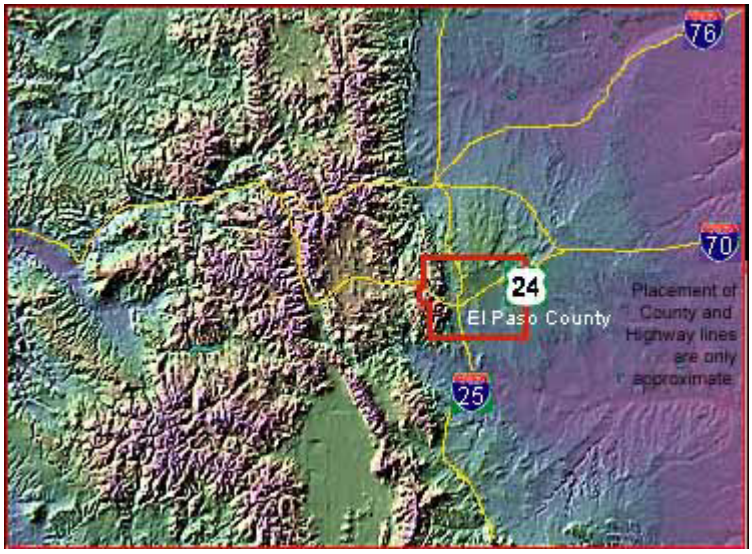
Adoption

A copy of the final draft was submitted for approval to the following:

- Colorado State Forest Service: District Forester Larry Long
- El Paso County Sheriff Terry Maketa
- El Paso County Board of County Commissioners: Chair Amy Lathen

El Paso County: The physical landscape

El Paso County is approximately 50 miles south of Denver[4], and encompasses 2,158 square miles[5].



The county shares boundaries with the counties of Douglas to the north, Elbert to the northeast, Lincoln to the east, Pueblo to the south, Fremont to the southwest, and Teller to the west.

The western edge of the County is extremely mountainous, as the Rocky Mountains rise abruptly from the dry plains that form most of the eastern portion of the County. Elevation ranges from 5,095 feet at the southern county line, to 14,110 feet at the summit of Pikes Peak.

The mountains that form the County's western edge capture most of the precipitation from east-moving weather systems. As a result, the County is a semi-arid alpine desert, with approximately 250-285 days of sunshine and 13-20 inches of precipitation per year. Relative humidity tends to be low, often in the single digits or the teens.

Average annual snowfall is 35-42 inches[6]; however, the snow is quickly melted by intense sunshine, and does not remain on the ground for very long in many parts of the County. Winds, including the occasional warm Chinook, also help melt snow and moderate the winter climate. In the spring, strong Chinook winds can rapidly reduce fuel moisture, and can create dangerous wind-driven fire behavior.

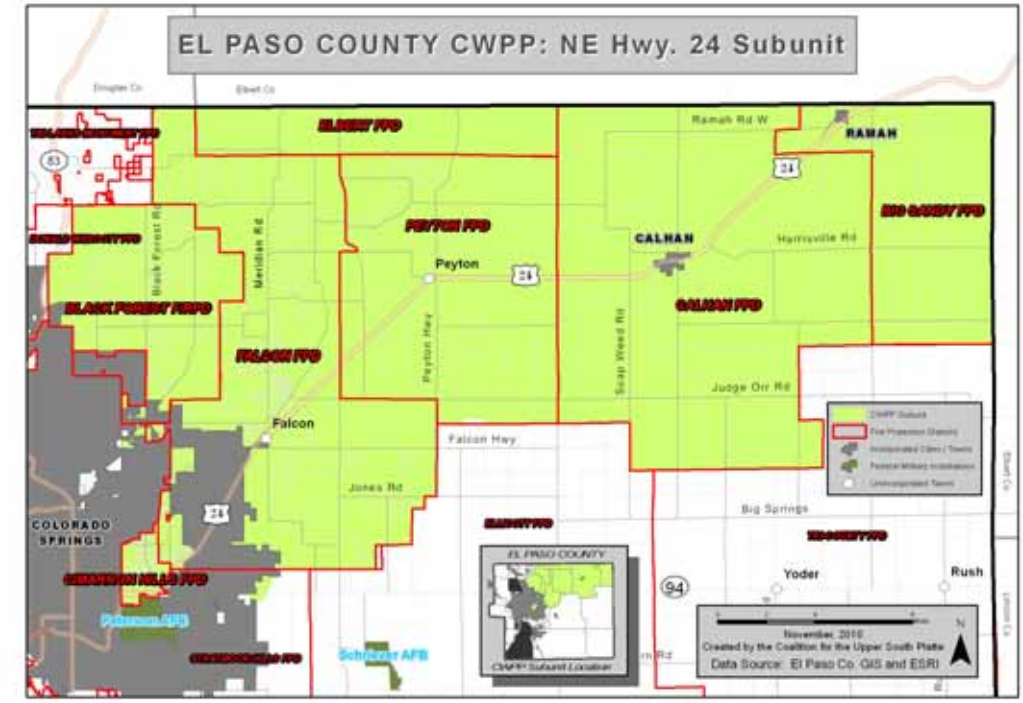
Physiographic Descriptions[7]

Northeast Sub Unit: The Highway 24 Corridor

Soils on mild, semiarid foothills and plains: The soils in this area are on fans, terraces, ridges and side slopes in the central and northeastern parts of the county. The soils are nearly level to extremely steep. Soil textures are mostly

[4] Map: 4 March, 2011 <http://adm2.elpasoco.com/Maps/images/mtnview.JPG>
[5] "About El Paso County, Colorado," 10 Aug. 2010 <http://www.elpasoco.com/About_elpaso_county.asp>
[6] Patricia Baxter and Cynthia Sirochman, *Pre-Disaster Mitigation (PDM) Plan for El Paso County* (El Paso County Office of Emergency Management, 2006) 14.
[7] Greg Langer, District Conservationist, Natural Resources Conservation Service (NCRC)

sandy loam, but range from cobbly sandy loam to loam. The majority of these soils were formed in material weathered from arkosic sedimentary rock. Others were formed from sandstone, shale and red sandstone.



Average annual precipitation: 13-17 inches

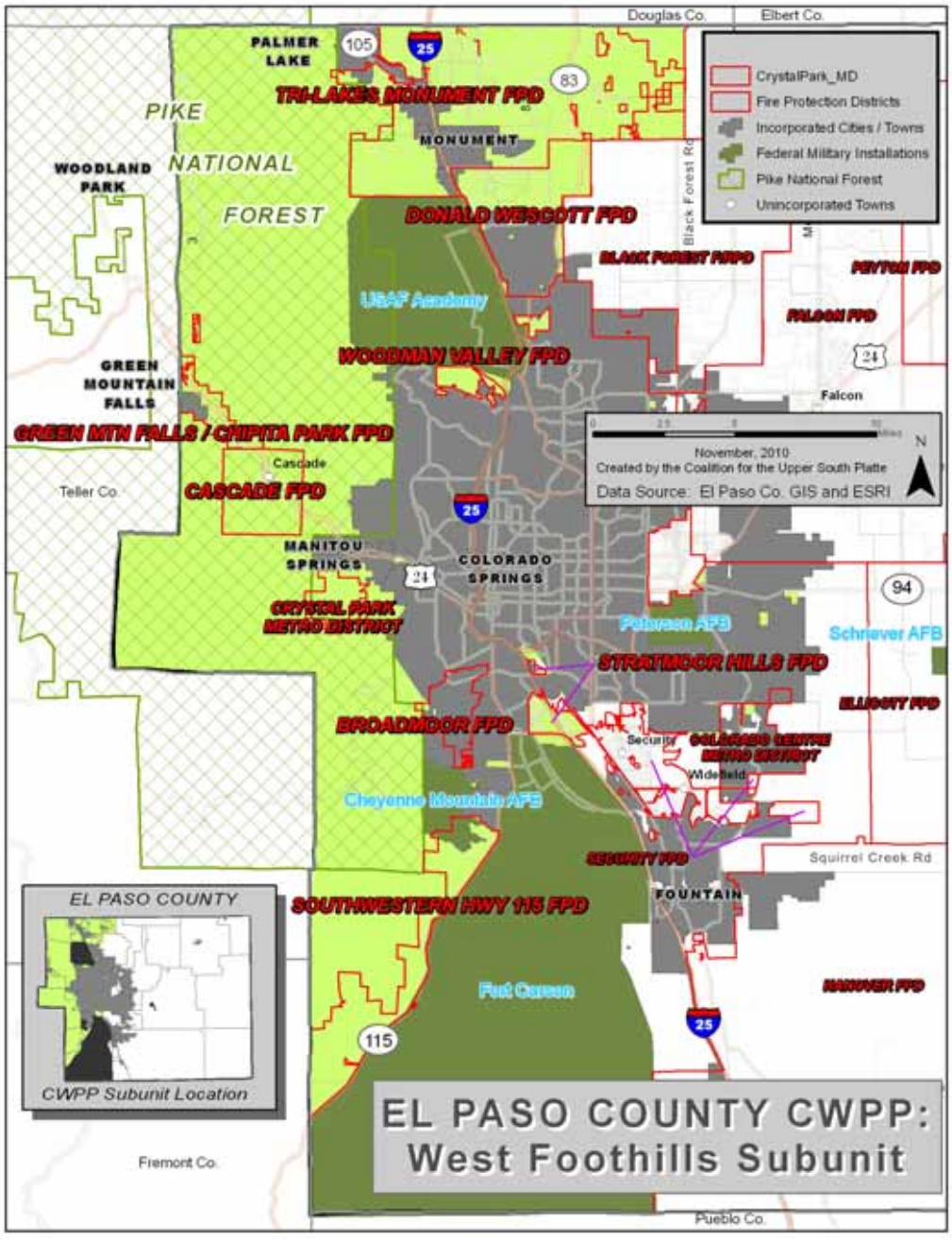
Vegetation: 5% forest, comprised of ponderosa pine; nearly 75% native grass or short grass prairie; and about 20% cropland that ranges from annually cropped land to Conservation Reserve Program (CRP).

Population: This unit is moderately populated, with suburban-density subdivisions in the Cimarron Hills and Falcon Fire Protection Districts. 35-acre lots are common and scattered throughout.

Agriculture: Native grass pastures are predominantly used for livestock grazing.

West Sub Unit: The Foothills

Soils on cold, subhumid to semiarid mountains and foothills: The soils and rock outcrop in this unit are on fans, terraces, ridges and side slopes of mountains and foothills at the higher elevations in the north central and western parts of the county. The soils are nearly level to extremely steep. Soil textures range from rock outcrop to sandy loam. All of these soils were formed in material weathered from igneous and sedimentary rock.



Average annual precipitation: 15-20 inches

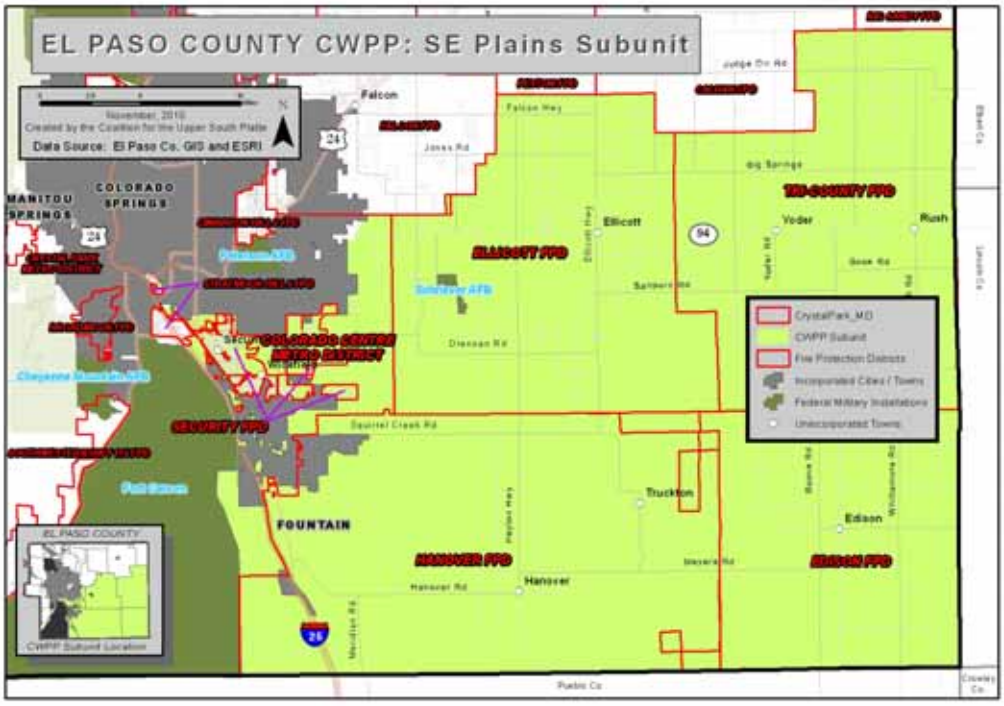
Vegetation: More than 50% forest, mainly ponderosa pine. The rest of the area is considered short grass prairie and consists of mainly native grasses with a scattering of non-native grass cover.

Population: Aside from the more mountainous areas, this unit is very heavily populated.

Agriculture: Agricultural land covers maybe 15% of the total area, with grazing being the dominant land use.

Southeast Sub Unit: The Plains

Soils on mild, semiarid to arid plains: The soils in this unit are on fans, terraces, hills, ridges and side slopes throughout the southern half of the county. The soils are nearly level to steep. Soil textures are mostly sand to loamy sand and range from gravelly loam to clay loam. Most of these soils were formed in alluvial and eolian material.



Average annual precipitation: 11-13 inches

Vegetation: This unit consists of roughly 85% native grass pasture or short grass prairie. Nearly 15% is considered cropland that is either hayed or Conservation Reserve Program (CRP).

Population: This unit is lightly populated with scattered subdivisions comprised mainly of 35-acre parcels.

Agriculture: Native grass pastures are predominately used for livestock grazing.

The human landscape

A brief history

The human history of El Paso County began at least 15,000 years ago with nomadic hunters and gatherers. Native American tribes were well established in the Pikes Peak region until the mid 1800s, when European trappers began establishing trading posts along the Arkansas and South Platte rivers.[8]

In 1858, the discovery of gold in Colorado brought an influx of population to the region. Population boomed again in 1891 when gold was found on the western slope of Pikes Peak, at Cripple Creek. In the western foothills of what would become El Paso County, many settlers provided supplies and services to mountain-based miners. In the eastern plains, ranching became the major occupation.

El Paso County was created just after the Colorado Territory was established in 1861; in 1876, Colorado became the thirty-eighth state of the Union.

According to the U.S. Census Bureau, the total population of El Paso County was 622,263 [9] in 2010, an estimated 20.4% increase since 2000. The County has eight incorporated municipalities, with a total combined 2010 population of 456,758. The population of the remaining unincorporated area was 165,505.

Today, the human landscape of El Paso County still follows the patterns begun in the 1800s. The eastern portion of the county, with its flat, dry grasslands, is sparsely populated and rural. The western part is home to most of the county's population, clustered in towns, cities and suburbs.

El Paso County Municipal Populations[10]

City of Colorado Springs	416,427
City of Fountain	25,846
City of Manitou Springs	4,992
Town of Palmer Lake	2,420
Town of Monument	5,530
Town of Calhan	780
Town of Green Mountain Falls	640
Town of Ramah	123

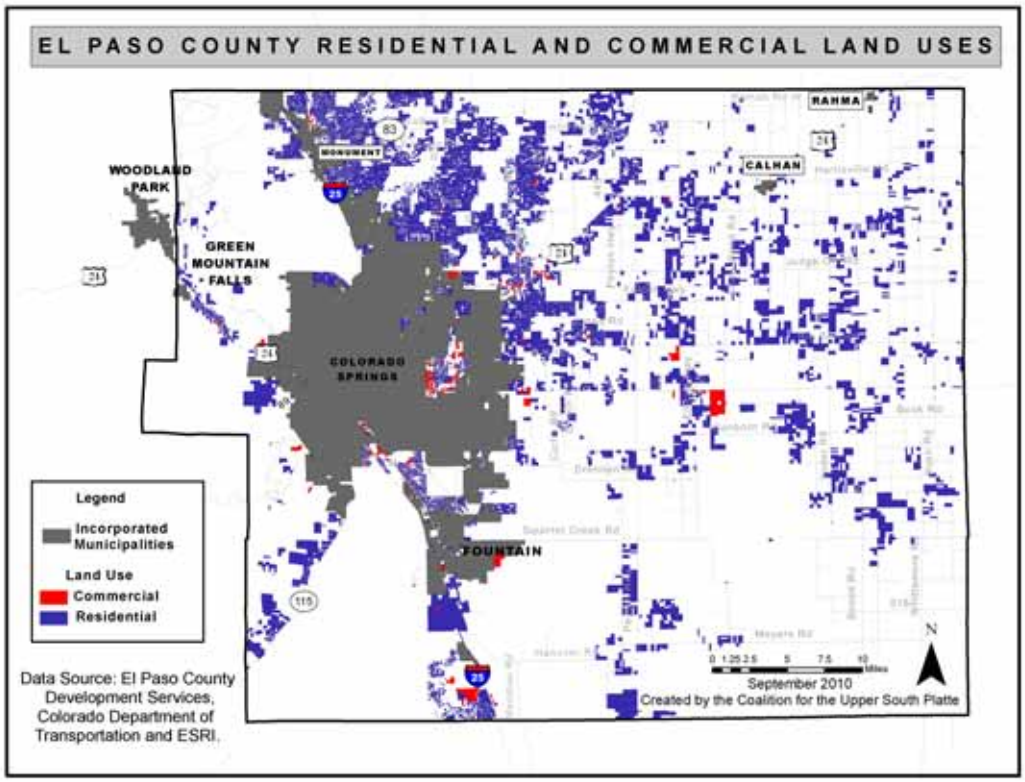
The eastern-facing foothills have become heavily populated, due to their natural beauty and sweeping views. However, these slope-side communities, with heavy fuel loading of Ponderosa pine and Gambel oak, are highly vulnerable to fire. Many neighborhoods are accessed by only one narrow road, which makes it difficult to simultaneously evacuate residents and provide ingress to first responders. Fire,

[8] Patricia Baxter and Cynthia Sirochman, *Pre-Disaster Mitigation (PDM) Plan for El Paso County* (El Paso County Office of Emergency Management, 2006) 15.
[9] United States Census Bureau, *The Most Populous Counties and Incorporated Places in 2010 in Colorado: 2000 and 2010*, 4, March 2011 <http://2010.census.gov/news/xls/cb11cn39_co_2010redistr.xls>
[10] Colorado Department of Local Affairs, *2010 Population and Percent Change; Colorado Places – Total Population*, 4, March 2011 <http://dola.colorado.gov/dlg/demog/2010data/total%20pop%20change.pdf>

smoke, or traffic congestion can block these single escape paths, endangering both residents and first responders.

Private ownership

Most of the unincorporated County is privately owned, in parcels that range in size from small lots to large ranches. Land use on small lots is primarily residential, including small home-based businesses. Large holdings are primarily used for cattle ranching and dry-land farming. Farm land enrolled in the U.S. Department of Agriculture's Conservation Reserve Program (CRP) has been planted to resource-conserving vegetative covers.



Public lands

Pike National Forest

The largest area of public land in El Paso County is the Pike National Forest, which forms the county's mountainous western edge. Many communities border the Pike, and a few small communities are surrounded by it.

Military installations

El Paso County is home to five major military installations:

- **Cheyenne Mountain Air Force Station** is the site of the subterranean Cheyenne Mountain Complex of the North American Aerospace Defense Command (NORAD). The installation consists of rugged mountain terrain, bounded by the Pike National Forest and the city of Colorado Springs.
- **Peterson Air Force Base** is located within the city limits of Colorado Springs, in short-grass prairie at the eastern edge of the city's suburban neighborhoods.
- **Schriever Air Force Base** sits several miles east of Peterson, surrounded by unincorporated prairie land.
- **The United States Air Force Academy** is Colorado Springs' immediate neighbor to the north, and also shares boundaries with three fire protection districts and the Pike National Forest. Its rolling wooded foothills, and sudden transition to steep mountainsides, are typical of the Foothills sub-unit.
- **Fort Carson**, the U.S. Army base at the southern edge of Colorado Springs, is also a neighbor to the city of Fountain and four fire protection districts. Most of its 137,000 acres are in El Paso County, with some of its area extending into Pueblo and Fremont Counties. Fort Carson's soldiers use most of this large area for mission-critical live-fire artillery and small arms training. This activity occasionally starts fires, some of which have extended beyond the base boundary.

All of these installations are located near to civilian neighborhoods, and three of them are located in traditional forested wildland-urban interface conditions: Fort Carson, Cheyenne Mountain Air Force Station, and the U.S. Air Force Academy. A fire that starts on one of these installations could potentially threaten residential neighborhoods, and vice-versa.

Some military infrastructure and activities also extend beyond the main base boundaries. For example, Fort Carson's railway spur runs through nearby neighborhoods in the Stratmoor Hills Fire Protection District. Weed control and other fire mitigation on those parcels remains the responsibility of Fort Carson, which prohibits public access to those areas.

State Trust Lands

The State Board of Land Commissioners (also known as the State Land Board) was established in 1876 to manage more than 3 million acres of land and 4 million acres of mineral rights that the federal government gave to Colorado to generate revenue for public education and some of the state's institutions.

The State Land Board generates revenue for its trust beneficiaries, by leasing State Trust Land for grazing, farming, or mineral development. El Paso County has 184,798.88[11] acres of State Trust Land, most of which is located in the eastern half of the County.

County-owned land

County parks represent the County's largest land holdings. County government does not own a significant portion of the overall area of the County, but the management of these areas is highly visible and can serve as demonstration projects.

Municipal lands

Municipally-owned lands in the County consist mostly of parks in the cities of Colorado Springs and Fountain. A few of the larger municipal parks include significant areas of natural terrain, such as Garden of the Gods and Cheyenne Canon, both in Colorado Springs.

Colorado Springs Utilities

Colorado Springs Utilities (CSU) is an enterprise, owned by the City of Colorado Springs, that provides electricity, natural gas, water and wastewater services to city residents.

Since the late 1800s, the City of Colorado Springs has acquired large tracts of land on Pikes Peak, to support the goal of ensuring a reliable supply of clean water. These lands – 13,000 acres in 2010 – have been set aside by City Ordinance to be held in trust as watershed reserves. Colorado Springs Utilities manages these lands to protect the water supply, water infrastructure, and forest resources.[12]

Mitigation challenges and constraints

Private ownership

Individual landowners are responsible for wildfire mitigation on their own properties. This is consistent with our current understanding of fire behavior in the wildland-urban interface (WUI). As research scientist Jack D. Cohen explains:

"The congruence of research findings from different analytical methods suggests that home ignitability is the principal cause of home losses during wildland fires. … Home ignitability also dictates that effective mitigating actions focus on the home and its immediate surroundings rather than on extensive wildland fuel management. Because homeowners typically assert their authority for the home and its immediate surroundings, the responsibility for effectively

[11] Trust Land Ownership by County (as of June 2010), 25 October 25, 2010
<http://trustlands.state.co.us/MapsandData/Documents/county_acres1_060310.pdf>
[12] Naomi J. Marcus, *Pikes Peak Watershed Forest Management Plan* (Colorado State Forest Service, 2010) 3.

reducing home ignitability can only reside with the property owner rather than wildland agencies." [13]

Many homeowners in El Paso County have embraced this principle, and have done substantial work to make their homes and properties more fire-resistant and defensible.

However, others have declined to manage vegetation, for a wide range of reasons. Owners of small lots value the visual privacy that thick brush provides. Others are discouraged by the large amount of work and expense required to mitigate their properties, and take the fatalistic attitude that "it's insured."

Economic factors

The cost of forestry work also creates a barrier to mitigation for many residents, even those with small lots. Those who are physically incapable of this work often have lower incomes. These residents cannot afford to hire contractors to create survivable (defensible) space or trim branches, even when they agree with the need to do so.

Owners of large forested holdings also face economic challenges, as these large parcels can be very expensive to thin. Standing timber in the County is generally too small or too inaccessible for commercial use, and there has been little commercial demand for small diameter wood or slash.

However, this economic picture may be changing. At this writing, some local industries are making plans to adapt their heating and power-generation systems to use woody biomass as fuel. Colorado Springs Utilities has redesigned one unit of its Martin Drake Power Plant to burn a mixture of ground wood and coal, and is seeking grants to fund the new systems to process the wood materials and inject them into the fuel stream.[14]

Home Owners' Associations and covenants

A Home Owners' Association (HOA) has the authority to dictate what changes homeowners may make to the exterior of their homes, such as paint color, landscaping style, or roof material. Some HOA rules and procedures have discouraged homeowners from removing vegetation to create defensible space. According to Colorado law, an HOA cannot prohibit homeowners from removing vegetation for fire mitigation purposes. However, homeowners are still required to submit their mitigation plans for HOA approval.[15]

Some county HOAs in WUI areas originally required wood shake roofs. Since then, El Paso County[16] building regulations require the use of Class A

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[13] Jack D. Cohen, *Reducing the Wildland Fire Threat to Homes: Where and How Much?* (USDA Forest Service Gen.Tech.Rep. PSW-GTR-173. 1999)
[14] *Woody Biomass*, 23 March 2011 <http://www.csu.org/residential/environment/renewable/biomass/item5143.html>
[15] Colo. Rev. Stat. § 38-33.3-106.5 (Mitchie 2011)
[16] *El Paso County Land Development Code: 6.3.3 Fire Protection and Wildfire Mitigation*, 25 October 2010 <http://adm.elpasoco.com/Development%20Services/Documents/Land%20Development%20Code/ldc_chapter_6.pdf>

roofing materials when wood shake roofs are replaced on homes in the WUI. Colorado law also prohibits an HOA from requiring the use of cedar shakes or other flammable roofing materials.[17] However, the process of replacing these roofs is slow and gradual, and these roofs will exist for many more years.

Fuel hazards in El Paso County

Why structures burn

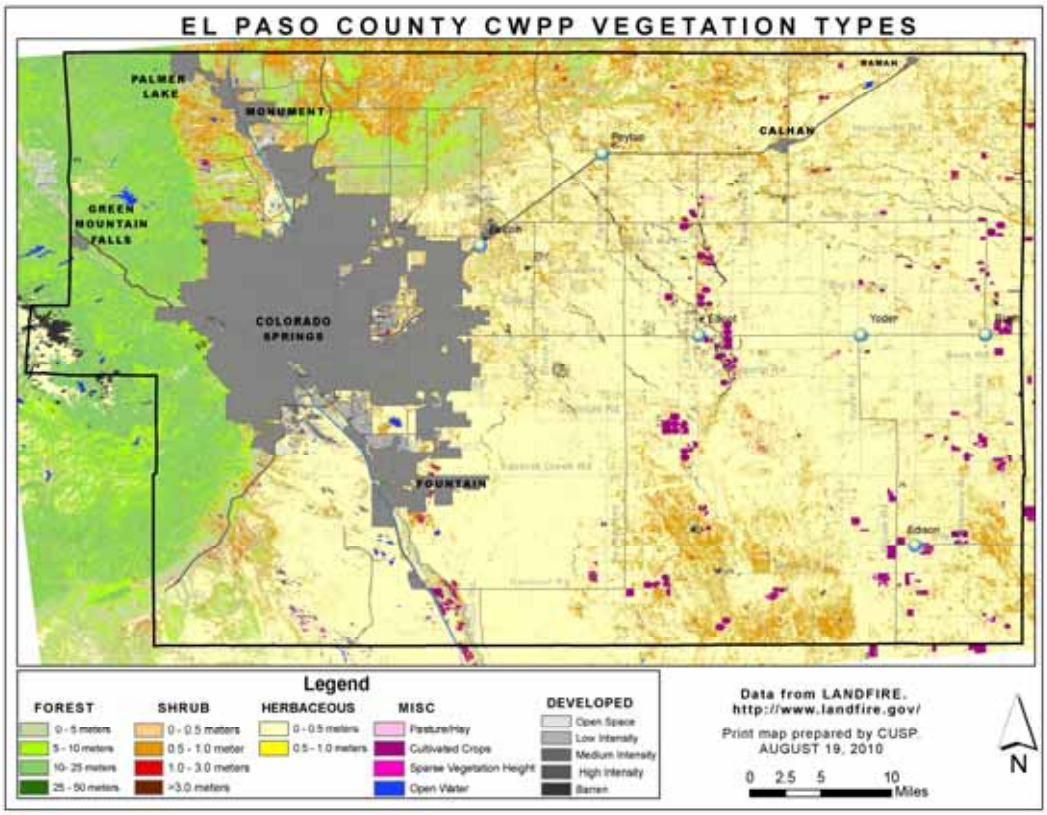
In the context of a CWPP, a fuel is a hazard if it can ignite a structure. A burning structure, in turn, can create a hazard to other structures. According to wildfire researcher Jack Cohen, there are three principal ways that wildfires cause structural ignitions:[18]

- **Flame impingement** means that flame has contacted the structure long enough to ignite it. This can range from small flames creeping through ground fuels, to large plumes of flame from nearby trees.
- **Firebrands (falling embers)** can blow through heat-broken windows, accumulate on dry decks or wood shake roofs, or be blown into stacks of firewood or piles of yard debris that are close to the structure. These small embers can gradually transfer enough heat to create small spot fires that may grow to destroy a home long after the main flame front has passed. Even a low-intensity fire can generate enough small embers to pose a risk to unprepared homes.
- **Radiant heat** from nearby fuels can ignite the outside of a structure, or break window glass to allow firebrands to enter. The effect of radiant heat on a structure depends on a variety of factors, including the intensity of the heat, the amount of the structure exposed to the heat, and the length of time the structure is exposed to the heat.

Two types of fuel hazards: Grasslands and Forest

As you can see in the *El Paso County CWPP Vegetation Types* map, the County's fuel types follow its topography: In the eastern half, with its relatively flat terrain, herbaceous vegetation (mostly grasses) and shrubs predominate. In the western portion, where foothills rise steeply to the Rampart Range, thick coniferous forests, often mixed with Gambel oak (Quercus gambelii), are typical.

[17] Colo. Rev. Stat. § 38-33.3-106.5 (Mitchie 2011)
[18] Cohen, J. D. and Butler, B. W., *Modeling Potential Structure Ignitions from Flame Radiation Exposure*, 1 January 2011 <http://www.firewise.org/resources/wui_hir.htm>



Both of these fuel types carry wildfire, but they do so in different ways and with different intensities. Both types pose risks to structures, residents and firefighters, but for different reasons.

Fire behavior in grasslands

Firefighters describe grasses and small shrubs as "light, flashy fuels." Fires in these fuels can ignite explosively, and travel quickly, especially when driven by wind. When the wind changes direction, a grass fire will also change course suddenly, potentially putting firefighters and the public at risk. The high speed of wind-driven grass fires often leaves little or no time for public warning or orderly evacuation.

Grassland fires threaten homes from direct flame impingement on the home itself, or by igniting flammable items near or attached to the home. For example, fire will first ignite a fence, deck, trash pile, or stack of firewood, and those things will then ignite the home. Grass fires rarely generate enough heat for long enough to directly ignite structures through radiant heat alone.

Grass fires can also create embers that can roll along the ground with the wind, or be thrown into the air. During the Cross Plains fire in North Texas,[19] many homes burned when embers from grass and shrubs fell onto wood decks, or entered unscreened vents in attics, eaves, or soffits. The vegetation of Cross

[19]Rich Gray, et. al., *Cross Plains, Texas Wildland Fire Case Study* (Texas Forest Service – Urban Wildland Interface Division, 2007)

Plains, Texas – fine grasses with shrubs – is similar to many areas of eastern El Paso County.

On the positive side, the low fuel density of grass and low shrubs supports short-duration fires that pass quickly. This type of fire generates relatively low levels of heat, and does not damage the organic material in topsoil.

Fire behavior in forests

Fires in heavy timber typically do not move and change direction as quickly as wind-driven grass fires, though under the right conditions they can move at great speed. During the peak of the 2002 Hayman Fire, the running crown fire traveled approximately one-half mile in four minutes, or more than seven miles per hour.[20] Thus, even though timber wildfires usually do not travel as quickly as grassland fires, a wind-driven crown fire can still travel quickly enough to make public notification and evacuation difficult.

These dense fuel loads also support long-lasting fires that can create intense levels of radiant heat for long periods of time, and often generate heavy loads of large firebrands that can be thrown far ahead of the flame front.

The dense forests of the western County provide the heavy fuel loads that can sustain these intense fires. Thousands of homes are located in these forests, often on steep slopes, accessed by narrow roads.

High-severity wildfires also represent one of the greatest potential threats to site productivity, soil resources, and aquatic ecosystems in the Colorado Front Range.[21] The intense heat of a high-severity wildfire in timber can burn hot enough to consume all organic matter in the upper soil layer. Heavily-burned soils repel water, which not only interferes with germination of new vegetation, but also significantly increases runoff after rains.[22] In the first few years after a severe fire, this increased runoff and erosion can create flooding hazards and ecological damage in areas downstream of heavily-burned areas.

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[20] Patricia Baxter and Cynthia Sirochman, *Pre-Disaster Mitigation (PDM) Plan for El Paso County* (El Paso County Office of Emergency Management, 2006) 48.

[21] Jan E. Cipra, Eugene F. Kelly, Lee MacDonald, and John Norman, *Hayman Fire Case Study, Part 3: Soil Properties, Erosion, and Implications for Rehabilitation and Aquatic Ecosystems* (USDA Forest Service Gen. Tech. Rep. RMRS-GTR-114. 2003)

[22] Jeffrey Kershner, Lee MacDonald, Lynn Decker, David Winters, Zamir Libohova, *Hayman Fire Case Study*, Part 6: Fire-Induced Changes in Aquatic Ecosystems" (USDA Forest Service, 2003)

Fire in El Paso County

Fire history

It is difficult to quantify the fire history of El Paso County, because responsibility for wildfire suppression and documentation is divided among many different jurisdictions. Most fires are small local incidents that a local jurisdiction usually manages with its own resources, and occasional help from its closest mutual aid partners. There is no central repository that collects data about all wildfires in the County.

The *Recorded Wildfires in El Paso County* table combines incident data recorded by the El Paso County Sheriff's Office Wildland Fire Crew, and researched by the Colorado Springs Office of Emergency Management.

Recorded wildfires in El Paso County

Date	Name and description	Estimated acreage
1854	The Big Burn[23] *Began on Cheyenne Mountain, and eventually extended to Wilkerson Pass.*	
1890	Cheyenne Mountain Burn[22]	
Jan. 1950	Camp Carson/Cheyenne Mountain Fire[22] *Nine fatalities, including a 14-year-old volunteer firefighter.*	
4/18/2000	Fort Carson[22]	800
8/15/2000	[no name or location] [22]	2,500
4/15/2002	Milne[24]	[>5,000] [25]
4/17/2002	Hanover 2 [23]	[1,000-4,999]
4/28/2002	Pine Glen[22]	64
4/30/2002	Hanover 1[23]	[>5,000]
5/1/2002	North Pole[23]	[10-99]
5/5/2002	Spatz[23]	[10-99]
5/31/2002	near Fountain[22]	4,500
8/3/2003	Ute Trail[22]	4
11/8/2005	Sand Canyon[23]	900
9/28/2007	Manitou Incline[22]	30
3/20/2008	Squirrel Creek Road[23]	[<10]
3/21/2008	Highway 86 & 77[23]	[100-299]
3/27/2008	Las Vegas & I-25[23]	[<10]
4/14/2008	TA-25 (Fort Carson) [23] *One firefighter fatality: Gert Marais, BLM pilot*	9,800[26]
5/10/2008	Page Road[23]	[>5,000]
6/2/2008	Range 145 Complex (Fort Carson) [23]	600
6/6/2008	NORAD[23]	5.3
8/1/2008	Ellicott [27]	~8,000
1/21/2009	Orchard Canyon[23]	175
3/3/2009	Quarry[23]	6,500
12/1/2010	Range 143 (Fort Carson) [23]	111

[23] *Pre-Disaster Mitigation Plan Update*, (Colorado Springs Office of Emergency Management, 2010)
[24] Incident Qualification System database report, El Paso County Sheriff's Office Wildland Fire Crew, accessed 2/16/2011
[25] Acreage estimates in brackets indicate that an exact acreage was not available. Bracketed acreage ranges correspond to the fire's size code, recorded in the Incident Qualification System database.
[26] Acreage from National Transportation Safety Board, Factual Report Aviation <http://www.ntsb.gov/ntsb/GenPDF.asp?id=DEN08GA076&rpt=fa> 29 March 2011
[27] *El Paso County Fire Destroys Three Homes*, 25 October 2010, <http://www.thedenverchannel.com/news/17066840/detail.html>

But it is safe to say that any vegetation in El Paso County has probably burned, and will eventually do so again. Many local vegetation species, particularly Ponderosa pine and aspen, are so well adapted to fire that it is necessary to forest health.[28]

The return interval of wildfire depends on many factors.[29] Before the early twentieth century, Ponderosa pine forests were typically burned by frequent, low-intensity ground fires every five to thirty years. These fires maintained the Ponderosa forests as open pine savannahs. Today's dense Ponderosa stands have developed only after fire suppression became standard practice.

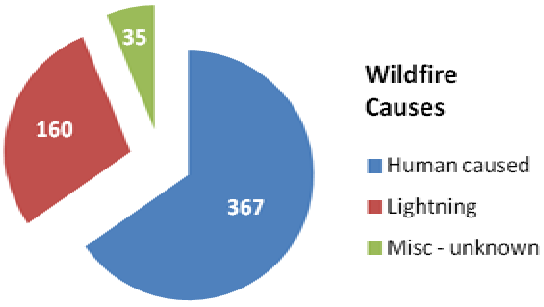
The high fuel density of these forests supports fires that are hotter and more extreme than the ground fires that these species evolved to survive. As a result, a high-intensity crown fire in a Ponderosa pine forest may eliminate entire stands, reducing the chance of a similar fire for many years.[30]

Higher elevation forests, such as lodgepole pine and spruce, have a longer fire return interval, often as much as 300 years. Infrequent fires are more intense, and usually eliminate forest stands over a large area.

One analysis of available local data on significant wildfires estimates the probability of a significant wildfire occurring in any given year is 27%, or once every 3.5 years.[31] Smaller fires, in lighter fuels, occur many times per year.

Fire season

The local fire season generally runs from spring through autumn. However, wildfires can and do occur during winter months, especially during mild, dry winters. Even during winters with normal precipitation, Chinook winds can reduce snow cover, dry fuels and create high fire danger.



Fire causes

The Wildfire Causes diagram summarizes thirty years of data from the USDA Forest Service, Pikes Peak Ranger District,[32] demonstrating that people cause 57% of wildland fires. Thus, it is expected that areas of higher wildfire risk coincide with areas of higher population.

[28] Stephen A. Fitzgerald, *Fire Ecology of Ponderosa Pine and the Rebuilding of Fire-Resilient Ponderosa Pine Ecosystems* (USDA Forest Service, 2005)
[29] What is fire ecology? <http://www.rockymountainwildlandfire.info/articles/fire_ecology.pdf>
[30] Erik Martinson, Phillip N. Omi, Wayne Shepperd, *Effects of Fuel Treatments on Fire Severity*. Hayman Fire Case Study (USDA Forest Service, 2003)
[31] *Pre-Disaster Mitigation Plan Update*, (Colorado Springs Office of Emergency Management, 2010)
[32] Brent Botts, District Ranger, USDA Forest Service Pikes Peak District, email communication, August 2010.

Definition of wildland-urban interface (WUI)

When asked to describe the wildland-urban interface, most people tend to describe neighborhoods nestled in dense timber or heavy brush, "where the leaves meet the eaves." In El Paso County, this description is certainly true.

That doesn't mean that grassland fires are not a concern. Burning grass produces less overall heat than burning timber, but it can ignite unprepared structures. In August 2008, a wind-driven grass fire near Ellicott burned approximately 13 square miles in one afternoon, destroying three occupied homes, along with four unoccupied houses and ten outbuildings.[33]

If both of these perspectives are true, then how should we define the wildland-urban interface of El Paso County?

In the term "Community Wildfire Protection Plan," the key word is *community*. A CWPP is created by a community, and is intended to identify areas in which organized community action is required to protect community values.

In areas where people settle in areas of continuous dense timbered fuels, effective wildfire mitigation often requires significant reduction of fuels over a broad area. Those large-scale projects require cooperative action among groups of neighbors, and sometimes between neighborhoods and government.

In contrast, many homes in grassland areas can be protected by individual protective measures such as mowing, firebreaks, and structural features. Less organized community action is needed to increase the safety of these homes. However, this plan respects the fact that grassland wildfires pose great risks to unprepared homes, and will discuss the actions that individual homeowners can take to reduce the ignitability of structures in the grassland.

WUI = High fuel hazard + structures

Traditional small-area CWPPs typically define wildland-urban interface by outlining a community with a boundary that includes a generous buffer zone. That approach didn't make sense for a broad foundation plan such as this one, so the steering team stepped back to consider the fundamental purpose of a CWPP.

A CWPP is concerned about the effect of wildfire on the things that a community values. Next to life itself, people value the things they have worked and invested to build: homes and workplaces, schools and community buildings, and shared infrastructure.

Thus, the WUI is a place where human values need protection from wildfire. If people live in a place with little to no fire risk, that place is not WUI. Likewise, if a place has a high fire risk, but no structures, that's also not WUI.

In this spirit, this plan defines the wildland-urban interface of El Paso County as the areas of high fuel hazard that include human-built structures. To create a map of the County's WUI, we used geographic information systems to

[33] *El Paso County Fire Destroys Three Homes*, 25 October 2010, <http://www.thedenverchannel.com/news/17066840/detail.html>

combine data layers that describe fire risk with those that show residential and commercial land development.

Where are the highest fuel hazards?

To define areas of high fuel hazard, we used data from the Colorado State Forest Service's Wildland Fire Susceptibility Index (WFSI), which was produced as part of its 2008 Colorado Wildfire Risk Assessment. The WFSI is a measure of wildfire threat that represents the probability that a wildfire will occur[34] at a given location.

The WFSI model combines the following datasets to derive wildfire threat:

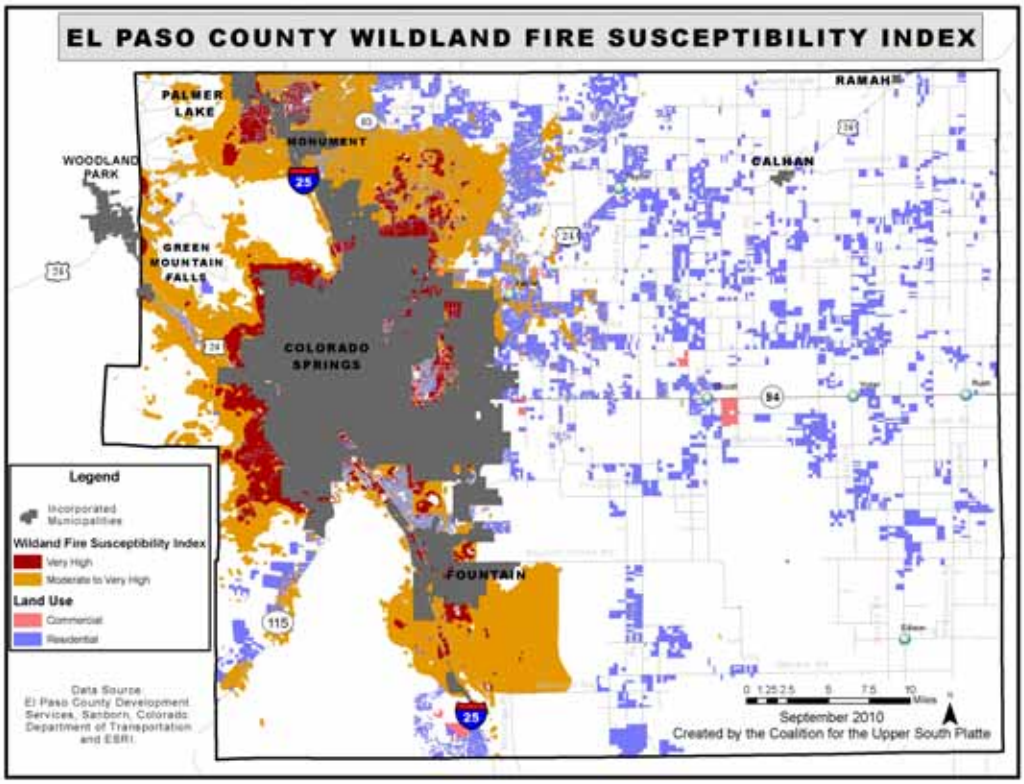
- Landscape characteristics, such as surface fuels, canopy characteristics and topography
- Historical weather observations
- Historical fire ignition locations
- Historical fire report data that reflects suppression effectiveness

The map *El Paso County Wildland Fire Susceptibility Index* shows areas in which the WFSI was rated at Moderate, High, or Very High. These ratings confirm that the County's greatest fuel hazards occur in areas of timber and heavy brush, typically on the east-facing slopes of the mountains, the Palmer Divide, and the Fountain Valley.

Where are the structures?

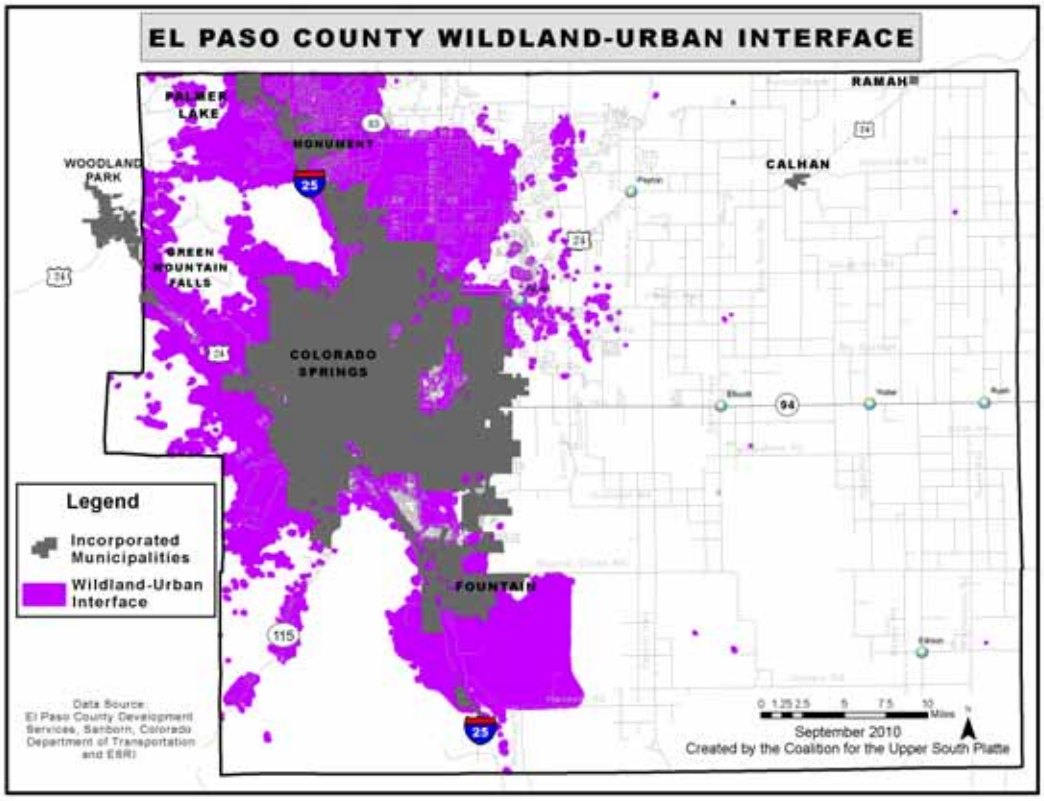
This map also shows land parcels that are currently used for either residential or commercial purposes. We judged that these land uses were most likely to be associated with human-built structures.

[34] Joe Duda, Skip Edel, et. al., *Colorado Statewide Forest Resource Assessment: Appendix B. Data Sources and Methods* < http://csfs.colostate.edu/pages/statewide-forest-assessment.html>



The Wildland-Urban Interface Map

To create the *El Paso County Wildland-Urban Interface* map, the commercial and residential land use layer was combined with areas with a WFSI of Moderate or higher. A 100-foot buffer was then added around the resulting combination.



Because population tends to cluster in the more wooded western areas of the county, the WUI in this map coincides with the Moderate, High, or Very High areas of the WFSI map. While the overall potential for wildfire is relatively lower in areas rated Moderate, a fire that does occur there could threaten a large number of structures.

Community values to be protected

Lives and livelihoods

The planners assumed that lives and homes are people's highest values. Citizen surveys asked people to identify other values that they wanted to protect.

Locally important structures

Through surveys, and in community meetings, citizens indicated their concern for the following types of structures:

- Schools and day care centers
- Public buildings (police or fire stations, town halls)
- Historical sites
- Community gathering places (churches, cafes, meeting halls)
- Medical facilities

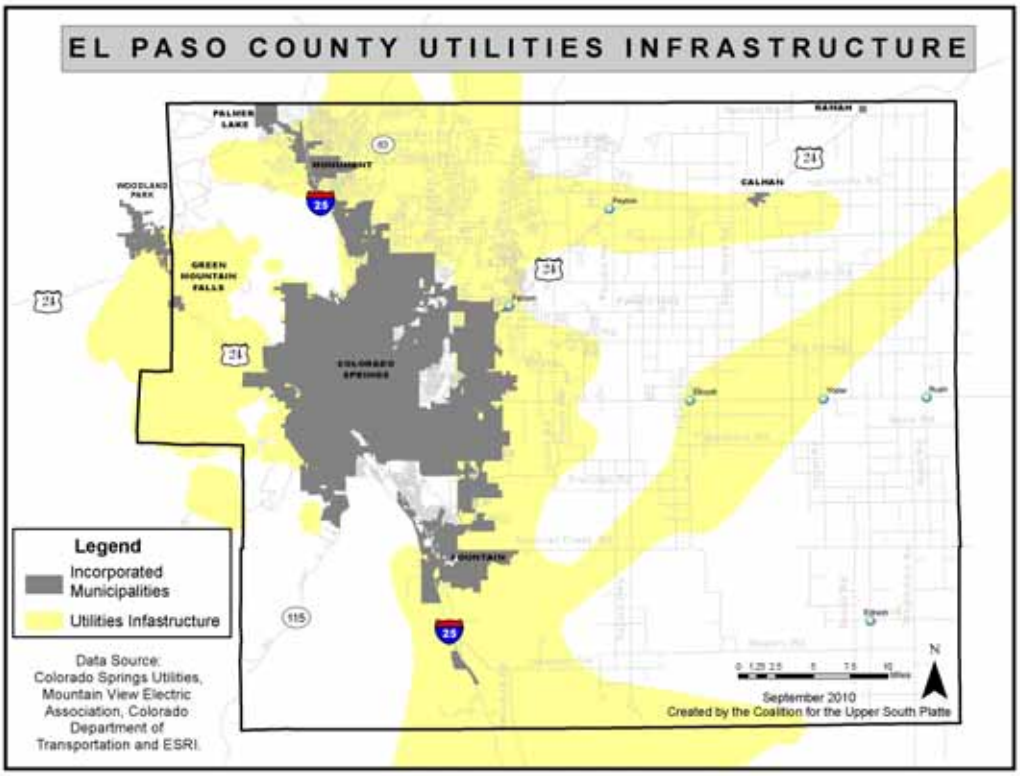
Protecting these individual sites will require local action that should be addressed in local CWPPs.

Infrastructure and lifelines

Citizens also want to protect elements of community infrastructure – those structures and systems that provide essential functions such as water, electricity, or communication.

El Paso County's wildland urban interface is mostly residential. All of the County's major medical facilities, the commercial airport, and most governmental facilities are located in municipal areas. However, the unincorporated wildland urban interface does contain some important critical infrastructure and community lifelines:

- **Electrical distribution facilities** are most vulnerable in local neighborhoods, where power lines are often hung at treetop height and supported by wooden poles.



The *El Paso County Utilities Infrastructure* map indicates areas that contain significant utilities infrastructure. This map intentionally omits details, to respect the security concerns of participating utilities.

As the *El Paso County Utilities Infrastructure* map shows, utilities infrastructure goes where the people are, and typically follows major roadways. However, some inter-regional systems follow separate corridors apart from the highway system.

- **Communication,** such as telephone cabling, is often installed on the same poles as electrical distribution wiring. Wireless communication (telephone, radio, and TV) relies on antenna towers, often located on high points that wildfire naturally seeks.
- **Watersheds and water distribution systems** are threatened by the flooding that commonly follows large fires. After large areas of vegetation have burned away, rain that would have been taken up by plants instead runs off, causing severe erosion. This runoff can be particularly heavy after high-severity fires that consume all organic material in the soil, and create a hydrophobic layer several inches below the soil surface.[35] Large amounts of ash, topsoil and debris can wash into streams, and clog reservoirs, pipelines, or treatment facilities, requiring costly rehabilitation and ongoing

[35] Jan Cipra, et. al., *Hayman Fire Case Study: Soil Properties, Erosion, and Implications for Rehabilitation and Aquatic Ecosystems* (USDA Forest Service, 2003) 206-207.

maintenance of these systems.[36] Water delivery systems that rely on surface water sources are most vulnerable to wildfire damage. According to Colorado Springs Utilities, "Catastrophic wildfire poses one of the greatest threats to water quality and collection system infrastructure."[37]

- **Roads and highways** provide evacuation routes for citizens leaving a wildfire-threatened area, and access for first responders attempting to enter. During a wildfire, transportation can be interrupted by smoke, flame from closely encroaching fuels, or falling debris. After a fire, mud and debris runoff can block roads, and flash flooding can wash out bridges and paving. However, when rights-of-way are kept clear of heavy vegetation, roads can serve as fire breaks that reduce the risk of wildfire spread, and as anchor points for firefighting operations.

Natural values

Citizens also expressed concern for natural amenities: parks, forests, and wildlife habitat.

County parks

The El Paso County Parks Department currently owns or manages more than 7,000 acres of park land[38], 85 miles of trail, and approximately 1,700 acres of conservation easements.

Most of the parks managed by the Parks Department are regional parks[39] that are typically 400 acres or larger. Regional parks are predominantly natural in character, but small portions of each park (usually around 20%) are developed with facilities for active recreation such as playfields, playgrounds, picnic shelters and asphalt play areas.

In 2010 the County began developing two Forestry Management Plans, for Black Forest Regional Park and the Pineries Open Space.[40]

The Department also manages neighborhood parks, trails, recreational areas, and the County Fair and Event Complex in Calhan. The neighborhood parks were acquired before the county limited its role to the provision of larger, regional parks and trails.

Cheyenne Mountain State Park

Cheyenne Mountain State Park adjoins the southern edge of Colorado Springs, the Cheyenne Mountain Air Force Station, and the Southwestern Hwy. 115 Fire Protection District. Located on the southeastern aspect of its namesake mountain, the park consists of 1,680 acres of foothills and steep terrain that is available for public use. Another 1,021 acres, on the mountain's flanks and top,

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[36] Dennis Le Master, Guofan Shao, Jacob Donnay, *Protecting Front Range Forest Watersheds from High-Severity Wildfires* (Front Range Fuels Treatment Partnership, 2007)
[37] Naomi J. Marcus, *Pikes Peak Watershed Forest Management Plan* (Colorado State Forest Service, 2010) 21.
[38] *Parks*, 5 November <http://adm.elpasoco.com/Parks/Pages/default.aspx>
[39] *El Paso County Parks and Leisure Services Department Master Plan*, September 2005
[40] Jerry Westling, El Paso County Parks Manager, E-mail communication, 19 August, 2010

was recently added to the park, and the public use of that land is in the planning stages. Both the main park and the expansion land have written fire mitigation plans.[41]

Wildlife habitats

Several areas of the County are owned by the State Land Board, and managed as natural areas or wildlife preserves by The Nature Conservancy.

- **Aiken Canyon Preserve**[42], located about 16 miles south of Colorado Springs off Colorado Hwy. 115, includes the largest intact foothills ecosystem known from the Front Range. The 1,621-acre area contains one woodland and two foothills shrubland plant communities of special concern.
- **Chico Basin Ranch**[43] is a working cattle ranch that derives its income from grazing and running cattle.
- **Bohart Ranch**[44] is a large, unfragmented example of high-quality sandsage prairie. Like Chico Basin, Bohart is a working cattle ranch. The Nature Conservancy and the ranch manager jointly maintain the ranch's prairie ecosystem and manage its agricultural activities.
- **Hurricane Canyon** is a 520-acre site on the slopes of Pikes Peak. It includes two canyons, cut by the North and South Forks of French Creek.[45]

Due to its great diversity of elevation, vegetation and climate, El Paso County is home to many animal and plant species that are listed as Threatened or Endangered under the Endangered Species Act of 1973, as amended. Among them are the following:

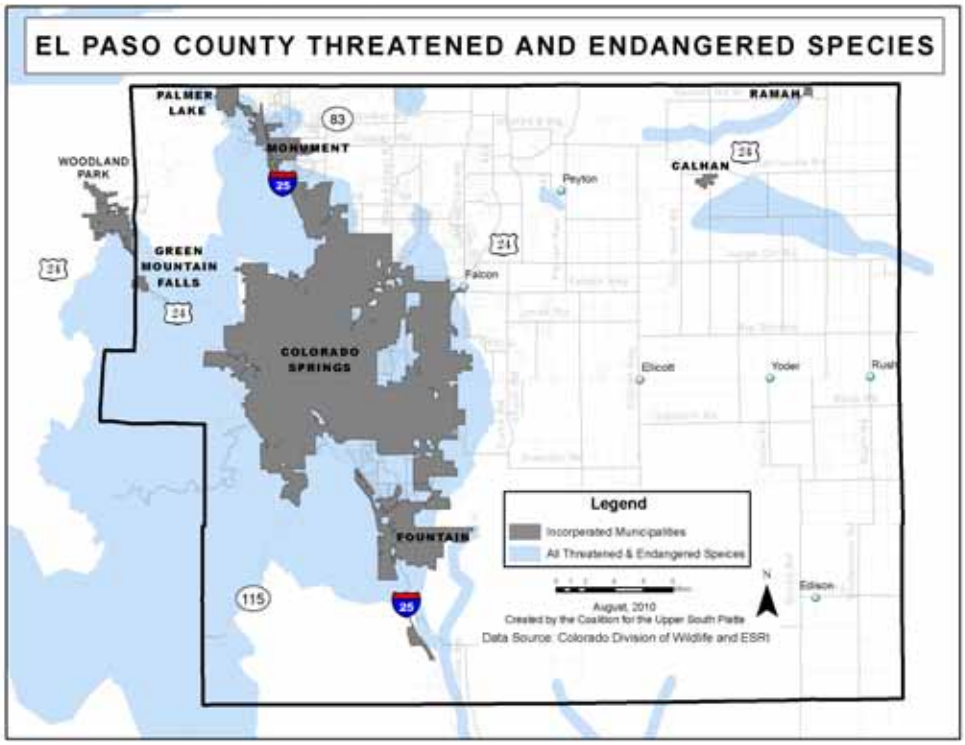
- Arkansas darter (Etheostoma cragini) - Candidate
- Greenback cutthroat trout (Oncorhyncus clarki stomias) – Threatened
- Gunnison's prairie dog (Cynomys gunnisoni) – Candidate
- Mexican spotted owl (Strix occidentalis lucida) – Threatened
- Preble's meadow jumping mouse (Zapus hudsonius preblei) – Threatened
- Ute ladies' tresses orchid (Spiranthes diluvialis) – Threatened

A map that shows individual wildlife habitats would be too detailed for this high-level plan. Important habitat areas occur across the county and may overlap each other. Thus, the *El Paso County Threatened and Endangered Species* map[46] has

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[41] Dave Root, CSFS Assistant District Forester, written comments, 23 March 2011.
[42] *Aiken Canyon*, 5 November 2010 <http://parks.state.co.us/NaturalResources/CNAP/NaturalAreasInfo/AlphabeticalListing/Pages/AikenCanyon.aspx>
[43] *Welcome to the Chico Basin Ranch*, 20 Aug. 2010 <http://www.chicobasinranch.com/index.cfm?id=67c8f9db-d1c8-4c6b-8562e3094336bbd0>
[44] *Bohart Ranch: Where Cattle Ranching and Conservation Meet*, 20 Aug. 2010 <http://www.nature.org/wherewework/northamerica/states/colorado/preserves/art519.html>
[45] *Hurricane Canyon*, 5 November 2010 <http://parks.state.co.us/NaturalResources/CNAP/NaturalAreasInfo/AlphabeticalListing/Pages/HurricaneCanyon.aspx>
[46] *El Paso County Threatened and Endangered Species*, Leslie Ellwood, Wildlife Biologist. US Fish and Wildlife Service, Ecological Services, Colorado Field Office. 2011

combined the actual or probable habitats of all of these species into a single area of concern. Much of this combined wildlife habitat area overlaps the County's wildland-urban interface, so wildfire mitigation projects must keep wildlife habitat in mind.



Mitigation projects are not necessarily prohibited in wildlife habitat areas. Some areas may be adversely affected by human activity, while other areas and associated species would benefit from fuel modification activities. However, if a mitigation project is proposed in or near an important habitat, the U.S. Fish and Wildlife Service should be consulted.

Wilderness

As of 2011, there are no wilderness areas designated in El Paso County. However the Beaver Creek Wilderness Study Area, on the south slope of Pikes Peak, is under study as a proposed wilderness area. The Study Area consists of 26,150 acres of public land in El Paso, Fremont, and Teller Counties, in granite canyons that are valued as wildlife and fish habitat. A 13,734 acre portion of the WSA is within an Area of Critical Environmental Concern (ACEC).[47]

[47] *Bureau of Land Management: Wilderness*, 21 Sept. 2010
<http://www.blm.gov/co/st/en/fo/rgfo/wilderness.html>

Recommended methods to reduce structural ignitability

For purposes of this plan, zones one and two surrounding each home in the wildland-urban interface will be considered a polygon that is a high priority area for homeowner mitigation.

To reduce the chance that a structure will burn, two interrelated actions are recommended:

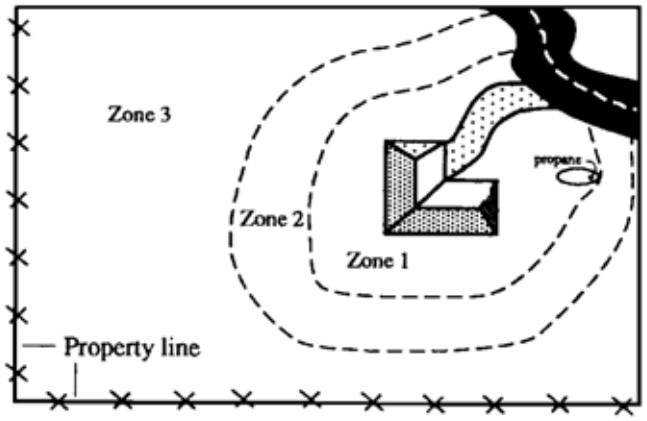
- Reducing or removing vegetation around the structure, to reduce both the radiant heat from burning vegetation, and the chance of direct flame contact to the structure.
- Reducing the flammability of the structure itself, by using fire-resistant building techniques and materials that reduce the chance of ignition from wind-borne embers.

Thinning to create survivable (defensible) space

Survivable space in timbered areas

Survivable space (often called defensible space) is a series of reduced-fuels zones designed to protect structures from the heat of wildfires. This space can be natural or human-made. As fire advances through a survivable space toward a structure, the gradual reduction of fuel load causes a corresponding reduction in the speed and intensity of the fire.

According to *Creating Wildfire-Defensible Zones*,[48] a well-designed survivable space consists of three concentric zones:



Zone One is the space that immediately surrounds a structure; it extends 15 feet from the outermost edge of a structure, including any decks. The goal is to reduce or eliminate most large trees or shrubs within this zone, so that they cannot produce intense flames and heat capable of igniting the structure. A few tall trees may be left in zone one if the lowest branches are pruned so that they are well above a fire resistant roof.

Zone Two surrounds Zone One. The width of Zone Two depends on the slope angle around the house, particularly on the side that slopes downhill. On the

[48] F.C. Dennis, *Creating Wildfire-Defensible Zones - no. 6.302*, Colorado State University Cooperative Extension, May 2003; reviewed January 2006.

downhill side of the house, if the average slope angle is less than 5%, Zone Two extends out 55 feet from the outer edge of Zone One. If the slope is more than 5%, Zone Two extends 85 feet from the outer edge of Zone One on the downhill side of the house. On all other sides of the house, the width of Zone Two is 55 feet from the outer edge of Zone One.

The main fuels reduction guideline for Zone Two is to thin the trees so that there is an average of ten feet of space between all tree crowns. All ladder fuels under trees should be removed. The branches of dominant trees should be pruned to a height of 8 feet above ground; small trees should have at least two-thirds of the green needles remaining.

Zone 3 is an area of traditional forest management and is of no particular size. It extends from the edge of the survivable space to the property boundaries.

Survivable space in grassland areas

Survivable space in grassland areas follows the same principles that apply to timbered areas. Homeowners should first remove all flammable vegetation within fifteen feet of the structure.[49] The survivable space should then be extended outward to a minimum of 70 feet around the home (on flat sites), by mowing grasses to a height of six inches[50] or less, thinning trees and brush, and removing dead vegetation.

Fire-resistant building practices

The survivability of a structure can be improved through the use of fire-resistant building materials, or by design features that limit the ability of embers to accumulate. Even existing structures can become more survivable when homeowners consider fire protection when upgrading a home or doing routine maintenance:

- When a combustible roof is ready for replacement, choose a non-combustible covering such as metal or tile.
- Cover all open vents with metal window screening, to prevent embers from entering the structure.
- Enclose soffits with solid coverings, to prevent hot gases from rising into the roof structure.
- Replace single-pane windows with double-pane windows.

The specific choice of building materials or design features depends on the vegetation and terrain surrounding the structure. The booklet *Firewise Construction: Design and Materials*[51] offers a wealth of detail to guide homeowners.

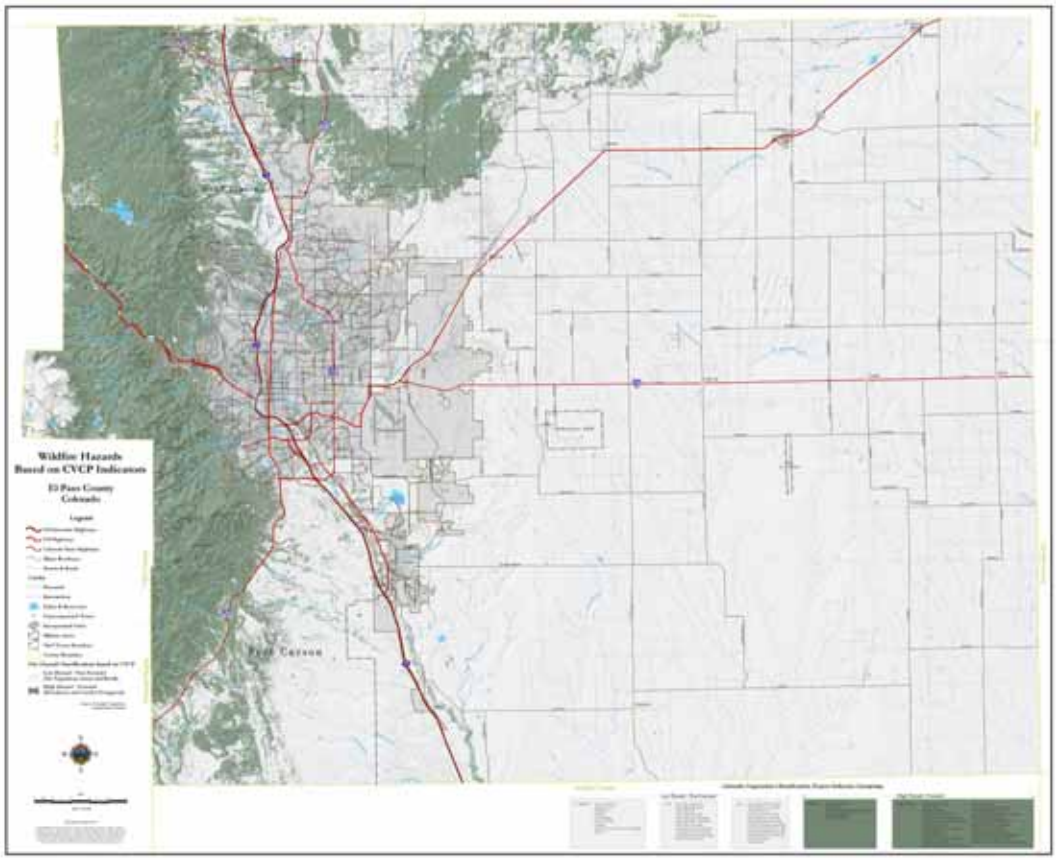
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[49] *Are You Plains Firewise? Notebook* < http://csfs.colostate.edu/pdfs/plains_FW.pdf> 4 March, 2011
[50] F.C. Dennis, *Creating Wildfire-Defensible Zones - no. 6.302*, Colorado State University Cooperative Extension, May 2003; reviewed January 2006.
[51] Peter Slack, *Firewise Construction: Design and Materials*, Colorado State Forest Service, 2000

What El Paso County government is already doing

Regulation of new development

The *El Paso County Land Development Code*[52] regulates new development in unincorporated areas that are forested, or have been otherwise identified as being at risk of wildland fire, according to the Colorado Vegetation Classification Project.[53] The County maintains a map to identify the forested areas where the wildland fire standards of the Code apply. This map, *Wildfire Hazards Based on CVCP Indicators*,[54] appears below.



Before a permit is issued for building in these areas, a builder must commit to take actions to reduce the ignitability of new structures, and to support wildfire suppression activities. Examples of these actions include, but are not limited to:

- Provision of adequate routes for ingress, egress, and evacuation

[52] *El Paso County Land Development Code, Chapter 6, Section 3.3: Fire Protection and Wildfire Mitigation,* 1 January 2011
<http://adm.elpasoco.com/Development%20Services/Documents/Land%20Development%20Code/ldc_chapter_6.pdf> 6-68
[53] *Colorado Vegetation Classification Project*, 23 March, 2011 < http://ndis.nrel.colostate.edu/coveg/>
[54] *Wildfire Hazards Based on CVCP Indicators*, 2 February, 2011
<http://adm.elpasoco.com/Development%20Services/Documents/FireHazards.pdf>

- Wildland fuels modification
- Provision of water supplies for firefighting
- Wildfire-resistant building design and construction
- Location of structures relative to wildland fuels and terrain

Developers are also required to have new projects approved by the local fire department, which may impose local regulations that are more stringent than those in the Land Development Code.

Support of local mitigation and suppression

Recycling yard waste and tree slash

The El Paso County Environmental Services Department, through its Solid Waste Management Division, and Forestry and Noxious Weeds Division, encourages individual mitigation efforts by providing free disposal[55] of forest slash, tree trimmings and vegetative yard waste. These programs also reduce the volume of slash sent to local landfills.

- **The Black Forest Slash-Mulch Program**[56] is highly successful slash recycling site made possible by interagency cooperation and local support. The site itself is owned by the State Land Board, which leases the land to El Paso County at nominal cost. Volunteers manage the site and offer information about mitigation and forest health. County funds pay for a large grinder that converts the slash into mulch, which is then given away.
- **The Yard Waste Recycling Program** is a cooperative effort between the County and private enterprise. A landscape supply business provides a site for free disposal of tree slash and vegetative waste, which it then converts into mulch for sale and use in its landscape projects.

El Paso County Sheriff's Office - Deputy Fire Marshal's Office

According to Colorado statute[57], the El Paso County Sheriff's Office is responsible for wildfire suppression in unincorporated areas. To fulfill this mandate, the office of the Deputy Fire Marshal manages and supports the El Paso County Sheriff's Office Wildland Fire Crew, an all-volunteer organization.

The Deputy Fire Marshal's office also supports small rural fire departments by facilitating interagency cooperation through both formal agreements and informal interaction. Wildfire suppression training is offered to county fire departments by the Wildland Fire Crew.

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[55] *Recycling Programs*, 1 January 2011 <http://adm.elpasoco.com/Environmental%20Division/Recycling%20Information/Pages/default.aspx>

[56] *Black Forest Slash Mulch Program*, 1 January 2011 < http://www.bfslash.org/index.php>

[57] Colo. Rev. Stat. § 30-10-512 (Mitchie 2010)

In the spirit of more effective wildfire suppression, the Deputy Fire Marshal's office also supports wildfire mitigation and prevention whenever possible. By seeking and administering grant funding, the office has launched and managed mitigation projects that exceed the resources of rural fire departments. In 2010, the office received grants to reduce fuels in the following areas:

- Evacuation routes in the Southwest Highway 115 Fire Protection District
- Black Forest Regional Park in the Black Forest Fire / Rescue Protection District
- Fox Run Regional Park in the Donald Wescott Fire Protection District
- Fountain Creek Regional Park, adjacent to the Security Fire Protection District and the community of Widefield



During 2011, the El Paso County Deputy Fire Marshal's Office trained and sponsored a team of AmeriCorps volunteers to reduce dense fuels in several county parks. The team received training in basic wildland firefighting, and were available to assist the El Paso County Sheriff's Office Wildland Fire Crew with initial attack.

Photo by Daniel Radocckia,
AmeriCorps National Civilian Community Corps (NCCC)

What the Forest Service is already doing

The USDA Forest Service, Pikes Peak District, performs approximately 2,000 acres of fuel mitigation projects annually, concentrating on wildland-urban interface areas.[58] Cooperation with fire education groups such as Pikes Peak Wildfire Prevention Partners (PPWPP), has resulted in mitigation projects around the Cheyenne Mountain Zoo, as well as other public areas in El Paso County.

What local communities are already doing

International Fire Codes

Some fire protection districts have adopted the *International Fire Code with Local Amendments*,[59] which requires certain building features and vegetation mitigation for new construction in wildland-urban interface areas defined by each local jurisdiction.

As explained in the Local Amendments, the regulations are "…consistent with nationally recognized good practice for the safeguarding of life and property within the designated urban-wildland interface area." They include

[58] Brent Botts, District Ranger, email communication, April 2011.
[59] *International Fire Code® Local Amendments: Falcon Fire Protection District; Tri-Lakes Monument Fire Rescue Authority; Black Forest Fire Rescue Protection District; Wescott Fire Protection District; Cimarron Hills Fire Protection District* (International Code Council, 2003) 50.

actions such as maintenance of defensible space, creation of adequate road access for fire apparatus, and installation of Class A roofing materials.

Public Education

As we have discussed, approximately 57% of all wildland fires are caused by human activity. Therefore, many fires could be prevented by education that changes human behaviors. Fire departments and local community groups are ideally positioned to educate their neighbors about wildfire prevention and safe outdoor fire use.

To support these efforts, high-quality educational materials are available for free download from the web sites of many organizations, such as the Colorado State Forest Service, the USDA Forest Service, the National Fire Administration, the National Wildfire Coordinating Group, and Firewise. This information can be directly delivered by firefighters and community leaders, or provided by linking to these sources from fire department web sites.

The nationwide Firewise program focuses on teaching homeowners how to build and landscape their homes to improve wildfire survivability. Firewise programs have been implemented in several fire protection districts and neighborhoods, to offer homeowner education and home risk assessments. Some programs also organize community mitigation projects, and encourage individual mitigation by providing neighborhood slash disposal.

At this writing, three neighborhoods in unincorporated El Paso County have been officially designated as Firewise Communities: Woodmoor, Ute Pass, and Wissler Ranch. Other small communities are working to earn this national recognition.

Colorado Springs development codes and mitigation programs

Much of the wildland-urban interface of the City of Colorado Springs consists of neighborhoods built in the steep mountain foothills of the city's west side. A line drawn on a map is all that separates these city neighborhoods from the rest of the Foothills Sub-Unit. So while Colorado Springs is not officially included in this CWPP, its mitigation actions in this area have important implications for adjacent unincorporated communities.

Colorado Springs requires new construction in its hillside neighborhoods to comply with its *Hillside Development Design Manual.* Along with best practices for safe and aesthetic development on steep terrain, the Manual mandates three types of actions to reduce wildfire risk: management of fuels and defensible space, fire detection and protection systems, and Class A roofing materials.[60]

The Colorado Springs Fire Department's Wildfire Mitigation section works to build neighborhood awareness of wildfire risk, and guides individual neighborhoods through the process of organizing their own Firewise programs

[60] Paul Tice II, Brett Veltman, Bonnie Olson, Larry Larsen, *City of Colorado Springs Hillside Development Design Manual* (City of Colorado Springs, 1996) 42.

and mitigation projects. These activities also benefit the unincorporated County, as many residents of unincorporated areas are exposed to these messages and see these projects as they work and do business in Colorado Springs.

Military bases

El Paso County's five military installations encompass very large areas of both developed and undeveloped land. All of them have environmental management programs that align with the environmental stewardship priorities of the Department of Defense.

The U.S. Air Force Academy, located in the northern end of the Foothills Sub Unit, provides a good example of wildfire mitigation that both supports the installation's mission and benefits neighboring communities.

The Air Force Academy uses both prescribed burning and mechanical fuels reduction to improve wildlife habitat, reduce fuel loads, and to modify fuel models to reduce potential flame length and rates of flame spread. Gambel oak reduction along the Academy's northern and southern boundaries is also intended to hinder the spread of fire across the Academy grounds, and to reduce the chance of fire traveling between the Academy and nearby neighborhoods.[61]

Fort Carson, in the Southeast sub unit, maintains a fuel break along its perimeter, to reduce the chance that fire will extend across this boundary. The base also conducts an aggressive fuels reduction program to maintain vegetation health and reduce the danger of fire spread.

The base's rolling terrain and scrub vegetation, with few structures, allows more prescribed burning than is possible in other areas. The Fort Carson Fire Department often allows its mutual aid partners to participate in managing these prescribed burns, which improves interagency cooperation and provides valuable training opportunities to area firefighters.

[61] U.S. Air Force Academy Natural Resources Department, U.S. Air Force Academy Fire and Emergency Services, USDA Forest Service, *Wildland Fire Management Plan for the U.S. Air Force Academy, Colorado* (U.S. Air Force Academy, 2008) 24.

Colorado Springs Utilities

Because of the large potential for a major fire to damage water resources, Colorado Springs Utilities conducts landscape-scale mitigation projects. When possible, these projects are designed to also improve the safety of nearby communities.



In the Ridge Road prescribed fire, October 2010, Colorado Springs Utilities reduced fuels on 114 acres on the slope of Pikes Peak, between North Catamount and South Catamount Reservoirs. Photo by Eric Howell, Colorado Springs Utilities

Until recently, most of these fuels-reduction projects used hand crews and mechanical techniques, but agency mitigation goals include the increased use of prescribed fire. In October 2010, Colorado Springs Utilities conducted a successful prescribed burn of 114 acres of the Pike National Forest on the North Slope of Pikes Peak.

Community preparedness to respond to wildfire

Jurisdictions that provide "full service" first response

Fire response in El Paso County is provided by a multi-layered patchwork of jurisdictions. A few areas of the county are not officially included in any of the following jurisdictions, while some areas are served by overlapping jurisdictions.

These "full-service" fire departments respond to both structure and wildland fires, provide emergency medical care, and offer rescue services and initial response to hazardous materials emergencies. They use a variety of staffing models: all-career, all-volunteer, or a combination of career and volunteer members.

Municipalities

All-career departments are typical in larger municipalities, while all-volunteer or combination departments (mix of volunteer and career staffing) are common in small towns and surrounding rural areas. For all-volunteer and combination fire departments, most of whose members work at day jobs, wildfire response time varies according to the day of the week and the time of day.

Fire Protection Districts

A fire protection district is a type of Colorado special district formed to provide firefighting, emergency medical services, ambulance services, rescue, or diving and grappling.[62]

Most of the unincorporated area of El Paso County is served by 21 different fire protection districts (FPDs). Several of these FPDs extend past the border of El Paso County, to serve areas in two or more counties.

Most FPDs provide fire protection by operating their own fire departments. However, some FPDs provide all of their fire protection, or supplement their own fire department's capacity, by contracting with a neighboring fire department to respond to emergencies within their jurisdictions.

Metropolitan Districts

Metropolitan districts are special districts that provide a wide range of community services, such as streets, drainage, water distribution, or fire protection. To provide fire protection, some metropolitan districts contract with neighboring fire departments, while others form and operate their own fire departments.

[62] Colo. Rev. Stat. § 32-1-1002(1)(c) (Mitchie 2010)

Military installations

Each of the County's military installations is protected by its own all-career fire department. These military fire departments maintain strong mutual-aid relationships with their neighboring communities.

Specialized wildland fire teams

In addition to the full-service fire departments, some areas of the County are served by specialized wildland fire teams. Some of these teams respond to fires all over the County, while others concentrate on specific areas.

El Paso County Sheriff's Office Wildland Fire Crew

The El Paso County Sheriff's Office Wildland Fire Crew provides primary response to unincorporated areas that are not part of a fire protection district, all BLM and US Forest Service land within the County, and all State lands within the County. The Crew also helps County fire departments suppress fires in their jurisdictions, by providing firefighters and apparatus.

The Crew supports mitigation projects, such as neighborhood thinning and chipping programs, and prescribed burning operations.

Colorado Springs Utilities: Catamount Wildland Fire Team

As part of its mission to provide a dependable supply of clean drinking water to the City of Colorado Springs, Colorado Springs Utilities has gradually acquired large tracts of land on Pikes Peak[63]. To protect its watersheds, CSU cross-trains some of its staff as a wildland fire team. The Catamount Team routinely responds to fires on CSU-owned lands, performs mitigation work, and manages prescribed fires in those areas.

Cheyenne Mountain State Park

This Colorado state park, in the southwestern foothills of the County, trains and equips its staff to respond to fires inside the park.

USDA Forest Service

Most of the County's mountainous western portion is part of the Pike National Forest. The Pikes Peak District is home to the Pike Hotshots and Pike Helitack, based near Monument, as well as two engines based in neighboring Teller County. Forest Service teams respond to any fire on National Forest lands, as well as fires within one mile of a National Forest boundary that might threaten National Forest lands.

The Forest Service also maintains multiple first response agreements with local jurisdictions, and participates in interagency training with fire protection districts. The Pueblo Interagency Dispatch Center coordinates air operations for all of southeastern Colorado, including El Paso County.

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[63] Naomi J. Marcus, *Pikes Peak Watershed Forest Management Plan* (Colorado State Forest Service, 2010) 3.

Inter-jurisdictional cooperation

First responders and community leaders recognize that wildland fire does not respect jurisdictional boundaries, and that large fires can only be managed by pooling resources. As a result, El Paso County enjoys generally good cooperation among its many firefighting entities.

Standardized command and control

All County fire departments use the Incident Command System (ICS)[64] as a tool to manage interagency response operations. ICS clarifies roles and responsibilities in many common situations, such as when one fire department arrives first at a fire in a neighboring district, when one area belongs to two overlapping jurisdictions, or when an area is not part of any fire protection jurisdiction.

Shared radio communications

Most fire protection districts and municipal fire departments use a common digital radio system that allows them to directly communicate with each other, as well as with Sheriff's deputies or other first responders.

On an Incident Commander's request, the Sheriff's Office can provide enhanced radio communication support, additional command staff members, and a mobile command post for extended field operations.

Mutual and automatic aid

County fire departments have executed several agreements to provide mutual aid to each other upon request.[65] Groups of neighboring departments have also set up local automatic aid agreements, so that all departments in that group are dispatched to any fire in any of their jurisdictions.

The El Paso County Sheriff's Office participates in the *Annual Wildfire Operating Plan for El Paso County, Colorado*. The Plan, updated annually, describes how County agencies coordinate wildfire suppression activities with those of the Colorado State Forest Service, the Forest Service, and the Bureau of Land Management. It outlines rules and procedures for requesting mutual aid, ordering out-of-county resources, radio communications, and air operations.

An expanding hierarchy of resources

The responsibility for wildfire suppression initially rests with the jurisdiction where the wildfire starts.[66] The El Paso County Sheriff is responsible for suppression of wildfires that occur on unincorporated, non-federal land that is outside a fire protection district.

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[64] < http://www.fema.gov/emergency/nims/IncidentCommandSystem.shtm >
[65] Civilian fire chiefs have signed the "Intergovernmental Memorandum of Understanding for Mutual Aid Between Fire Departments".
[66] Colo. Rev. Stat. § 29-22.5-103(1)(a)

If a wildland fire grows beyond a local fire protection district's ability to control, the Sheriff may appoint an incident management team to provide command and control over the fire response. At that point, the Sheriff also may assume financial responsibility for firefighting expenses, on behalf of El Paso County.[67]

If the fire exceeds the County's capability to control, the Sheriff can request assistance from the Colorado State Forest Service, under the terms of the Emergency Fire Fund (EFF) Agreement.[68] When EFF is implemented, CSFS assumes responsibility and authority for all suppression activity until the fire has been controlled and management of the fire has been returned to the county.[69]

County support to wildfire responses

El Paso County has a mature system for mobilizing County and community resources to support a wildfire response.

Public notification and warning

The Sheriff's Office has several methods to notify and warn people who are threatened by an approaching wildfire:

- Automated telephone notification
- Local news media announcements
- When possible, door-to-door warnings

Evacuation and sheltering

An Incident Commander may request evacuation of specified neighborhoods, or closure of certain roads; the actual evacuation is the responsibility of the Sheriff.

The El Paso County Emergency Operations Center coordinates evacuation and sheltering for displaced persons, as well as their service animals, pets, and livestock.

[67] Colo. Rev. Stat. § 29-22.5-103(2)(a)
[68] Colo. Rev. Stat. § 29-22.5-103(2)(c)
[69] Colorado State Forest Service; El Paso County Sheriff; Board of County Commissioners, El Paso County, Colorado; Forest Service, USDA; Bureau of Land Management, USDI, *Annual Wildfire Operating Plan for El Paso County, Colorado* (2011) 3 May, 2011<http://csfs.colostate.edu/pdfs/2011_El-Paso-County_AOP_Final.pdf> 20.

Implementation Priorities

This Community Wildfire Protection Plan is a broad overview of El Paso County's vulnerability to and preparedness for wildfire, and is not appropriate for specific project planning. Even large "landscape scale" projects only make sense when viewed at close range, in the context of a fire protection district, a community, or a town.

The priorities listed below are, as a result, general recommendations for ways that El Paso County can help its residents to understand and reduce the risk of catastrophic wildland fire.

During the draft review process, survey participants ranked these recommendations in the following order of importance:

Recommendation	Priority
Encourage County land managers and planners to take steps to reduce wildfire risk while achieving other land management goals. Consider wildfire risk, mitigation, and response when codes are revised for areas in the wildland-urban interface.	**1**
Promote cross-boundary mitigation planning and prioritization with public land managers, military installations, municipalities, utilities, fire protection districts, and unincorporated communities.	**2**
Maintain cooperation among wildfire first responders by supporting interagency planning and training.	**3**
Share information about mitigation funding opportunities with local communities, Firewise committees, and fire protection districts.	**4**
Encourage the creation of neighborhood Firewise committees to coordinate education and mitigation in local communities.	**5**
Encourage fire protection districts to support wildfire prevention activities.	**6**
Encourage small communities to create their own Community Wildfire Protection Plans (CWPPs).	**7**
Advise county managers of opportunities to support the goals of local CWPPs, through normal maintenance of county-owned lands and rights of way.	**8**
Encourage the development of new industrial uses for small woody biomass.	**9**
Promote collaborative discussions about fuel reduction along boundaries of US Forest Service lands, including fire protection districts, municipalities, and public utilities.	**10**
Encourage mitigation projects undertaken by municipalities, military installations, and utilities, especially where adjacent to unincorporated areas.	**11**