

Rio Arriba County Community Wildfire Protection Plan: 2017 Update

Rio Arriba County, NM



Rio Arriba County Community Wildfire Protection Plan: 2017 Update

Prepared for

Rio Arriba County
1122 Industrial Park Rd.
Española, NM 87532
505-753-2992
www.rio-arriba.org

Prepared by

Chama Peak Land Alliance
PO Box 1544
Santa Fe, NM 87504
1-888-445-7708
www.chamapeak.org

Emily Hohman, Executive Director
Emma Kelly, AmeriCorps VISTA
Monique DiGiorgio, Board of Directors
Will Donahoo, AmeriCorps VISTA

Chama District, Forestry Division, EMNRD
HC 75, Box 100, Chama, NM 87520
575-588-7831
www.nmforestry.org

Mary Stuever, District Forester
Pablo Montenegro, Fire Management Officer
Jose Carrillo, Timber Management Officer

Forest Stewards Guild
2019 Galisteo St. Suite N-7
Santa Fe, NM 87505
Telephone: 505.983.8992; Fax: 505.986.0798
www.forestguild.org

Matt Piccarello, MCRP, MWR
Alexander Evans, PhD
Eytan Krasilovsky, MES

Unique Places
PO Box 7790
Albuquerque, NM 87194
505-603-3636
www.uniqueplacesllc.com

Michael Scisco, GISP
Kate Lenzer, GISP

Rio Arriba County Community Wildfire Protection Plan: 2017 Update

We, the undersigned, approve the Rio Arriba County Community Wildfire Protection Plan: 2017 Update

Rio Arriba County

Signature: [Signature] Date: 8/31/17
Name and title: Barney Trujillo, District I

Signature: [Signature] Date: 8/31/17
Name and title: Alex M. Naranjo, District II

Signature: [Signature] Date: 8/31/17
Name and title: Danny Garcia, District III

Signature: [Signature] Date: 8/24/2017
Name and Title: Carlos Esquibel, Rio Arriba County Fire Marshal

New Mexico Energy, Minerals and Natural Resources Department, Forestry Division

Signature: [Signature] Date: August 23, 2017
Name and Title: Mary Stuever, Chama District Forester



Contents

Executive Summary	1
Introduction	2
1 Geography	4
Land tenure.....	4
Vegetation	4
Fire districts	4
2 Accomplishments Since 2007 CWPP	5
3 Wildland Urban Interface	6
Communities at Risk.....	6
4 Priority actions.....	13
Fuels treatments and resident outreach.....	13
Electric power lines	14
CWPP implementation and action items	17
5 Companion plan crosswalk.....	25
Statewide Natural Resources Assessment	25
New Mexico State Hazard Mitigation Plan	25
Rio Arriba County Hazard Mitigation Plan	25
Rio Arriba Comprehensive Plan.....	25
6 Fire adapted communities and Firewise communities	26
7 Wildfire preparedness.....	29
Ingress and egress	29
Smoke impacts.....	29
Oil and gas production	29
Communication.....	30
Community Emergency Response Team.....	30
Evacuation	30
8 Planning for post-fire recovery	32
.....	34
.....	34
9 Voices from the community	34
Core team.....	37
Community meetings and surveys	37

References	41
Appendix 1: Surface ownership	42
Appendix 2: Vegetation type	43
Appendix 3: Fire districts	44
Appendix 4: Fuel treatments.....	45
Appendix 5: Wildland Urban Interface	46
Appendix 6: Population density	48
Appendix 7: Communities at risk	49
Appendix 8: Flame length	51
Appendix 9: Wildfire history	53
Appendix 10: Poverty level	54
Appendix 11: Senior citizens	55
Appendix 12: Source of post-wildfire debris flow	56
Appendix 13: Post-wildfire debris flow hazard	57
Appendix 14: Resident survey responses	58

Table 1 Rio Arriba County surface ownership	4
Table 2 Community hazard ratings matrix	9
Table 3 Community hazard ratings.....	10
Table 4 Miles of transmission line at risk by National Forest	15
Table 5 Rio Arriba County CWPP priority actions	18
Table 6 Training and equipment needed to make Fire districts “initial attack ready”	24
Table 7 2017 CWPP update stakeholders.....	34
Table 8 2017 CWPP update core team	37
Table 9 2017 CWPP update meetings	38

Executive Summary

The Rio Arriba County Community Wildfire Protection Plan (CWPP): 2017 Update identifies progress made towards wildfire risk reduction goals since the adoption of the 2007 Rio Arriba CWPP, changes in community hazard ratings, and new priority action items for making communities in Rio Arriba County (County) more fire adapted (RAC, 2007). The 2017 CWPP update was developed in collaboration with various stakeholders, which included county officials, state and federal land management agencies, New Mexico State Forestry, residents, and local non-government organizations (NGO).

Since 2007, the County has made significant progress towards reducing wildfire risk for residents. Notable accomplishments include, but are not limited to:

- Fuels treatments near Canjilon on U.S. Forest Service, Bureau of Land Management, and private lands.
- Hazardous fuels reduction near Mesa de los Viejos.
- Investments in forest resiliency and wildlife risk mitigation by the Rio Grande Water Fund near Chama.
- Outreach and education efforts in Embudo, Cañoncito, and Montecito.

The 2017 CWPP update identifies several priority actions, which are divided into five focus areas: (1) community involvement, (2) reducing structural ignitability, (3) fire districts and equipment, (4) evacuation planning, and (5) water resource protection. Priority actions identified by the core team include, but are not limited to:

- Formalize or extend the CWPP core team to help implement the CWPP beyond its adoption.
- Work with communities and fire districts to develop evacuation plans.
- Pursue funding for defensible space and general thinning projects on private lands in the County.
- Pursue cost share programs to upgrade residential home building materials e.g. roofing, siding, deck materials.
- Continue to support the development of new or expanded fire districts with the ultimate goal that all inhabited areas of the County are covered by a fire district.
- Review the County burn permit process and identify limitations and solutions for addressing them.

Introduction

From the City of Española to the Cruces Basin Wilderness, Rio Arriba County's 5,896 square miles covers a diverse range of ecosystems. The 40,000 people who live in the County (US Census, 2010) represent similarly diverse cultures and interests. Since the County is so diverse, there is no single solution to protecting communities from wildfire and post-fire effects. The details of the County's history, demographics, and vision for the future are described in more detail in the Rio Arriba County Comprehensive Plan ([RAC, 2009](#)).

In January 2014, the Chama Peak Land Alliance (CPLA) joined dozens of other groups, non-governmental organizations, local, county, state, tribal, and federal agencies, and individuals to form the San Juan – Chama Watershed Partnership (SJCWP). As part of the partnership, a wildfire committee was formed to address wildfire issues. One of the highest priorities identified by this committee was the need to update the Rio Arriba CWPP, which was adopted in 2007. In 2016, CPLA applied for and was awarded a wildfire risk reduction grant from the New Mexico Association of Counties to fund the 2017 CWPP update. A CWPP core team was formed (see table 8 in section 9) to guide the creation of the update. The core team is comprised of a range of partners including residents of Rio Arriba County, Rio Arriba County officials, fire departments, the Chama Peak Land Alliance (CPLA), Unique Places LLC (UP), the Forest Stewards Guild (FSG), and New Mexico State Forestry (NMSF).

In accordance with the Healthy Forests Restoration Act (HFRA) of 2003, the County completed a CWPP in 2007. The 2007 CWPP addressed the three core requirements identified in the HFRA, 1) identifying and prioritizing fuels reduction opportunities across the landscape, 2) addressing structure ignitability, and 3) collaborating with stakeholders. The New Mexico Fire Planning Task Force recommends that CWPPs be updated every five years in order to assess new hazards and monitor progress made since the last CWPP update. Building community resilience to wildfire requires an adaptive approach that uses the lessons of the past to inform future management. It is important to remember that this CWPP update is a living document. As new information becomes available and conditions on the ground change, priorities may need to be updated.

In 2015, the New Mexico Association of Counties (NMAC), in collaboration with the NMSF and FSG, developed guidelines for updating CWPPs (NMAC, 2015). The guidelines outline the process for updating existing CWPPs as follows:

1. Review existing CWPP.
2. Host collaborative meetings.
3. Update maps.
4. Reflect changes in risk ratings due to complete projects or changes in landscape.
5. Develop updated priorities.
6. Distribute CWPP update drafts to key stakeholders (including local, state, tribal, and federal partners) for review and input before the final approval.
7. Submit the final document to your local government body, local fire department(s) and State Forestry for required signatures and endorsement.

8. Once signed and endorsed by your local governing parties, submit all documentation to NM State Forestry no later than September 1st for final approval by the New Mexico Fire Planning Task Force.

The 2015 CWPP update guidelines also recommend that updates include sections on planning for wildfire preparedness (during a wildfire) and post-fire recovery. Post-fire effects, such as flooding and erosion, can often be worse than the damage sustained during the fire itself. By planning ahead of time, communities can expedite the restoration process and take an active rather than reactionary role in post-fire recovery.

In addition to the items listed above, CWPPs and updates must also include the following elements:

1. Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties
2. Prioritized fuel reduction: A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.
3. Reduce structural ignitability: A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan
4. Secure signatures:
 - a. The applicable local government (i.e., counties or cities);
 - b. The local fire department(s); and
 - c. The state entity responsible for forest management.

This update is divided into nine sections that build on the 2007 CWPP.

- Section one provides a brief overview of land tenure and vegetation types in Rio Arriba County.
- Section two outlines accomplishments made in the County towards reducing wildfire risk.
- Section three describes the process the core team and stakeholders followed to determine community hazard ratings and the Wildland Urban Interface (WUI).
- Section four identifies priority action items recommended by community members, County officials, and the core team that will help make the communities within the County more fire adapted.
- Section five provides an overview of other plans and resources relevant to wildfire, such as the County hazard mitigation and comprehensive plans.
- Section six provides guidance for how County residents can work to become more fire adapted.
- Section seven makes recommendations for ways to improve preparedness during a wildfire event.
- Section eight outlines key elements necessary for planning for post-fire recovery proactively, rather than after a wildfire occurs.
- Section nine summarizes the collaborative process that guided this document.

1| Geography

Land tenure

As in much of the western United States, land tenure in Rio Arriba County is a mix of public, private, and tribal land. The U.S. Forest Service manages the largest percentage of land in the County at 37%. Table 1 below and the map in appendix 1 display the surface ownership in Rio Arriba County.

Table 1 Rio Arriba County surface ownership

Rio Arriba County surface ownership			
	Acres	Square Miles	% of total land
Public	2,136,240	3,338	57
Private	838,714.6	1,311	22
Tribal	797,909.2	1,247	21
Public Land			
USFS	1,407,319	2,199	37
BLM	561,113	877	15
NM State Trust Land	86,437	135	2
Other State (State Parks, NM Department of Game & Fish)	63,500	99	2
Other Federal (Bureau of Reclamation, Department of Defense, etc.)	17,871	28	1

Note: the calculations above are approximate and are not sourced from official land ownership information.

Vegetation

Vegetation types are largely dependent on elevation and proximity to perennial sources of water. The County contains a diversity of vegetation types with grass, shrubs and piñon-juniper forests dominating the lowlands and ponderosa pine and mixed-conifer dominant at higher elevations. Fire behavior and severity is heavily influenced by vegetation type and the fire return interval (FRI) associated with it. Where continuous surface fuels are present, the FRI tends to be more frequent. At higher elevations, which tend to be wetter and cooler, fire is more infrequent but may burn with a greater severity due to the build up of fuels. Mitigation measures to reduce wildfire risk to nearby communities should take vegetation type into account. The map in appendix 2 displays the vegetation types found in Rio Arriba County.

Fire districts

Rio Arriba County is divided into eighteen fire districts, which are listed below and displayed in the map in appendix 3. Some inhabited areas of the County are not currently covered by a fire district.

- Abiquiu
- Agua Sana
- Alcalde
- Brazos Canyon
- Canjilon
- Chamita
- Coyote
- Dixon
- Dulce
- El Rito
- Laguna Vista
- La Mesilla
- Lindrith
- Ojo Sarco
- Tierra Amarilla
- Truchas
- Vallecitos
- Velarde

2| Accomplishments Since 2007 CWPP

A number of accomplishments have happened since 2007 to make the communities of the County more fire adapted. These include many forest restoration and fuels reduction projects across jurisdictions that have reduced the risk of high-intensity crown fire to communities or other values, as well as improvements in planning and preparedness. The map in appendix 4 displays some of the fuels treatments that have occurred on various jurisdictions in the county between 2006 and 2016.

Through partnerships and collaboration, many forest restoration and fuels reduction projects have been implemented and have been followed by prescribed fire to further reduce fuels, fire risk, and extend the effectiveness of mechanical treatments. These have occurred on tribal, private, state, municipal, and federal lands. The New Mexico Vegetation Treatment Map is a collaborative spatial initiative led by the New Mexico Forest and Watershed Restoration Institute. Katie Withnall is the GIS Specialist currently leading this effort and the map can be accessed through the online application (<http://arcg.is/2n4T2y4>). While this map is not perfect, it is currently the only ongoing repository of geospatial data across jurisdictions in New Mexico. In many areas of the County, this map shows the historic, completed, and planned treatments. For example, near Canjilon there are many recently completed on Forest Service, Bureau of Land Management, and private lands that are labeled as wildland-urban interface or hazardous fuels reduction and align with this plan. This map is not static, and if partners know of treatments that are not being displayed, they can provide their spatial data to the GIS Specialist. Doing so will help create a complete dataset for cross-jurisdictional review and analysis.

Additionally there were focused efforts since 2007 to improve wildland vegetation conditions in relation to the risk they pose to communities and values at risk. These focused efforts include the

America Recovery and Reinvestment Act investments at Mesa de los Viejos, a State Forestry non-federal lands grant (Steven's hazardous fuels funding) for the Cebolla-Canjilon WUI, investments from the Rio Grande Water Fund, treatments implemented by the Chama Peak Land Alliance, NM State Forestry treatments through the Forest Health Initiative, and investments from the US Forest Service, the Bureau of Land Management, NM State Forestry, and the Natural Resource Conservation Service. Most of these investments are already part of the New Mexico Vegetation Treatments map.

In addition to forest restoration and fuels reduction treatments, there have been education and outreach efforts aimed at increasing awareness and preparedness. For example, the New Mexico Association of Counties funded a local non-governmental organization in 2009 to do specific wildfire risk awareness and education in the communities of Embudo, Cañoncito, and Montecito. In 2014, the Forest Stewards Guild convened at Fire Adapted Communities Peer Learning Exchange in Taos (<http://fireadaptednm.org/index.php/peer-learning-2014>), which drew participants and presentations from Colfax, Taos, and Rio Arriba Counties as well as from southwest Colorado. Representatives from the Brazos Canyon fire department shared their experiences on their efforts to do pre-planning evacuation planning, mitigation, and training and outreach. Together with on-the-ground fuels and survivable space treatments, planning and preparedness efforts increase community fire adaptation.

3| Wildland Urban Interface

The map in appendix 5 displays the Wildland Urban Interface (WUI) in Rio Arriba County. The WUI for the County was determined collaboratively between members of the core team and stakeholder groups identified in tables 8 and 9 and through geospatial analysis of population centers and infrastructure. See the map in appendix 6 for population density in the County.

Communities at Risk

The 2017 Rio Arriba County CWPP stakeholders identified a shortcoming of the 2007 CWPP as providing a poorly delineated and incomplete list of communities in the County. Therefore, rather than focusing on changes to community at risk ratings since 2007, a more comprehensive community list was developed using a two-prong approach. An initial list was developed from the ground-up by asking participants at outreach events and fire chiefs to define and locate the approximate boundaries of current communities. A second list was obtained from the Planning Department of Rio Arriba County, which was accompanied by a map of community polygons in geospatial format. The two lists were merged into one geospatial community layer and incorporated into the map in appendix 7 and table 3. For the final list of communities, the core team tended to favor the existing list provided by the County except where splitting a community yielded different wildland fire hazard risk ratings and therefore a higher resolution communities at risk data. For clarification, when we encountered more than one name for a particular area, we would add the other, less common name in parenthesis. We also used parenthetical names to clarify community names that are used more than once in the County.

While all communities in the County can be considered “at risk” from wildfire, a more robust assessment was conducted by the CWPP core team and through input from members of the public. Following CWPP guidelines, each community was assigned community hazard rating

(CHR) of low, medium or high wildland fire risk. CWPP core team members developed the matrix in table 2 to guide the CHR for each community using the following considerations:

1. Flame length: Flame length is an important indicator of fire behavior and greatly impacts suppression tactics. The flame length map (Appendix 8) was created using geospatial data adjusted for New Mexico and included in the New Mexico statewide assessment (EMNRD, 2010). Technical teams were established by resource experts for the eight data themes. The Wildfire Risk technical team developed the flame length model and the team was comprised of experts from environmental organizations, private industry, federal, state, and municipal agencies, and conservation organizations. The Flame Length model was one of several models to characterize overall wildfire risk for New Mexico. This model was created using several spatial input data layers (elevation, slope, aspect, canopy closure, fuel model, canopy base height, and canopy bulk density) derived from the nationwide interagency LANDFIRE modeling effort. These inputs modeled flame length using the FlamMap fire behavior model with the addition of weather parameters collected from RAWS weather stations throughout New Mexico. The technical team then adjusted and interpreted these modeled outputs to reflect their knowledge of fire behavior.

The CWPP core team determined that flame length was an appropriate metric for the CWPP. First, the Incident Response Pocket Guide (IRPG) identifies that flame lengths greater than four feet are too intense for direct attack by wildland firefighters and pose significant risk to structures and emergency personnel (NWCG, 2014). From the IRPG, “Crowning, spotting, and major fire runs are probable. Control efforts at the head of the fire are ineffective” (NWCG, 2014). This is useful in this CWPP when considering what fire behavior is proximate to communities and values at risk. It is also useful for identifying where direct attack by local resources may be safe and reasonable (<4 feet) and where control efforts will likely be ineffective (>11 feet) and where there will likely be a high risk to firefighter and public safety (>11 feet).

2. Vegetation in community: Vegetation type greatly influences fire behavior and intensity.
3. Vegetation adjacent to community: Vegetation types surrounding a community greatly affect wildfire hazard, as wild lands are often where fires originate that would impact a community.
4. Access: Ingress and egress from a community has significant bearing on wildfire risk both for emergency vehicles and residents attempting to evacuate their community.
5. Dominant construction materials: Perhaps the most significant risk to homes being lost to wildfire is from the ember shower from a wildfire and not direct flame contact. Fire resistant construction materials reduce fire risk.
6. Firewise community designation: Firewise community designation indicates that residents have taken steps to reduce their community’s and their own homes wildfire risk. It also indicates that residents will maintain risk reduction and wildfire preparedness efforts.

7. Fire adapted communities event or awareness: Engaged and educated residents are more likely to take steps to reduce their own home and community's wildfire risk.

Table 2 Community hazard ratings matrix

Community hazard ratings matrix			
Consideration	Low	Medium	High
Location on Flame Height Map (appendix 8)	From map	From map	From map
Vegetation in community	Fuels are generally fine, such as grasslands or sparse shrub, or forest < 40 ft ² basal area	Fuel conditions are heavier than low and lighter than high	Closed forest canopy, often with ladder fuels
Vegetation adjacent to community	Fuels are generally fine, such as grasslands or sparse shrub, or forest < 40 ft ² basal area	Fuel conditions are heavier than low and lighter than high	Closed forest canopy, often with ladder fuels
Access	Multiple ways of ingress and egress to community, fuels along roads are well managed.	Road access conditions are not as good as low, or as bad as high	One way in, one way out. Fuels along road may compromise evacuation route
Dominant construction materials	Majority of structures include non-flammable building materials such as metal roofs, adobe walls, enclosed decks, etc.	Structures are generally good throughout community, but improvement is possible	Majority of structures have issues such as un-enclosed porches, trees incorporated in construction, flammable building materials, etc.
Firewise Community Designation	Has had designation more than 2 years	Currently applying or recent designation	No designation
Fire adapted communities event or awareness activity	Has at least one event or activity each year - to remove fuels or clean up around home	Has more than one event or activity each year – to remove fuels or clean up around homes.	No events or community awareness

Table 3 Community hazard ratings

Community hazard ratings			
Fire Department or Area	Community Name	Hazard Rating (2007)	Hazard Rating (2017)
Abiquiu VFD	Abiquiu Lake Subdivision	Not included	Low
	Laguna Jacques	Not included	Low
	Cañones	Not included	High
	Ghost Ranch	Not included	Medium
	Los Silvestres	Not included	High
	Plaza Blanca (Abiquiu)	Not included	Medium
	La Caminos	Not included	High
	Abiquiu	High	High
	Barranco	Not included	High
	Santa California	Not included	Medium
	Tierra Azul	Not included	Medium
	Medanales	Not included	Medium
Agua Sana VFD	Rio Chama	Not included	High
	Chili	Not included	Medium
	Cerrito de Baca	Not included	Medium
	Hernandez (including El Duende and San Jose)	Not included	High
Alcalde VFD	Alcalde (including Los Luceros & La Villita)	Not included	High
	El Guique	Not included	High
	Estaca (Alcalde)	Not included	High
Brazos Canyon VFD	Brazos Canyon including subdivisions such as Upper Brazos Canyon, Ticonderoga, Brazos Meadows, Brazos Estates, and Millstone.	High	High
	Ponderosa Subdivision	High	High

	Cañones Creek	Moderate	High
	Los Brazos	Not included	Low
Canjilon VFD	Canjilon	Moderate	Medium
	Cebolla	Not included	Low
Chamita VFD	Chamita	Not included	Medium
	Gallina	Not included	Medium
	Mesa de Poleo	Moderate	High
Coyote VFD	Coyote	Not included	Low
	Piedra Lumbre Estates	Not included	Low
	Youngsville	Not included	Medium
	Dixon (including Estaca)	Not included	Medium
Dixon VFD	Embudo	Not included	Low
	Rinconada	Not included	Low
	Placitas	Not included	Medium
El Rito VFD	Cañon (El Rito)	Not included	Medium
	El Rito	Moderate	Medium
Laguna Vista VFD	Laguna Vista	Moderate	Medium
	Guachupangue	Not included	Medium
La Mesilla VFD	San Pedro	Not included	Medium
	La Mesilla	Not included	Medium
	Lindrith (including Ojito)	Not included	Low
Lindrith VFD	Llaves	Not included	Medium
Ojo Sarco VFD	Ojo Sarco	Not included	Medium
	Truchas	Not included	Medium
Truchas VFD	Cordova	Not included	Medium
	Nutrias	Not included	Medium
	El Vado (including Piñon Ridge)	Moderate	Medium
Tierra Amarilla VFD	Tierra Amarilla	Not included	Low
	Ensenada	Not included	Low
	Los Ojos	Not included	Low
	La Puente	Not included	Medium

	Plaza Blanca (La Puente)	Not included	Low
	Rutheron (including Park View Hills and Fort Heron Preserve subdivisions)	PVH - High FHP - Moderate	Medium
Tres Piedras VFD	Tres Piedras	Not included	Medium
	Las Tusas	Not included	High
	Highland Estates	Not included	Medium
Vallecitos VFD	La Madera	Moderate	Medium
	Cañon Plaza	Moderate	Medium
	Placita Garcia	Moderate	Medium
	Ancones	Not included	High
	Vallecitos	Moderate	Medium
Velarde VFD	Velarde	Not included	High
	La Canova	Not included	High
	Lyden	Not included	High
Not within an existing fire district - west end RAC	Navajo City	Not included	Medium
	Lybrook	Not included	Medium
Not within an existing fire district - north central RAC	Rio Chama Estates	Not included	Low
	Chama West Subdivision	Not included	Medium
	Lumberton	Not included	Low
Not within an existing fire district - ne RAC	Los Pinos	Not included	High
Not within an existing fire district - east county line mid RAC	Las Tablas	Not included	Medium
	Petaca	Moderate	Medium
	Servilleta Plaza	Not included	Medium
	La Zorra	Not included	Medium
	La Cueva	Not included	Medium
Not within an existing fire district - SE RAC - 285 corridor	Shadow Mountain	Not included	Medium
Municipal departments	Chama	Not included	Medium
	Espanola	Not included	Medium
Tribal	San Juan Pueblo	Not included	*High
	Santa Clara	Not included	*High
	Dulce	Not included	*High

Santa Fe County FD	Chimayo	Not included	High
Ojo Caliente VFD (Taos County)	Ojo Caliente	Not included	Medium

*Tribal communities were not assessed for this CWPP. CHR ratings for tribal communities were taken from NM State Forestry’s Communities at Risk list accessed here <http://www.emnrd.state.nm.us/SFD/FireMgt/documents/CARCommunityList.pdf> and the Southwest Region BIA ranking of tribal communities list accessed here http://www.emnrd.state.nm.us/SFD/FireMgt/docs05/2005NM_CAR.pdf

4| Priority actions

Fuels treatments and resident outreach

The 2015 CWPP Update Guidelines (2015) states that CWPP updates should include updated priorities. The CWPP core team worked with CWPP stakeholders to identify six priority fuels reduction projects in Rio Arriba County. Priority projects represent three categories for determining effectiveness that are outlined in the 2010 New Mexico Statewide Assessment (also known as the New Mexico Forest Action Plan). The first category is based on resource need. This assessment reflects vegetation type, fuel conditions, adjacency to values at risk, topographic features influencing fire behavior, community safety, etc. The second category is called opportunity and assesses values such as community interest and leadership, available contractors and markets for excess woody material, potential for funding, and other operative details that indicate successful implementation. The final category is described as urgency and best understood by asking what the consequences of not taking action will mean to the community. This is not an exhaustive list but rather a starting point for action. Other considerations, such as the availability of funding or changes in community initiative, may further define priorities. The following six priorities are important areas to initiate or continue investment in fuels treatments and resident outreach to make these communities more fire adapted.

➤ **Brazos Canyon**

Brazos Canyon is a one-way in one-way out community that is already aware of their wildfire risk and have taken steps to increase their safety and preparedness. It is especially important continue investing in fuels treatments and landowner engagement to improve and increase their preparedness.

➤ **Bosque corridor from Abiquiu to Espanola along the Rio Chama**

A main fire risk in this corridor is the threat from flammable non-native phreatophytes trees and shrub fields. Coupled with this flammable vegetation are many homes and small ranches and farms that have highly ignitable structures and debris. A combination of vegetation treatments, landowner engagement, efforts to reduce structural ignitability (home hardening) and debris cleanup is needed here.

➤ **Bosque from Espanola up to Velarde along Rio Grande**

A main fire risk in this corridor is the threat from flammable non-native phreatophytes trees and shrub fields. Coupled with this flammable vegetation are many homes and small ranches and farms that have highly ignitable structures and debris. A combination

of vegetation treatments, landowner engagement, home hardening, and debris cleanup is needed here.

➤ **Mesa Poleo Corridor**

This corridor that includes Mesa Poleo and Gallinas has seen significant treatment investments followed by prescribed fire on US Forest Service lands. These investments in largely ponderosa pine forests need to be maintained with prescribed fire. Additionally it is important to increase private land fuels reduction, survivable space around structures, home hardening to reduce ignitability, and reduction of flammable home and ranch debris.

➤ **Cebolla and Canjilon Corridor**

This corridor has seen significant investment in in fuels reduction treatments in the last 5-10 years from several funding sources. Similar to the Mesa Poleo Corridor, these investments need to be maintained with prescribed fire or other maintenance treatments. To compliment the vegetation treatments, outreach to homeowners is needed and programs that assist with home hardening and debris clean-up need to be developed and deployed.

➤ **Vallecitos, La Madera to Cañon Plaza Corridor**

These communities have had significant fuel reduction treatments on the adjacent El Rito Ranger District of the Carson National Forest since 2005. Those treatments have been shown by the 2017 Bonita Fire to reduce wildfire intensity and have allowed natural ignitions to be managed for resource benefit close to communities. This has been a big success however many residents of this corridor live in or close to a floodplain and are at risk from post fire flooding. Additionally, survivable space treatments are needed paired with both homeowner outreach and education, home hardening, and reductions in flammable yard debris.

Electric power lines

Electric power lines are increasingly becoming common ignition points for large wildfires in New Mexico with three major incidents since 2011. The Forest Service held a summit with Western Utilities in Los Angeles in April 2013 to discuss the issue and the New Mexico representative identified 505 miles of transmission line at risk. This is likely an underestimate as smaller cooperatives are underrepresented in this listing. Table 4 below displays the miles of transmission line at risk for each of New Mexico's national forests.

Table 4 Miles of transmission line at risk by National Forest

National Forest	Miles at risk
Carson National Forest	84
Kit Carson Electric Coop	35
Northern Rio Arriba Electric Coop Inc.	12
Public Service Company of New Mexico	6
Tri State Generation & Transmission Association	31
Cibola National Forest	75
Public Service Company of New Mexico	38
Southwestern Electric Cooperative Inc. (NM)	9
Springer Electric Cooperative Inc.	11
Tri State Generation & Transmission Association Inc.	17
Gila National Forest	212
El Paso Electric Company	56
Public Service Company of New Mexico	24
Tucson Electric Power Company	126
Undetermined Company	5
Lincoln National Forest	30
Otero County Electric Cooperative	12
Public Service Company of New Mexico	3
Tri State Generation & Transmission Association Inc.	10
Undetermined Company	5
Santa Fe National Forest	103
Jemez Mountains Electric Cooperative Inc.	25
Public Service Company of New Mexico	66
Tri State Generation & Transmission Association Inc.	2
United States Department of Energy	11
Total	505

Greater collaboration is needed between the CWPP core team and local (e.g. NORA (North Rio Arriba Electric Coop, Jemez Mountains Electric Coop and Kit Carson Electric Coop Inc.) and regional (e.g. Tri State Generation and Transmission Association Inc., etc.) utility companies. Specifically, to learn how these utilities are maintaining their right-of-way responsibilities regarding woody vegetation, and to discuss how these right-of-ways can be consistently maintained or expanded in width in the future. Other strategies for reducing ignition potential from power lines include encouraging off the grid solar systems and burying future or expanded power lines networks. Communities and landowners have a role to play to identify power lines, poles, and transformers that are in poor condition or have excessive brush underneath and contact utilities or other authorities.

STATEWIDE PARTNERS

While New Mexico does not have a formal statewide wood energy team, the Forest Service is working actively on restoration and wood utilization issues with many partners in the public and private sector, including:

- New Mexico Department of Forestry
- National Wild Turkey Federation
- The Nature Conservancy - New Mexico Chapter
- New Mexico Forest Industry Association
- Forest Guild
- New Mexico Forest and Restoration Institute
- Forest and Watershed Health, New Mexico State Forestry

OTHER CONTACTS

<p>Forest Service Acting Regional Forester Gilbert Zepeda 505-842-3307 gzepeda@fs.fed.us</p>	<p>Forest Service Regional Biomass Coordinator Dennis Dwyer 505-842-3480 ddwyer@fs.fed.us</p>	<p>Forest Service Regional Director of Forestry Cliff Dils 505-842-3242 cdils@fs.fed.us</p>
<p>New Mexico State Forester Tony Delfin 505-476-3340 tony.delfin@state.nm.us</p>	<p>Forest Service Regional Director of Lands and Minerals Robert Cordts 505-842-3270 rcordts@fs.fed.us</p>	<p>Rural Development New Mexico Energy Coordinator Jesse Bopp 505-761-4952 jesse.bopp@nm.usda.gov</p>

WESTERN UTILITIES SUMMIT: NEW MEXICO



**APRIL 17, 2013
LOS ANGELES**

- 505 miles of transmission lines at risk on National Forests in New Mexico
- 312 miles of transmission lines at moderate to very high risk on National Forests in New Mexico



Transmission Lines Voltage Class
 — Transmission lines < 200kv
 — Transmission lines > 200kv
 ■ Administrative Forest Boundary
 ■ 2000-2012 Fire Perimeters
 ■ Operating Power Plants



Image 1 2013 New Mexico brochure from Western Utilities Forest Health Summit



Image 2 Example of fuels reduction along power line corridor



Image 3 Hillside showing power line fuels reduction treatment. Image courtesy of NM State Forestry.

CWPP implementation and action items

The 2007 Rio Arriba County CWPP identified several priority actions designed to increase wildfire resilience. Many of those actions are ongoing and have been carried over to the 2017 plan. The CWPP core team and members of the public worked together to update the priority actions list and to identify new priority actions that will make Rio Arriba County more fire adapted. Table 5 outlines the priority actions for 2017 and beyond. Priority actions are divided into five focus areas: (1) community involvement, (2) reducing structural ignitability, (3) fire districts and equipment, and (4) evacuation planning, and (5) water resources.

Formalizing the CWPP core team or creating a new collaborative group is an important first step towards implementing the 2017 CWPP update. Without a core group of residents and stakeholders to take the lead on implementing CWPP action items, Rio Arriba County runs the risk of priority actions not being accomplished. The CWPP core team will lead the effort to implement the 2017 CWPP update action items in collaboration with County staff and resident partners.

Table 5 Rio Arriba County CWPP priority actions

Rio Arriba County CWPP priority actions	
Community involvement	
	Formalize the CWPP group or create a new group that will focus on implementing CWPP priority actions.
1	<p>Detail A collaborative group that focuses on implementing CWPP priority actions is an important component to making this CWPP an actionable plan. Tasks for the CWPP group may include (1) Implementing CWPP priority action items, and (2) providing education and outreach to County residents. The group should have regular meetings throughout the year and take meeting minutes to track resident concerns and ideas for implementing the CWPP. Sub-groups may include evacuation planning, wildfire preparedness, and pursuing funding for project implementation.</p>
	Develop a strategy for wildfire preparedness and prevention outreach and education to vulnerable populations, e.g. the elderly and low-income residents of the County.
2	<p>Detail The elderly and low-income individuals and families face a greater wildfire risk. Targeted outreach will help ensure these residents have the same access to education and outreach materials as well as cost-share programs to reduce wildfire risk.</p>
	Work with New Mexico State Forestry to establish Firewise communities in Rio Arriba County
3	<p>Detail Attaining Firewise status for a community is often the catalyst for further action to engage community members in fuels reduction, wildfire preparedness, and other actions related to becoming a more fire adapted community. The CWPP group can help identify potential Firewise communities and community members to lead those efforts.</p>
	Establish a coalition of Rio Arriba County Firewise communities.
4	<p>Detail A coalition of as few as two Firewise communities can help share resources, successes, and lessons learned with each other. The coalition can also be a resource for other communities looking to attain Firewise status in Rio Arriba County.</p>
5	Host an annual wildfire preparedness day for County residents.

	Detail	Preparedness days can be located in various parts of the county. Local volunteer fire departments would be good hosts for this outreach effort. Residents can learn about steps they can take to make their homes and properties more defensible, and learn about ongoing efforts in the county to reduce wildfire risk.
6		Conduct fire prevention campaigns during times when fire danger is high. Use newspapers, radio messages and signs to alert visitors and residents alike.
	Detail	A diverse suite of outreach methods will increase the amount of people reached. Outreach is particularly important before and during fire season to encourage prevention and preparedness.
7		Include information about actions residents can take to reduce wildfire risk, emergency preparedness, etc. seasonally in utility bills.
	Detail	Utility bills are one method for conducting outreach to County residents on steps they can take to reduce their personal wildfire risk. This method of outreach should also include encouraging landowners to notify utility companies if they see unsafe conditions surrounding power lines and other electrical infrastructure.
Reducing structural ignitability		
8		Work with residents to conduct a home hazard assessment of their property.
	Detail	Members of the CWPP group and fire fighters can help guide residents in how to conduct an assessment. The Forest Stewards Guild and the Wildfire Network have developed an assessment guidebook for use with the assessment developed by Santa Fe County. Both resources are available on the Greater Santa Fe Fireshed website www.santafefireshed.org
9		Consider adopting county codes and ordinances that address wildfire risk.
	Detail	Codes and ordinances are one tool available to local governments to address the shared wildfire risk within a community. Codes and ordinances may address new construction requirements, defensible space, and thinning along rights of way. Examples of WUI codes and ordinances are available from other counties and municipal areas in New Mexico.

10	Review covenants, conditions, and restrictions (CC & Rs) of communities in the county and assess their alignment with Firewise principals.
	Details CC & Rs that conflict with Firewise principals may discourage residents from completing important defensible space projects.
11	Pursue funding for defensible space and general thinning projects on private lands in the County
	Detail Cost share and grant programs exist to help offset the costs of fuel reduction projects.
12	Pursue cost share programs to upgrade residential home building materials e.g. roofing, siding, deck materials.
	Detail Upgrades to homes that reduce structural ignitability are often prohibitively expensive. Cost share programs do exist that can help offset the costs of these upgrades to County residents.
Fire districts and equipment	
13	Continue to support the development of new or expanded fire districts with the ultimate goal that all inhabited areas of the county are eventually covered by a fire district.
	Detail Having all parts of the county covered by a fire district will result in shorter response times and reduced insurance costs for residents.
14	Develop a strategy to improve County fire departments' Insurance Services Organization (ISO) rating.
	Detail Strategies for improving a fire department's ISO rating include fire alarms and communication systems, staffing, training, equipment, and water delivery. https://www.isomitigation.com/ . An improved ISO rating will increase annual fire department funding and reduce homeowner insurance rates.
15	Have each fire district become "initial wildfire attack ready" See table 6 below.
	Detail Improving wildfire response capacity of fire districts will limit response time in the event of an incident.
16	Review the County burn permit process and identify limitations and solutions for addressing them.

	Detail	Consider changes to streamline and clarify the process to help landowners and land managers plan better to implement broadcast and pile burns in the County. Changes may include (1) making the permits available for download online (will still need review and signature of County fire marshal) (2) outline requirements such as burn pile size and quantity, weather, resources, smoke etc., and (3) consider issuing burn permits on weekdays.
17		Hire a full-time Wildland Urban Interface Specialist for the County
	Detail	The WUI specialist will obtain and manage WUI and hazardous fuels reduction grants, coordinate fire prevention activities and public involvement such as the Firewise communities program, coordinate cooperator actions (including state and federal land management agencies, tribes, and private landowners), and work with the CWPP group to implement CWPP priority actions.
18		Identify a community liaison that can relay relevant information between emergency personnel and residents in the event of a wildfire or other emergency.
	Detail	Identifying a community member to work with emergency personnel and residents is part of planning for during and after wildfires and other emergencies. A community liaison will help keep residents informed, providing a trusted and familiar voice to compliment more official channels. This liaison will likely need to be trained in the incident command system and maintain some basic NWCG qualifications.
19		Support residents interested in earning Community Emergency Response Team certification. https://www.fema.gov/community-emergency-response-teams
	Detail	Utilizing existing training and certification programs will help make residents and the County more prepared to respond to wildfires and other emergencies.
20		Encourage the cross-training of area fire departments and local government officials with state and federal agencies using the Incident Command System (ICS) to manage an emergency incident.
	Detail	Wildfire incidents and other emergencies are often cross jurisdictional. Collaborative training exercises will help make emergency personnel more effective and ensure that all involved are using ICS procedures. Training should include wildfire incidents and evacuation.
Evacuation planning		

21	Support evacuation drills and testing of the counties reverse 911 “Code Red” system.	
	Detail	Evacuation drills can help to expose gaps in notification systems and evacuation procedures.
22	Work with communities and fire districts to develop evacuation plans.	
	Detail	Evacuation plans at the appropriate scale that designate routes (including a map), safety zones, roles and responsibilities, and procedures for residents and emergency personnel will make for safer evacuations in the event of an emergency.
23	Establish safety zones and/or evacuation staging areas for each fire district or community.	
	Detail	Having pre-determined safety zones or areas where residents can go to in the event of an evacuation for further instruction will limit confusion in the event of an evacuation.
24	Install signs identifying evacuation routes and safety zones.	
	Detail	Signs designating evacuation routes and safety zones will help residents and emergency personnel during an emergency when they may not have access to maps or conditions limit visibility. Signage will also aid new residents and visitors who are not familiar with established routes.
25	Thin vegetation along roadways and at intersections and maintain previous treatments to create the greatest potential for visibility during a wildfire.	
	Detail	Thinning along roadways is particularly important along evacuation routes and near safety zones.
26	Utilize a suite of notification methods to communicate with residents during emergencies.	
	Detail	Notification methods may include radio, social media (Facebook, Twitter, Nextdoor etc.), the County website, email, television, newspaper, and Code Red.
27	Involve the County Sherriff’s Department, State Police, and other cooperators in reviewing current Emergency Operating Plans and conducting field exercises.	

	Detail	Emergency personnel that will be directly involved in implementing an evacuation should be consulted when developing the County evacuation plan.
28		Promote the Ready, Set, Go! program to County residents and make resources available in print and on the County website. http://www.wildlandfirersg.org/
	Detail	Ready, Set, Go! is a national effort to educate residents how to prepare for an evacuation order ahead of time.
Water resource protection		
		Support projects that improve watershed health upstream of acequias.
29	Detail	Sediment, debris, and post-fire flooding are all threats to acequia infrastructure and agriculture in the County. Supporting upland projects, such as mechanical thinning of too-dense forests and prescribed fire, will make for more resilient watersheds.
		Consider language in the County burn permitting process that addresses the use of fire to clear acequias of debris.
30	Detail	Community members identified the use of fire for clearing of debris in acequias as a fire risk. Including language specific to the burning of debris in acequias in County burn permits may help to alleviate concerns and reduce fire risk.
		Consider a mapping effort to document the location of community water infrastructure, including wells and water tanks.
31	Detail	Mapping community water infrastructure will help prioritize mitigation measures designed to protect them.

Table 6 Training and equipment needed to make Fire districts “initial attack ready”

Training and equipment needed to make Fire Districts “initial attack ready”								
Fire District	Training	Wildland PPE	Hand tools	Brush truck	Tender (1000+ Gallons)	Programmable communication system	GPS receiver	RMP Qualified
Abiquiu/Medanales								X
Agua Sana								X
Alcalde							X	X
Brazos								X
Canjilon/Cebola							X	X
Chamita							X	X
Coyote	X	X			X		X	X
Dixon/Embudo								X
Dulce	X	X		X				X
El Rito								X
Laguna Vista							X	X
La Mesilla/San Pedro								X
Lindrith/Llaves								X
Ojo Sarco								X
Tierra Amarilla	X						X	X
Truchas/Cordova	X			X			X	X
Vallecitos							X	X
Velarde								X

X indicates item is needed

5| Companion plan crosswalk

Statewide Natural Resources Assessment

The *New Mexico Statewide Natural Resources Assessment & Strategy and Response Plans* sets an overarching vision for prioritizing and conducting natural resource management activities across the state (ENMRD Forestry Division. 2010). One of the key focuses of the *Assessment* is protecting watersheds from harm, particularly high severity wildfire. The assessment identifies a number of watersheds in Rio Arriba County as high priority for treatment. For Rio Arriba County, the *Assessment* is most useful as a way to put Rio Arriba's wildfire protection efforts in a state-wide context.

http://www.emnrd.state.nm.us/SFD/documents/New_Mexico_Natural_Resource_Assesment_DataAtlases.pdf

New Mexico State Hazard Mitigation Plan

New Mexico Department of Homeland Security and Emergency Management's *Hazard Mitigation Plan* takes a state-wide view of both hazards and capabilities (NMDHSEM 2013). Rio Arriba County fall within Preparedness Area 3, which identified as highly vulnerable to wildfire in the *Hazard Mitigation Plan*. As with the *Assessment*, the *Hazard Mitigation Plan* is useful to Rio Arriba County as a way of understand comparative risk for the county and state-wide capabilities.

http://www.nmdhsem.org/uploads/files/NM_HMP_Final_9-30-13.pdf

Rio Arriba County Hazard Mitigation Plan

The Rio Arriba County Hazard Mitigation Plan is a county scale version of the New Mexico State Hazard Mitigation Plan (BOLD Planning 2013). The County Mitigation Plan covers a range of hazards including wildfire. The current County Mitigation Plan Hazard Mitigation Plan makes no mention of the CWPP and uses a completely different definition of WUI, which highlights the need for better integration across planning efforts.

http://www.rio-arriba.org/pdf/departments_and_divisions/emergency_management/hazard_mitigation.pdf

Rio Arriba Comprehensive Plan

The Rio Arriba Comprehensive Plan (Plan) provides a vision for the county and describes in detail existing conditions for economic development, housing, infrastructure, transportation, and hazard mitigation. The Plan identifies wildfire as the "greatest threat in Rio Arriba County (RAC 2009). The Plan states that,

"From 1997 to 2003, 354 fires in Rio Arriba required emergency response. The Cerro Grande Fire of 2000 burned 45,000 acres in Los Alamos and Rio Arriba counties, causing property loss, and damage to vegetation and wildlife. Today, Northern Rio Arriba County and the Española bosque rank among the twenty most vulnerable wildland/urban interfaces in New Mexico. Wildfires in Rio Arriba County pose such a significant threat because tree densities in the wildland/urban interface are several times greater than those in healthy forests. In recent years, drought and insect infestation has created drier conditions, exacerbating the underlying problem of fuel accumulation. Irrigated farmlands, which extend

approximately one mile on either side of the County's three rivers, are most vulnerable to wildfires.”

The mitigation actions described in the Plan are taken from the *Rio Arriba County Hazard Mitigation Plan*.

http://www.rio-arriba.org/pdf/20/comprehensive_plan.pdf

6| Fire adapted communities and Firewise communities

Wildfire risk is inherently shared between neighbors and across jurisdictions. Reducing that risk requires both a top-down and grassroots approach. Strategies such as regulations, zoning, and ordinances may provide an incentive for residents to accept responsibility for their own safety and that of their neighbors. However, some rural communities in New Mexico have experienced opposition from residents when ordinances related to wildfire mitigation have been proposed (Weinstein, 2014). Fire Adapted Communities (FAC) concepts focus on outreach and education for residents living in the WUI. By promoting FAC, land managers and local governments may find an alternative to ordinances and regulations or find a more receptive, educated public when proposing such measures as requiring defensible space thinning.

The National Cohesive Wildland Fire Management Strategy, a “strategic push to work collaboratively among all stakeholders and across all landscapes” developed in 2014, lists creating fire adapted communities as one of three primary goals along with resilient landscapes, and safe and effective wildfire response. FAC is a conceptual framework for engaging land management agencies and community stakeholders at various scales from the individual homeowner to businesses to federal agencies in order to help reduce wildfire risk. FAC concepts are useful for helping communities reframe how they think about wildfire. In the western United States, the presence and reoccurrence of wildfire is a natural component of fire adapted ecosystems. The map in appendix 9 highlights this fact by displaying wildfire occurrences in the county between 2006 and 2016. Acknowledging this fact is an important step towards becoming a more fire adapted community and a good starting point for education and outreach to community members. Figures 1 and 2 outline the various elements that define the FAC concept.

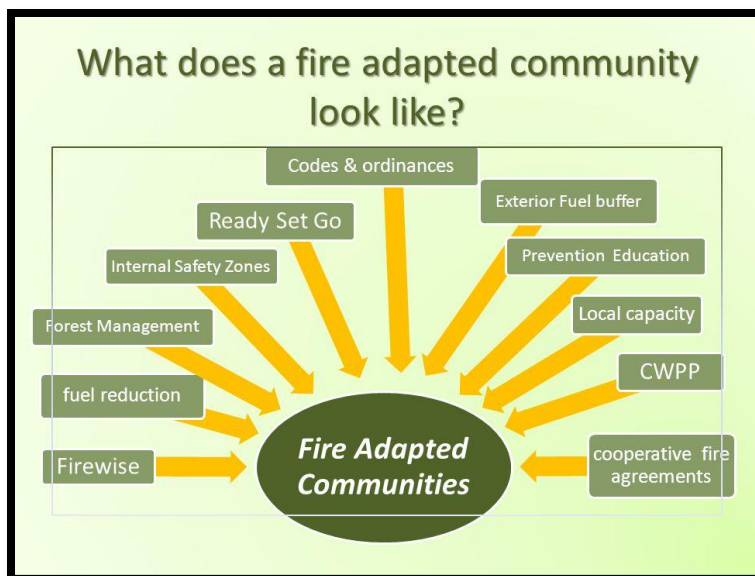


Figure 1 Elements of a fire adapted community

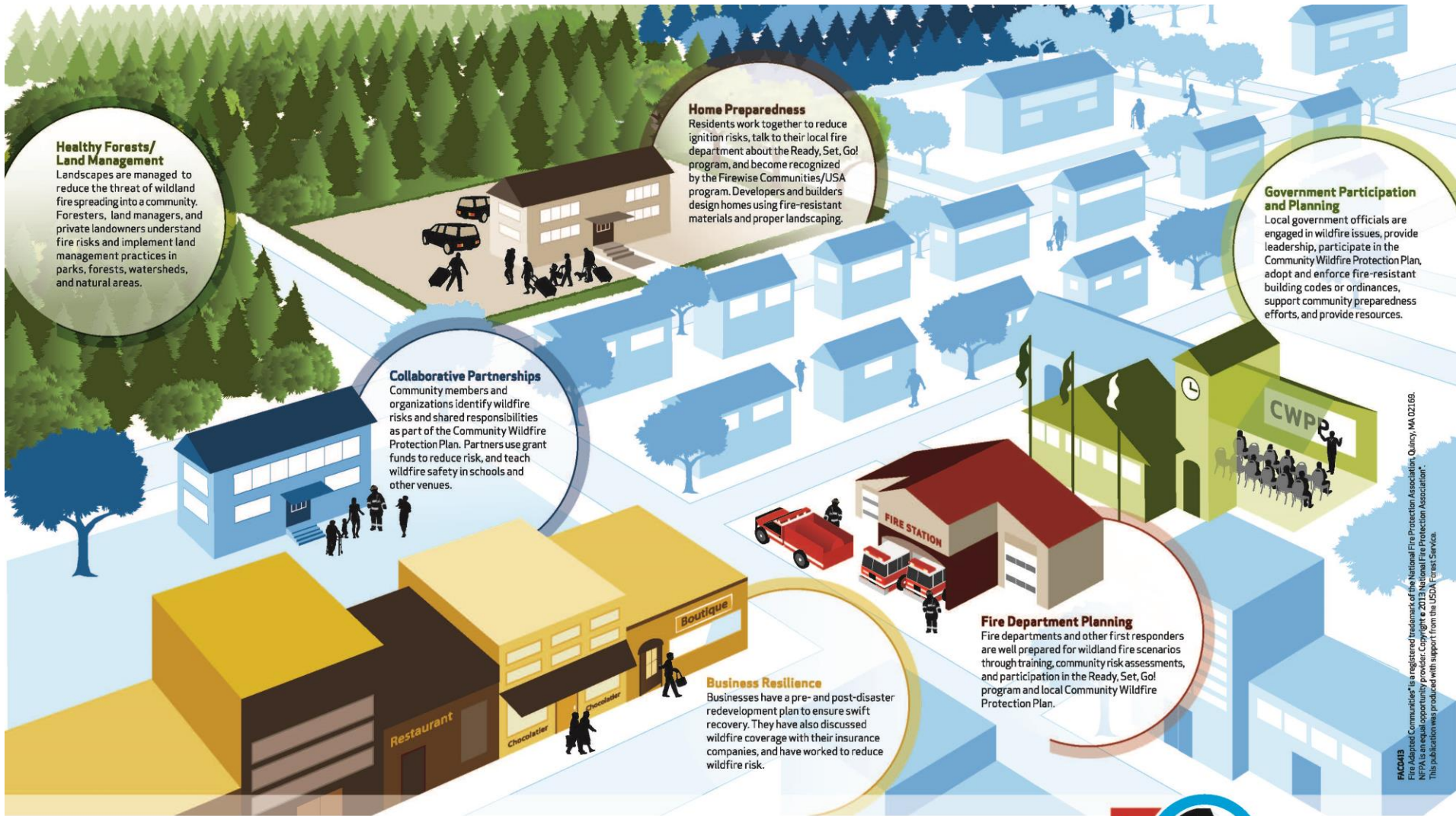
Firewise Communities is a recognition program administered by the National Fire Protection Association that began in 2002. Firewise emphasizes fuels reduction and recommends steps homeowners can take to reduce their individual wildfire risk. For example, landscaping practices to reduce flammable materials close to the home and standards for pruning trees and bushes. www.firewise.org contains several resources for homeowners, such as an online toolkit and checklist for steps to reduce wildfire risk. Firewise recognition is achieved after a community completes a 5-step process:

1. Obtain a wildfire risk assessment as a written document from your state forestry agency or fire department.
2. Form a board or committee, and create an action plan based on the assessment.
3. Conduct a “Firewise Day” event.
4. Invest a minimum of \$2 per capita in local Firewise actions for that year.
5. Submit an application to your Firewise liaison.

Firewise recognition is an important tool in the ongoing process to be fire adapted. Many communities working to be fire adapted begin by becoming recognized as a Firewise community. In summary, “Firewise is a designation, fire adapted is a lifestyle” (Nystrom, 2016).

Part of being fire adapted recognizes that not all members of the community can prepare for, respond to, and recover from a wildfire the same. Research (Lynn and Gerlitz, 2005) and practice have shown that socially vulnerable populations may not be able mitigate and recover from wildfire to the same extent as the community at large. In recognition of this and its relevance in Rio Arriba County, the Households Below Poverty Level and the Senior Citizen maps (appendix 10 and 11) illustrate these related metrics to help guide partners engaged in fire adaptation tailor their practices. Older residents may not be able to move their wood pile, clean gutters and eaves, or rake needles and debris. Households below the poverty level may not have the funds on hand to reduce structural ignitability by installing a new roof, or may not be able to pay for fuels reduction treatments.

For example, a large number of the high wild fire risk communities from Abiquiu to Chama live in areas where 26-30% of the census block groups are aged 65 or older. The Households Below Poverty Level map shows The Mesa Poleo area has between 41% to 50% of households below the poverty level while a large swath of the County from Lybrook and Navajo City in the west and Canjilon and Tierra Amarilla to the east have 21% - 30% of households below the poverty level. These data indicate that certain areas of the County may have specific challenges to become fire adapted.



**Healthy Forests/
Land Management**

Landscapes are managed to reduce the threat of wildland fire spreading into a community. Foresters, land managers, and private landowners understand fire risks and implement land management practices in parks, forests, watersheds, and natural areas.

Home Preparedness

Residents work together to reduce ignition risks, talk to their local fire department about the Ready, Set, Go! program, and become recognized by the Firewise Communities/USA program. Developers and builders design homes using fire-resistant materials and proper landscaping.

Collaborative Partnerships

Community members and organizations identify wildfire risks and shared responsibilities as part of the Community Wildfire Protection Plan. Partners use grant funds to reduce risk, and teach wildfire safety in schools and other venues.

Business Resilience

Businesses have a pre- and post-disaster redevelopment plan to ensure swift recovery. They have also discussed wildfire coverage with their insurance companies, and have worked to reduce wildfire risk.

Fire Department Planning

Fire departments and other first responders are well prepared for wildland fire scenarios through training, community risk assessments, and participation in the Ready, Set, Go! program and local Community Wildfire Protection Plan.

Government Participation and Planning

Local government officials are engaged in wildfire issues, provide leadership, participate in the Community Wildfire Protection Plan, adopt and enforce fire-resistant building codes or ordinances, support community preparedness efforts, and provide resources.

What does a fire adapted community look like?

Fire is a natural part of our environment. As we choose to live in areas where wildfires occur, we must adapt the way we design, build and live within these areas to prepare our communities for wildfire. A fire adapted community understands its risks and takes actions

that minimize harm to residents, homes, businesses, parks, and other community assets. These collective actions empower all community members to be safer in their environment. To learn more about making your community fire adapted, visit www.fireadapted.org.



FAC0413
Fire Adapted Communities® is a registered trademark of the National Fire Protection Association, Quincy, MA 02269.
NFPA is an equal opportunity provider. Copyright © 2013 National Fire Protection Association.
This publication was produced with support from the USDA Forest Service.

Figure 2 Fire adapted communities infographic

7| Wildfire preparedness

Ingress and egress

Ingress (access for wildfire suppression equipment and personnel) and egress (ways for residents and visitors to escape the wildfire) are crucial to wildfire preparedness. Communities with only one way in and out face a greater risk during wildfires. Planning for evacuation at the community or fire district level is one way to identify hazards ahead of time. Actions to improve ingress and egress during a wildfire may include thinning along roadways, road condition improvements, and signage directing residents where to go during an emergency.

Smoke impacts

Wildfire smoke negatively affects older adults, children, and people who have heart or lung diseases that are most at risk from its adverse effects. Even wildfires burning many miles away may cloud the air with smoke. The Center for Disease Control recommends the follow measures to decrease the impact of wildfire smoke:

- Check local air quality reports;
- Keep indoor air as clean as possible by keeping doors and windows shut;
- Avoid activities that increase indoor pollution such as smoking, burning candles, fireplaces, or gas stoves; and
- Seek shelter in a designated evacuation center or away from the affected area if necessary.

Oil and gas production

Oil and gas production is a crucial part of Rio Arriba County's economy. There are over 11,500 oil and gas wells in the county, mostly on federal and Native American lands (RAC, 2009). There are two primary concerns related to wildfire and oil and gas production, (1) wells as potential sources of ignition, and (2) hazards associated with wells being impacted by wildfires or secondary fire effects. Including oil and gas companies in multi-jurisdictional training exercises and wildfire and hazard mitigation planning is one method for improving wildfire preparedness related to oil and gas infrastructure.

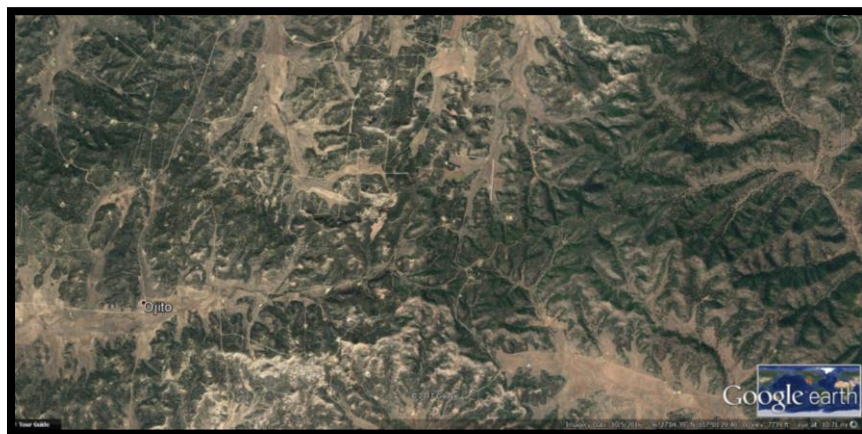


Image 4 Example of development patten of oil and gas in western Rio Arriba County

Communication

Communication is one of the best tools for reducing the impact of wildfires. Good communication allows firefighters to efficiently suppress wildfires, residents to evacuate if the need arises, and responders to help those in need. In order to ensure good communication during an incident, it is crucial to have communication before an incident. Emergency responders from the County, volunteer fire departments, state, and federal agencies need to be sure they understand each other's communications protocols and requirements. Pre-wildfire season meetings of key individuals is a worthwhile investment to ensure seamless communication during a wildfire. These meetings also serve to build the personal connections and trust that can be very important during an incident.

Community Emergency Response Team

The Federal Emergency Management Agency (FEMA) has a program to help community members be part of the response to disasters called Community Emergency Response Team (CERT). The CERT program helps volunteers use training learned in the classroom and during exercises to assist others in their community after a disaster when professional responders are not immediately available to help.

Evacuation

Residents should be ready to leave as soon as evacuation is recommended by officials to avoid being caught in fire, smoke, or road congestion. Evacuating early helps firefighters keep roads clear of congestion and lets them move more freely to do their job. The 2017 CWPP update includes a priority action item to establish safety zones and/or evacuation staging areas. A safety zone is an area without burnable fuel that is large enough so that the distance between the firefighters and flames is at least four times the maximum flame height (NWCG, 2014).

Defensible space

Creating defensible space around a home is one action residents can take to reduce their wildfire risk. Making one's home more fire resistant is about more than just cutting trees. Keeping gutters and roofs clear of flammable debris, moving woodpiles away from the house, keeping the grass mowed are simple steps homeowners can take to make their homes more resistant to wildfire. Firewise USA recommends three zones of defensible space that provide useful guidance for County residents (Firewise USA, 2016).

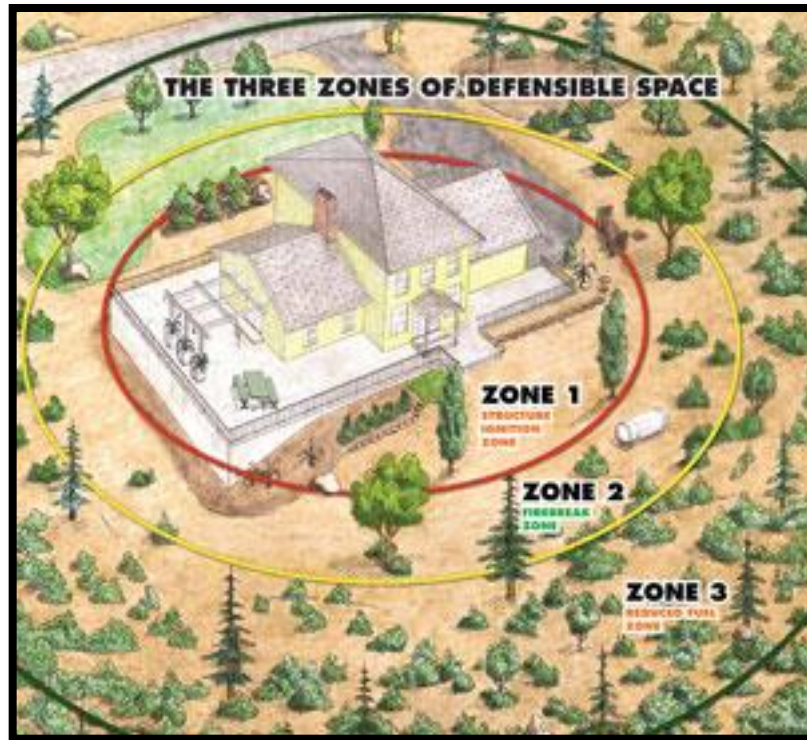


Figure 3 Three zones of defensible space

Zone 1: encircles the structure and all its attachments (wooden decks, fences, and boardwalks) for at least 30 feet on all sides. *Note:* the 30-foot number comes from the very minimum distance, on flat ground, that a wood wall can be separated from the radiant heat of large flames without igniting. In this area:

- Plants should be carefully spaced, low-growing and free of resins, oils and waxes that burn easily.
- Mow the lawn regularly. Prune trees up six to ten feet from the ground.
- Space conifer trees 30 feet between crowns. Trim back trees that overhang the house.
- Create a ‘fire-free’ area within five feet of the home, using non-flammable landscaping materials and/or high-moisture-content annuals and perennials.
- Remove dead vegetation from under deck and within 10 feet of house.
- Consider fire-resistant material for patio furniture, swing sets, etc.
- Remove firewood stacks and propane tanks; they should not be located in this zone.
- Water plants, trees and mulch regularly.
- Consider xeriscaping if you are affected by water-use restrictions.

Zone 2: 30 to 100 feet from the home, and plants in this zone should be low-growing, well irrigated and less flammable. In this area:

- Leave 30 feet between clusters of two to three trees, or 20 feet between individual trees.

- Encourage a mixture of deciduous and coniferous trees.
- Create ‘fuel breaks’, like driveways, gravel walkways and lawns.
- Prune trees up six to ten feet from the ground.

Zone 3: 100 to 200 feet from the home and this area should be thinned, although less space is required than in Zone 2. NOTE: Because of other factors such as topography, the recommended distances to mitigate for radiant heat exposure actually extend between 100 to 200 feet from the home – on a site-specific basis. In this area:

- Remove smaller conifers that are growing between taller trees. Remove heavy accumulation of woody debris.
- Reduce the density of tall trees so canopies are not touching.

8| Planning for post-fire recovery

Because of the significant probability of a wildfire eventually occurring in or around Rio Arriba County, it is important to plan for how the community will recover after a wildfire. New Mexico State Forestry provides an excellent resource for thinking about post-fire recovery called *After Wildfire* (www.afterwildfirenm.org). In addition, many elements of post-wildfire recovery are similar to recovery from other disasters and are covered in the Rio Arriba County Hazard Mitigation Plan.

The first post-fire recovery concern is safety. After a wildfire it is important that residents stay away from their homes or businesses until officials determine it is safe to return. Because utility services can be disrupted by wildfire:

- do not drink or use water from the faucet until officials say it is okay;
- use extreme caution around trees, power poles and other tall objects that may have lost stability during the fire;
- if you have a propane tank or system, contact a propane supplier, turn off valves on the system, and leave valves closed until the supplier inspects your system; and
- look for smoke or sparks that may still be burning.

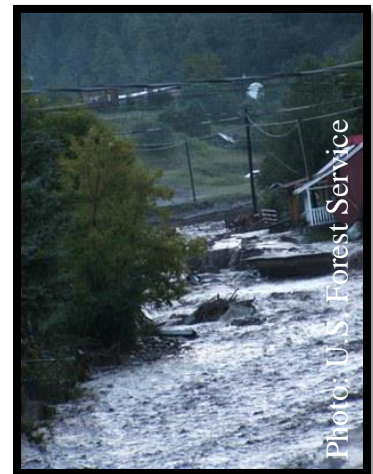


Image 5 Post-fire flooding in Arizona

Post fire flooding is a major concern. Maps in appendix 12 and 13 display post-fire debris flow hazard and which population centers are most at risk from flooding. Post-fire debris flow was modeled using a standard methodology (Cannon et. al., 2010). Debris flow hazard is a combination of probability of a debris flow and potential volume of debris flow. AN important caveat is that this dataset shows where debris flows will originate and not necessarily where they will end up. The heavy monsoon season rains common in New Mexico in the late summer and early fall can often bring flooding and debris flows after wildfire. These storms are typically local, very intense, and of short duration, delivering large amounts of rain in a short amount of time. When such storms develop over burned areas, the ground cannot absorb the rain quickly

enough, forcing the water and topsoil to run off the burned area, accumulate in streams, and produce flash floods. Post-fire debris flows also pose a risk to water infrastructure such as reservoirs and pipe systems.

Although Rio Arriba County does not allow construction within its FEMA designated floodplains without a floodplain construction certificate, FEMA flood risk maps can still help guide post-fire preparation for flooding. Maps 28 through 33 in the Rio Arriba County Hazard Mitigation Plan shows the 100 and 500 year floodplains in Rio Arriba County and its participating jurisdictions based on the FEMA’s National Flood Hazard data. Some homes and businesses may want to reevaluate their flood insurance coverage in light of the fact that post-wildfire floods are often more extensive than the flood risk before a wildfire might indicate.

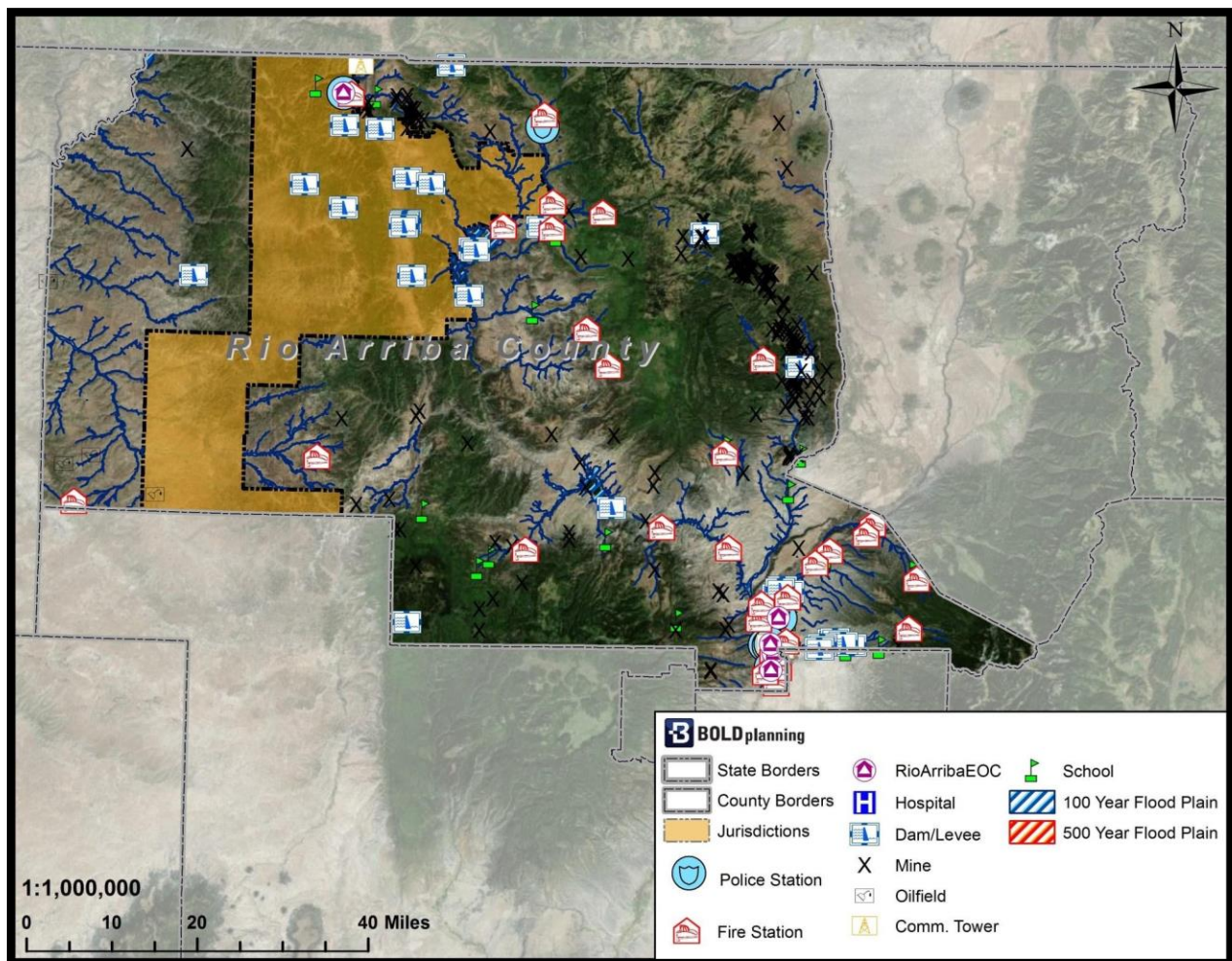


Figure 5 FEMA’s National Flood Hazard data as presented in the Rio Arriba County Hazard Mitigation Plan Map 28 (BOLD Planning 2013).

The New Mexico’s *After Wildfire* guide suggests communities designate a Post Fire Coordinator (or a few coordinators) to work directly with local, state or federal agencies, emergency response

officials, volunteers, and other stakeholders to address needs and seek assistance. Post Fire Coordinators may be part of the Community Emergency Response Team (CERT) mentioned above in the Wildfire Preparedness section.

It may be appropriate to implement post-wildfire treatments in the forest such as erosion control or planting, but first communities should be sure to identify values at risk post-wildfire and focus on treatment that reduce the threat to those values. The *After Wildfire* guide has a catalogue of potential treatments that include:

- seeding and mulch to reduce erosion;
- contour log felling and other erosion barriers;
- check dams and other channel treatments; and
- culvert modifications and other road treatments.



Image 6 Spreading mulch to reduce post-fire erosion



Image 3 a check dam stabilizes soil behind it

9| Voices from the community

The 2017 CWPP update was a collaborative effort between the CWPP core team and CWPP stakeholders. Table 7 below lists CWPP stakeholders who were invited to participate in the 2017 CWPP update process.

Table 7 2017 CWPP update stakeholders

2017 CWPP update stakeholders		
Name	Position	Affiliation
Jose Carrillo	Timber Management Officer	NM State Forestry
Pablo Montenegro	Chama District Fire Management Officer	NM State Forestry
Mary Stuever	Chama District Forester	NM State Forestry
Thomas Aragon	(Current) Director of Planning and Zoning	Rio Arriba County
Lucia F. Sanchez	(Former) Director of Planning and Zoning	Rio Arriba County

Carlos Esquibel	Fire Marshal	Rio Arriba County
Alfredo Montoya	(Current) Emergency Management	Rio Arriba County
Allen Sanchez	(Former) Emergency Management	Rio Arriba County
Chris White	Volunteer Consultant	Rio Arriba County
Gene Manwell	Fire Management Officer	Jicarilla BIA
Jim Friedley	NEPA Coordinator	Jicarilla BIA
Alicia Gallegos	Canjilon District Ranger	Carson National Forest
Chris Furr	Tres Piedras District Ranger	Carson National Forest
Rick Rymerson	Jicarilla District Ranger	Carson National Forest
Jim Gumm	El Rito District Ranger	Carson National Forest
Lee Stewart	Coyote District Ranger	Santa Fe National Forest
Sandy Hurlocker	Espanola District Ranger	Santa Fe National Forest
Ron Russom	Mayor	Village of Chama
Denise Gallegos	Municipal Clerk	Village of Chama
Alice Alarid Lucero	Mayor	Española
John Bush	President	Cumbres and Toltec Scenic Railroad Manager
Benjamin Leyba	Executive VP and General Manager	Northern Rio Arriba Electric Coop (NORA)
Joseph Sanchez	General Manager	Jemez Electric Coop
Anne Bradley	Forest Conservation Program Manager	The Nature Conservancy: NM Field Office
Eytan Krasilovsky	Southwest Director	Forest Stewards Guild
Matt Piccarello	Southwest Assistant Director	Forest Stewards Guild
Michael Scisco	Principal	Unique Places LLC
Emily Hohman	Executive Director	Chama Peak Land Alliance
Pat Pacheco	Fire Management Officer	Bureau of Land Management: Taos Field Office
Kyle Sahd	Fire Management Specialist	Bureau of Land Management: Taos Field Office
Mike Valdez	Fire Chief	Brazos Canyon Volunteer Fire Department
Stan Tarasek	Staff	Brazos Canyon Volunteer Fire Department
Arturo Archuleta	Staff	NM Land Grant Council
Manny Trujillo	Board Member	Chama Peak Land Alliance
Valerie Romero	Education Fund Staff	Conservation Voters of NM
Horace Leyba	Board Member	Upper Chama Soil and Water Conservation District
Frank Martinez	Board Member	Upper Chama Soil and Water Conservation District
Eloy Olivas	Board Member	Upper Chama Soil and Water

		Conservation District
Kenny Salazar	Board Member, Chair	East Rio Arriba Soil and Water Conservation District
Marcos Valdez	District Manager	East Rio Arriba Soil and Water Conservation District
Normal Vigil	Project Manager	NM Association of Conservation Districts
Dagmar Llewellyn	Bureau of Reclamation	Hydrologist
Lawrence Garcia	Manger	Farm Bureau Insurance
Chris Chadwick	Assistant Director	NM Game and Fish
Mario Manzanares	Assistant Fire Chief	Abiquiu Fire Department
Alfredo Montoya	Assistant Fire Chief	Auga Sana Fire Department
Cassandra Romero	Fire Chief	Alcalde Fire Department
Michael Valdez	Fire Chief	Brazos Canyon Fire Department
Abraham Baca	Fire Chief	Canjilon Fire Department
Mitch Herrera	Fire Chief	Chamita Fire Department
Adonais Martinez	Fire Chief	Coyote Fire Department
Steve Jenison	Volunteer Paramedic and Rescue Chief	Dixon Fire Department
Kathy Miller	Fire Chief	Dixon Fire Department
Jonathan Black	Assistant Chief	Dixon Fire Department
Windy Berghofer	Fire Chief	Dixon Fire Department
Delbert Crow II	Fire Chief	Dulce Fire Department
Marcos Garcia	Assistant Chief	El Rito Fire Department
Pat Byrnes	Fire Chief	Laguna Vista Volunteer Fire Department
Jonathan Martinez	Assistant Chief	La Mesilla Fire Department
John M. Greacen	Fire Chief	Lindrith/Llaves Fire Department
Chris Walker	Assistant Chief	Lindrith/Llaves Fire Department
Derrick Rodriguez	Assistant Chief	Ojo Sarco Fire Department
Justiniano Valdez	Fire Chief	Tierra Amarilla Fire Department
David Trujillo Sr.	Assistant Chief	Truchas Fire Department
Arnold Gurule	Fire Chief	Vallecitos Fire Department
Carlos R. Esquibel	Fire Chief	Velarde Fire Department
Rob Chavez	Representative	Duranes Acequia
J.Michael Chavarria	Governor	Santa Clara Pueblo
Representative	n/a	Acequia de los Gallegos
Steve Harris	Owner	Far-Flug Adventures/Rio Grande Restoration Activist
Representative	n/a	Agua Nortenas Embudo Watershed
Andrew Martinez	Assistant Planner	Rio Arriba County Planning
Leonard Martinez	President	San Joaquin Del Rio de Chama Land Grant
Representative	n/a	Northern Pueblo BIA
Representative	n/a	Upper Chama WUI Corp

Michael Garcia	Assistant Planner/Certified Floodplain Manager	Rio Arriba County
Jerome Jenkins	Forestry Supervisor	BIA
Rick Wells	Supervisory Forester	BIA Jicarilla

Core team

The CWPP core team consisted of contractors (CPLA, Forest Guild, and Unique Places), County officials, and NM State Forestry staff who developed and authored the CWPP update. The CWPP core team took the lead on developing the document, convened public meetings, updated maps, and coordinated with CWPP stakeholders. Table 8 below lists the members of the CWPP core team.

Table 8 2017 CWPP update core team

2017 CWPP update core team		
Name	Position	Affiliation
Emily Hohman	Executive Director	Chama Peak Land Alliance
Monique DiGiorgio	Former Executive Director	Chama Peak Land Alliance
Emma Kelly	AmeriCorps VISTA Volunteer	Chama Peak Land Alliance
Will Donahoo	Former AmeriCorps VISTA Volunteer	Chama Peak Land Alliance
Mary Stuever	Chama District Forester	New Mexico State Forestry
Jose Carillo	Timber Management Officer	New Mexico State Forestry
Pablo Montenegro	Fire Management Officer	New Mexico State Forestry
Eytan Krasilovsky	Southwest Director	Forest Stewards Guild
Matt Piccarello	Southwest Assistant Director	Forest Stewards Guild
Michael Scisco	Principal	Unique Places LLC
Kate Lenzer	GIS Specialist	Unique Places LLC
Anne Bradley	Forest Conservation Program Manager	The Nature Conservancy: NM Field Office

Community meetings and surveys

The working team convened several meetings for County residents and stakeholders to discuss progress made since the 2007 CWPP; updates to the communities at risk ratings and priority rankings; and to identify priority action items for the 2017 CWPP update. The community meetings conducted by the core team engaged members of various communities within the County to discuss issues of wildfire protection and preparedness. Some questions posed at these meetings engaged homeowners in assessing their own prevention practices, such as defensible space zone treatments, fuel breaks, and open space thinning. There was also discussion of road conditions at these meetings. Community members have valuable knowledge on road conditions and access that helped ensure inclusion of this issue in the 2017 CWPP plan update. Table 9 below provides an overview of all core team meetings, core team meetings, and public meetings convened for the 2017 CWPP update.

Table 9 2017 CWPP update meetings

2017 CWPP update meetings			
Date	Meeting (core team, community etc.)	# of participants	Representation (organizations, e.g. forest service, state forestry etc.)
8-2-2016	Update call with core team	5	Unique Places LLC, Forest Stewards Guild, Rio Arriba County, New Mexico State Forestry, Chama Peak Land Alliance
8-25-2016	Core team meeting	6	Rio Arriba County, New Mexico State Forestry, Chama Peak Land Alliance
11-3-2016	Community meeting for Dixon	11	Dixon Volunteer Fire Department, Rio Arriba County, Chama Peak Land Alliance
11-4-2016	Community meeting for Agua Sana	5	Chama Peak Land Alliance, Rio Arriba County, NM State Forestry, Brazos Canyon Fire Department
11-18-2016	Community meeting for Abiquiu and Vallecitos	7	Community Members, Chama Peak Land Alliance, Abiquiu Volunteer Fire Department, Vallecitos Volunteer Fire Department, Brazos Canyon Fire Department
11-26-2016	Community meeting for Brazos Canyon	8	Brazos Canyon Fire Department, Private Land Owners, Chama Peak Land Alliance
1-17-2017	Working team Update Call	7	Rio Arriba County, Chama Peak Land Alliance, NM State Forestry, Unique Places LLC, Forest Stewards Guild
3-1-2017	Core team update call	4	Unique Places LLC, Chama Peak Land Alliance, Forest Stewards Guild
3-29-2017	Community meeting for Vallecitos	Not recorded	Chama Peak Land Alliance, Vallecitos Fire Station,
4-4-2017	Community meeting for Abiquiu	Not recorded	Chama Peak Land Alliance, Abiquiu Fire Station
4-10-17	Working team update call	6	Unique Places LLC, Chama Peak Land Alliance, Forest Stewards Guild
4-13-17	Community meeting for Dixon	Not recorded	Chama Peak Land Alliance, Dixon Fire Station
4-17-17	Community meeting for Brazos Canyon	Not recorded	Chama Peak Land Alliance, Brazos Canyon Fire Station
6-8-2017	Working team update Call	5	Chama Peak Land Alliance, Forest Stewards Guild, NM State Forestry
6-29-2017	Working team update Call	5	Unique Places LLC, Chama Peak Land Alliance, Forest Stewards Guild, NM State Forestry
7-12-17	Hazard ranking call	7	CPLA, RAC, FSG

In addition to meetings, stakeholders and members of the public were invited to complete a survey that helped inform priorities and action items for the 2017 update. Survey questions and results are included in appendix A. Working team members also coordinated with regional community leaders to define communities at risk and their hazard levels. NM State Forester for the Chama District, Mary Stuever, led a call with Rio Arriba Fire Marshall, to accomplish this task. Members on this call referred to a matrix (table 2), to consistently rank the risk levels of communities throughout the county. This matrix accounted for physical factors in each community, such as vegetation in and adjacent to the community, access to the community, dominant construction materials used in the community, and the community's Firewise designation.



Image 7 Participants at a 2017 CWPP update meeting in Dixon, NM

Members also reached out to fire department chiefs in the county to discuss their districts' coverage and boundaries. This information was critical for developing accurate mapping and gathering information on “uncovered” communities, those without fire department coverage.

Rio Arriba County Involvement

In addition to including officials from Rio Arriba County in working team meetings, core team meetings, and community meetings, the working team received GIS data and other community-related information from the office of the Rio Arriba County Clerk. This information was particularly helpful in gaining critical information to make the 2017 updated plan more inclusive of smaller communities. The Rio Arriba County Clerk's data allows for the 2017 CWPP updated plan to provide a more accurate picture the numerous unincorporated communities within the County.

Themes from Community Meetings

The community meetings hosted throughout the area helped shed light on serious issues that community members face and deem important. Some themes that were voiced in multiple meetings were

- Community members' need for responsive and accountable governance in relation to fire preparedness and ability to respond to fire emergencies.
- The protection of water resources.
- The need for comprehensive and coordinated evacuation plans.

In discussions at the community meetings it was clear that communities are eager to have confirmation from government agencies, including local, state and federal, that their communities are protected from catastrophic wildfire. Many members asked for more coordination with the county, state, and federal agencies that have a role in their area or district. communities surrounded by National Forest and indicated a definite willingness to coordinate with the Forest Service on protective wildfire measures.

Another serious point of concern for many community members was the enforcement of burning rules. Many community members feel that illegal burning on private land is a high risk factor and should be better enforced by the appropriate agencies. They fear that illegal burns have the potential to turn into uncontrolled burns and pose a potential threat to their communities. The maintenance of defensible spaces on private properties was also a priority. Some community members referenced other counties' enforcement measures that require homeowners to maintain defensible spaces around structures. In dense communities such as Brazos Canyon, these types of preventative measures could be the difference between a manageable fire and a catastrophic one.

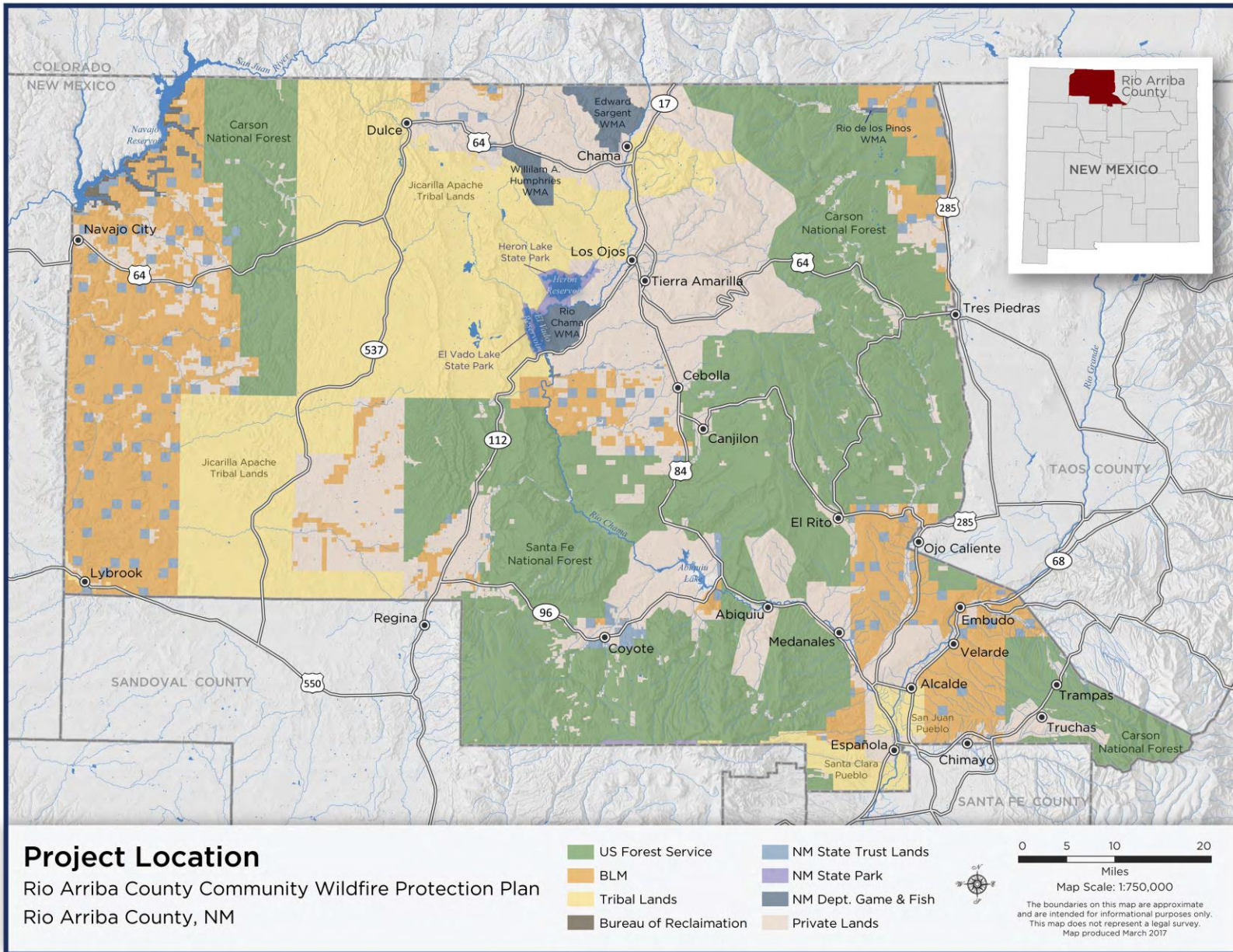
The protection of water resources was another issue that was common throughout various meetings. Irrigation and acequia systems weave their way throughout the region and the desire to maintain and protect these resources is vital. Community members expressed concern regarding the practices used to clear acequias with fire and the lack of resources available for proper, controlled maintenance burns. There was also a desire from communities to have better mapping of wells throughout the region. Protecting well infrastructure is key in keeping communities alive, as water is a critical resource for people living in the region.

A final issue that was consistently discussed in community meetings was the need for clear evacuation plans and the assurance that evacuation routes are protected and maintained. Many people in Rio Arriba County live in limited access locations and often live in a "one road in, one road out" community. This poses obvious threats in wildfire evacuation scenarios and community members are eager for peace of mind in the upkeep of these emergency escape routes and the management of them in the event of a fire.

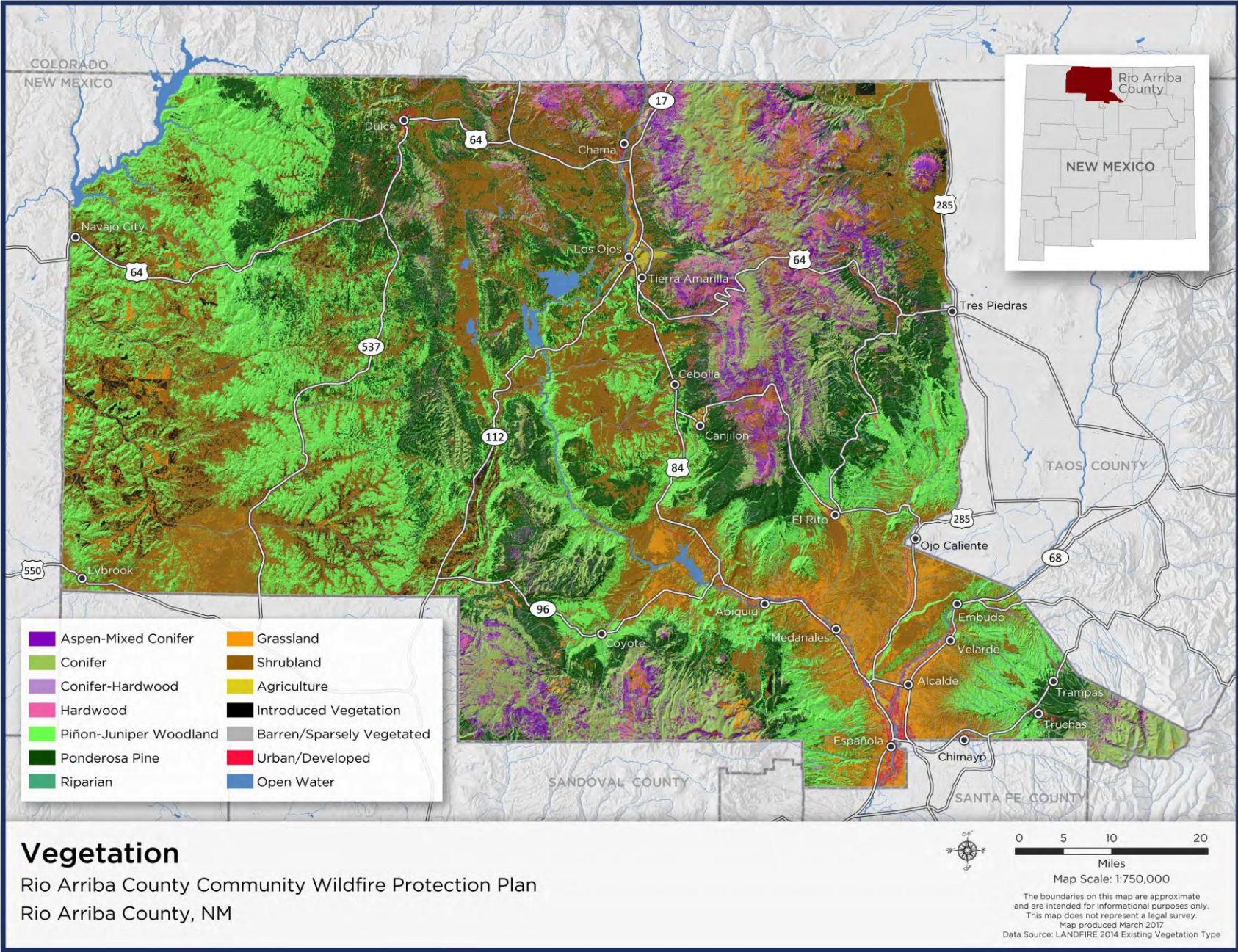
References

- BOLD Planning. 2013. *Rio Arriba County Hazard Mitigation Plan*. Nashville, TN.
http://www.rio-arriba.org/pdf/departments_and_divisions/emergency_management/hazard_mitigation.pdf
- ENMRD Forestry Division. 2010. *New Mexico Statewide Natural Resource Assessment & Strategy and Response Plans*. State of New Mexico, Energy, Minerals, and Natural Resources Department, Forestry Division, Santa Fe, NM. Accessed on August 3rd, 2017 at <http://allaboutwatersheds.org/groups/SAS/public/data-atlases-for-New-Mexico-statewide-assessment-and-strategy-and-response-plans/view>.
- Firewise USA. 2016. *The basics of defensible space and the “home ignition zone.”*
<http://www.firewise.org/wildfire-preparedness/be-firewise/home-and-landscape/defensible-space.aspx>
- Lynn, K., and W. Gerlitz. 2005. *Mapping the Relationship between Wildfire and Poverty*. National Network of Forest Practitioners, Resource Innovations at the University of Oregon, and the United States Department of Agriculture Forest Service State and Private Forestry, Portland, OR.
- National Wildfire Coordinating Group (NWCG). 2014. *Incident Response Pocket Guide*.
<https://www.nwcg.gov/sites/default/files/publications/pms461.pdf>
- New Mexico Association of Counties (NMAC). 2015. *2015 Community Wildfire Protection Plan (CWPP) Update Guidelines*. Accessed at <http://allaboutwatersheds.org/library/inbox/2015-community-wildfire-protection-plan-cwpp-update-guidelines>
- NMDHSEM. 2013. *New Mexico State Hazard Mitigation Plan*. New Mexico Department of Homeland Security and Emergency Management, Santa Fe, NM.
<http://www.nmdhsem.org/uploads/files/NM%20HMP%20Final%2009-30-13.pdf>
- RAC. 2007. *Rio Arriba County Community Wildfire Protection Plan*. Accessed at <http://www.emnrd.state.nm.us/SFD/FireMgt/documents/RioArribaCWPP-FINALRvsd11-7-07.pdf>
- RAC. 2009. *Rio Arriba County Comprehensive Plan*. Rio Arriba County, Community by Design, and Abeita Consulting, Tierra Amarilla, NM.
http://www.rio-arriba.org/pdf/20/comprehensive_plan.pdf
- Weinstein, Gabriel. 2014. *Angel Fire’s revised thinning ordinance fails to survive to second reading*. Sangre de Cristo Chronicle. Accessed at <https://sangrechronicle.com/angel-fires-revised-thinning-ordinance-fails-to-survive-second-reading/>

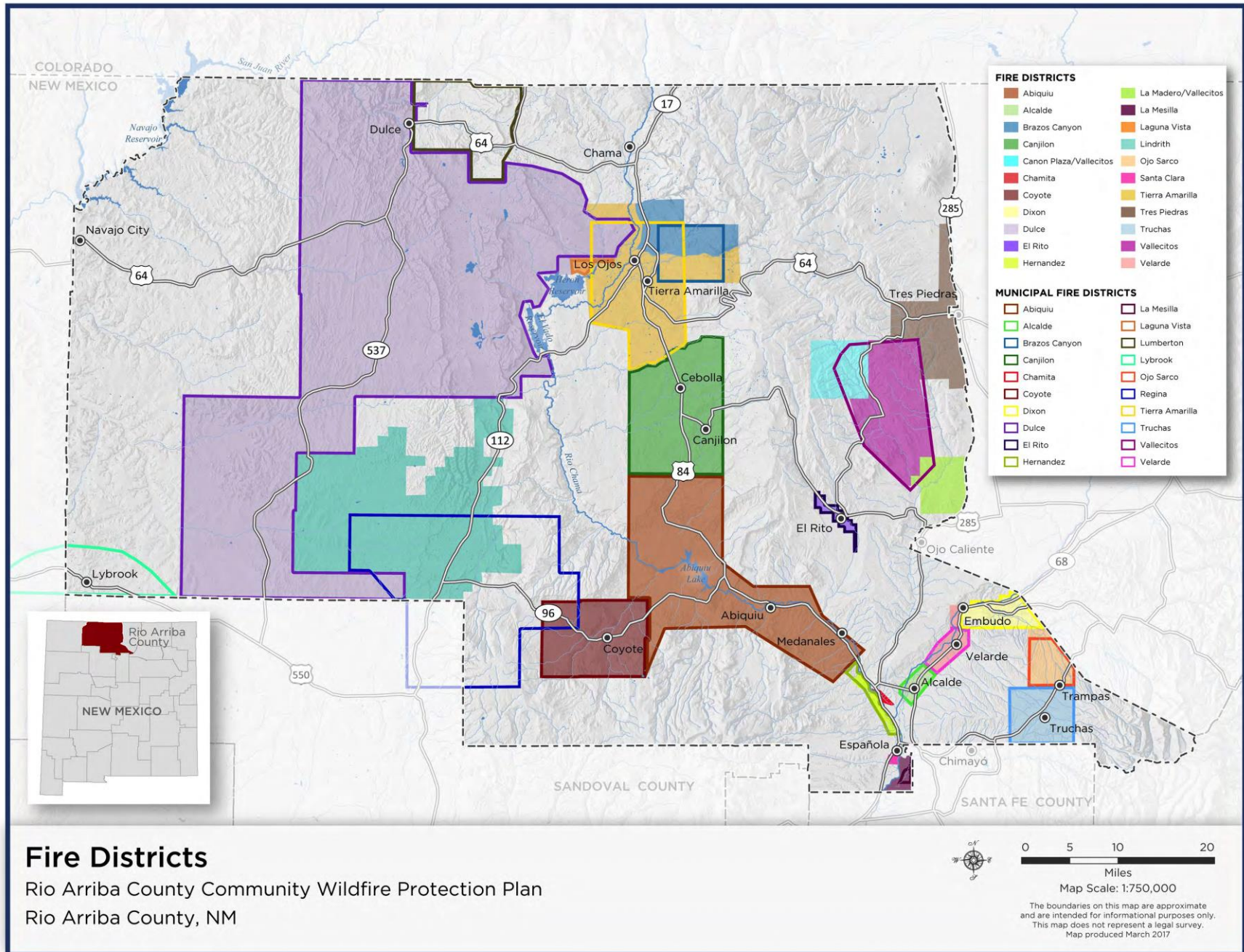
Appendix 1: Surface ownership



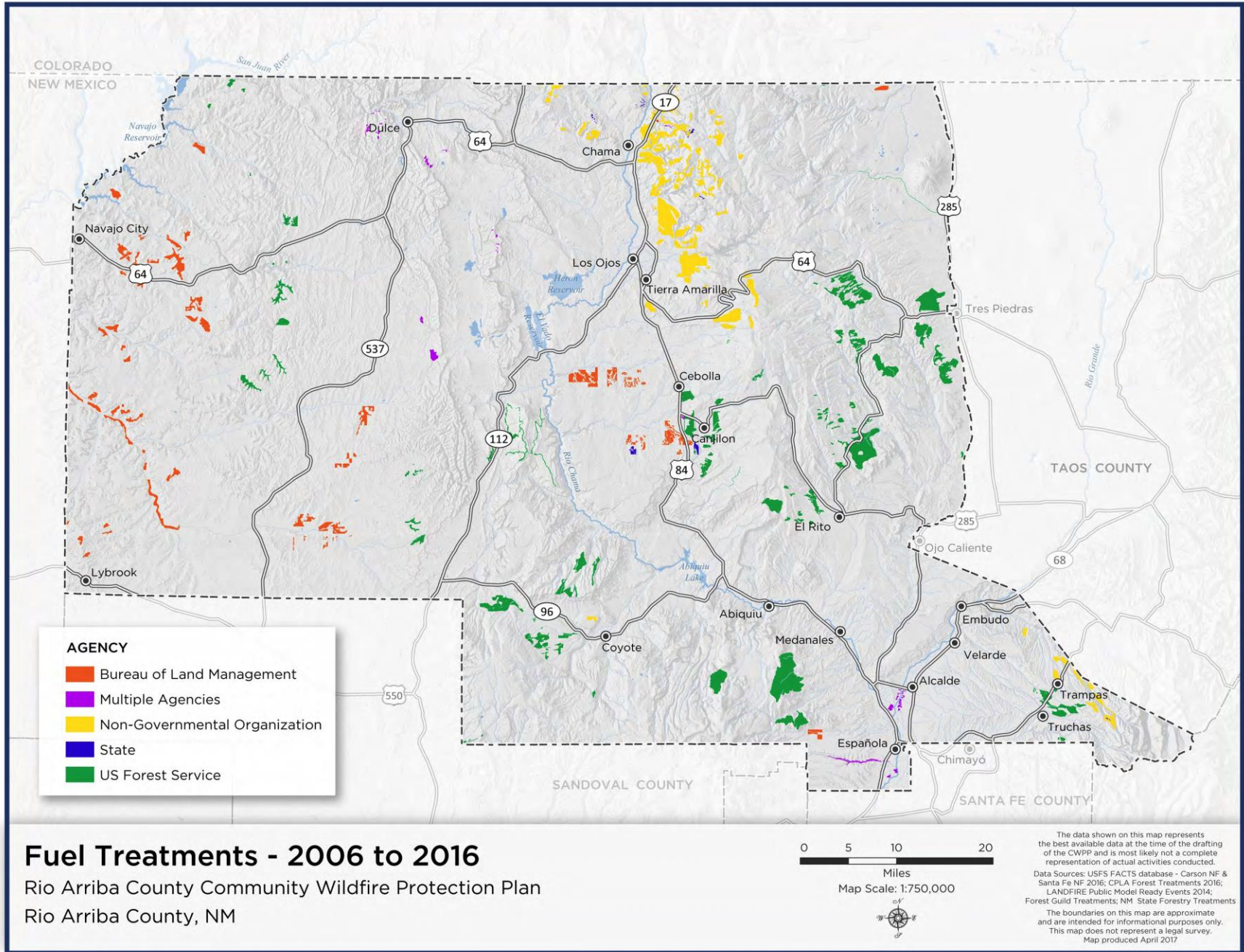
Appendix 2: Vegetation type



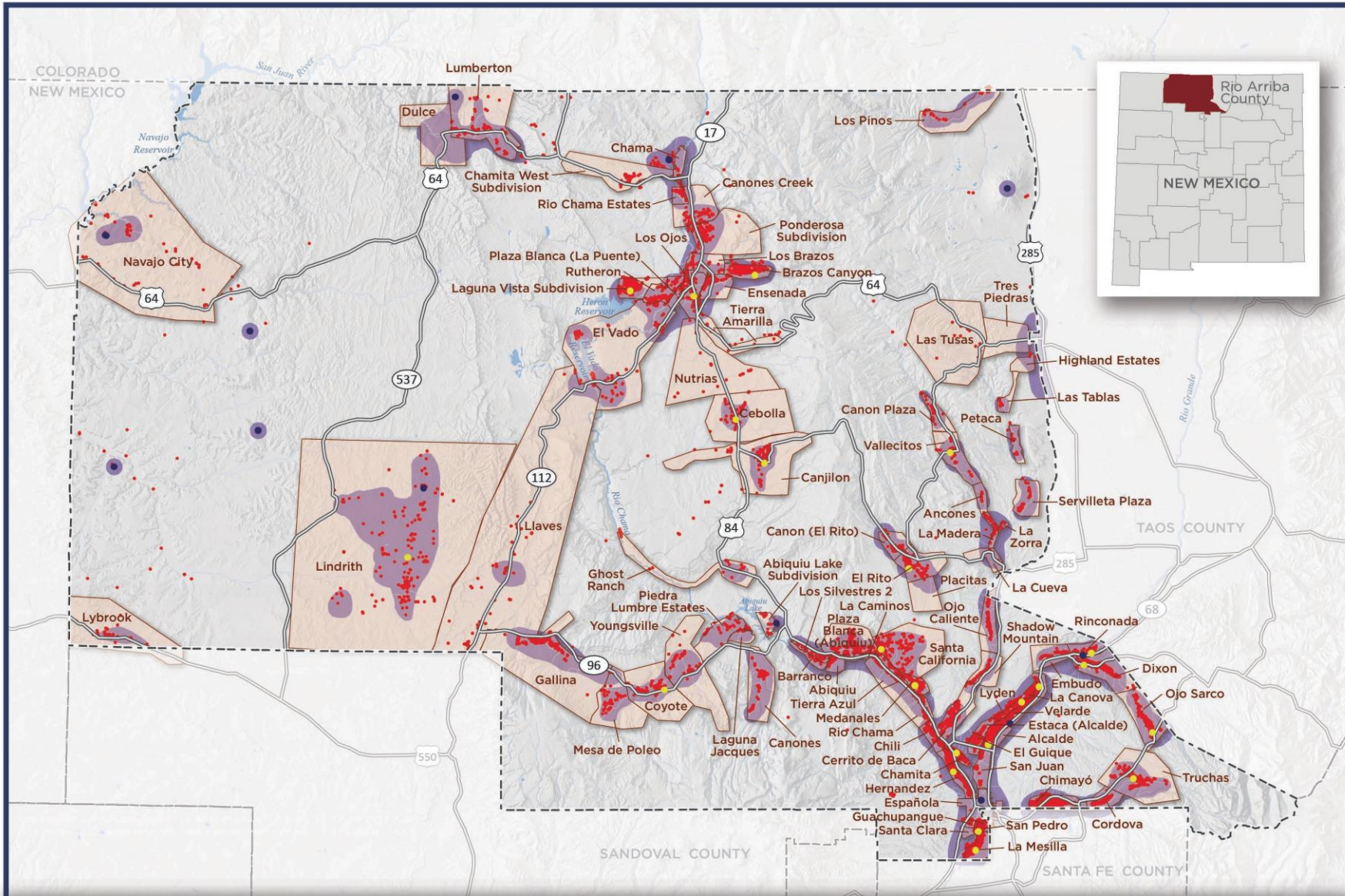
Appendix 3: Fire districts



Appendix 4: Fuel treatments



Appendix 5: Wildland Urban Interface

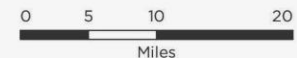


Wildland Urban Interface

Community Wildfire Protection Plan

Rio Arriba County, NM

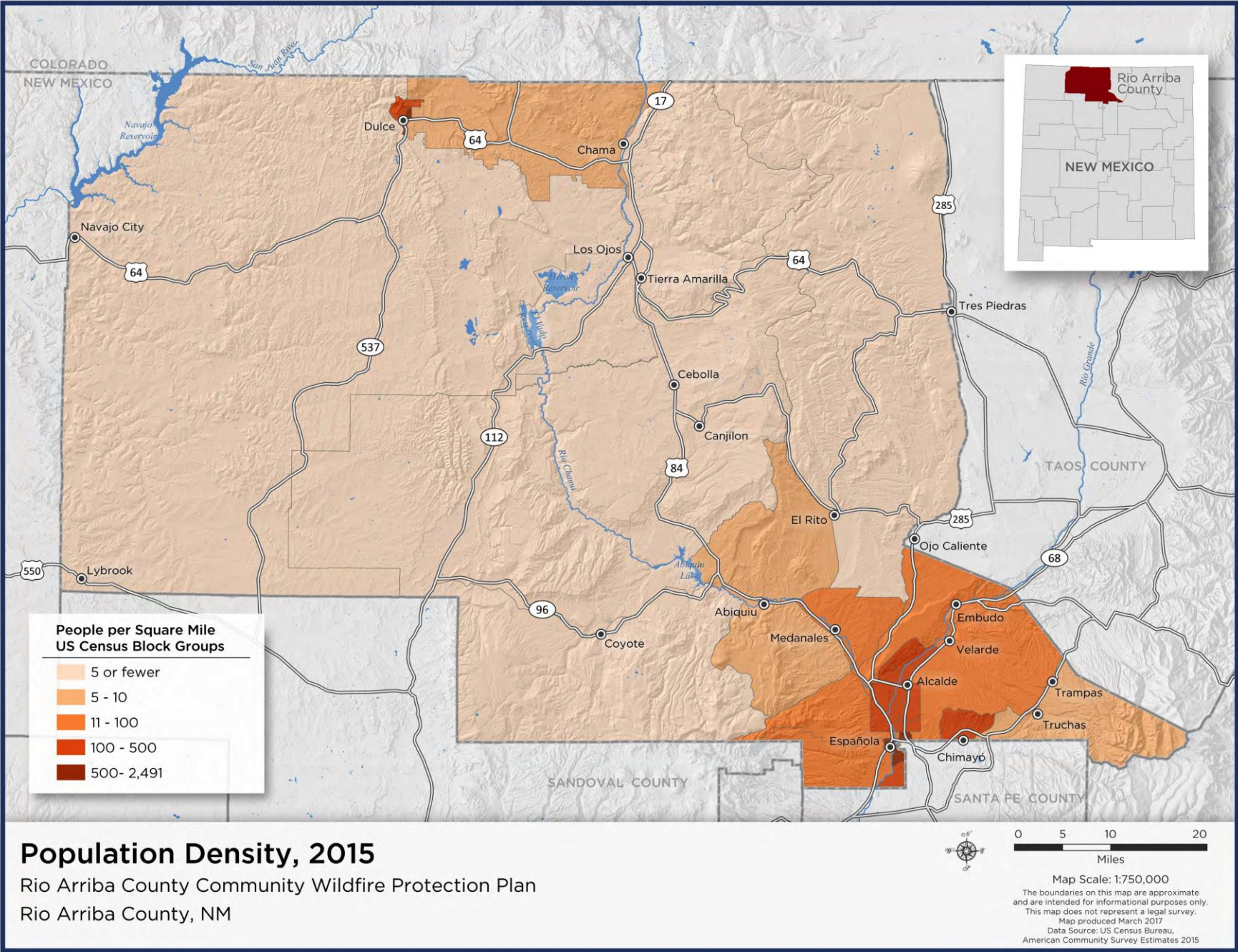
- Wildland Urban Interface Areas
- Communities of Rio Arriba County
- Rio Arriba County Rural Addressing Locations
- Cell Tower Locations
- Fire Department Locations



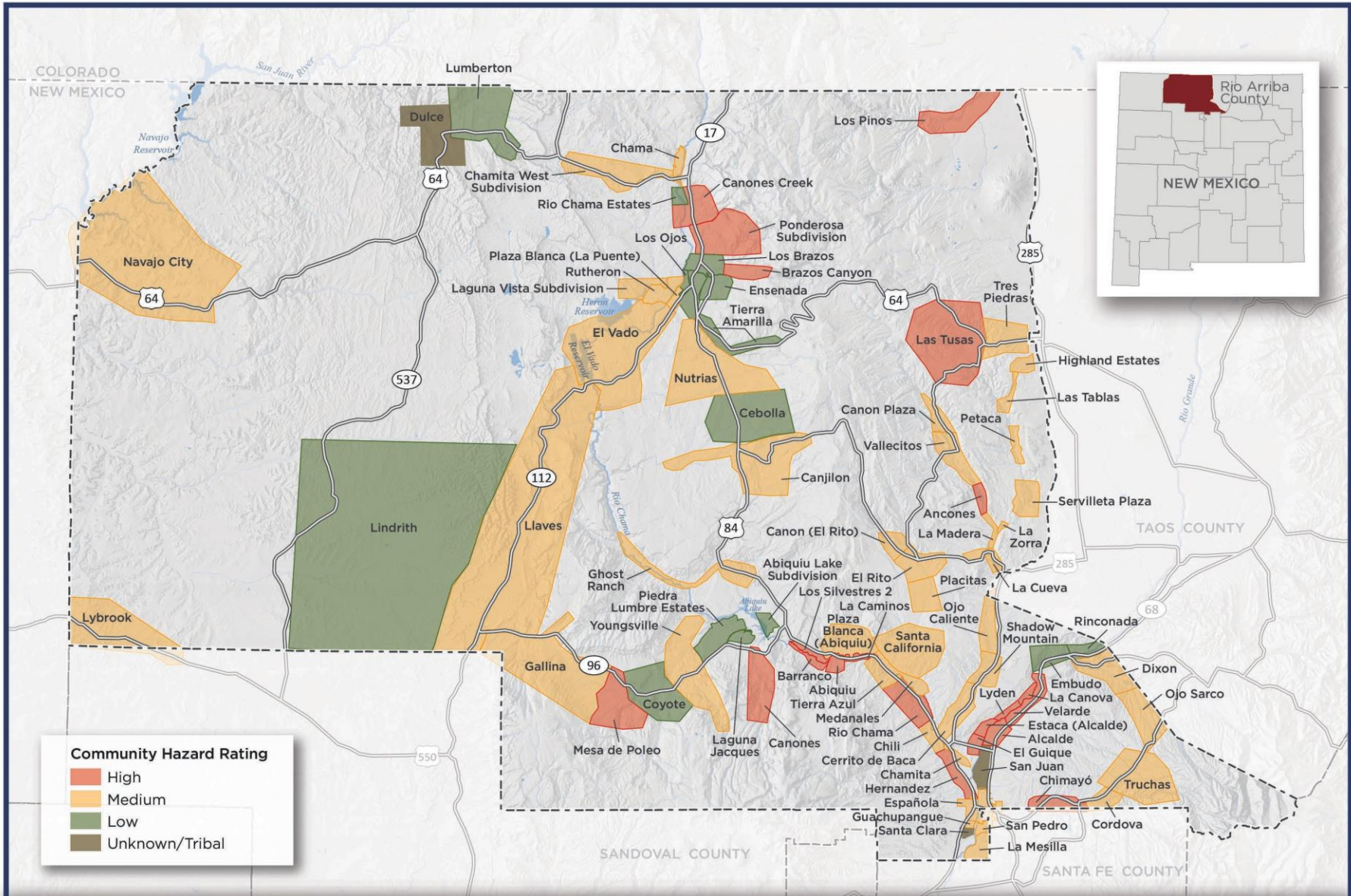
Map Scale: 1:750,000

The boundaries on this map are approximate and are intended for informational purposes only. This map does not represent a legal survey. Map produced July 2017

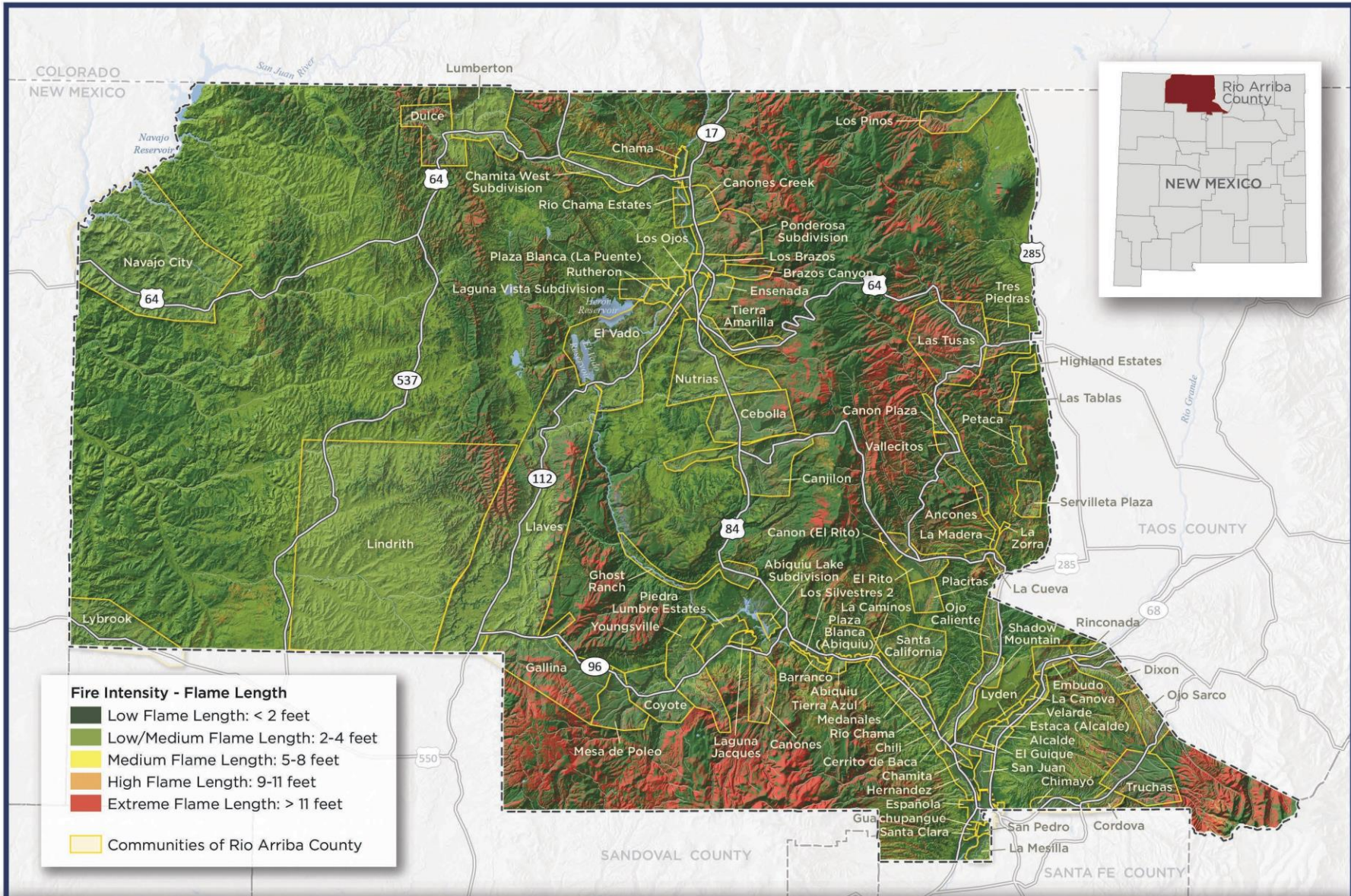
Appendix 6: Population density



Appendix 7: Communities at risk



Appendix 8: Flame length



Community Wildfire Risk Preliminary Assessment

Rio Arriba County Community Wildfire Protection Plan

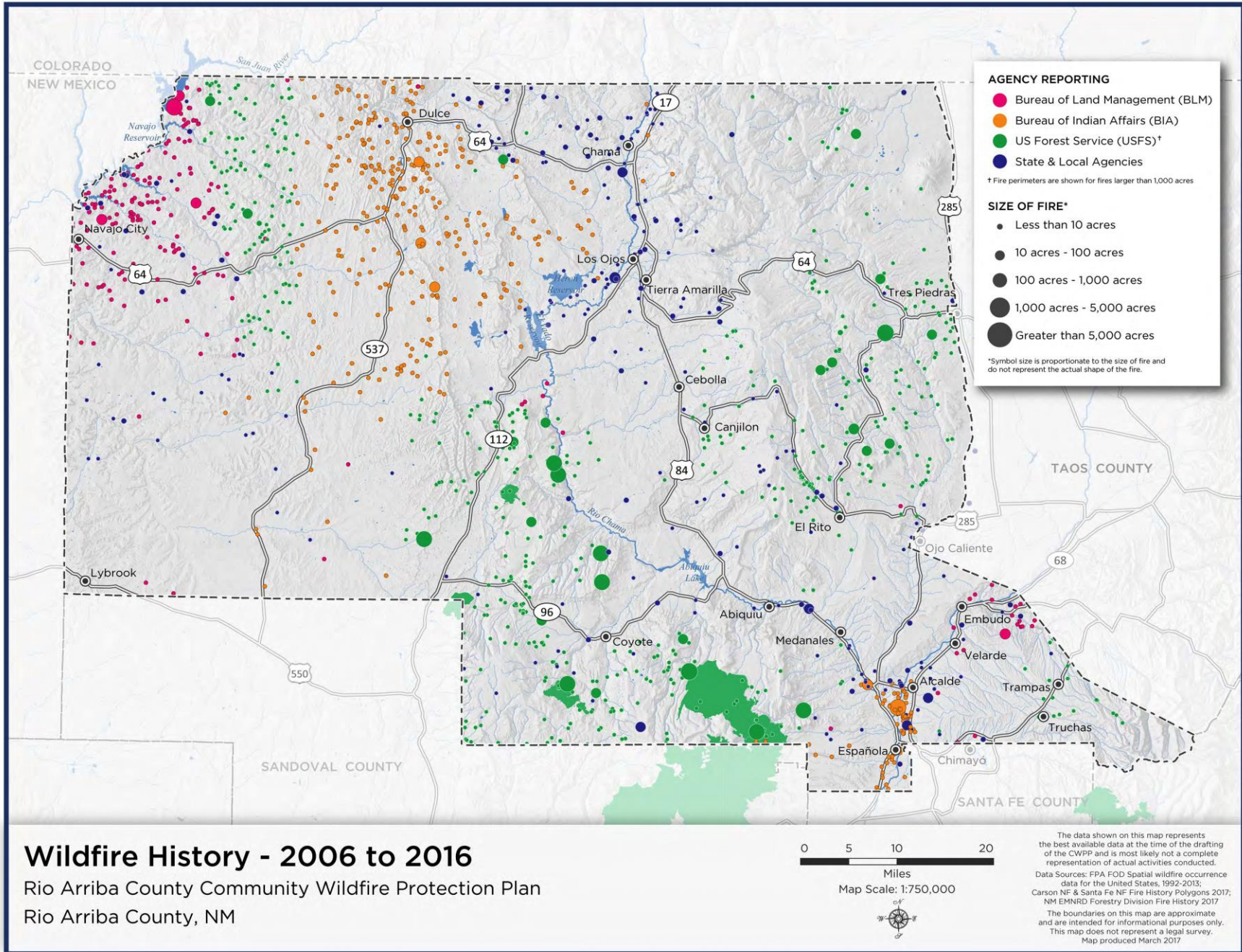
Rio Arriba County, NM



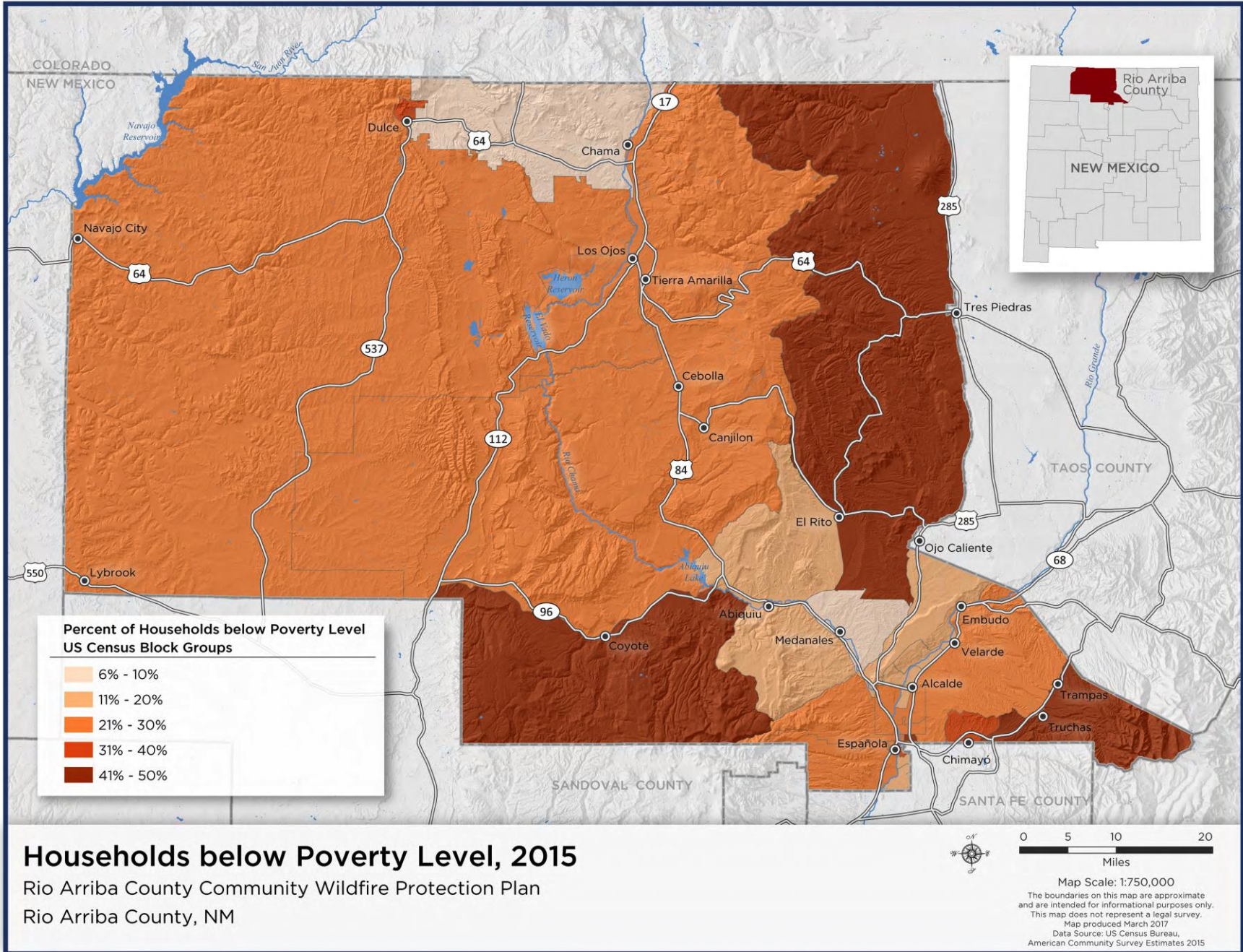
Map Scale: 1:750,000

The boundaries on this map are approximate and are intended for informational purposes only. This map does not represent a legal survey. Map produced July 2017

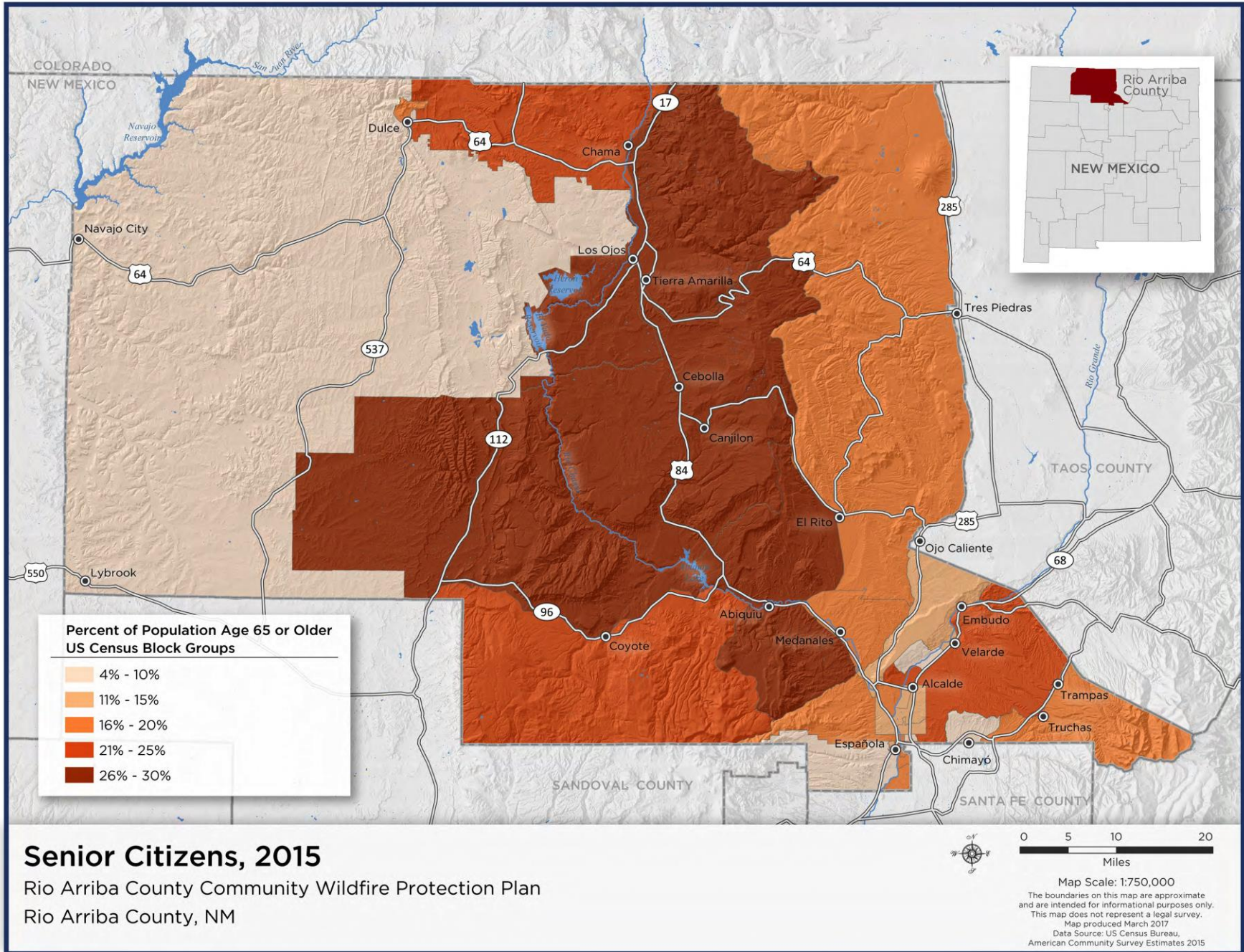
Appendix 9: Wildfire history



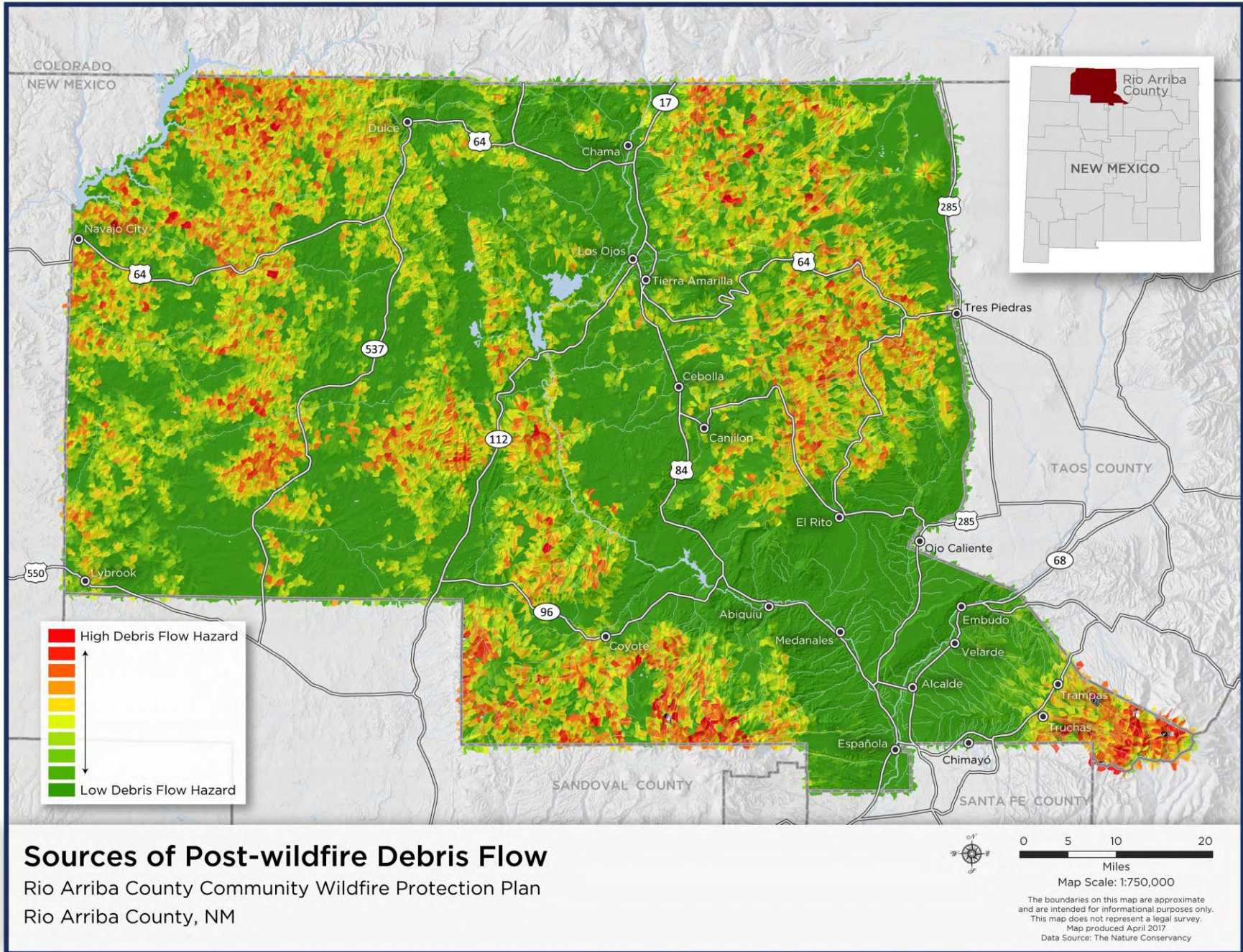
Appendix 10: Poverty level



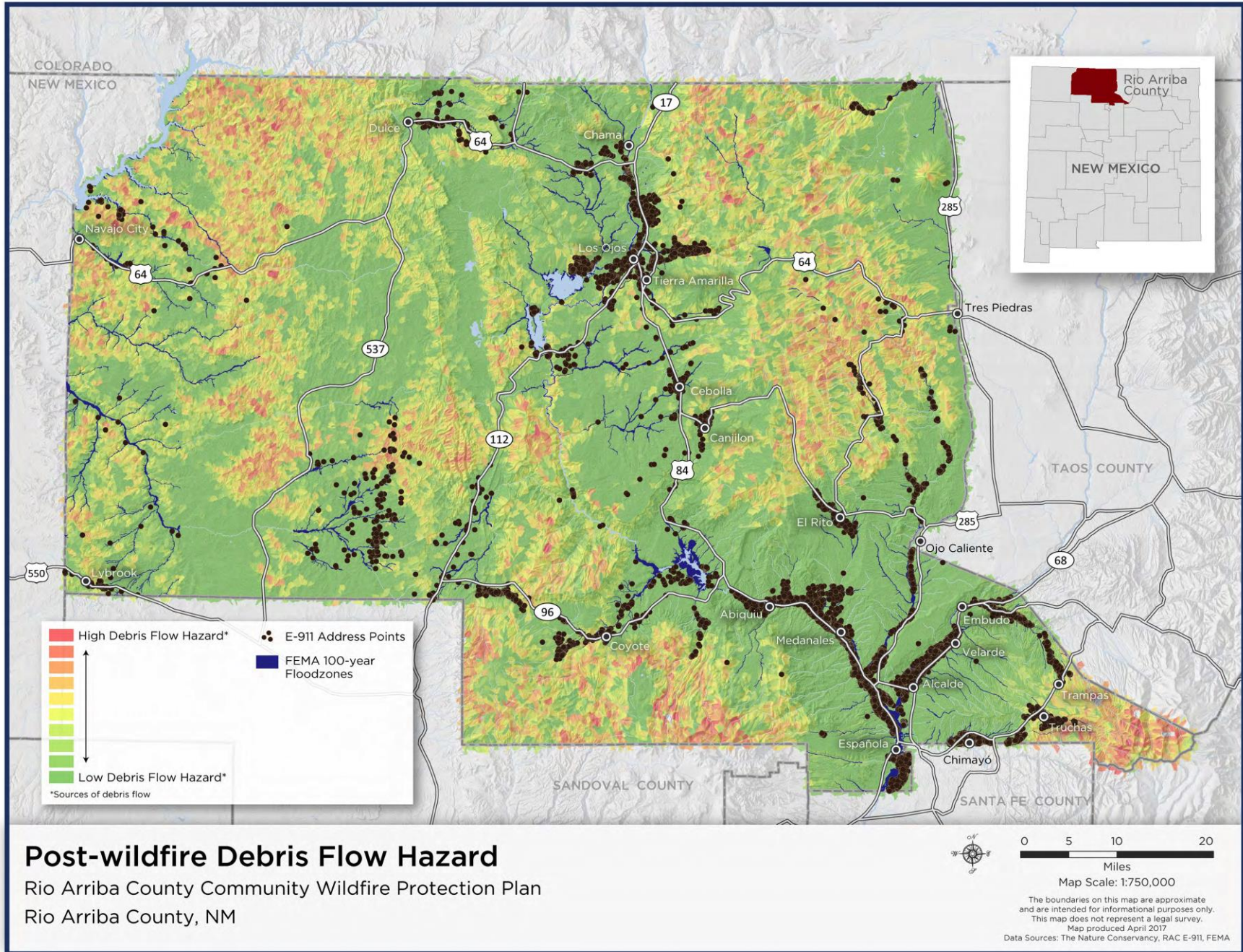
Appendix 11: Senior citizens



Appendix 12: Source of post-wildfire debris flow



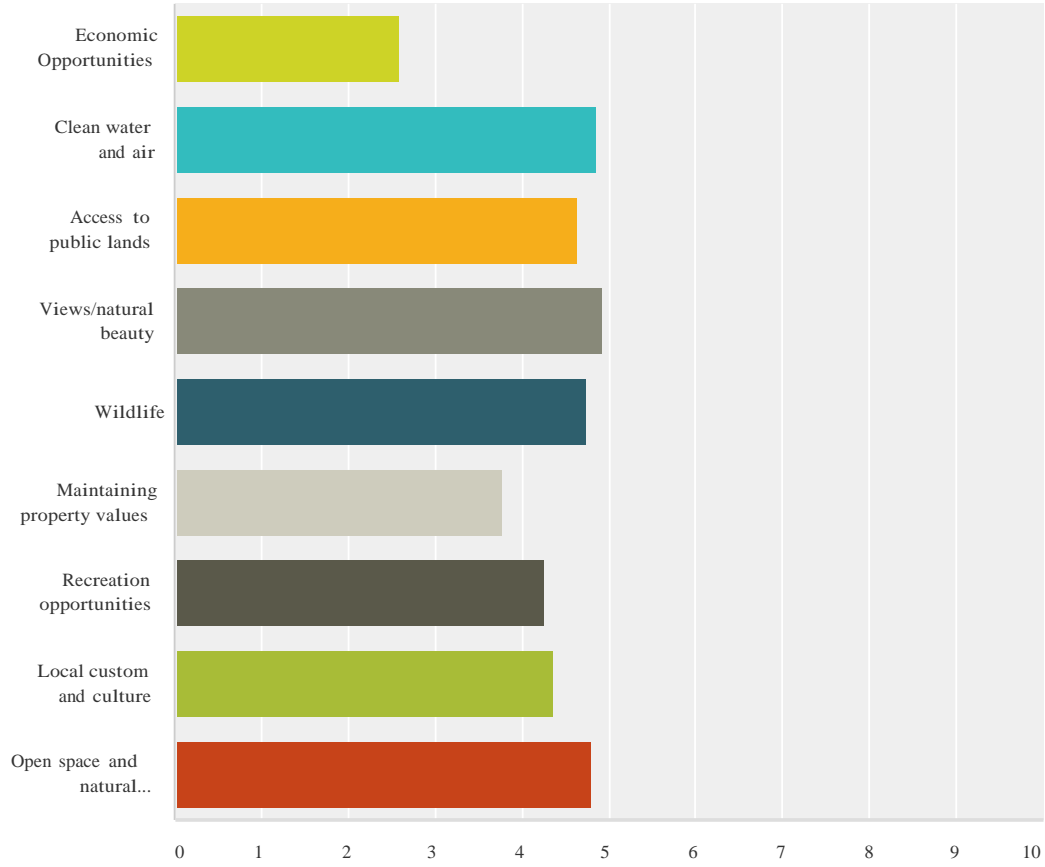
Appendix 13: Post-wildfire debris flow hazard



Appendix 14: Resident survey responses

Q1 What do you value most about your community and living or owning property in Rio Arriba County?

Answered: 164 Skipped: 0



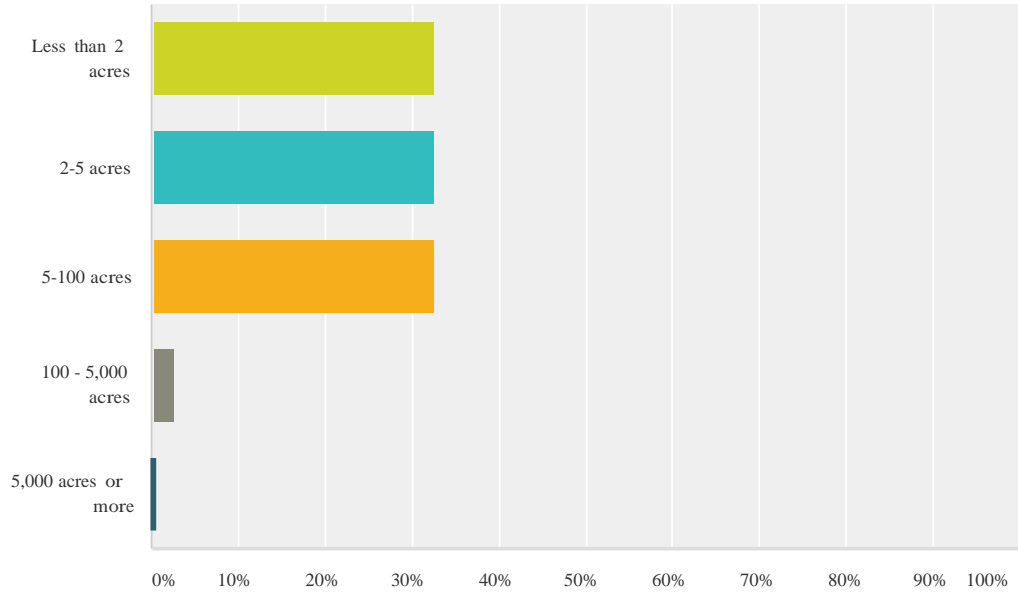
	Low Value	(no label)	Medium Value	(no label)	High Value	Total	Weighted Average
Economic Opportunities	31.01% 49	16.46% 26	29.75% 47	10.13% 16	12.66% 20	158	2.57
Clean water and air	1.23% 2	0.00% 0	2.45% 4	4.91% 8	91.41% 149	163	4.85
Access to public lands	0.62% 1	1.24% 2	10.56% 17	11.18% 18	76.40% 123	161	4.61
Views/natural beauty	0.61% 1	0.61% 1	1.23% 2	3.68% 6	93.87% 153	163	4.90
Wildlife	0.00% 0	0.63% 1	6.88% 11	13.13% 21	79.38% 127	160	4.71
Maintaining property values	7.05% 11	8.33% 13	28.21% 44	14.74% 23	41.67% 65	156	3.76
Recreation opportunities	1.88% 3	3.75% 6	18.75% 30	20.00% 32	55.63% 89	160	4.24

Local custom and culture	3.73%	1.86%	13.66%	17.39%	63.35%		
	6	3	22	28	102	161	4.35

Open space and natural resources	0.63%	0.63%	2.52%	11.95%	84.28%	159	4.79
	1	1	4	19	134		

Q2 My property is:

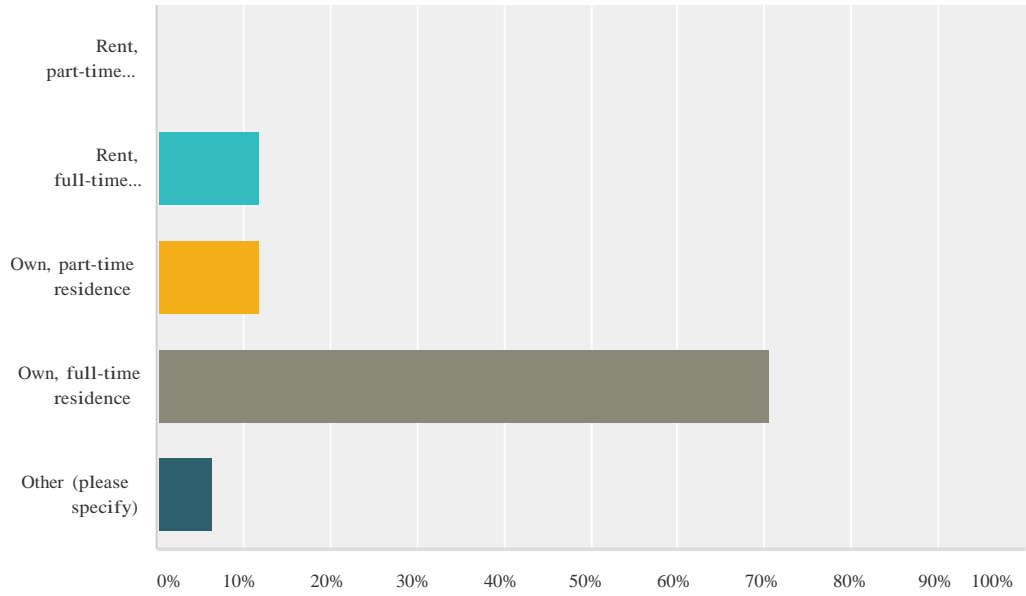
Answered: 161 Skipped: 3



Answer Choices	Responses	Count
Less than 2 acres	32.30%	52
2-5 acres	32.30%	52
5-100 acres	32.30%	52
100 - 5,000 acres	2.48%	4
5,000 acres or more	0.62%	1
Total		161

Q3 Do you rent or own your home?

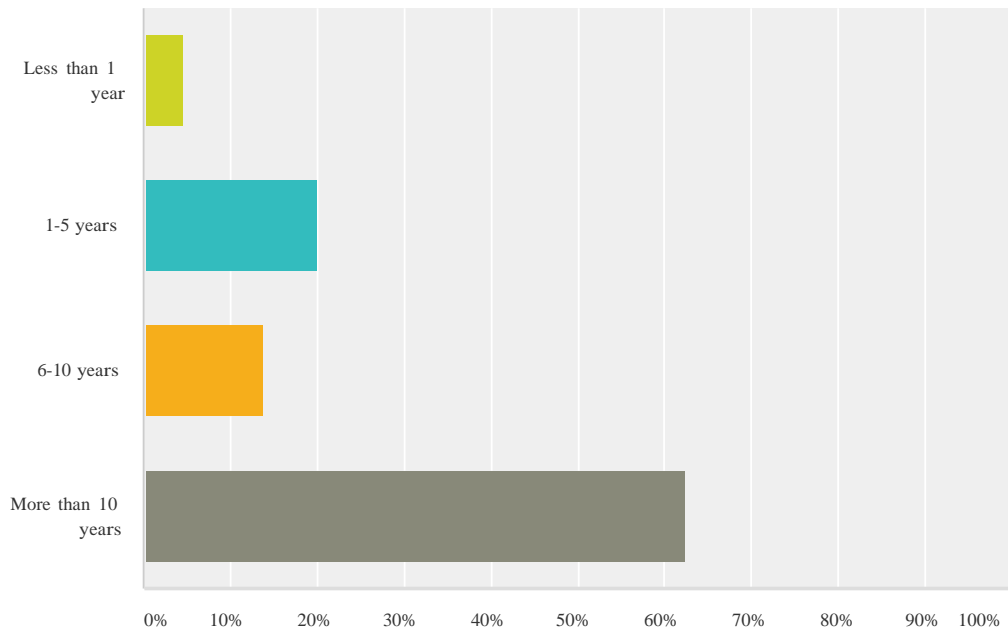
Answered: 162 Skipped: 2



Answer Choices	Responses
Rent, part-time residence	0.00% 0
Rent, full-time residence	11.73% 19
Own, part-time residence	11.73% 19
Own, full-time residence	70.37% 114
Other (please specify)	6.17% 10
Total	162

Q4 I have lived in Rio Arriba County for:

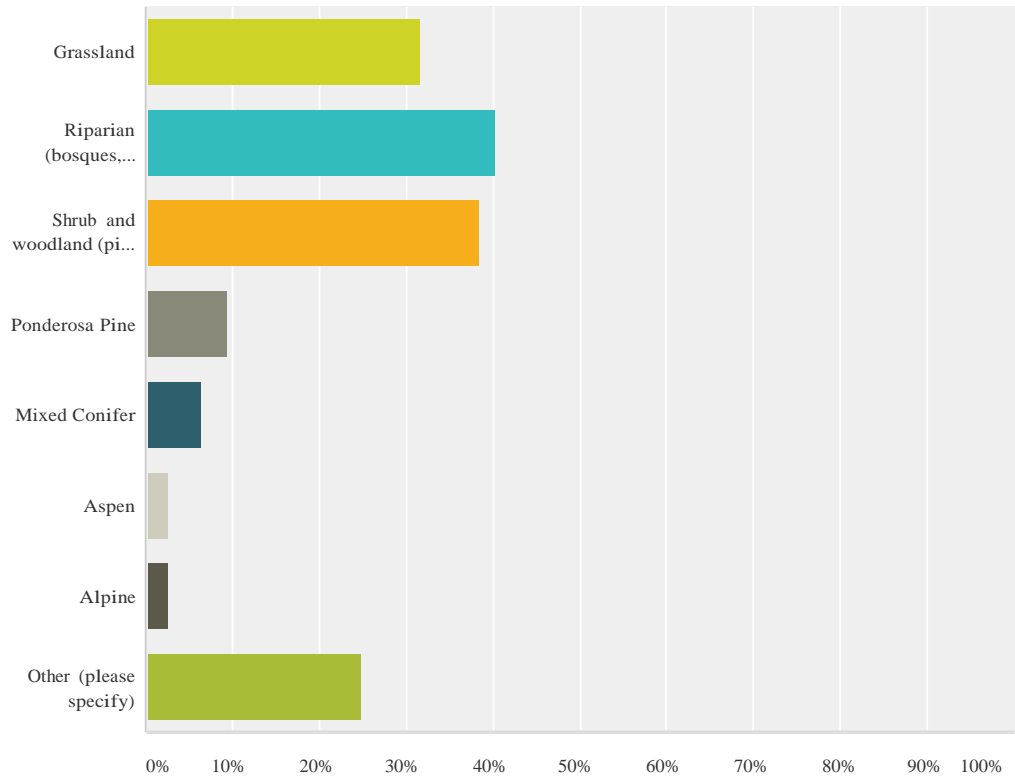
Answered: 161 Skipped: 3



Answer Choices	Responses
Less than 1 year	4.35% 7
1-5 years	19.88% 32
6-10 years	13.66% 22
More than 10 years	62.11% 100
Total	161

Q5 I would describe my property as primarily (check all that apply):

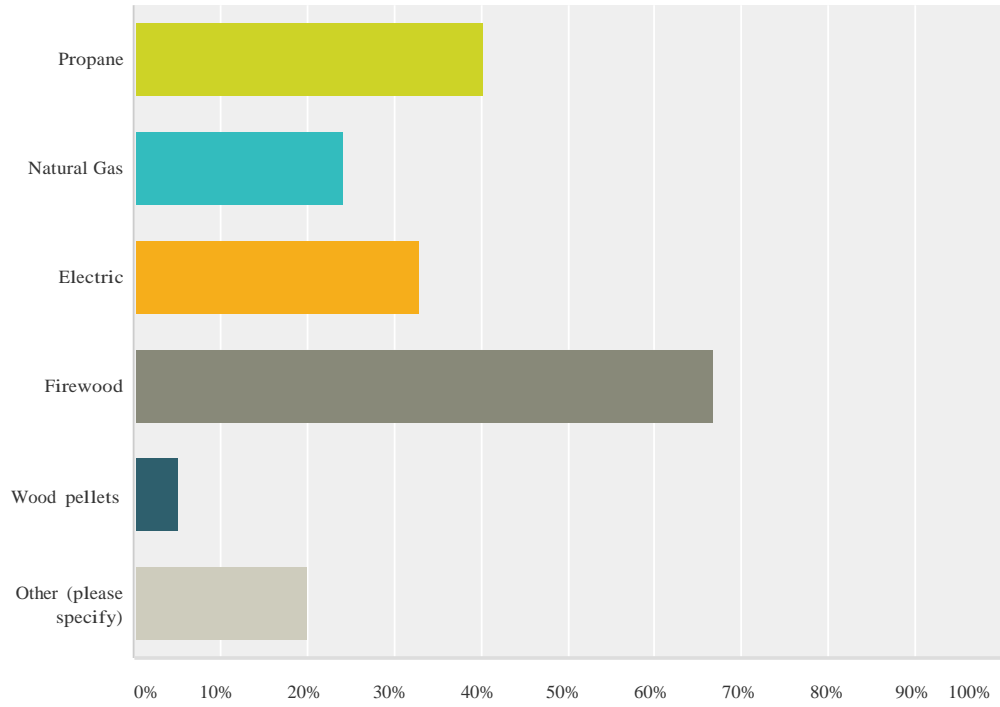
Answered: 162 Skipped: 2



Answer Choices	Responses
Grassland	31.48% 51
Riparian (bosques, acequias)	40.12% 65
Shrub and woodland (pinon juniper, sagebrush)	38.27% 62
Ponderosa Pine	9.26% 15
Mixed Conifer	6.17% 10
Aspen	2.47% 4
Alpine	2.47% 4
Other (please specify)	24.69% 40
Total Respondents: 162	

Q6 What ways do you heat your home (check all that apply)?

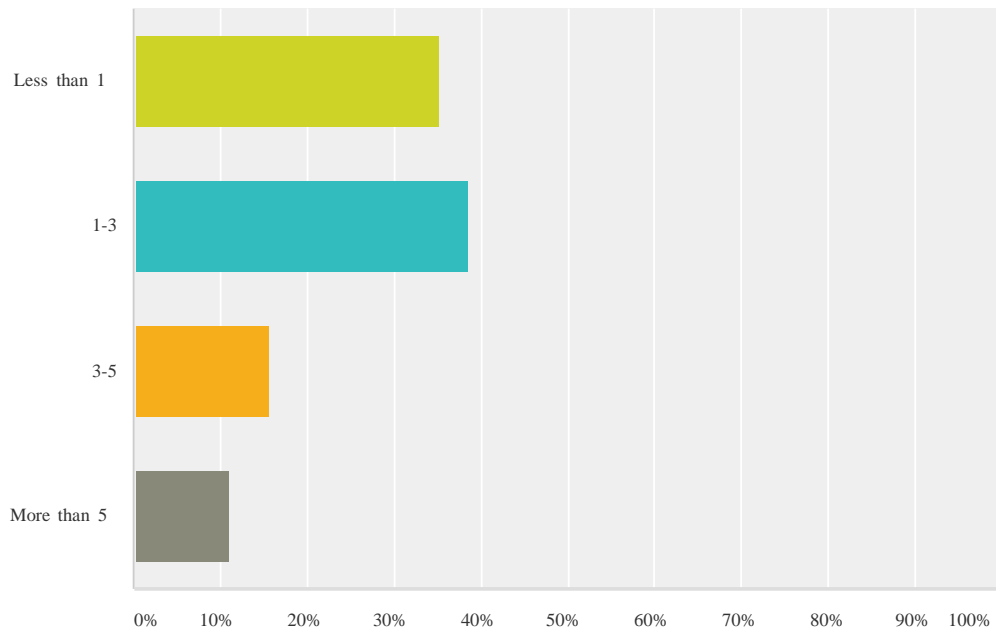
Answered: 162 Skipped: 2



Answer Choices	Responses
Propane	40.12% 65
Natural Gas	24.07% 39
Electric	32.72% 53
Firewood	66.67% 108
Wood pellets	4.94% 8
Other (please specify)	19.75% 32
Total Respondents: 162	

Q7 How many cords of wood does your household use per year?

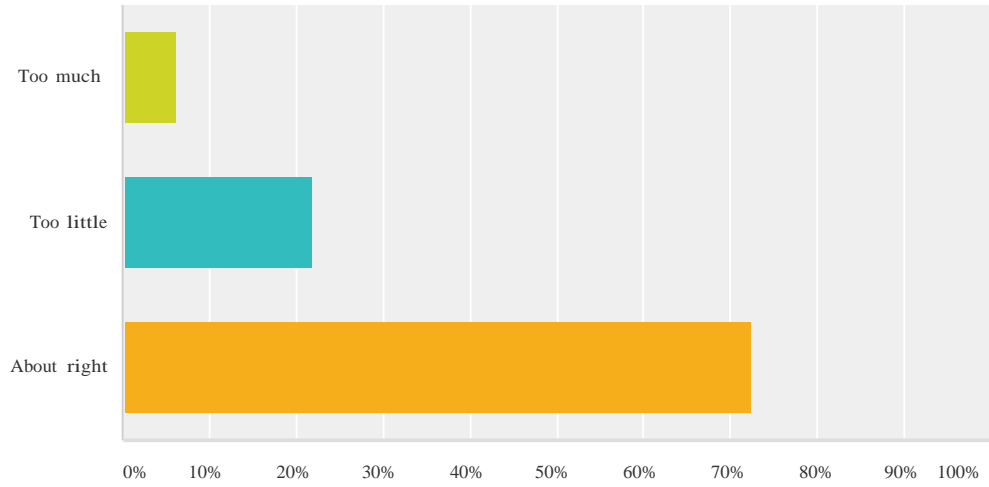
Answered: 148 Skipped: 16



Answer Choices	Responses
Less than 1	35.14% 52
1-3	38.51% 57
3-5	15.54% 23
More than 5	10.81% 16
Total	148

Q8 Is the amount of firewood available to harvest locally:

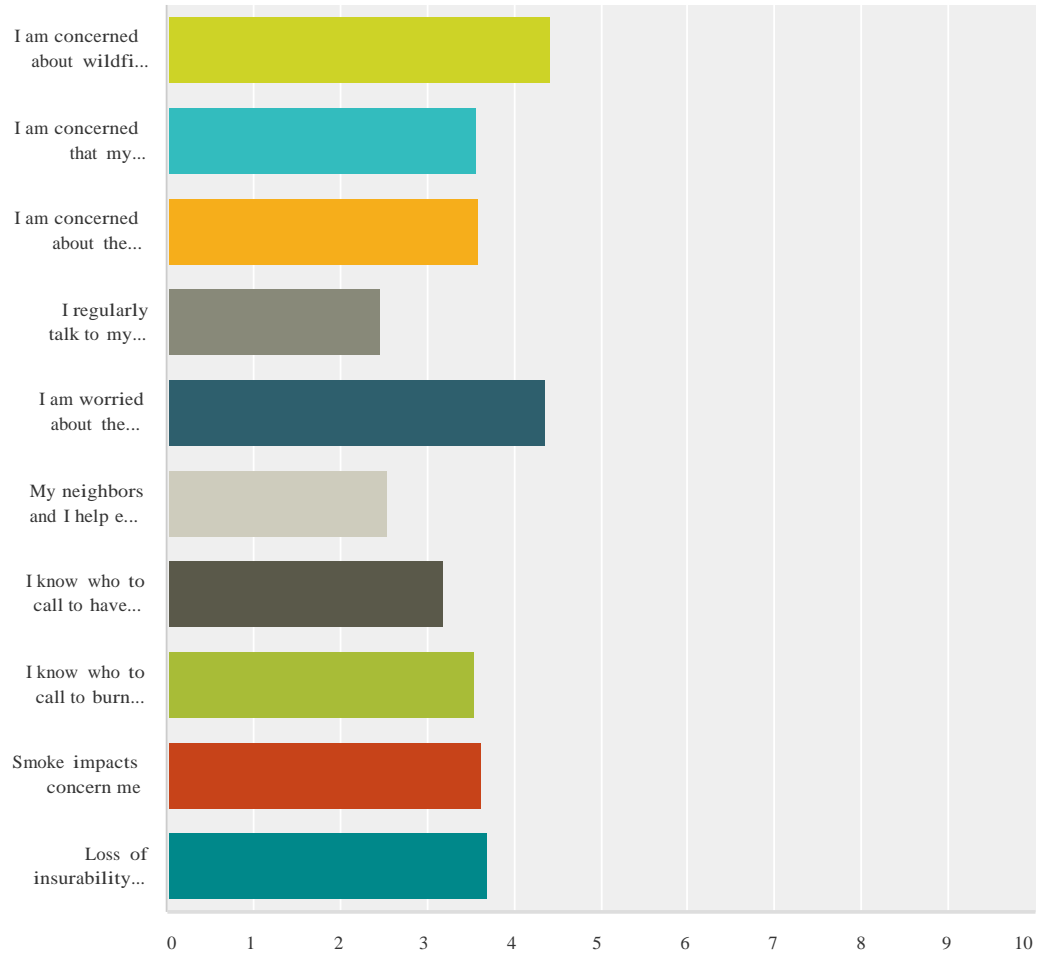
Answered: 133 Skipped: 31



Answer Choices	Responses
Too much	6.02% 8
Too little	21.80% 29
About right	72.18% 96
Total	133

Q9 How much do the following statements apply to you?

Answered: 164 Skipped: 0

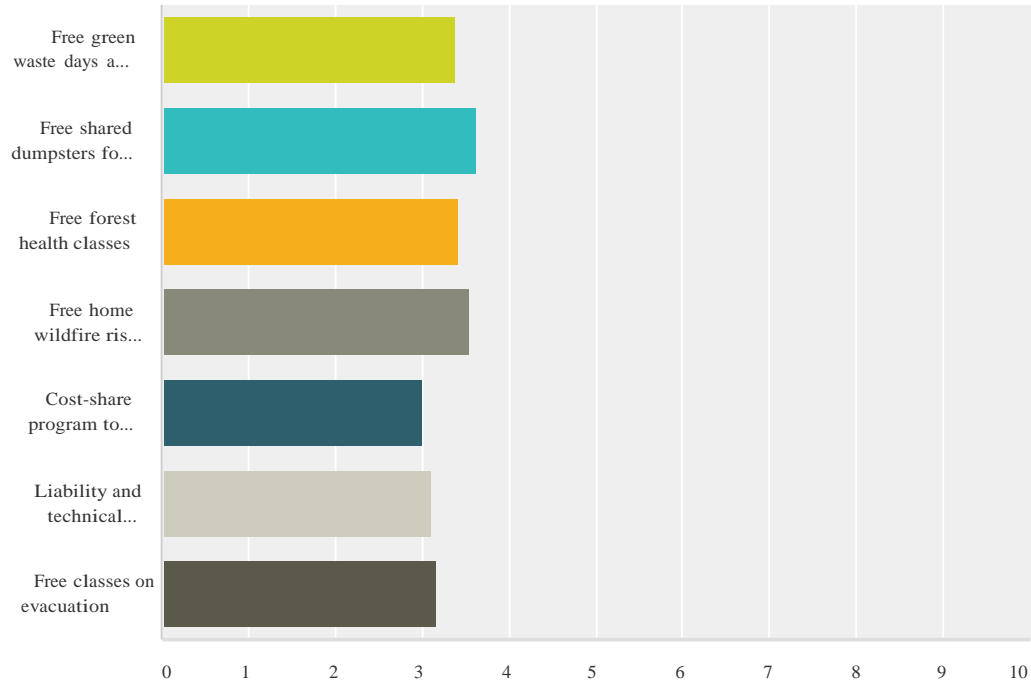


	Strongly disagree	(no label)	Neither agree or disagree	(no label)	Strongly agree	Total	Weighted Average
I am concerned about wildfire in our community	2.44% 4	1.83% 3	9.15% 15	25.61% 42	60.98% 100	164	4.41
I am concerned that my property and home are at risk from wildfire	9.76% 16	13.41% 22	21.95% 36	23.17% 38	31.71% 52	164	3.54
I am concerned about the condition of neighboring properties	7.32% 12	15.24% 25	25.00% 41	17.07% 28	35.37% 58	164	3.58
I regularly talk to my neighbors about preparing for fire	27.61% 45	23.93% 39	30.06% 49	12.27% 20	6.13% 10	163	2.45
I am worried about the health of the forest	2.47% 4	2.47% 4	11.11% 18	25.31% 41	58.64% 95	162	4.35
My neighbors and I help each other with removing trees and transporting green waste	31.90% 52	17.79% 29	26.38% 43	14.72% 24	9.20% 15	163	2.52
I know who to call to have trees removed from my property	23.46% 38	8.64% 14	22.22% 36	19.14% 31	26.54% 43	162	3.17

I know who to call to burn slash piles or use prescribed fire on my property	18.01% 29	8.70% 14	16.15% 26	18.01% 29	39.13% 63	161	3.52
Smoke impacts concern me	10.63% 17	6.25% 10	25.62% 41	26.88% 43	30.63% 49	160	3.61
Loss of insurability concerns me	10.56% 17	9.32% 15	19.88% 32	22.36% 36	37.89% 61	161	3.68

Q10 How likely would you be to participate in the following activities if they were available?

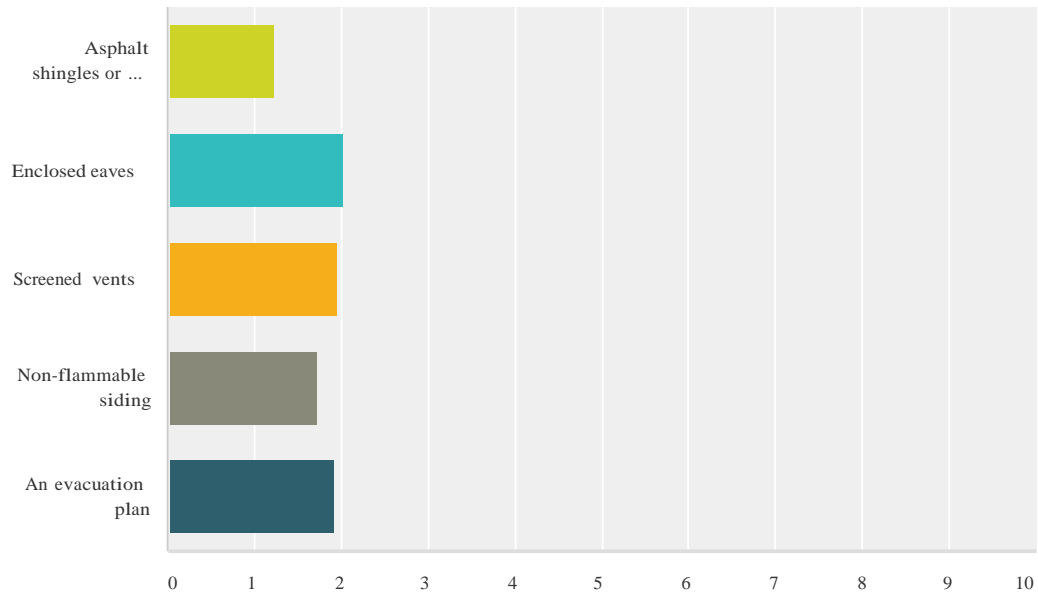
Answered: 163 Skipped: 1



	Not at all likely	Somewhat likely	Reasonably likely	Likely	Very likely	Total	Weighted Average
Free green waste days at transfer station	18.40% 30	14.72% 24	13.50% 22	17.79% 29	35.58% 58	163	3.37
Free shared dumpsters for green waste disposal in my neighborhood	15.95% 26	11.66% 19	12.27% 20	15.34% 25	44.79% 73	163	3.61
Free forest health classes	12.96% 21	17.28% 28	18.52% 30	19.75% 32	31.48% 51	162	3.40
Free home wildfire risk assessment	12.42% 20	14.29% 23	20.50% 33	13.66% 22	39.13% 63	161	3.53
Cost-share program to reduce cost of thinning my property	27.95% 45	15.53% 25	16.77% 27	8.70% 14	31.06% 50	161	2.99
Liability and technical classes on the use of fire on my property	21.12% 34	16.15% 26	21.12% 34	16.15% 26	25.47% 41	161	3.09
Free classes on evacuation	18.99% 30	16.46% 26	23.42% 37	12.66% 20	28.48% 45	158	3.15

Q11 Does your house currently have:

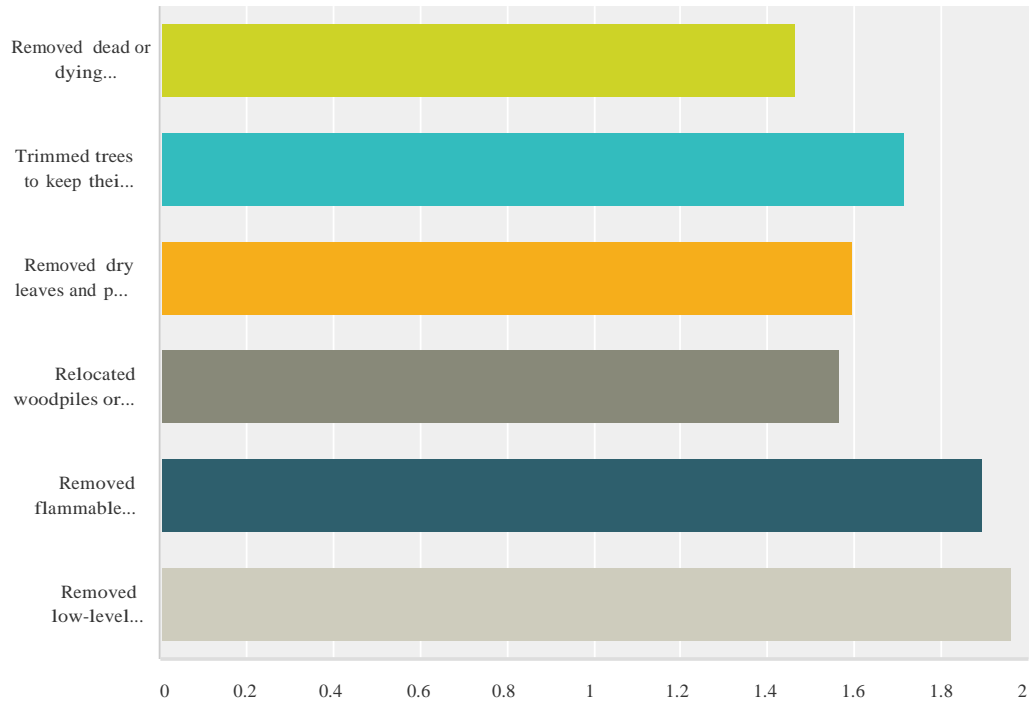
Answered: 162 Skipped: 2



	Yes	No - but would like to have	No - doesn't need it	I don't know	Total	Weighted Average
Asphalt shingles or a metal roof	90.00% 144	1.25% 2	6.25% 10	2.50% 4	160	1.21
Enclosed eaves	50.94% 81	12.58% 20	21.38% 34	15.09% 24	159	2.01
Screened vents	51.88% 83	16.88% 27	16.25% 26	15.00% 24	160	1.94
Non-flammable siding	62.11% 100	12.42% 20	16.77% 27	8.70% 14	161	1.72
An evacuation plan	38.75% 62	38.13% 61	16.25% 26	6.88% 11	160	1.91

Q12 On your property, have you:

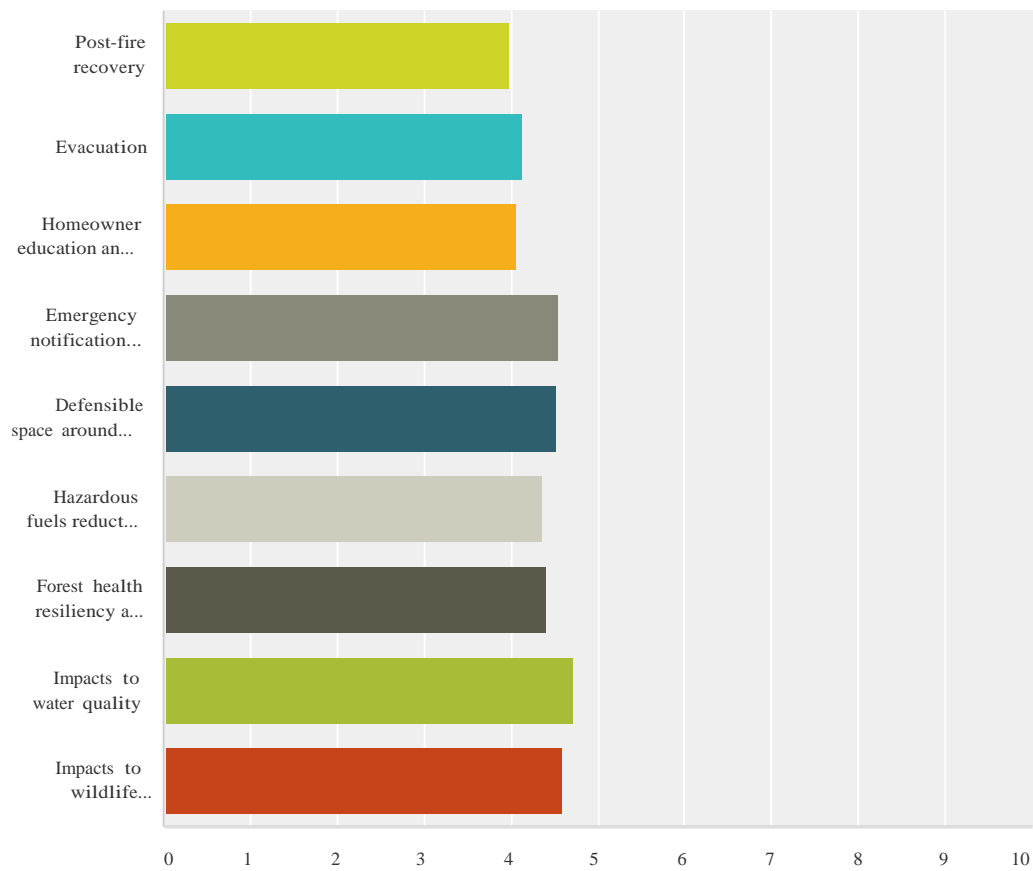
Answered: 164 Skipped: 0



	Yes	No - but would like to have	No - doesn't need it	I don't know	Total	Weighted Average
Removed dead or dying vegetation within 30 feet of the house	70.73% 116	14.63% 24	12.20% 20	2.44% 4	164	1.46
Trimmed trees to keep their branches a minimum of 10 feet from structures and other trees	46.63% 76	36.81% 60	15.34% 25	1.23% 2	163	1.71
Removed dry leaves and pine needles from yard, roof, and rain gutters	60.62% 97	20.00% 32	19.38% 31	0.00% 0	160	1.59
Relocated woodpiles or other flammable materials 30 feet from house	61.73% 100	21.60% 35	16.05% 26	0.62% 1	162	1.56
Removed flammable material and vegetation from around and under decks	49.08% 80	14.11% 23	35.58% 58	1.23% 2	163	1.89
Removed low-level vegetation that allows the fire to spread from the ground to the tree canopy (ladder fuels)	40.63% 65	29.38% 47	23.13% 37	6.88% 11	160	1.96

Q13 How would you prioritize the following elements of community wildfire preparedness?

Answered: 161 Skipped: 3

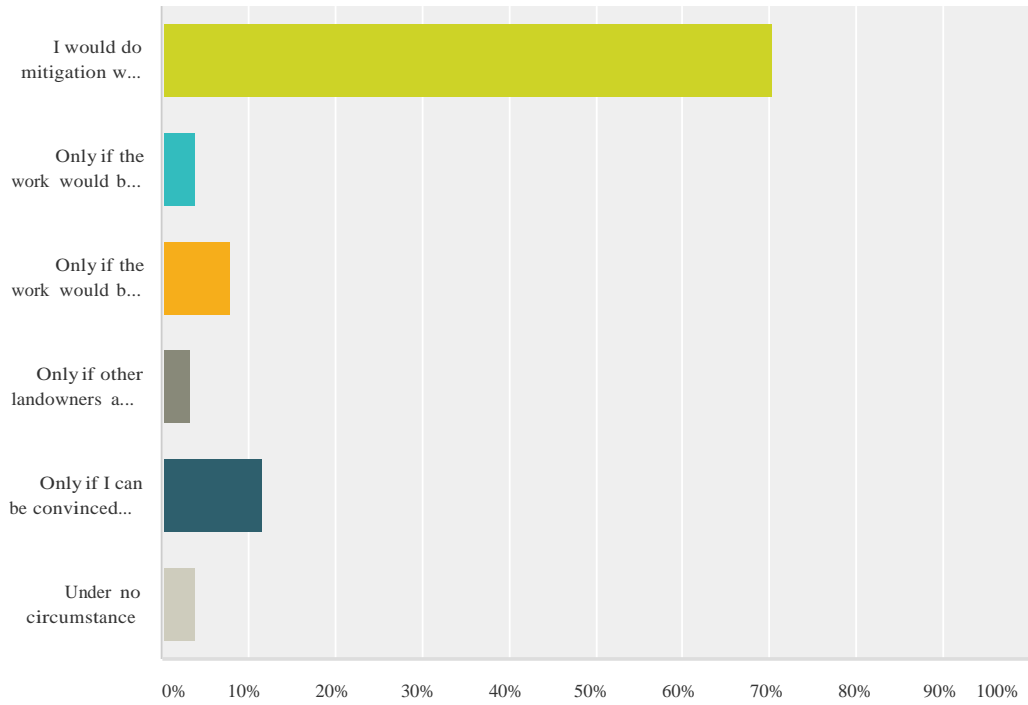


	Low Value	(no label)	Medium Value	(no label)	High Value	Total	Weighted Average
Post-fire recovery	4.43% 7	3.16% 5	30.38% 48	16.46% 26	45.57% 72	158	3.96
Evacuation	4.97% 8	3.73% 6	20.50% 33	16.77% 27	54.04% 87	161	4.11
Homeowner education and outreach	3.77% 6	5.03% 8	20.75% 33	22.64% 36	47.80% 76	159	4.06
Emergency notification during a wildfire	3.13% 5	1.88% 3	6.88% 11	13.75% 22	74.38% 119	160	4.54
Defensible space around homes	1.86% 3	3.11% 5	6.83% 11	19.88% 32	68.32% 110	161	4.50
Hazardous fuels reduction in open space and adjacent lands	1.86% 3	3.73% 6	11.18% 18	23.60% 38	59.63% 96	161	4.35
Forest health resiliency and treatments in adjacent landscapes to homes and communities	1.26% 2	3.14% 5	9.43% 15	28.30% 45	57.86% 92	159	4.38
Impacts to water quality	1.25% 2	1.25% 2	4.38% 7	12.50% 20	80.63% 129	160	4.70

Impacts to wildlife habitat	1.86%	1.86%	7.45%	14.91%	73.91%		
	3	3	12	24	119	161	4.57

Q14 Under which conditions would you be willing to do mitigation work on your property?

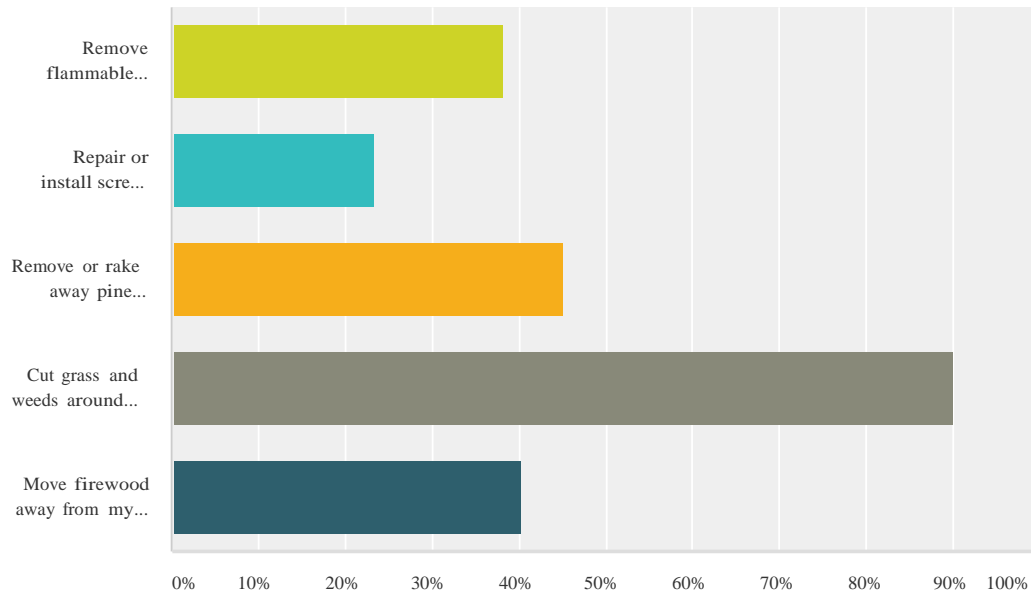
Answered: 157 Skipped: 7



Answer Choices	Responses	
I would do mitigation work regardless of what anyone else does	70.06%	110
Only if the work would be fully funded by government or private agencies	3.82%	6
Only if the work would be cost shared with government or private agencies	7.64%	12
Only if other landowners and managers, such as open space or local government agencies, are doing work on their land	3.18%	5
Only if I can be convinced the work will improve the survivability of my home	11.46%	18
Under no circumstance	3.82%	6
Total		157

Q15 Which of the following mitigation actions do you do each spring to prepare for wildland fire season? Check all that apply.

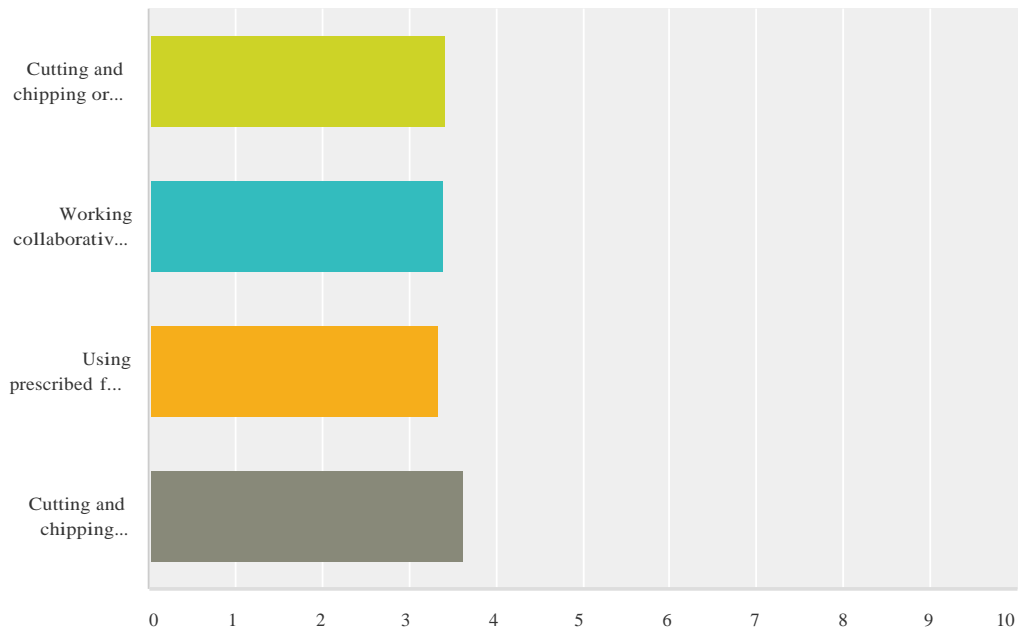
Answered: 147 Skipped: 17



Answer Choices	Responses	
Remove flammable objects including firewood, brush, and other materials from under my wooden deck	38.10%	56
Repair or install screens to block sparks from blowing in and under my home, eave vents, and out buildings	23.13%	34
Remove or rake away pine needles on the ground and roof and in gutters	44.90%	66
Cut grass and weeds around my house	89.80%	132
Move firewood away from my home to a spot up slope and downwind	40.14%	59
Total Respondents: 147		

Q16 Rate your comfort level with the following activities:

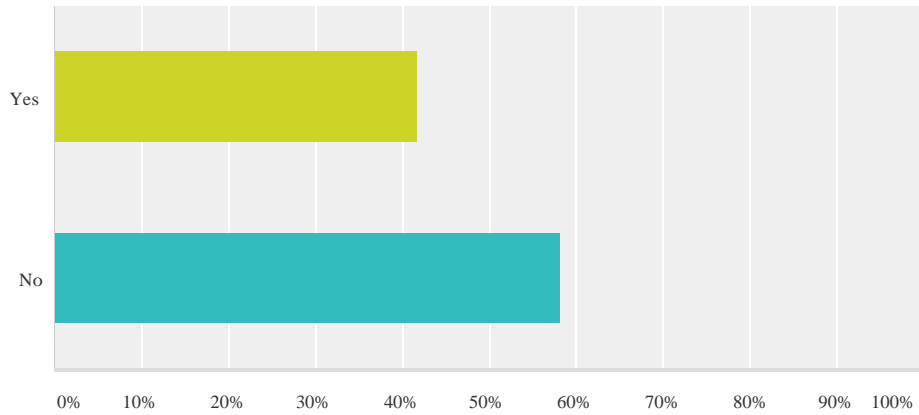
Answered: 161 Skipped: 3



	Very low	Low	Moderate	High	Very High	Total	Weighted Average
Cutting and chipping or burning hazardous fuels and open space areas	13.75% 22	8.75% 14	27.50% 44	23.75% 38	26.25% 42	160	3.40
Working collaboratively with other homeowners and large landowners to create shaded fuel breaks to stop or slow large wildfires before they reach my property	8.07% 13	16.15% 26	27.95% 45	24.22% 39	23.60% 38	161	3.39
Using prescribed fire to reduce fuels and improve ecological conditions	14.91% 24	9.94% 16	30.43% 49	17.39% 28	27.33% 44	161	3.32
Cutting and chipping hazardous fuels (trees, brush, tall grass) within 100 feet of my home	9.38% 15	9.38% 15	23.75% 38	25.62% 41	31.87% 51	160	3.61

Q17 Would you join a volunteer organization that focuses on annual activities that remove hazardous fuels and manages mitigation activities in Rio Arriba County? If yes, please consider entering your contact information in the last question below.

Answered: 146 Skipped: 18



Answer Choices	Responses
Yes	41.78% 61
No	58.22% 85
Total	146

