Larimer County Community Wildfire Protection Plan

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2025 update

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The Planning Process and Partners

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

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

The HFRA also required the CSFS to establish minimum standards for the development of CWPPs in Colorado, and the CSFS must approve any and all CWPPs to ensure that they meet these minimum standards. Please see Colorado's Minimum Standards for CWPPs at https://csfs.colostate.edu/wp-content/uploads/2022/03/2022-CSFS_CWPP_Min_Standards.pdf

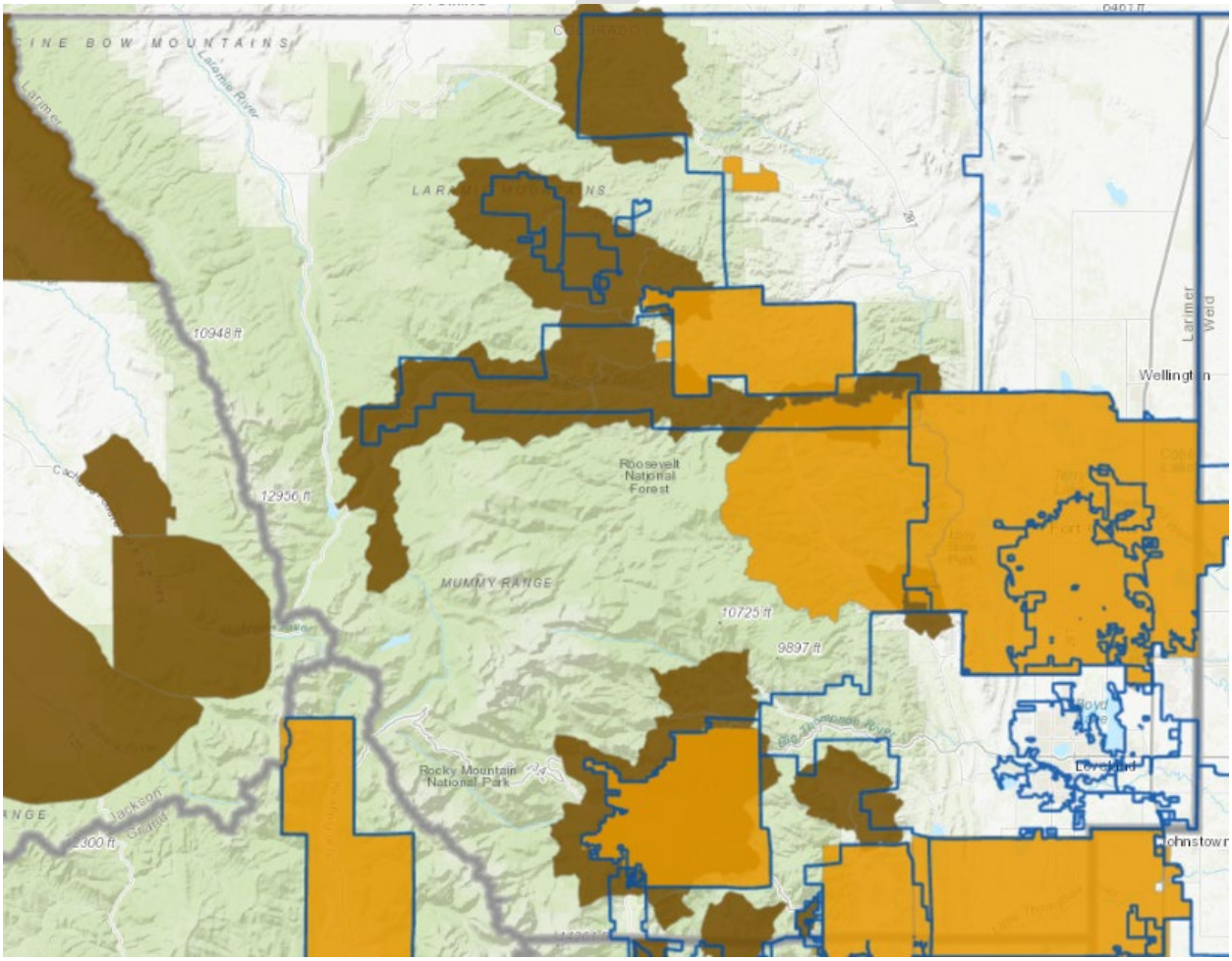
The Larimer County Community Wildfire Protection Plan may serve as an umbrella plan for smaller communities until communities identify more site-specific details needed for project-specific planning. Therefore, communities that are applying for grants can state that they are in progress of developing a CWPP. Larimer County's proactive approach with wildfire mitigation has completed some of the base steps required for a CWPP, or the steps are incorporated into other County agreements.

As CWPPs can vary in the level of specificity based on the area, and the fact that Larimer County only manages 33,000 acres in an area of 1,689,600 acres, the County has participated in the development of more locally-specific CWPPs in the county over the past four years. This County-wide plan covers a more holistic approach, and describes the County plans and activities that support the more local CWPPs. Partners in the planning of the more local CWPPs include Big Thompson Watershed Coalition, the Estes Valley Watershed Coalition, the US Forest Service, Rocky Mountain National Park, the Coalition for the Poudre Watershed, the local Fire Departments, the Larimer Conservation Corps, the Larimer Conservation District, and primary public stakeholders in the individual areas who acted as core-group members. Each specific CWPP group has notes and records of meetings and public outreach sessions.

Communities that Larimer County has worked with over the past four years include: Bellvue, as part of the Poudre Fire Authority CWPP; Crystal Lakes; Drake, as part of the Loveland Fire Rescue Authority CWPP; Estes Park/Valley, Fort Collins (PFA); Glacier View; Laporte (PFA); Loveland, Masonville (PFA and LFRA); Pinewood Lake and Pole Hill (LFRA); Pinewood Springs; Poudre Canyon; Storm Mountain (LFRA). These CWPPs, with relevant maps and project descriptions, can be found at https://csfs.colostate.edu/wildfire-mitigation/community-wildfire-protection-plans/ as well in Appendix C

There are several communities that are in the process of creating or updating their CWPPs. Larimer County is closely involved in the planning and creation of these. The communities include Allenspark, Lyons, Crystal Mountain, Glen Haven, Livermore Fire Protection District, which also includes Red Mountain and Cherokee Park, Redfeather, Rist Canyon Volunteer Fire Department response area, which includes Rist Canyon, Crystal Mountain, and the Buckhorn Canyon. There has been talk about Big Elk Meadows updating or creating a CWPP.

There are three larger communities that do not have current CWPPs: Johnstown, Wellington, and Berthoud. Johnstown and Wellington do not currently fall within the County's Designated Wildfire Hazard area (see below), but will in the future. Berthoud Fire Protection District serves areas within the designated Wildfire Hazard Area, and their last update was 2007. Larimer County will be consulting with them to update it.



Map of CWPPs in Larimer County from the Colorado Forest Atlas. Brown is local and Orange is with a FPD.

Background and History

Geography

Larimer County is located in north-central Colorado. It is the sixth-largest County in Colorado based on population and the ninth-largest in area. According to 2023 DOLA data, 370,639 people reside in Larimer County, with an estimated 427,234 people in 2035. This is an increase from 268,448 people in 2003. This represents a 72% increase in the current population between 2003 and 2023 (Last records available from the Colorado Department of Local Affairs). Approximately 66,835 people reside in unincorporated areas (DOLA 2022 estimates). The county extends to the eastern edge of the Continental Divide and encompasses several mountain communities, as well as Rocky Mountain National Park. The county encompasses 2,640 square miles, about 60 miles long by 50 miles wide. Over 50% of Larimer County is publicly owned, with most of this land comprising the Arapaho-Roosevelt National Forest (ARNF) and Rocky Mountain National Park (RMNP). In addition to these federal lands, Colorado State Parks and Recreation areas, Larimer County Parks, and local parks within urban areas collectively offer a diverse range of recreational opportunities for both residents and visitors. The elevation ranges from a low of 4,800 feet on the plains to 13,562 feet on the high mountain peaks.

Larimer County is bordered on the north by Wyoming, the east by Weld County, the south by Boulder County, and on the west by Jackson and Grand Counties. Rocky Mountain National Park, the southwest corner, sits between Larimer and Grand Counties, as well as part of Boulder County.

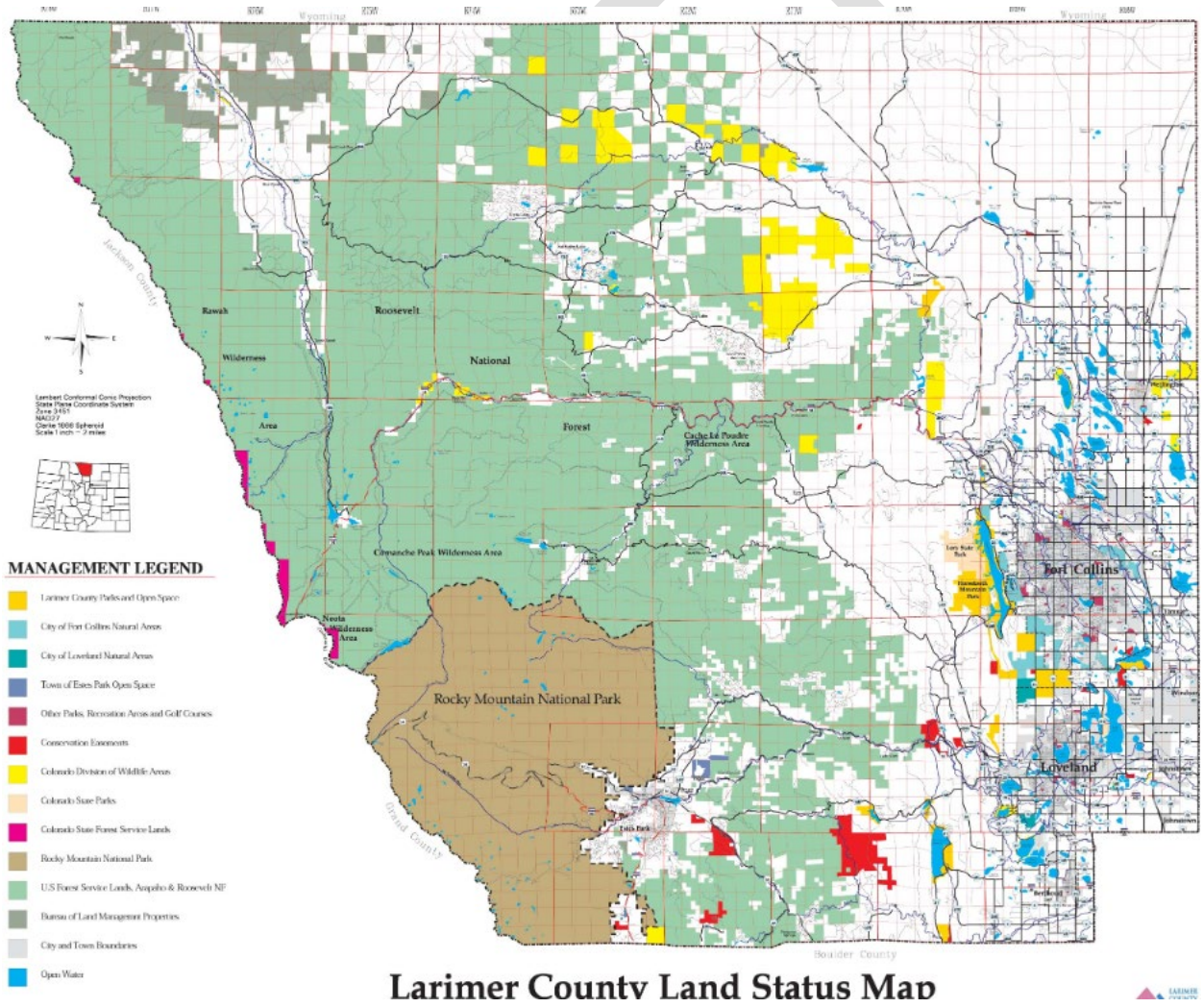
The county is quite diverse topographically. The terrain encompasses low river valleys, flat plains, rolling hills, scenic ranchlands, forests, and rugged mountains. The irrigated land, some of the finest irrigated farmland in Colorado, lies in a narrow belt in the eastern portion of the county adjacent to streams. The dry cropland lies along the foothills and on the high ridges between river valleys. On the plains, the average rainfall is 14.4 inches, with an average annual snowfall of 45 inches. The average frost-free period is from 100-140 days.

Land Ownership

Larimer County consists of 1,689,600 acres of which 870,775 acres are privately owned, the USFS manages 645,400 acres, RMNP manages 143,100 acres, 27,600 acres are managed by the Bureau of Land Management (BLM), and 2725 are managed by CSFS. Larimer County manages 33,000 acres.

Over 11,000 platted parcels exist within the designated Larimer County Wildfire Hazard Area and are therefore exposed to potential wildland fire hazards. Structures are present on about half of these parcels. Based on data from January 1, 2021, to October 21, 2025, approximately 100 living units are built in unincorporated Larimer County each year. There are an estimated 172,700 acres of private land intermixed within the National Forest boundary.

Fire protection within the county is provided by 18 career, combination, and volunteer fire departments, the Larimer County Sheriff's Office, the USFS, Colorado Division of Fire Prevention and Control (DFPC), and RMNP. See Appendix A for the fire protection area boundary map.

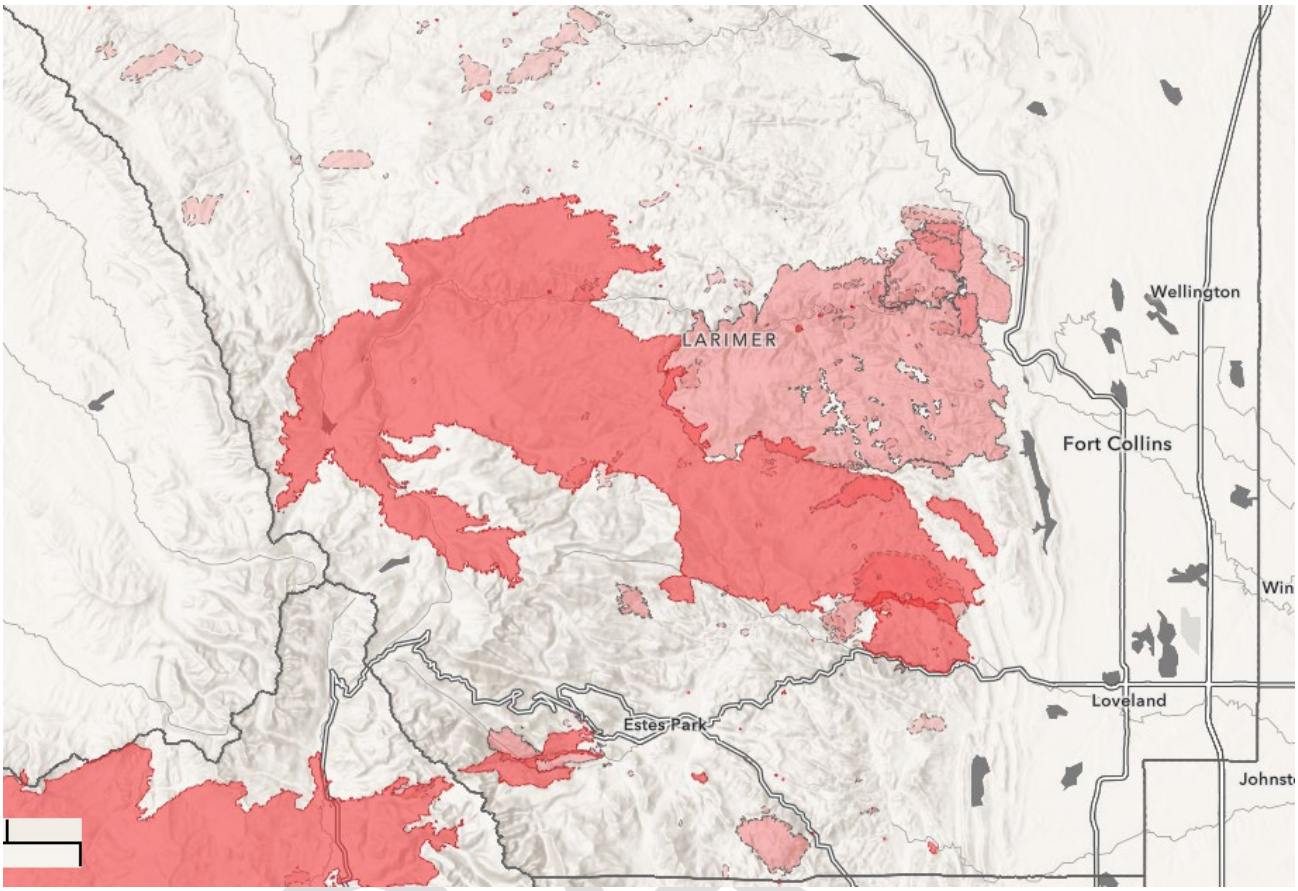


Fire History

Wildfire occurrence in Larimer County is tracked by three agencies. The ARNF records fire data from national forest lands. The DFPC keeps records of fires on state and private lands. RMNP collects fire information within the Park boundary. DFPC statistics only reflect those wildland fires reported by local fire departments. As with most natural events, wildland fire appears to be cyclical. Statistics indicate the annual number of wildland fires peaks every six to eight years. An average of 161 wildfires occur annually in Larimer County. Although these fires burn an estimated 2209 acres each year, most of the losses occur in one-or two-year periods every eight to nine years.

Records provided by the ARNF show that 55% of all wildland fires are human-caused. The remaining 45% are lightning-ignited. Historically, on state and private lands in Colorado, 49% of all wildland fires are human-caused, and 11% are started by lightning. Though the cause of the remaining 40% is unknown, most of these are probably human-caused. According to the United States Department of Agriculture, United States Forest Service, Larimer County has a greater wildfire likelihood than 92% of counties in the United States. https://www.wildfirerisk.org/explore/wildfire-likelihood/08/08069

In 2020, the Cameron Peak fire became the largest fire in Larimer County and Colorado's history, burning 224 homes. The East Troublesome Fire also jumped the Continental Divide in Rocky Mountain National Park, causing the evacuation of the entire Estes Valley. Larimer County also experienced the High Park fire in 2012 which destroyed at least 259 homes. These are two of the five most destructive fires in Colorado's history, in terms of the number of homes lost. They also caused significant damage to the Big Thompson and Cache la Poudre watersheds, which they are still recovering from. In 2024, the Alexander Mountain fire ignited just west of Loveland, above the Big Thompson River. This fire destroyed 25 homes and damaged others. Other significant urban interface fires in Larimer County in the past 25 years include the Bobcat, Big Elk, Crystal Mountain, Woodland Heights, Pearl, and Reservoir Road fires. These fires caused large-scale evacuations, infrastructure damage, loss of homes, and in some cases, fatalities. See Appendix F for a list of significant fires.



Large fire history map

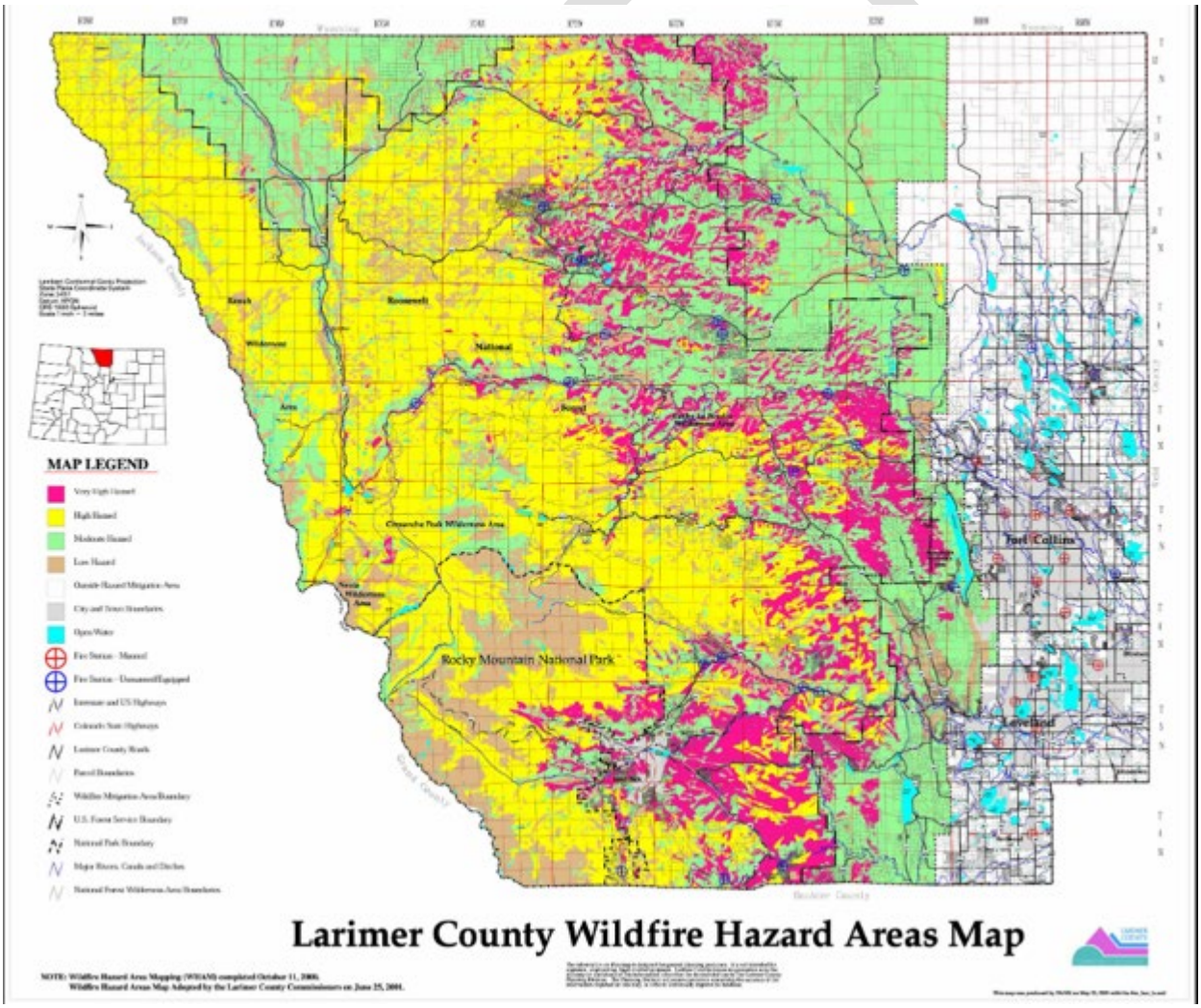
Wildland Fire Hazard Area

In 1998, Larimer County identified a wildland fire hazard area that coincided with a roofing ordinance adopted in 1990. Generally, this area is from west of Range 69 to the continental divide. This will be changing in 2026 to encompass the entire area of unincorporated Larimer County.

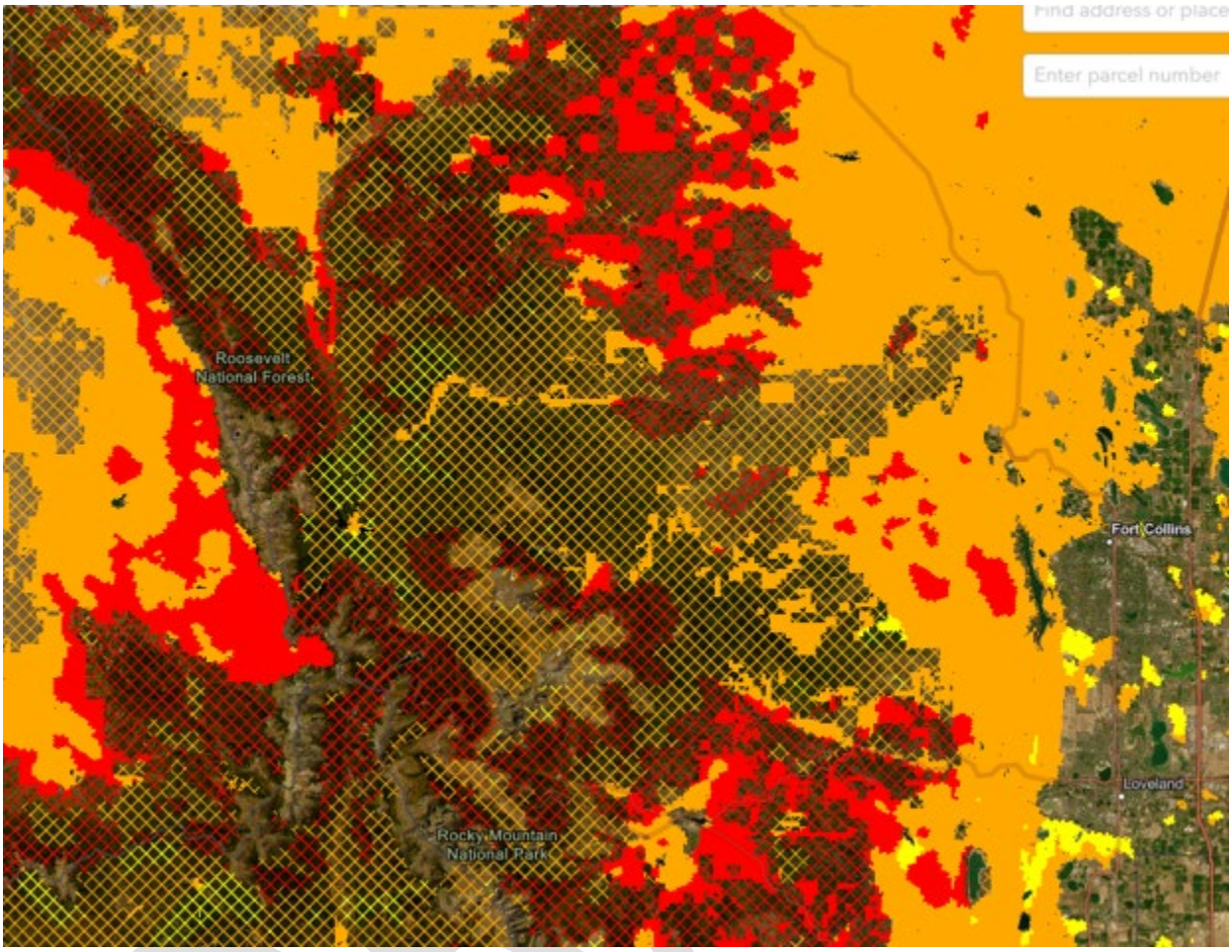
All new building construction and new land development must meet wildland fire mitigation codes and regulations within the current Wildland Fire Hazard area at the time of the permitting process.

Values at risk in the Wildland Fire Hazard Area include, but are not limited to, watersheds that supply multiple municipalities, small communities and individual homes, major transportation routes and community access, and critical communications infrastructure. All of these were affected by the High Park Fire of 2012 and the Cameron Peak Fire of 2020.

1998 LARIMER County wildfire hazard map



2026 Larimer County Wildfire Hazard area map as adopted as part of the Colorado Wildfire Resiliency Code

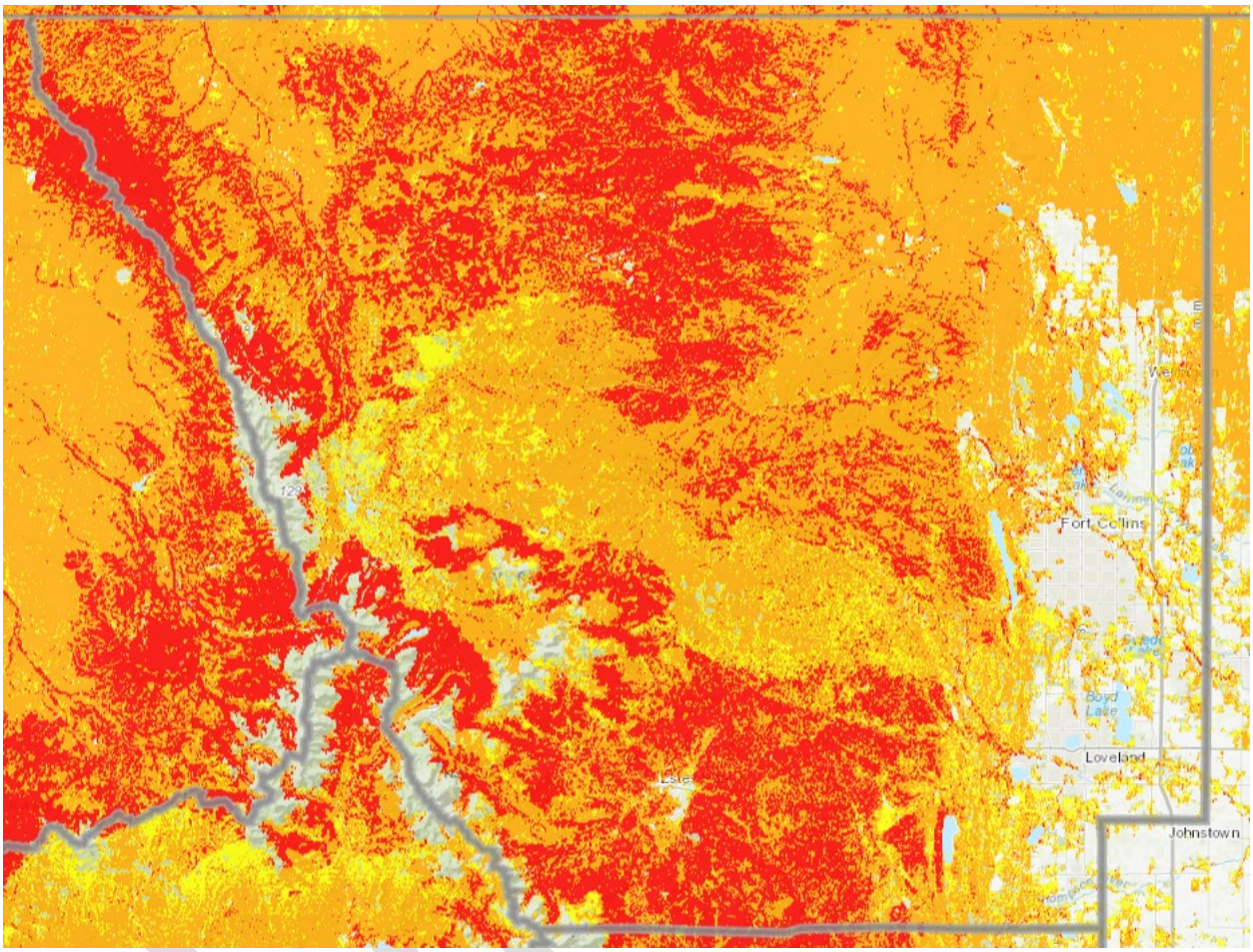


Colorado Wildfire Resiliency Code Map

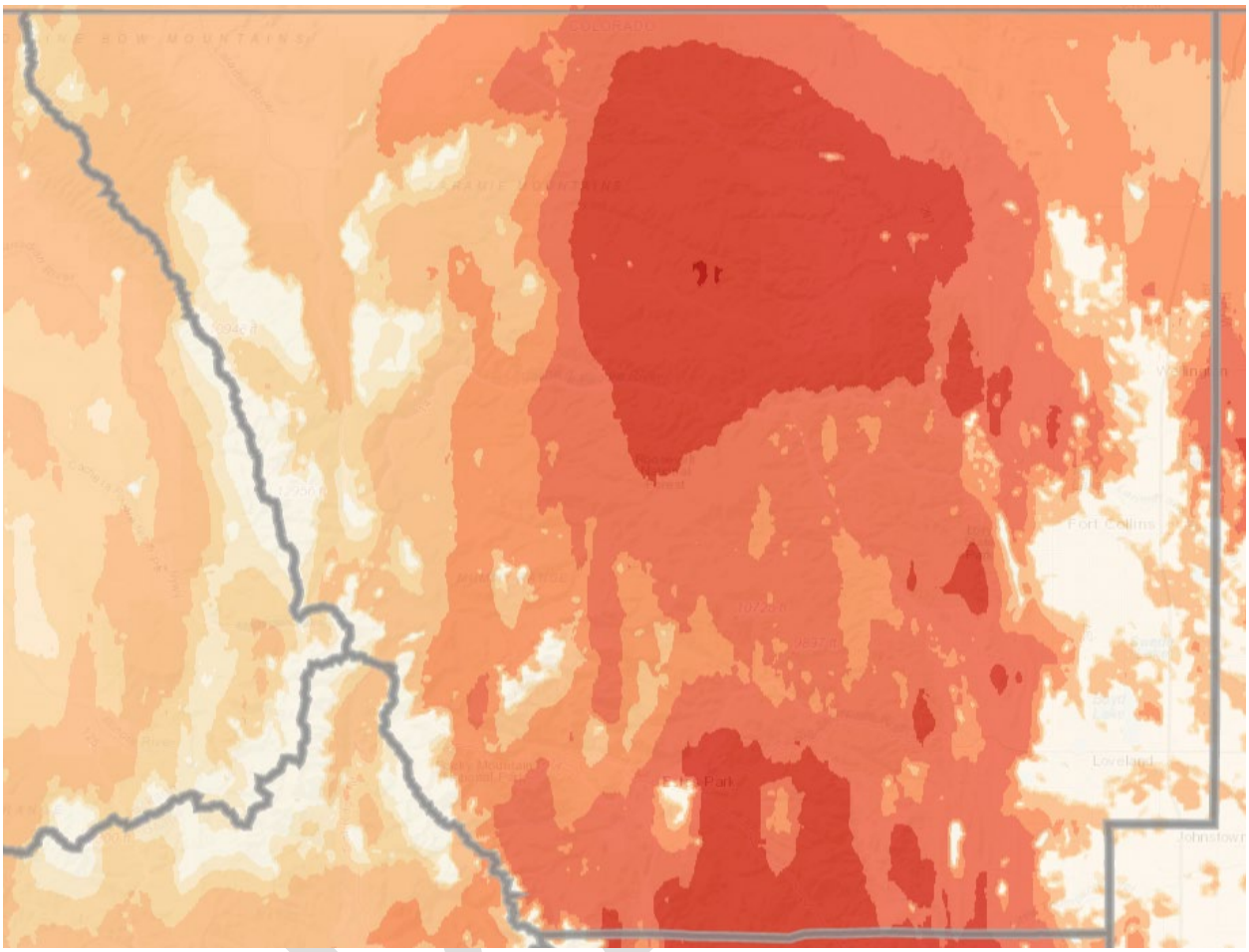
Wildland Fire Hazard Maps

The Colorado Forest Atlas (CFA), managed by the Colorado State Forest Service, has been, and can be, used to assess both large- and small-scale wildfire risks in Larimer County.

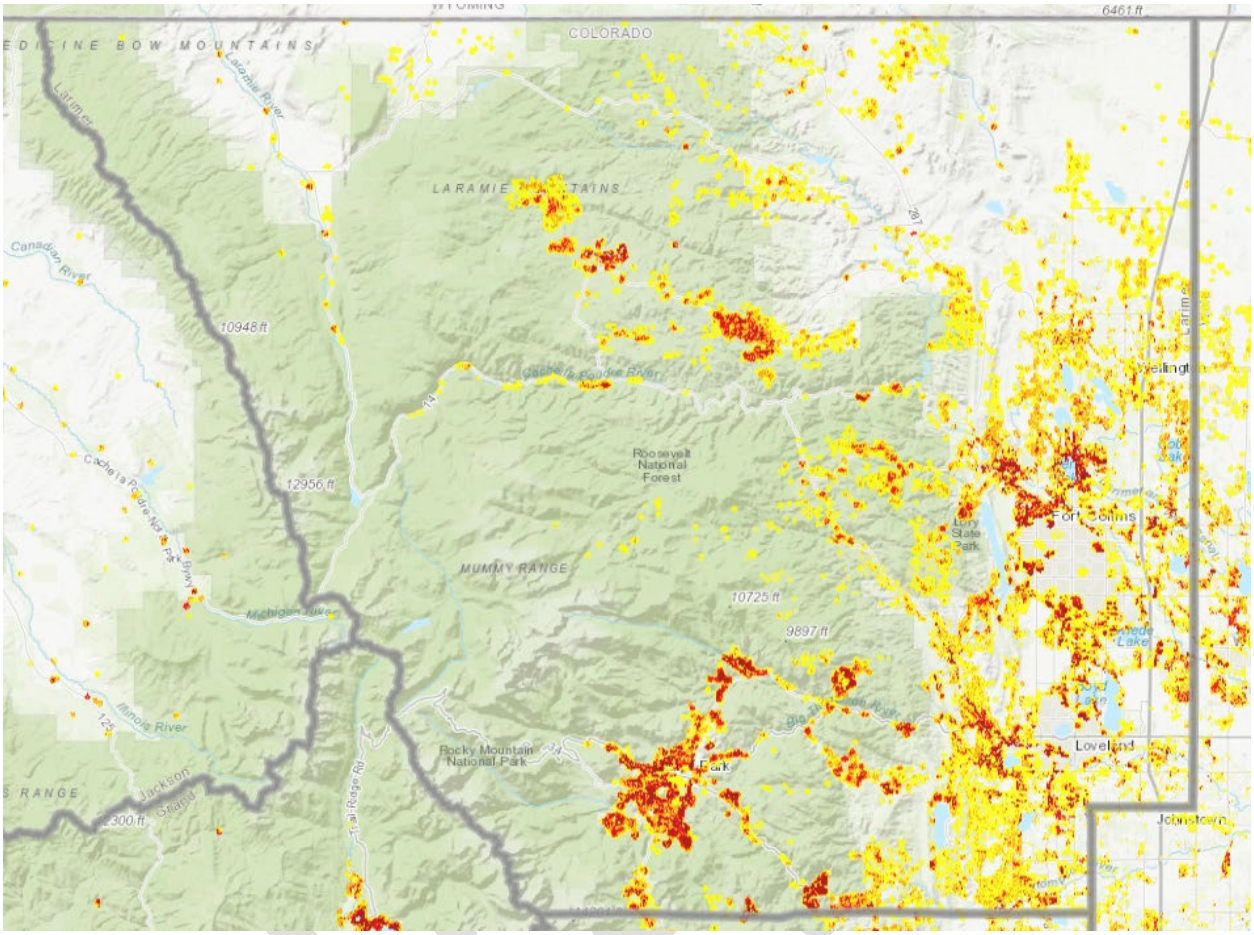
The most current maps can be obtained at https://coloradoforestatlas.org/



Fire Intensity



Burn Probability



Wildland Urban Interface Risk

With the recent adoption of the Colorado Wildfire Resiliency Code at the State level, Larimer County has adopted it, effective January 1, 2026, as required by 8 CCR 1507-39. The County is has designated the entire unincorporated County as Class 2. The state map can be found at Colorado Wildfire Resiliency Code Map

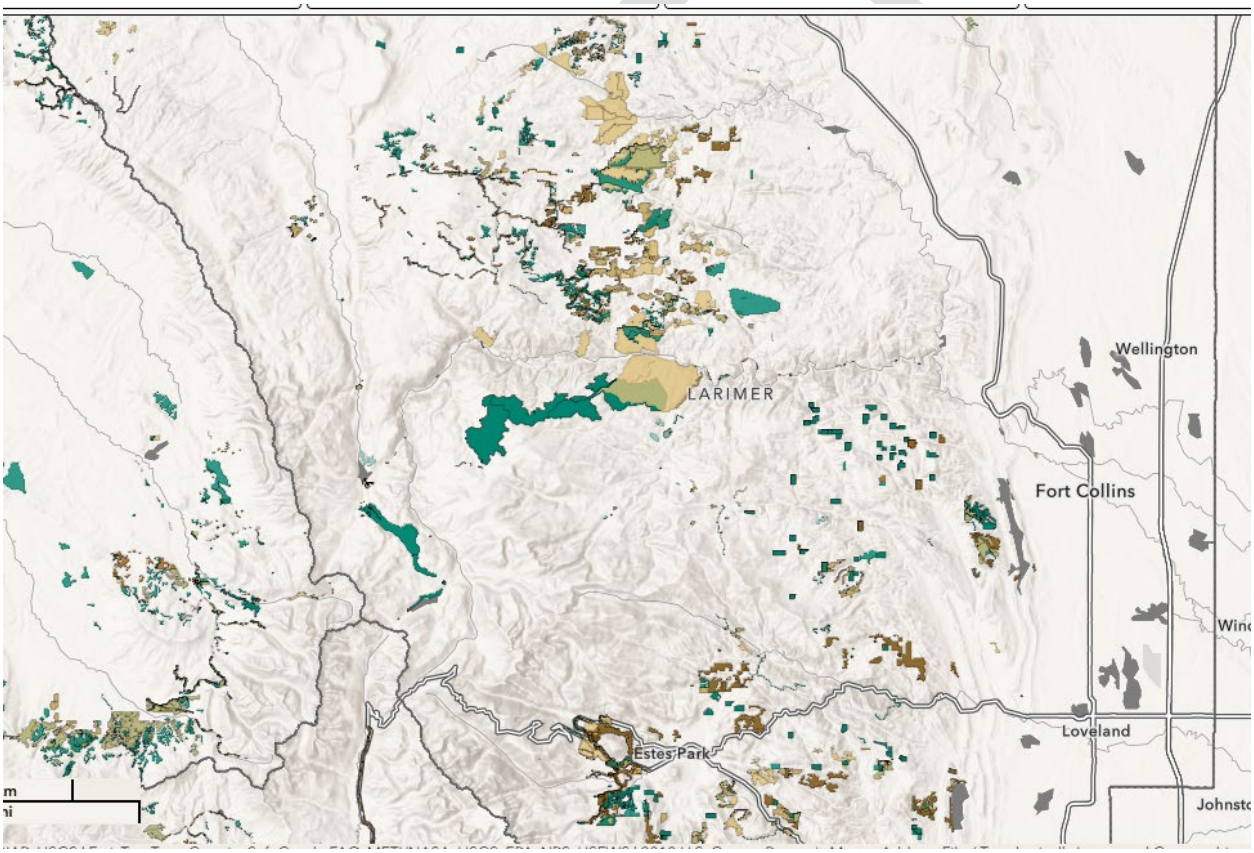
The most recent CSFS Risk Analysis for Larimer County is included in Appendix F

Fuels Reduction Maps

Landscape-level fuels reduction and forest health treatments around communities are identified in the individual community CWPPs, which can be found [at https://csfs.colostate.edu/wildfire-mitigation/community-wildfire-protection-plans/](https://csfs.colostate.edu/wildfire-mitigation/community-wildfire-protection-plans/) under the Larimer County section.

In addition, Larimer County is developing an ArcGIS platform that is available to the public, which will identify treatment areas on County-owned, private, and Federal lands.

The Colorado Forest Tracker is another platform that allows users to view fuel treatments of various types conducted by different groups in Larimer County.
https://experience.arcgis.com/experience/7eac80a824a64d77864e3e0948ff4f1e/page/Dashboard



Since 2009, LCDNR has treated 2,040 acres on DNR property. This represents 60% of the forested acreage identified as needing forest management across all their open spaces. To date, LCDNR has treated over 75% of the forest canopy, including work prior to 2009.

The Larimer Conservation District started its forestry program in 2017 and has treated 4,100 acres.

The Larimer Conservation Corps' Forestry Program has treated roughly 1100 acres since 2010.

The change in wildfire hazard on a large scale is most evident within the perimeter of the Cameron Peak fire. Areas of the High Park fire where the Cameron Peak fire bumped into it did burn, but with much less intensity due to the change in fuel type. This was also evident with the Alexander Mountain fire of 2024 where it ran into parts of the Cameron Peak fire. During the Cameron Peak fire, a large fire run entered an area that the Forest Service had burned for wildlife habitat in the Poudre Canyon, dropping a crown fire down to the ground and allowing firefighters to establish control lines.

Preparedness, Mitigation, Response, and Recovery

Due to the county's size, Larimer County employs a multifaceted approach that aligns with disaster management.

Preparedness

Objective: Plan the most effective level of resources to protect human and natural values.

Actively participate in preparedness and all-hazard planning.

Agency Contacts:

USFS	Canyon Lakes Ranger District Fire Management Officer	970.295.6780
RMNP	Fire Education, Fire Management Officer	970.586.1264
DFPC	Big Thompson Region Battalion	720.413.2917
Larimer County	Sheriff's Office Emergency Services	970.498.5301
Larimer County	Office of Emergency Management	970.498.7147

The USFS and RMNP are primarily responsible for National Forest lands and National Park lands, respectively. The DFPC and Larimer County assist all agencies, Fire Protection Districts and Departments, communities, and associations with fire planning, readiness, and wildland fire hazard identification. All agencies share the responsibility to coordinate and cooperate in FireWise planning, Pre-attack planning, and communication with the public and the news media.

Since 2009, Larimer County has moved Office of Emergency Management functions from the Sheriff's Office to the Office of Emergency Management, which was created in 2014. Since then, OEM has been able to increase staffing and programs to better prepare for wildfires as well as other hazards. The staff has expanded to six individuals with specialized roles from coordinating disaster mitigation programs before and after disasters, preparedness activities, public engagement, and whole-community planning.

The Larimer County Sheriff's Office Emergency Services Section has been able to expand from a staff of four people whose primary job was to respond to incidents to a staff of 18. While still responding to incidents, they are now able to engage in pre-incident fuels mitigation work, increased ability to engage in preparedness planning in cooperation with OEM for communities, a dedicated position for public outreach and Home Ignition Zone Assessments to reduce home ignition potential, and increased capacity to respond to incidents as well as a workforce to assist with recovery efforts that fall within their skill set. In addition, LCSO, in a partnership with the Larimer Emergency Telephone Authority (LETA), Poudre Fire Authority, Loveland Fire Rescue Authority, and the Estes Valley Fire Protection District, has created an evacuation polygon map that is available to all fire departments in Larimer County, as well as agencies from out of the area that may respond to Larimer County. Several tabletop exercises, as well as real-life evacuations, have been completed to test and refine the system. During home assessments and community outreach events, all residents are encouraged to sign up to NoCOAlerts for evacuation and other emergency notifications.

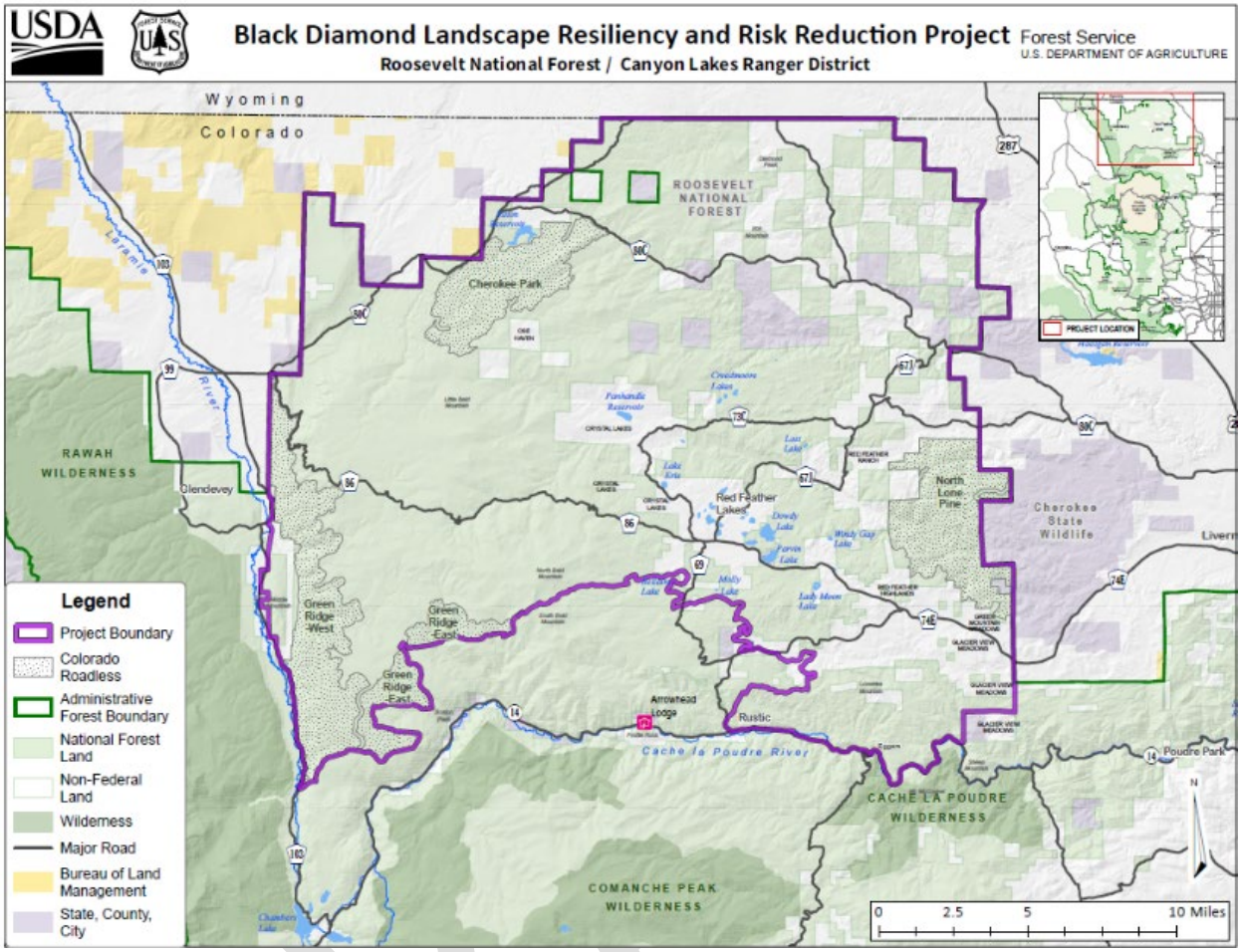
Mitigation

Objective: Plan and implement actions to reduce potential negative impacts on human and natural values from wildfire.

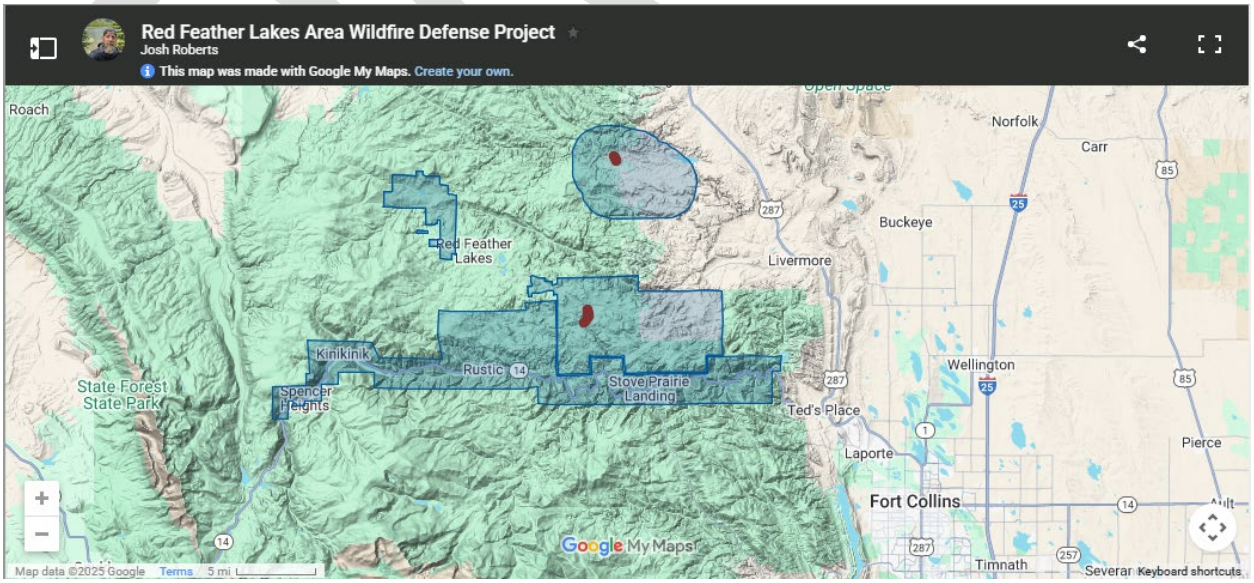
Agency Contacts:

USFS	Canyon Lakes Ranger District Planning Team Leader	970.295.6760
RMNP	Fire Management Officer	970.586.1287
CSFS	Colorado State Forest Service Ft Collins Field Office	970.491.8445
Larimer County	Sheriff's Office Emergency Services	970.498.5301
	Building Department	970.498.7660
	Department of Natural Resources	970-619-4562
	Office of Emergency Management	970.498.7147

USFS and RMNP fuels reduction implementation is tied primarily to National Forest lands and National Park lands. The CSFS has coordinated and assisted on fuel reduction projects on state and private lands. Recent agreements allow for cross-jurisdictional fuel reduction project planning and implementation. The USFS is currently implementing work on the Black Diamond and Magic Feather fuels management plans. Details can be found in the links in Appendix D.



Black Diamond (USFS) project area



Red Feather Lakes CWDG area with current CWPP boundaries

To help reduce structure ignition potential, Larimer County had adopted the 2021 International Residential Building Code (IRBC) (see Section R331) and the 2021 International Building Code (IBC) (see Chapter 36), with amendments. The Larimer County Land Use Code (Section 8.3) also defined the wildfire hazard area with regard to construction. These codes affected all new construction and additions that are greater than 50% of the total square footage of the original building and address construction materials and defensible space requirements. The codes also address short-term rentals. All new construction addressed in the codes and in the designated wildfire hazard area is required to meet the guidelines in the most current Colorado State Forest Service Home Ignition Zone guide.

In September of 2025, Larimer County adopted the 2024 IRBC and IBC with the addition of the Colorado Wildfire Resiliency Code as required by SB23-166. With this adoption, the entirety of unincorporated Larimer County has been designated as a Hazards Class 2 as defined by the State produced hazard map. https://experience.arcgis.com/experience/34c113129c044004bc672ca5493378de/page/page_2 This new code will go into effect on January 1, 2026.

Larimer County's wildland fire safety program was established in 1998 to help citizens meet adopted building and land use codes, provide individual wildland fire hazard site inspections and assessments, provide slash disposal options, and promote education and awareness of wildland fire and what citizens can do to prepare themselves.

In 2023 the Board of County Commissioners authorized the creation of a Wildfire Partner Program Coordinator (WPPC), creating a full-time position to be dedicated to education, working with the Building Department to enforce the Building Code, increasing local capacity for Home Ignition Zone (HIZ) Assessments, and fuel reduction collaboration. The WPPC has instituted a Wildfire Ambassador program, where local residents and fire departments are trained to the same standard, using a standardized program, to perform HIZ assessments. This increases the encouragement of work around homes and properties on a voluntary basis. There are currently approximately 50 ambassadors, with plans for more to be able to reach the entire county. The WPPC also works with local, neighborhood mitigation groups and Non-Profit organizations to facilitate partnerships and reduce redundant work. Since 2023 the ambassador program has performed 852 HIZ Assessments.

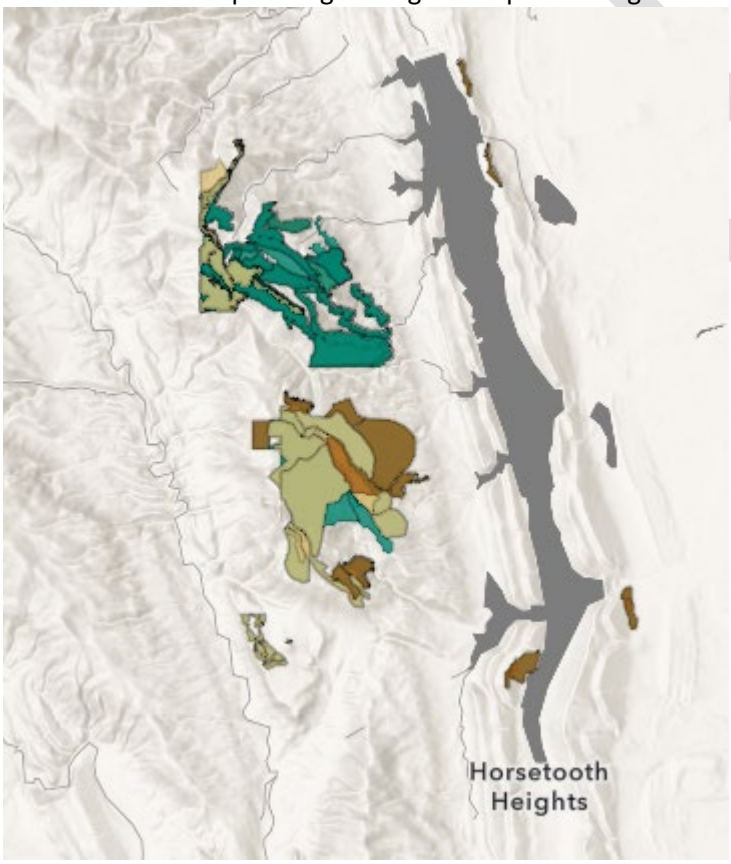
The Larimer County Office of Emergency Management (LCOEM) and Larimer County Sheriff's Office provide public education on fire safety, fire prevention, and emergency preparedness through their websites and at various events. LCOEM also engages local community groups via the Larimer Connects program to promote preparedness and resiliency by providing tools and knowledge to equip them better to take safe grassroots action in the event of wildfires or other disasters. LCOEM also, as funds are available, offers an annual Community Mitigation Grant to help communities address disaster mitigation needs.

LCOEM has been instrumental applying for, and receiving, Community Wildfire Defense Grants (CWDG) in the Red Feather area and, recently, The Gateway to the Rockies (highway 34 corridor from Estes Park to Loveland). Both of these have the expansion of HIZ assessment targets as well as identifying and working on evacuation routes, landscape

treatments, and finding ways to assist qualified homeowners with mitigation work on their properties. One of the potential qualifications for assistance with mitigation work in the HIZ being looked at is the requirement to have an HIZ assessment done first. The LCSO ES section is working closely with OEM and project partners to help develop and implement identified fuel mitigation projects in the CWDG areas.

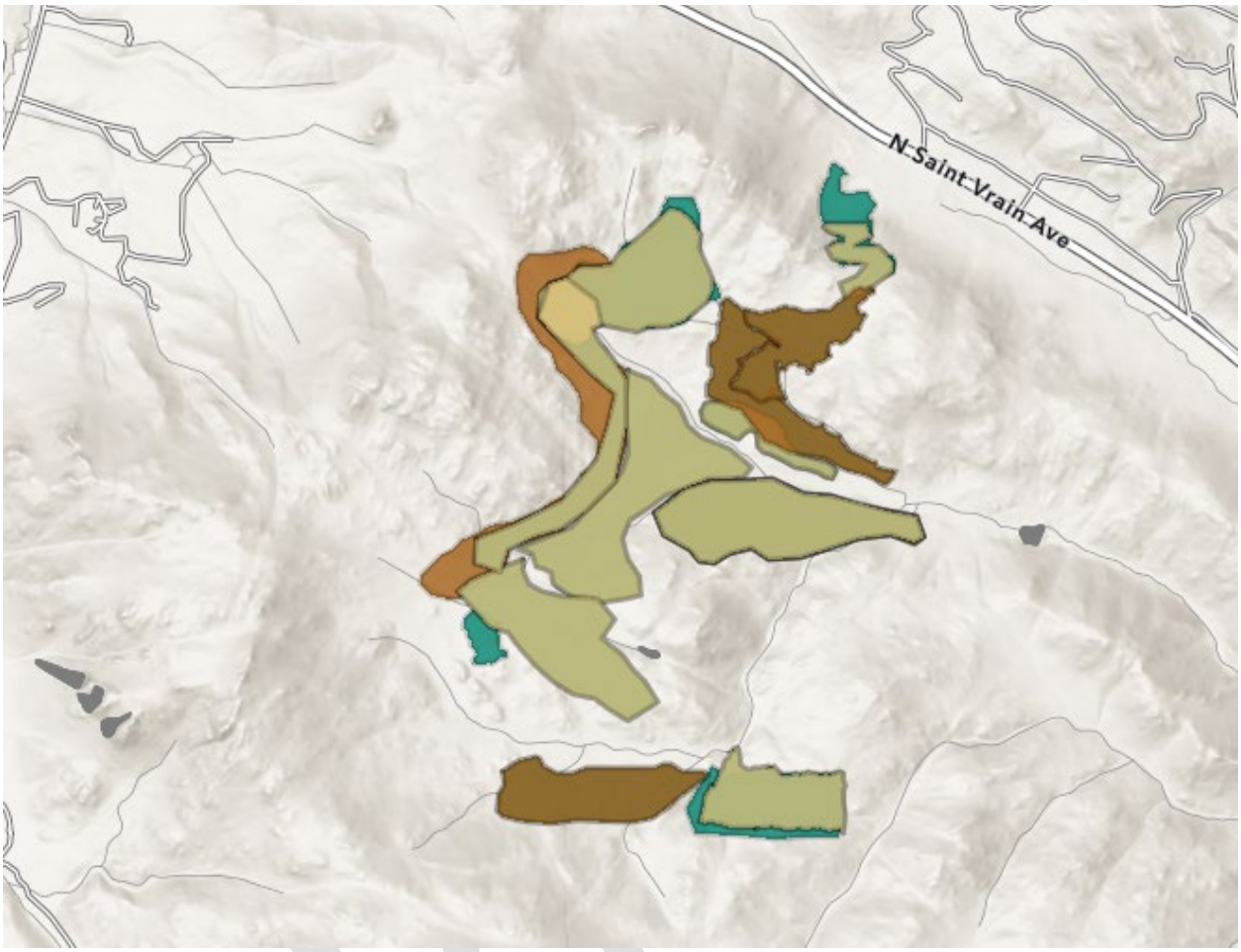
The Larimer County Sheriff has a fire crew with a history of working on forest health and grant-funded fuels reduction projects on County lands when not suppressing wildfire or supporting prescribed burns. On a case-by-case basis, the fire crew may be available to help local communities implement projects outlined in their CWPPs. In addition, the fire crew assists with wildfire prevention and safety education for the public

The Larimer County Department of Natural Resources performs regular vegetation management (forest prescriptions, grazing) on Park and Open Space properties to achieve resource management objectives with the added effect of reducing hazardous fuel buildups. They partner with the City of Ft Collins, USFS, Northern Water, CSFS, and the Bureau of Reclamation when planning management plans along boundaries.



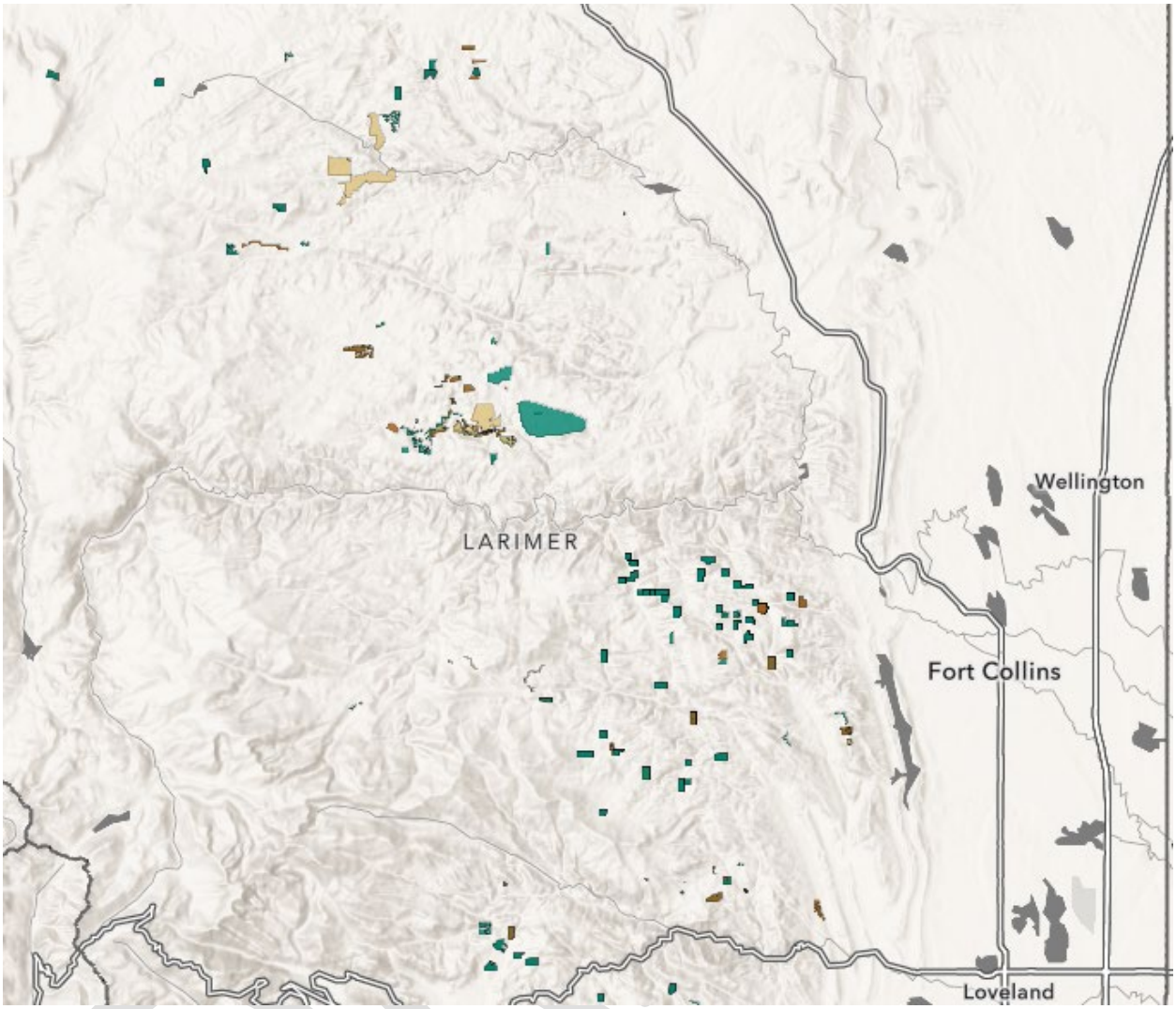
Horsetooth Mountain Park area

Carter Lake and Pinewood reservoir area

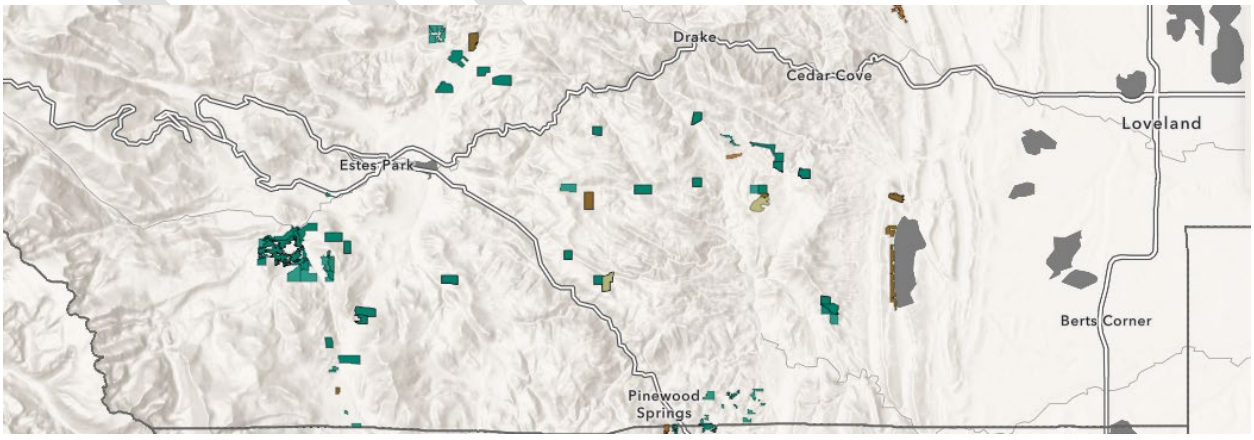


Hermit Park area

The Larimer Conservation District and Larimer Conservation Corps, along with local watershed non-profits, identify landscape-scale and large-property fuel reduction projects and implement them with various grant monies and workforces. These projects bridge the HIZ and projects identified by the Federal agencies in their Wildfire Crisis strategy. The maps below were taken from the CFRI Colorado Forest Tracker with the NGO, Private, and State Landowner layers activated.



LCD and LCCC projects in northern Larimer County



LCD and LCCC projects in southern Larimer County

Links to LCDNR, LCD, and LCC projects can be found in Appendix D with the Aegis link. This platform is under development and will eventually include maps of project areas.

Larimer County agencies participate with local communities in the development and renewal of their CWPPs. Through this process, areas for cross-boundary mitigation treatments are identified that will have the most impact on the County with the participation of the local communities, non-profits, the LCD, the CSFS, and Federal agencies. The County has found this to be the most effective way to meet the needs of its citizens, have the most impact, and generate the most public engagement. Through this process, targeted landscape-scale projects, as required in the CWPP process, are identified at the most local level.

Suppression-Wildland Fire

Objective: Use appropriate strategies and tactics for safe and cost-effective protection of human and natural resource values from wildland fire.

Agency Contacts:

USFS	Canyon Lakes Ranger District Fire Management Officer	970.295.6780
RMNP	Fire Management Officer	970.586.1287
DFPC	Big Thompson Region Battalion	720.413.2917
Larimer County	Sheriff's Office Emergency Services	970.498.5300

United States Forest Service

The United States Forest Service is responsible for all fire management activities on National Forest lands. Due to the complex intermix of private land within the forest boundary, Larimer County Sheriff's Office (LCSO) Communications Center will notify the Northern Colorado Interagency Dispatch Center for all forest fires reported within the National Forest or areas of said intermixed ownership.

Bureau of Land Management

The Bureau of Land Management is responsible for fire suppression activities on BLM lands. In Larimer County, through cooperative agreement with the BLM, the USFS has initial attack responsibilities for these lands.

Rocky Mountain National Park

The National Park Service is responsible for all fire suppression activities on Rocky Mountain National Park lands. RMNP will normally dispatch and make initial attack or manage wildland fires for resource benefit on fires reported on National Park lands, and will also notify LCSO Communications Center or Fort Collins Dispatch Center of any fires reported to RMNP outside the park boundary (AOP).

Colorado Division of Fire Prevention and Control

The Colorado Division of Fire Prevention and Control will, upon request, assist all agencies

on wildland fires within Larimer County. The-DFPC will assume duties as specified under provisions of the Emergency Fire Fund when a forest fire exceeds the county's resources, upon agreement of the Larimer County Sheriff or designated representative, and the DFPC FMO or designated representative.

Larimer County Sheriff

The Larimer County Sheriff is responsible for all wildland fire suppression activities on private and state lands within Larimer County and outside of fire protection districts. Initial control actions are normally taken by fire departments, fire protection districts, or Larimer County Sheriff's Office firefighters dispatched by Larimer County Public Safety Answering Points or Northern Colorado Interagency Dispatch Center (AOP). By State Statute, Fire Protection Districts/Authorities are responsible for wildfire suppression within their response area. If a wildfire exceeds the capabilities of a Fire Protection District the fire may be delegated to the Sheriff. If the fire continues to grow in complexity, the fire may be delegated to DFPC.

Reclamation/Rehabilitation

Objective: Assess the impact of wildland fire on human and natural values. Identify the roles and responsibilities of appropriate agencies and funding sources.

Agency Contacts:

USFS	Arapaho Roosevelt National Forest Staff Hydrologist	970.295.6633
RMNP	Fire Effects Specialist	970.586.1434
CSFS	Colorado State Forest Service Ft Collins Field Office	970.491.8445
Larimer County Office of Emergency Management		970.498.7147

The US Forest Service and National Park Service are responsible for burn area emergency rehabilitation (BAER) primarily on affected National Forest lands and National Park lands. Close coordination and cooperation with other agencies is necessary to determine values at risk that may be affected by adjacent landowners. CSFS provides technical assistance to property owners with the support of the Natural Resources Conservation Service and Farm Services Agency.
Larimer County coordinates with other county departments, State, and federal agencies to assist private landowners affected by wildland fire occurrences.

Early in the response phase of the Cameron Peak Fire, the U.S. Forest Service established the Collaborative Assessment and Recovery Team (CART). This group met twice a week for many weeks to begin shaping the recovery and restoration strategy for the incident. It was the first time the USFS had formed such a group, and its creation significantly improved the coordination of recovery activities.
As the response phase wound down, the CART transitioned into the Larimer Recovery Collaborative, which operated through eight work groups:

1. Water and Watershed
2. Infrastructure

3. Public and Environmental Health / Debris Management
4. Individual Needs
5. Community Support Services (Human Services)
6. Mitigation and Resilience
7. Economic Health
8. Information Management

The collaborative brought together leaders from all levels of government, the private sector, non-profit organizations, volunteer groups, and other NGOs. Work groups were led by representatives best suited to each area of need and Larimer Office of Emergency Management led the collaborative to ensure all needs were met.

Immediate post-fire priorities included suppression repairs to reduce erosion, hazard tree removal along roadways to maintain safe access and egress, and planning for post-fire flooding. Larimer County partnered closely with the City of Greeley and NRCS to design and implement post-fire restoration and flood-control projects. To accelerate progress, the fire area was divided into sections: the City of Greeley worked with NRCS along the Cache la Poudre River from Cameron Pass to Rustic, while Larimer County worked with NRCS on all remaining areas. This structure allowed multiple erosion control, sediment containment, flood mitigation, and property protection projects to occur simultaneously.

Once winter ended and the ground thawed, multiple partners entered the burn area to begin land restoration activities, including aerial mulching, seeding, tree planting, straw wattle placement on hillslopes, and additional hazard tree removal. Flood barrier bags were installed along several homes in the Retreat, ultimately preventing damage during the flood events that occurred in subsequent years. Watershed coalitions led water recovery efforts, with personnel from Fort Collins, Loveland, and Greeley actively engaged to protect critical water infrastructure.

Five years later, post-fire flooding remains a concern, but the coordinated work of the recovery collaborative has significantly reduced runoff and erosion, protected waterways, and supported the long-term healing of the landscape.

Recovery planning for the Alexander Mountain Fire began early in the response phase, similar to the Cameron Peak Fire. Although the fire burned for a shorter duration and affected a smaller area, Larimer County applied the same successful model by forming a Recovery Collaborative composed of local, state, and federal partners, as well as non-profit organizations, volunteer groups, private-sector representatives, and NGOs.

Immediate needs included assisting those with property destruction and the urgent need to protect water infrastructure along the Big Thompson River. Larimer OEM partnered with Volunteer Organizations Active in Disaster (VOAD) to identify and prioritize necessary projects for private landowners and impacted homeowners. These efforts included hazard tree removal, debris removal from burned structures, and temporary housing support.

Northern Water and the City of Loveland quickly began measures to safeguard water infrastructure. Northern Water installed wattles and other materials to prevent sediment from entering the Hansen Feeder Canal, while water providers increased monitoring for debris and sediment that could affect treatment facilities downstream.

After immediate needs were stabilized, the collaborative shifted its focus to modeling and studies to determine post-fire flooding concerns. These assessments showed that runoff from the Alexander Mountain Fire posed the greatest risk to the Cedar Cove

area. As a result, the county partnered with NRCS to implement structure protection and flood-control projects in that area.

Volunteer groups continued to assist individual homeowners with recovery needs, and the Big Thompson Watershed Coalition led land restoration activities to protect the Big Thompson River. Throughout the process, Larimer OEM coordinated among all organizations to maintain alignment, address gaps, and ensure a unified recovery effort.

Fiscal

Objective: Establish funding priorities and budget strategies for management objectives.

Agency Contacts:

USFS	Arapaho Roosevelt National Forest Fire Management Officer	970.295.6631
RMNP	Fire Management Officer	970.586.1287
DFPC	Big Thompson Region Battalion	720.413.2917
Larimer County Sheriff's Office Emergency Services		970.498.5302
	Department of Natural Resources	970.619.4562
	Office of Emergency Management	970.498.7147

Funding for prevention, preparedness, mitigation, and burned area rehabilitation by Forest Service personnel is tied to National Forest lands. The DFPC administers the Emergency Fire fund (EFF) for those Colorado counties that contribute to the fund to assist with suppression costs. Larimer County contributes annually to this fund. At the Larimer County Sheriff's request, the DFPC FMO may request EFF designation from the DFPC Director if the fire meets certain criteria. If approved, EFF will reimburse some County suppression costs according to the current Annual Operating Plan (AOP), the master EFF agreement, and as agreed to for the specific incident. The DFPC will request Federal Emergency Management Agency reimbursement for qualified suppression costs according to the most current agreements. CSFS and DFPC administer various grants to assist local fire departments and property owners as funds are available for suppression, training, and other projects.

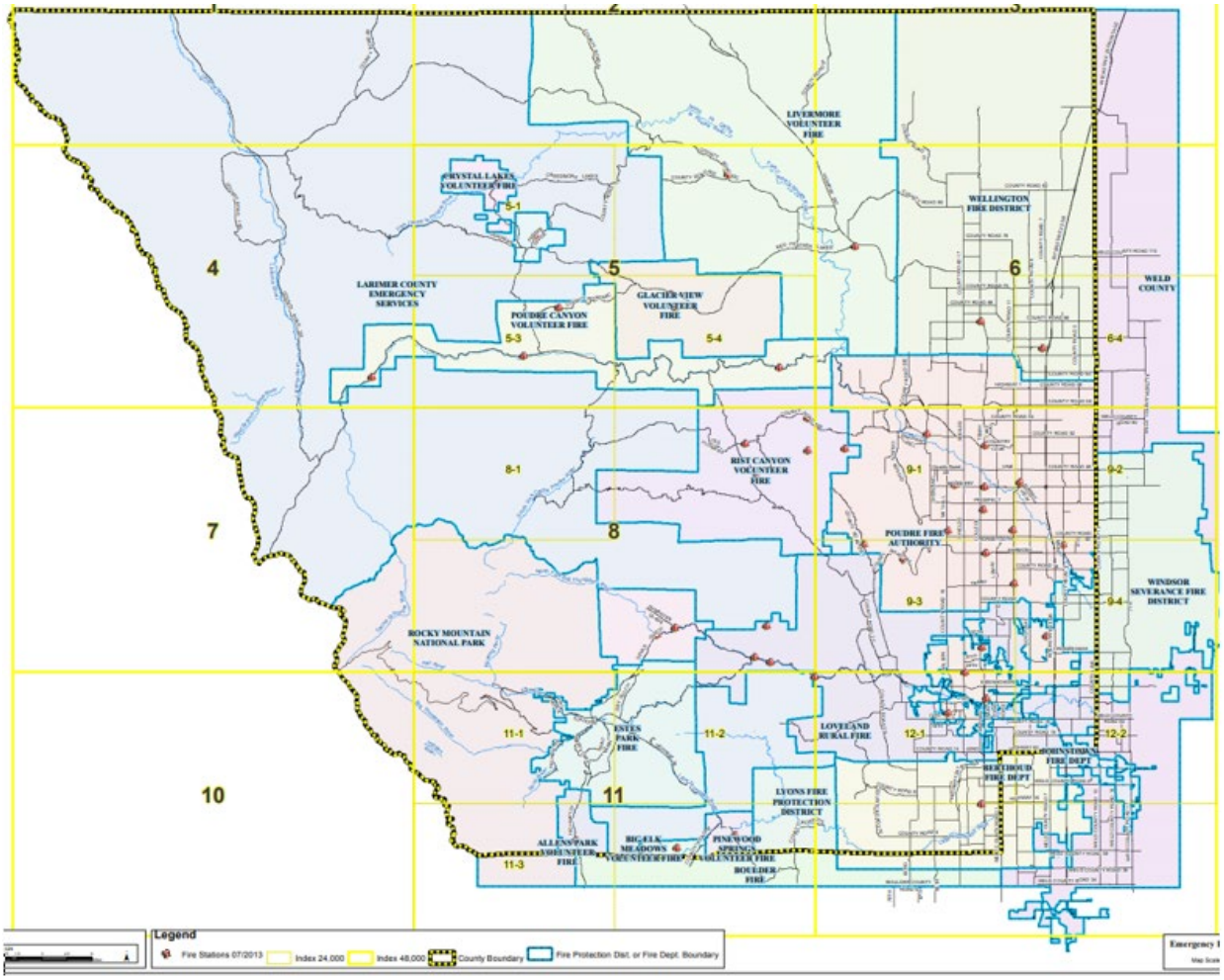
The Larimer County DNR applies for and utilizes grants to achieve many of the forest management projects that also contribute to reducing the risk of a catastrophic fire starting on or leaving their properties. All of these grants require some form of In-Kind or cash match, and DNR partners with the LCSO Emergency Services Unit and other agencies, organizations, and volunteers to achieve this.

County level plans for the next five years

1. Continue to help communities develop and renew CWPPs specific to their community. Responsible party-LCSO ES WPP
2. Continue to seek grant funding to maintain forest health projects on County lands. Responsible party- LC DNR
3. Continue to support the Redfeather Community Wildfire Defense Grant through mitigation by the fire crew along identified evacuation routes, building a Wildfire Partner Program Ambassador group to begin HIZ assessments to reduce structure ignition potential, and collaborating when possible on landscape fuel reduction. Responsible parties: LCOEM, LCSO ES fire crew, and WPP
4. Provide, when funds and members are available, the fire crew to support local CWPP-identified fuel reduction projects to enhance evacuation routes and reduce structure ignition potential. Responsible party-LCSO ES
5. Seek grant funding to increase staff for the LCSO Wildfire Partner Program to increase capacity. Responsible party-LCSO
6. Continue, as funds are available, the Community Mitigation Grant administered by the Office of Emergency Management. Responsible Party- LCOEM
7. Bring on at least one WPP Ambassador group per year to help educate homeowners on ways to reduce structure ignition potential. Responsible Party-LCSO ES WPP
8. Continue to build out the Aegis information platform and incorporate additional forest project maps. Responsible Parties- involved Larimer County Departments and Offices

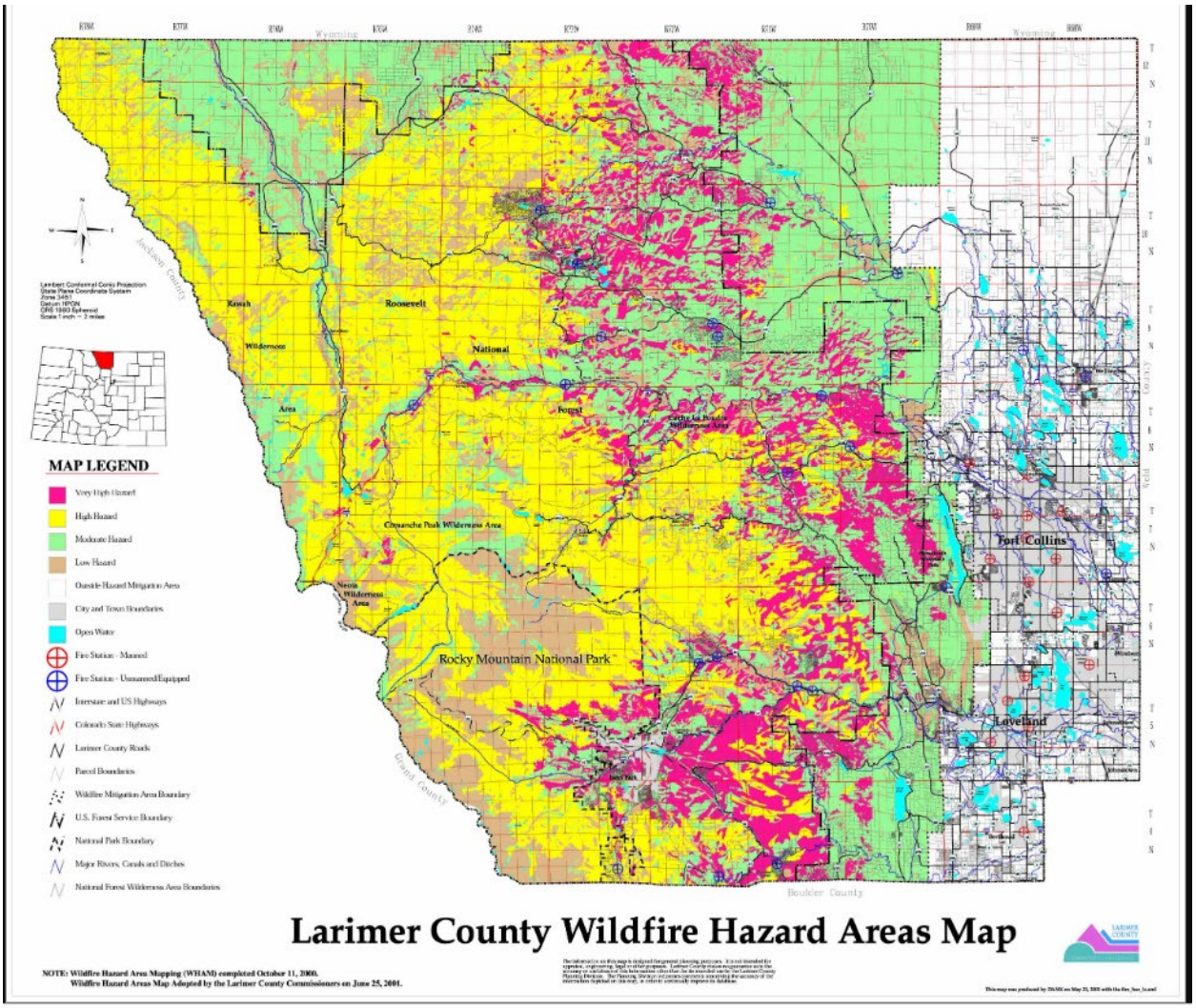
In 2031, this plan will be revisited and renewed, evaluating changes to the County, successes in the aforementioned goals, updating fuel treatment acreage, and looking at lessons learned for process improvement.

Appendix A

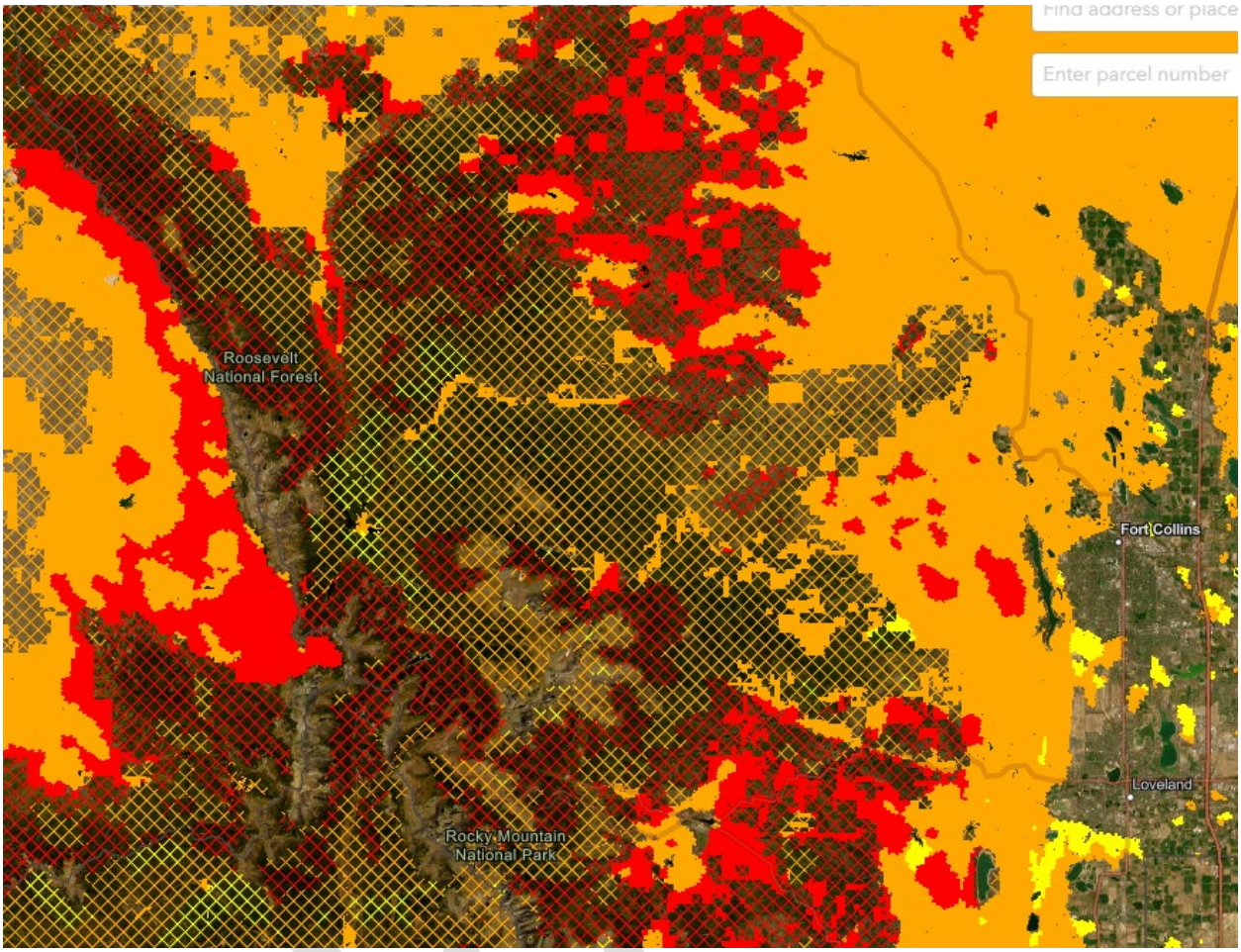


Fire Protection District/Authority and Volunteer Fire Department boundaries

Appendix B

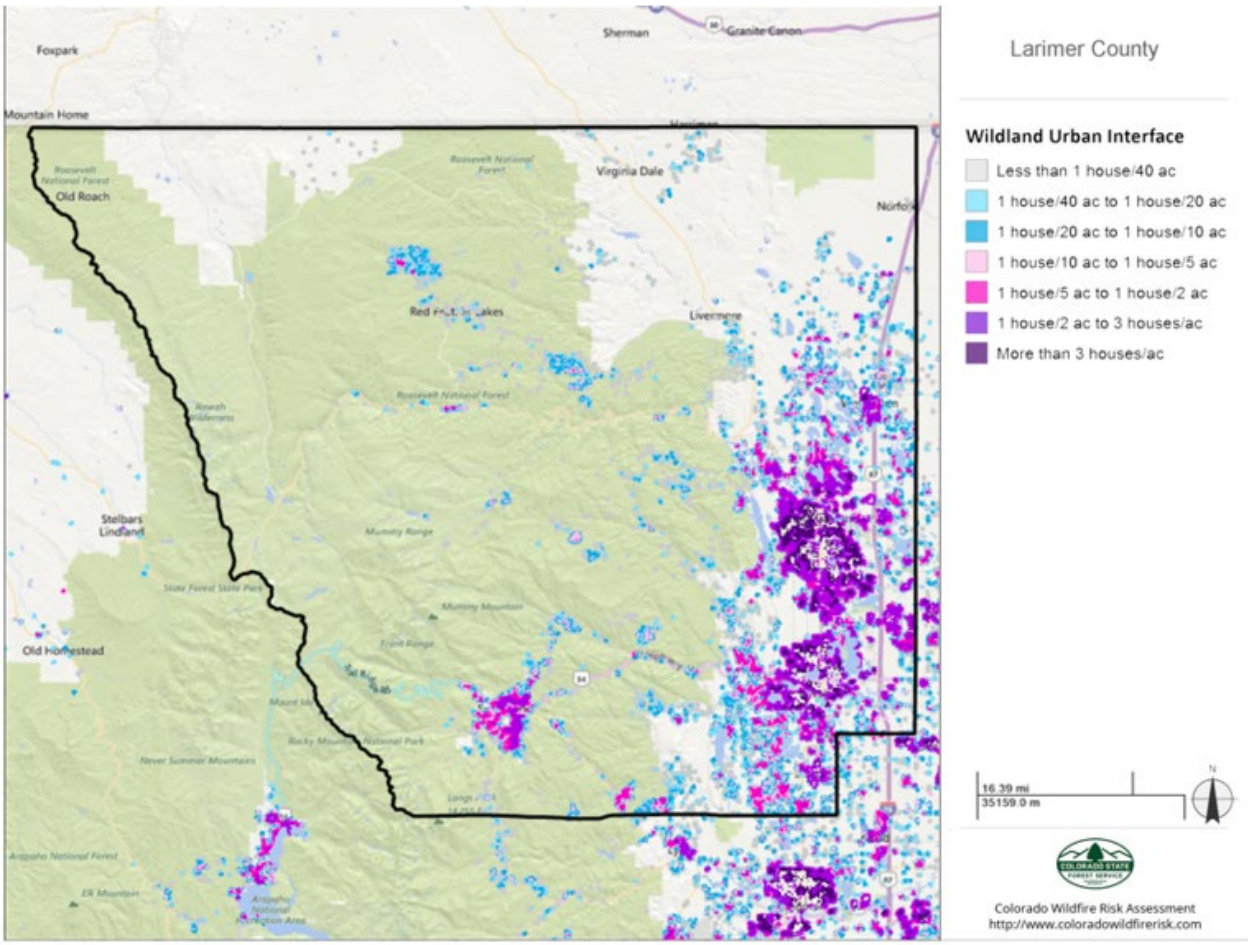


Previous Larimer County Wildfire Hazard Area map

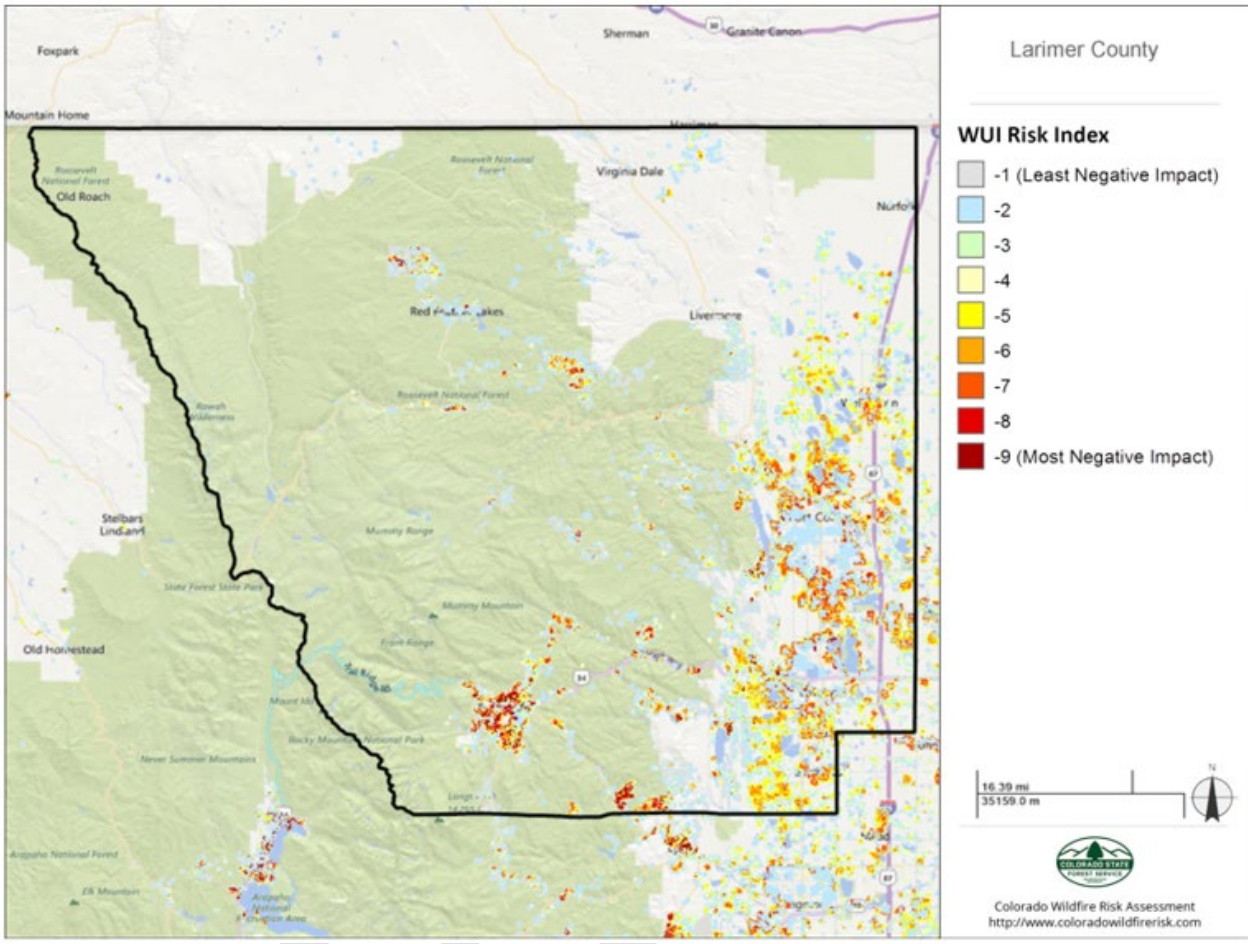


Current CWRC map of Larimer County wildfire hazard area as of January 1, 2026

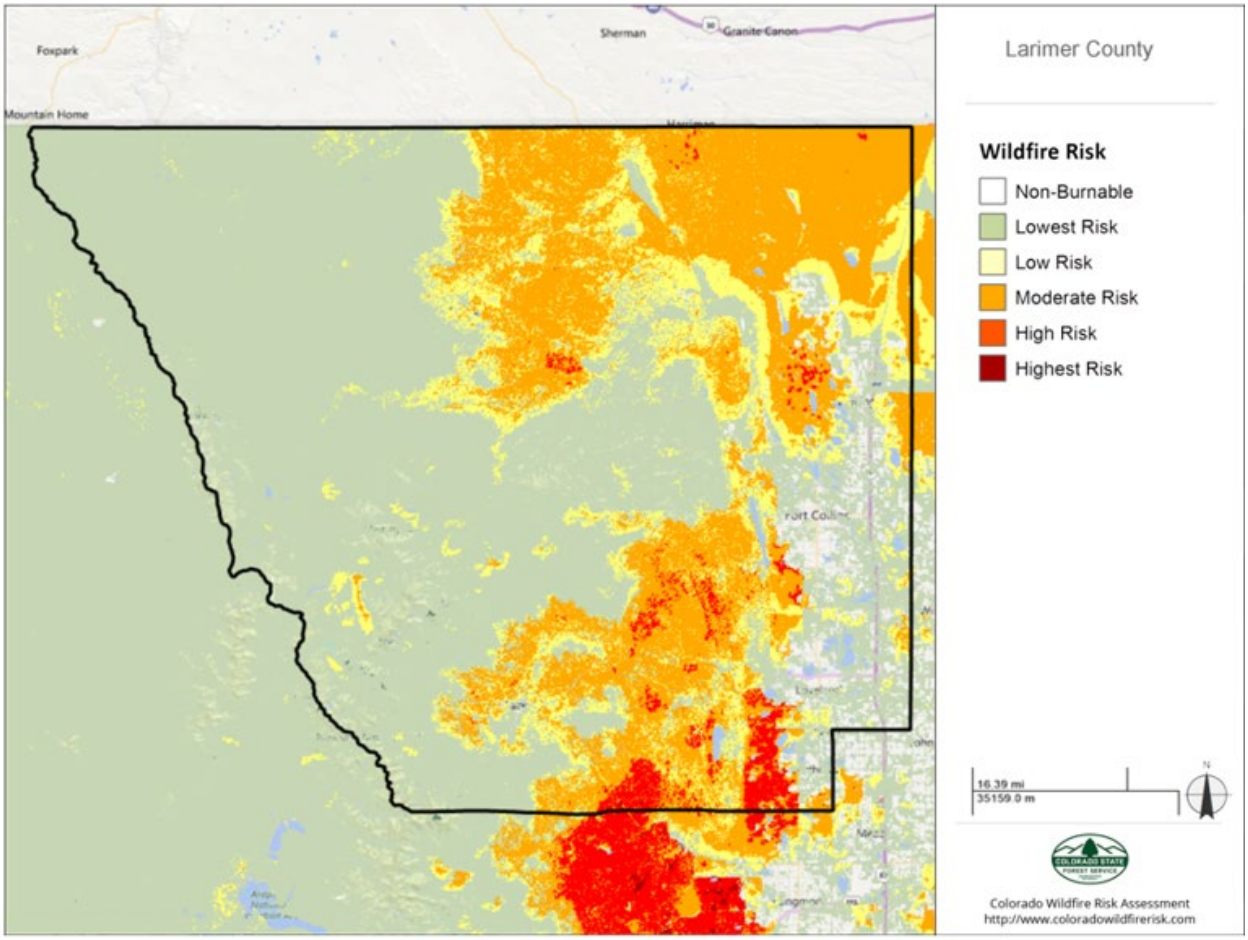
[CWRC map link]



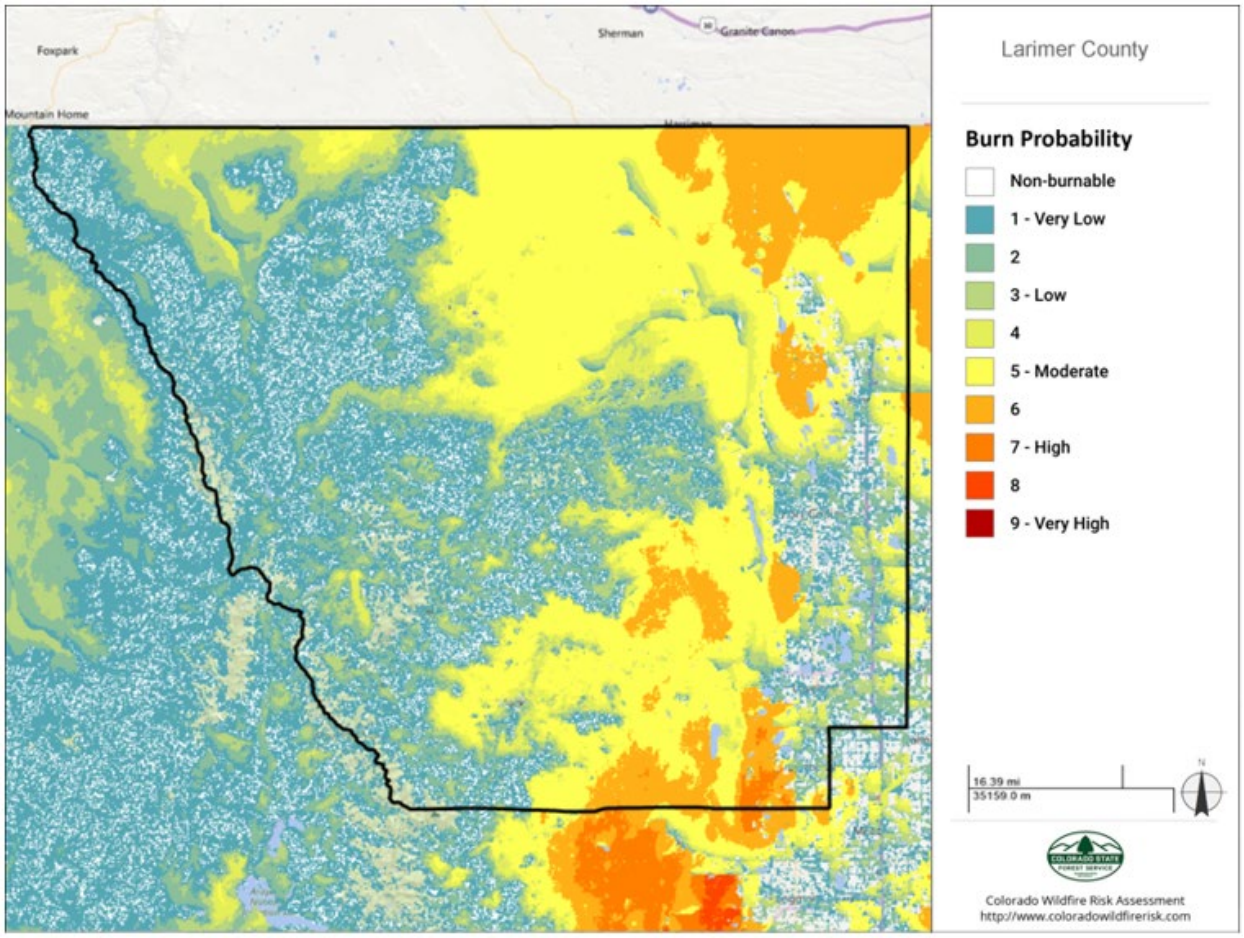
Larimer County Wildland Urban Interface-Reflects housing density where humans and their structures meet or intermix with wildland fuels.



Larimer County WUI Risk Index-The potential impact of a wildfire on people and their homes.

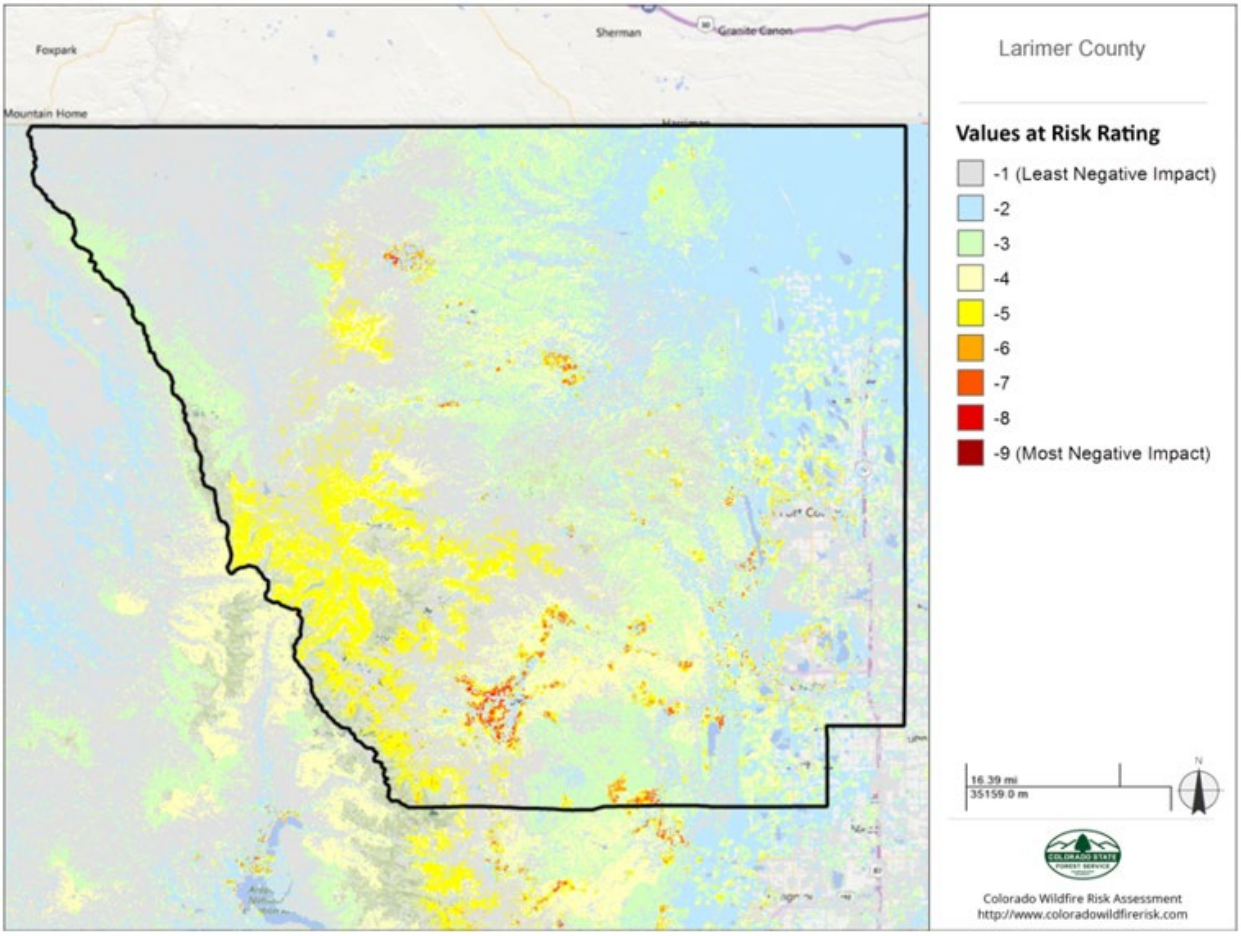


Larimer County Wildfire Risk-Composite risk rating obtained by combining the probability of a fire occurring with the individual values at risk layers.



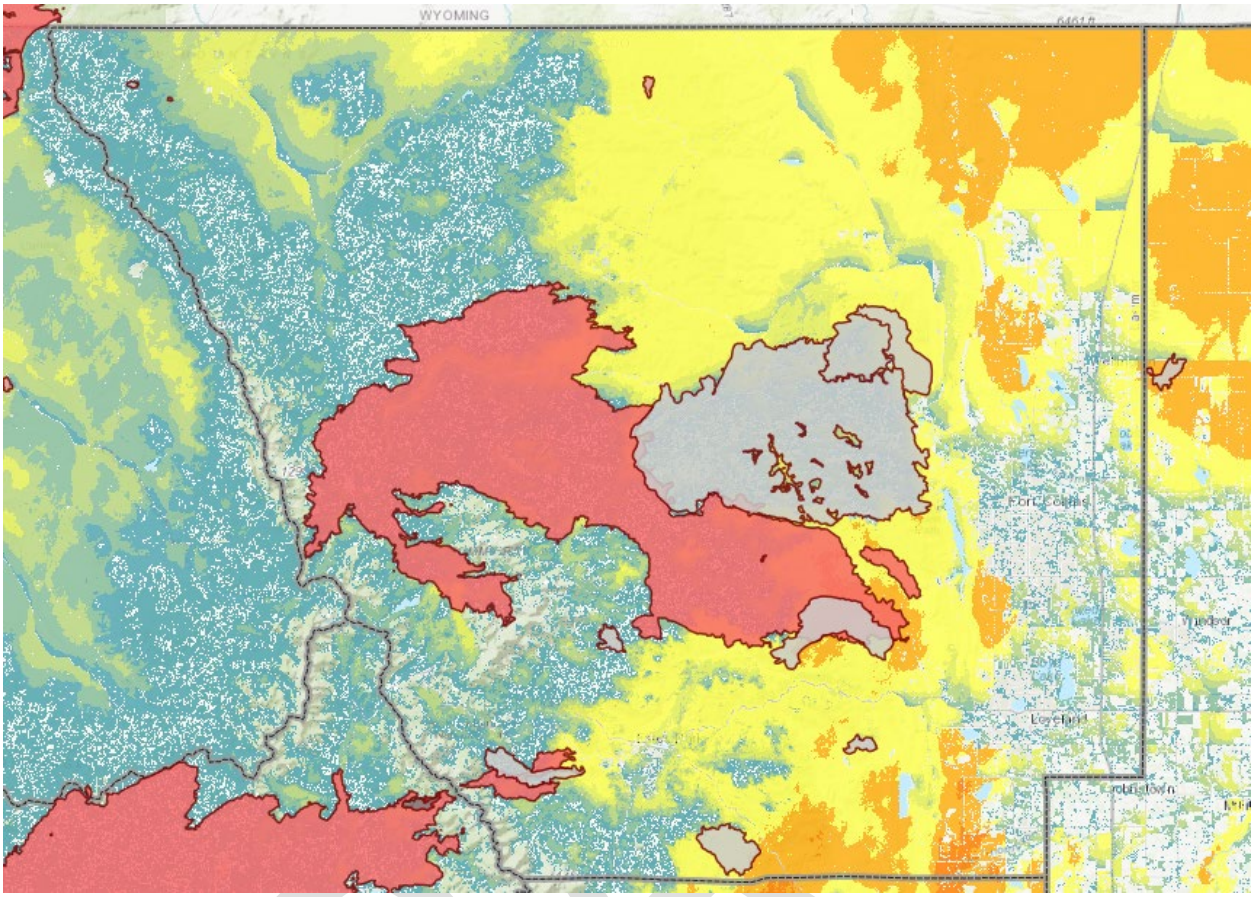
Larimer County Burn Probability

The annual probability of any location burning due to wildfire



Larimer County Values at Risk-

Represents the values or assets that a wildfire, including WUI, Forest assets, Riparian assets, and Drinking Water Importance areas would adversely impact.



Large fire perimeters 2000-2020

Appendix C

Communities

Allenspark (Allenspark FPD) CWPP in progress

Bellvue (PFA) CWPP current https://csfs.colostate.edu/wp-content/uploads/2025/06/Poudre_Fire_Authority_CWPP.pdf

Berthoud (Berthoud FPD)

Big Elk Meadows (Big Elk VFD) In progress

Cherokee Meadows (Livermore FPD) CWPP current https://csfs.colostate.edu/wp-content/uploads/2023/05/CMRA_CWPP_2022_Final_5-15-2023_with_all_Appendicies.pdf

Crystal Lakes (Crystal Lakes FPD) CWPP current https://csfs.colostate.edu/wp-content/uploads/2023/01/Crystal_Lakes_CWPP.pdf

Crystal Mountain (Rist Canyon VFD) CWPP in progress

Drake (LFRA) CWPP current https://csfs.colostate.edu/wp-content/uploads/2023/08/LFRA_CWPP_Final.pdf

Estes Park/Valley (EVFPD) CWPP current https://csfs.colostate.edu/wp-content/uploads/2022/10/EVFPD_CWPP_Aug16-2022_signed.pdf

Ft Collins (PFA) CWPP current https://csfs.colostate.edu/wp-content/uploads/2025/06/Poudre_Fire_Authority_CWPP.pdf

Glacier View (Glacier View FPD) CWPP current https://csfs.colostate.edu/wp-content/uploads/2022/07/GVFPD_CWPP_2022_Final.pdf

Glen Haven (GHVFD) CWPP update in progress

Johnstown

Laporte (PFA) CWPP current https://csfs.colostate.edu/wp-content/uploads/2025/06/Poudre_Fire_Authority_CWPP.pdf

Livermore (Livermore FPD) CWPP in progress

Loveland (LFRA) CWPP current https://csfs.colostate.edu/wp-content/uploads/2023/08/LFRA_CWPP_Final.pdf

Lyons FPD – CWPP in progress

Masonville (LFRA/PFA) CWPP current https://csfs.colostate.edu/wp-content/uploads/2025/06/Poudre_Fire_Authority_CWPP.pdf https://csfs.colostate.edu/wp-content/uploads/2023/08/LFRA_CWPP_Final.pdf

Pinewood Lake/Pole Hill (LFRA) current https://csfs.colostate.edu/wp-content/uploads/2023/08/LFRA_CWPP_Final.pdf

Pinewood Springs (Pinewood Springs FPD) CWPP current https://csfs.colostate.edu/wp-content/uploads/2023/09/2023_CWPP_FINAL.pdf

Poudre Canyon (Poudre Canyon FPD) CWPP current https://csfs.colostate.edu/wp-content/uploads/2023/07/PCFPD_CWPP_PDF_smallfilesize.pdf

Redfeather (Redfeather FPD) CWPP in progress

Red Mountain (Livermore VFD) CWPP in progress,

Redstone Canyon (PFA) CWPP current https://csfs.colostate.edu/wp-content/uploads/2025/06/Poudre_Fire_Authority_CWPP.pdf

Rist Canyon (RCVFD) CWPP in progress

Storm Mtn (LFRA) CWPP current https://csfs.colostate.edu/wp-content/uploads/2023/08/LFRA_CWPP_Final.pdf

Wellington (Wellington FPD)

Appendix D: Links to project maps

Larimer County CWPPs with project maps. Scroll to Larimer County and click on the current CWPP you are interested in

https://csfs.colostate.edu/wildfire-mitigation/community-wildfire-protection-plans/

AEGIS: A county information platform to track past, current, and future forest health and mitigation projects. In development

https://experience.arcgis.com/experience/4cdd565d89044505b9e41042222e4e7c/page/Mitigation

USFS Black Diamond Story Map about the large scale forest health project in the northern part of Larimer County

https://storymaps.arcgis.com/stories/000d9184bdcf4ae38dfba73f1483f0aa

USFS Magic Feather RX Project. A large scale, long term project to re-introduce fire in the Red Feather area.

https://nocofireshed.org/fires/magic-feather/

USFS RX map. Shows planed, in-progress, and completed Rx burns on the Arapahoe Roosevelt National Forest
https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=abefa61010ee43418aa942f949d2cf5a

Red Feather Lakes area CWDG

https://www.poudrewatershed.org/redfeathercwdg

Big Thompson Watershed Health Partnership. Shows forest and watershed health proposed projects

https://experience.arcgis.com/experience/5de7ff6dae92474ba6e0720dce5ab236

Appendix E

Significant* fires with urban interface impact

Reservoir Road fire 2010 778 acres

Crystal fire 2011 2,939 acres

High Park 2012 87,306 acres

Fern Lake 2012 3,334 acres

Cameron Peak 2020 208,912 acres

East Troublesome 2020 193, 811 acres, majority in Grand County

Alexander 2024 9642 acres

Pearl 2024 130 acres

*involved multi-day operations and large-scale evacuations, with structures lost or imminently threatened but successfully defended.

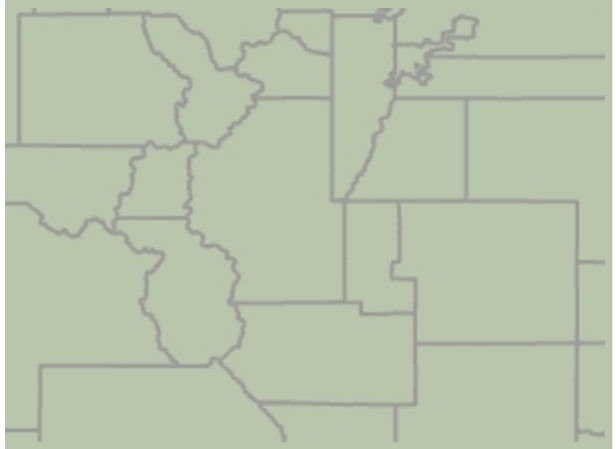
Appendix F

County risk assessment

2022 Colorado Wildfire Risk Assessment Summary Report

COLORADO STATE FOREST SERVICE
COLORADO STATE UNIVERSITY

Larimer County



Report was generated using
www.ColoradoForestAtlas.org

Report version: 3.0.0
Report generated: 9-17-2025

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Colorado State Forest Service makes no warranties or guarantees, either expressed or implied as to the completeness, accuracy, or correctness of the data portrayed in this product nor accepts any liability, arising from any incorrect, incomplete or misleading information contained therein. All information, data and databases are provided "As Is" with no warranty, expressed or implied, including but not limited to, fitness for a particular purpose.

User should also note that property boundaries included in any product do not represent an on-the-ground survey suitable for legal, engineering, or surveying purposes. They represent only the approximate relative locations.

Introduction

Colorado Wildfire Risk Assessment Report

Welcome to the Colorado Wildfire Risk Assessment Summary Reporting Tool.

This tool allows users of the Risk Reduction Planner application of the Colorado Forest Atlas web portal to define a specific project area and generate information for this area. A detailed risk summary report can be generated using a set of predefined map products developed by the Colorado Wildfire Risk Assessment project which have been summarized explicitly for the user defined project area. The report is generated in PDF format.

The report has been designed so that information from the report can be copied and pasted into other specific plans, reports, or documents depending on user needs. Examples include, but are not limited to, Community Wildfire Protection Plans, Local Fire Plans, Fuels Mitigation Plans, Hazard Mitigation Plans, Homeowner Risk Assessments, and Forest Management or Stewardship Plans. Example templates for some of these reports are available for download on the Colorado Forest Atlas web portal.

The Colorado WRA provides a consistent, comparable set of scientific results to be used as a foundation for wildfire mitigation and prevention planning in Colorado.

Results of the assessment can be used to help prioritize areas in the state where mitigation treatments, community interaction and education, or tactical analyses might be necessary to reduce risk from wildfires.

The Colorado WRA products included in this report are designed to provide the information needed to support the following key priorities:

- Identify areas that are most prone to wildfire
- Plan and prioritize hazardous fuel treatment programs
- Allow agencies to work together to better define priorities and improve emergency response, particularly across jurisdictional boundaries
- Increase communication with local residents and the public to address community priorities and needs

Products

Each product in this report is accompanied by a general description, table, chart and/or map. A list of available Colorado WRA products in this report is provided in the following table.

COWRA Product	Description
Wildland Urban Interface	Housing density depicting where humans and their structures meet or intermix with wildland fuel
Wildland Urban Interface Risk	A measure of the potential impact on people and their homes from wildfire
Wildfire Risk to Assets	The overall composite risk occurring from a wildfire derived by combining Burn Probability and Values at Risk Rating
Burn Probability	Annual probability of any location burning due to wildfire
Terrain Difficulty Index	Reflects the difficulty to suppress a fire given the terrain and vegetation conditions that may impact ground resource access and capabilities
Characteristic Flame Length	A measure of the expected flame length of a potential fire
Fire Intensity Scale	Quantifies the potential fire intensity by orders of magnitude
Fire Type	Potential for canopy fire type for extreme weather conditions (canopy fire potential)
Rate of Spread	The speed with which a fire moves in a horizontal direction across the landscape
Surface Fuels	Characterization of surface fuel models that contain the parameters for calculating fire behavior outputs
Vegetation	General vegetation and landcover types
Watershed Protection Risk	A measure of risk to watershed protection areas based on the potential negative impacts from wildfire.
Riparian Assets Risk	A measure of the risk to riparian areas based on the potential negative impacts from wildfire
Forest Assets Risk	A measure of the risk to forested areas based on the potential negative impacts from wildfire

COWRA Product	Description
Building Damage Potential	Estimates the potential for building loss
Defensible Space Index	The arithmetic mean of the three defensible space components: canopy, fuels, and slope. The colors shown represent the relative range and are the average for all of the buildings in the hexagon.

Wildland Urban Interface

Reflects housing density depicting where humans and their structures meet or intermix with wildland fuels

Colorado is one of the fastest growing states in the Nation, with much of this growth occurring outside urban boundaries. This increase in population across the state will impact counties and communities that are located within the Wildland Urban Interface (WUI). The WUI is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk from wildfire.

The Wildland Urban Interface (WUI) layer reflects housing density depicting where humans and their structures meet or intermix with wildland fuels. In the past, conventional wildland-urban interface data sets, such as USFS SILVIS, have been used to reflect these concerns. However, USFS SILVIS and other existing data sources did not provide the level of detail needed by the Colorado State Forest Service and local fire protection agencies, particularly reflecting encroachment into urban core areas.

For the **Larimer County** project area, it is estimated that **197,667** people or **54%** percent of the total project area population (361,331) live within the WUI.

The new WUI data set is derived using advanced modeling techniques based on the Where People Live (housing density) data set and 2021 LandScan USA population count data available from the Department of Homeland Security, HSIP data. WUI is simply a subset of the Where People Live data set. The primary difference is populated areas surrounded by sufficient non-burnable areas (i.e. interior urban areas) are removed from the Where People Live data set, as these areas are not expected to be directly impacted by a wildfire. Fringe urban areas, i.e. those on the edge of urban areas directly adjacent to burnable fuels are included in the WUI. Advanced encroachment algorithms were used to define these fringe areas.

Data is modeled at a 20-meter grid cell resolution, which is consistent with other CO-WRA layers. The WUI classes are based on the number of houses per acre. Class breaks are based on densities well understood and commonly used for fire protection planning.

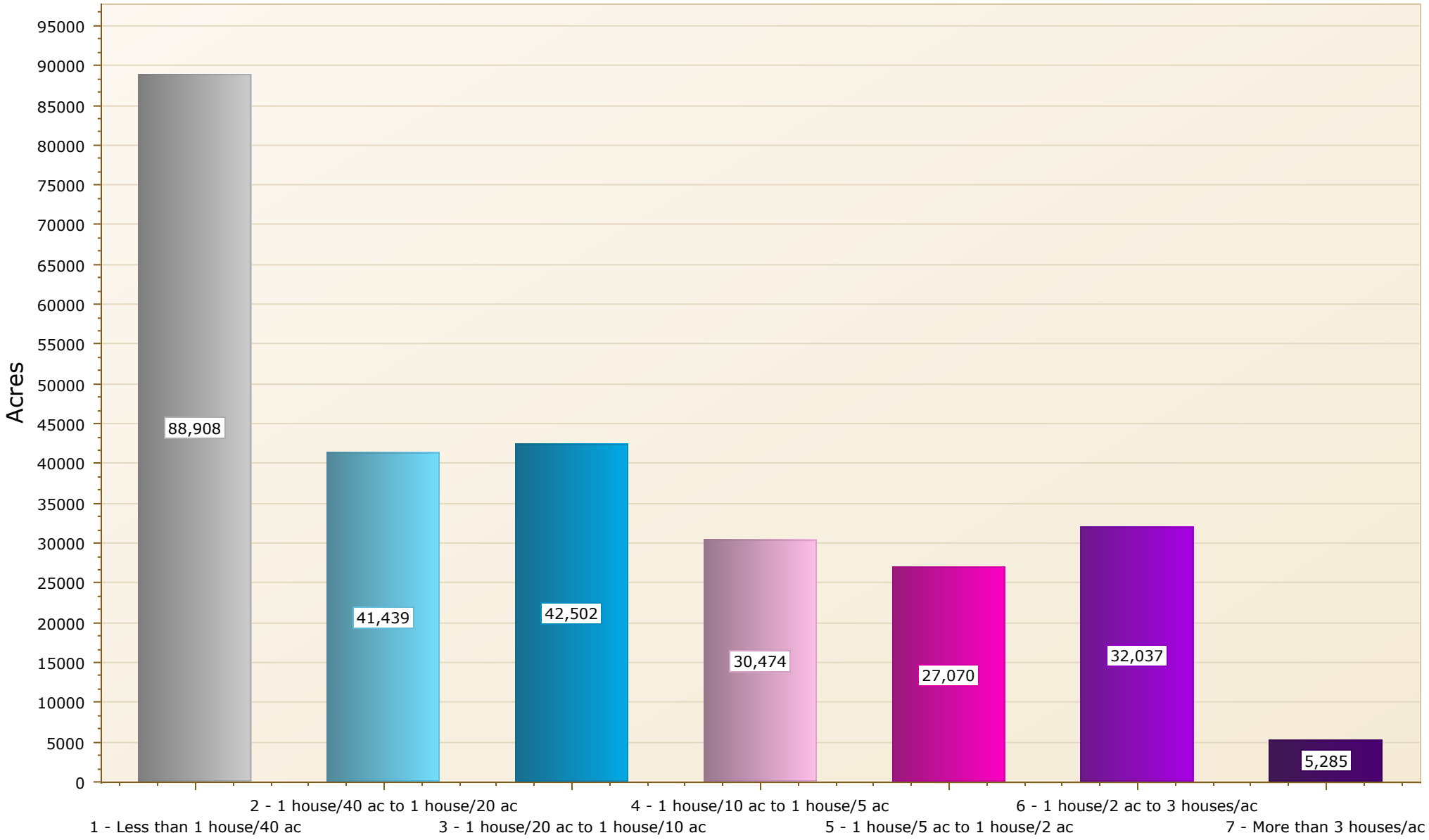
A more detailed description of the risk assessment algorithms is provided in the Colorado Wildfire Risk Assessment (Colorado WRA) Final Report, which can be downloaded from www.ColoradoForestAtlas.com

Housing Density	WUI Population	Percent of WUI Population
1 - Less than 1 house/40 ac	2,262	1.1%
2 - 1 house/40 ac to 1 house/20 ac	3,170	1.6%
3 - 1 house/20 ac to 1 house/10 ac	6,344	3.2%
4 - 1 house/10 ac to 1 house/5 ac	9,655	4.9%
5 - 1 house/5 ac to 1 house/2 ac	18,895	9.6%
6 - 1 house/2 ac to 3 houses/ac	100,159	50.7%
7 - More than 3 houses/ac	57,182	28.9%
Total	**197,667**	**100%**

Housing Density	WUI Acres	Percent of WUI Acres
1 - Less than 1 house/40 ac	88,908	33.2%
2 - 1 house/40 ac to 1 house/20 ac	41,439	15.5%
3 - 1 house/20 ac to 1 house/10 ac	42,502	15.9%
4 - 1 house/10 ac to 1 house/5 ac	30,474	11.4%
5 - 1 house/5 ac to 1 house/2 ac	27,070	10.1%
6 - 1 house/2 ac to 3 houses/ac	32,037	12%
7 - More than 3 houses/ac	5,285	2%
None	**267,714**	**100%**

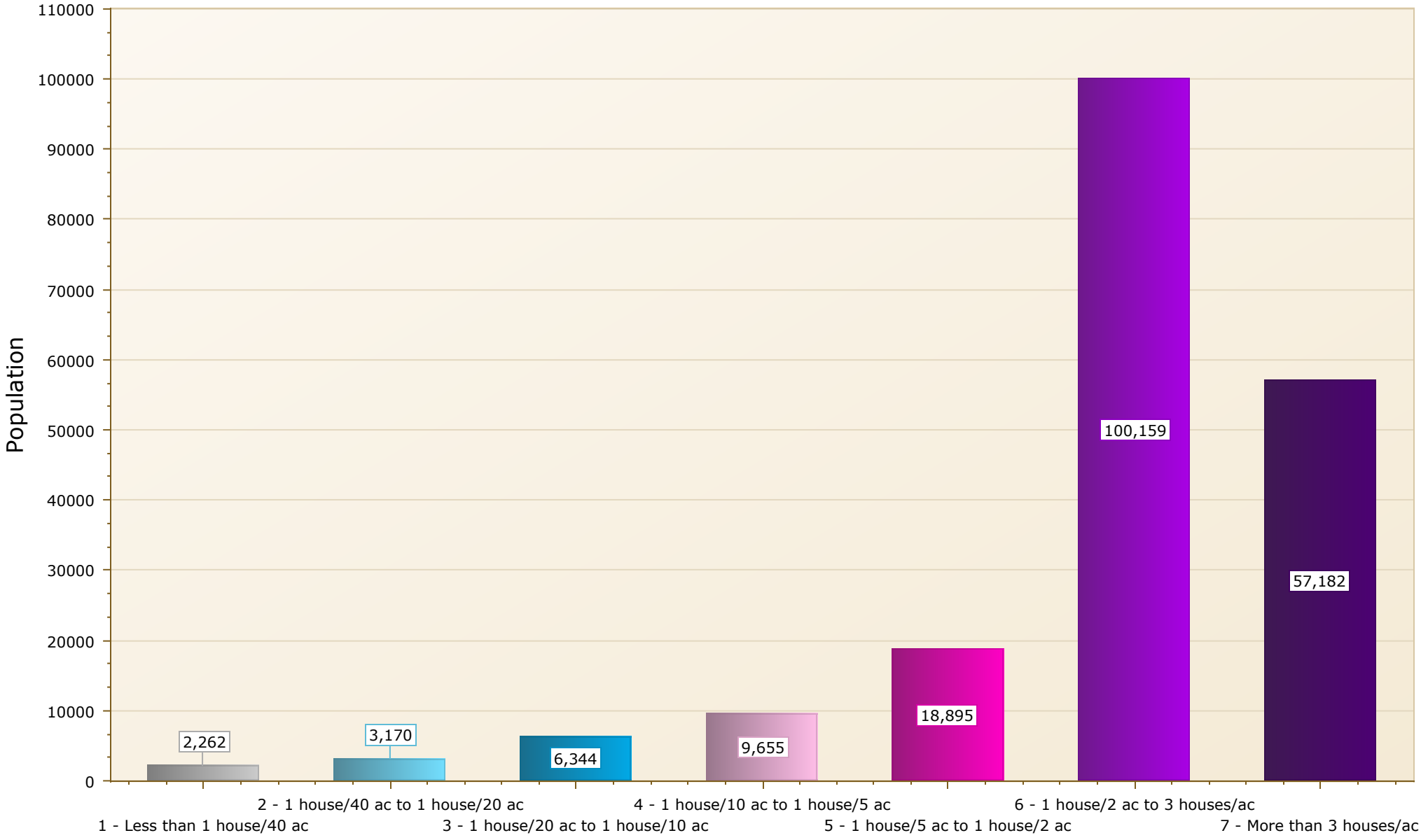
Wildland Urban Interface - Acres

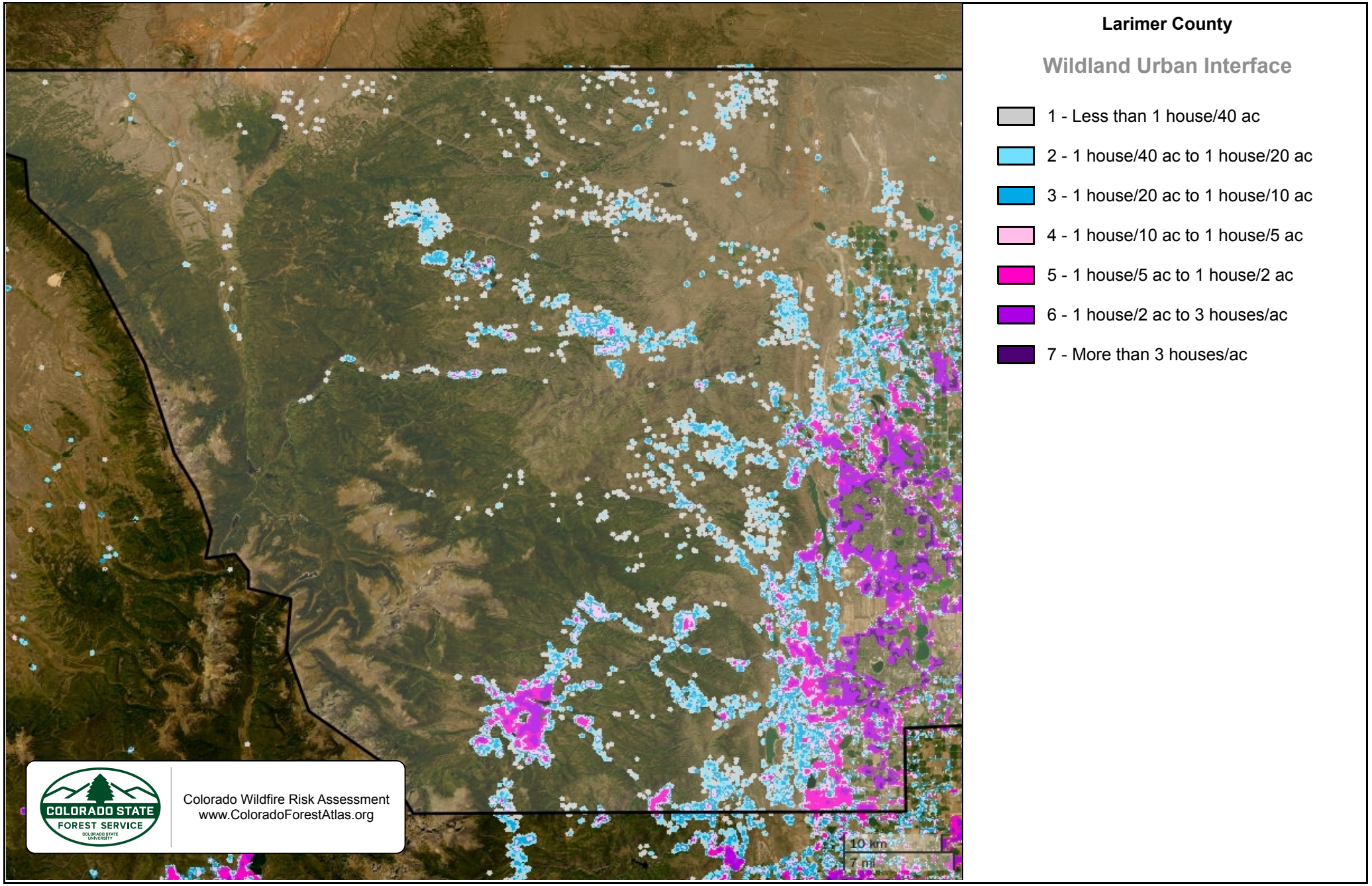
Larimer County



Wildland Urban Interface - Population

Larimer County




Larimer County
Wildland Urban Interface
1 - Less than 1 house/40 ac
2 - 1 house/40 ac to 1 house/20 ac
3 - 1 house/20 ac to 1 house/10 ac
4 - 1 house/10 ac to 1 house/5 ac
5 - 1 house/5 ac to 1 house/2 ac
6 - 1 house/2 ac to 3 houses/ac
7 - More than 3 houses/ac
COLORADO STATE FOREST SERVICE
Colorado Wildfire Risk Assessment
www.ColoradoForestAtlas.org
10 km
7 mi

Wildland Urban Interface (WUI) Risk

The Wildland-Urban Interface (WUI) Risk Index layer is a rating of the potential impact of a wildfire on people and their homes.
The key input, WUI, reflects housing density (houses per acre) consistent with Federal Register National standards. The location of people living in the wildland-urban interface and rural areas is essential for defining potential wildfire impacts to people and homes.

The WUI Risk Index is derived using a response function modeling approach. Response functions are a method of assigning a net change in the value to a resource or asset based on susceptibility to fire at different intensity levels, such as flame length.

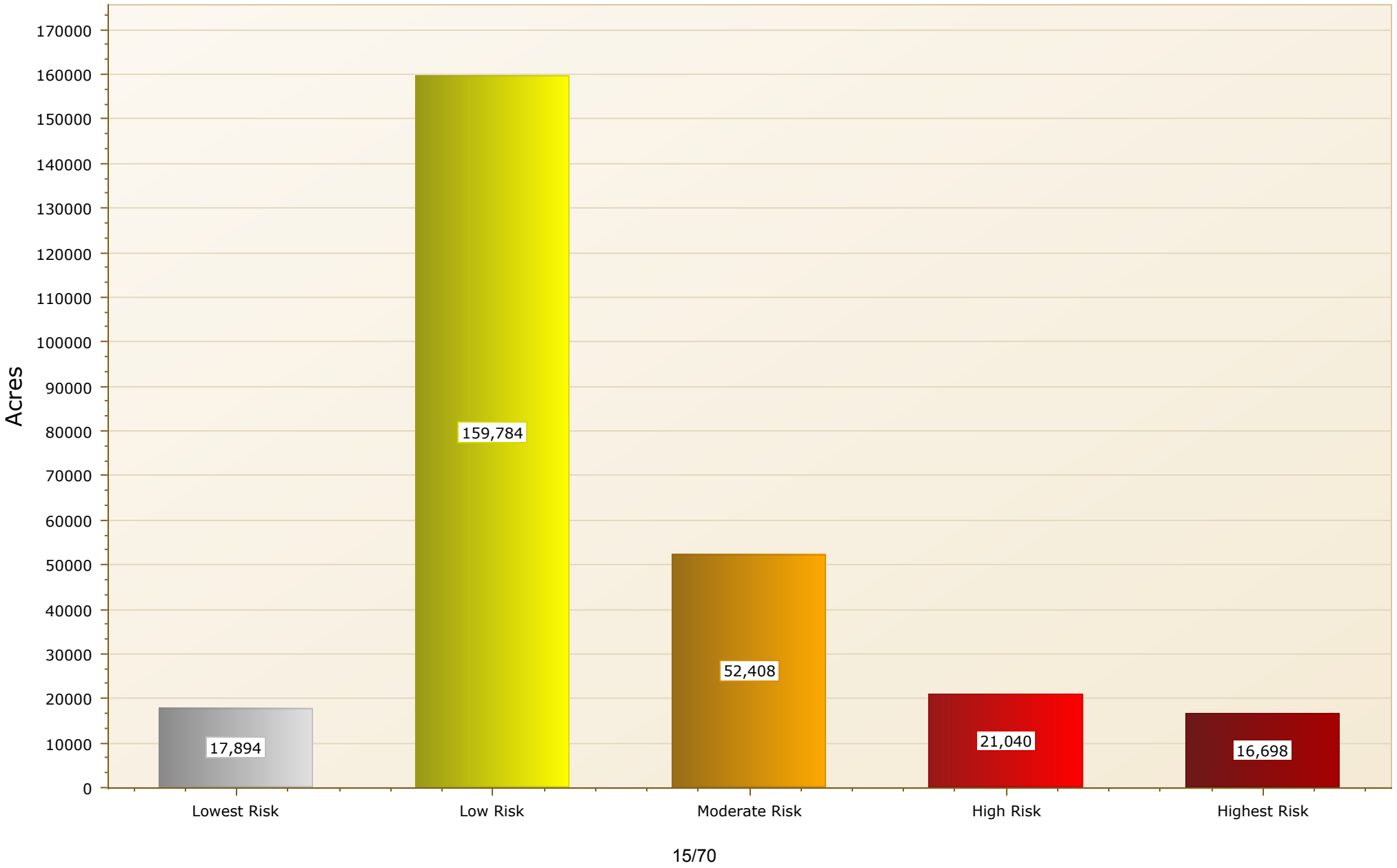
To calculate the WUI Risk Index, the WUI housing density data were combined with flame length data and response functions were defined to represent potential impacts. The response functions were defined by a team of experts led by Colorado State Forest Service mitigation planning staff. By combining flame length with the WUI housing density data, it is possible to determine where the greatest potential impact to homes and people is likely to occur. Customized urban encroachment algorithms were used to ensure those fringe urban areas were included in the WUI Risk outputs. Encroachment distances into urban areas were based on the underlying fuel models and their fuel types and propensity for spotting and spreading.

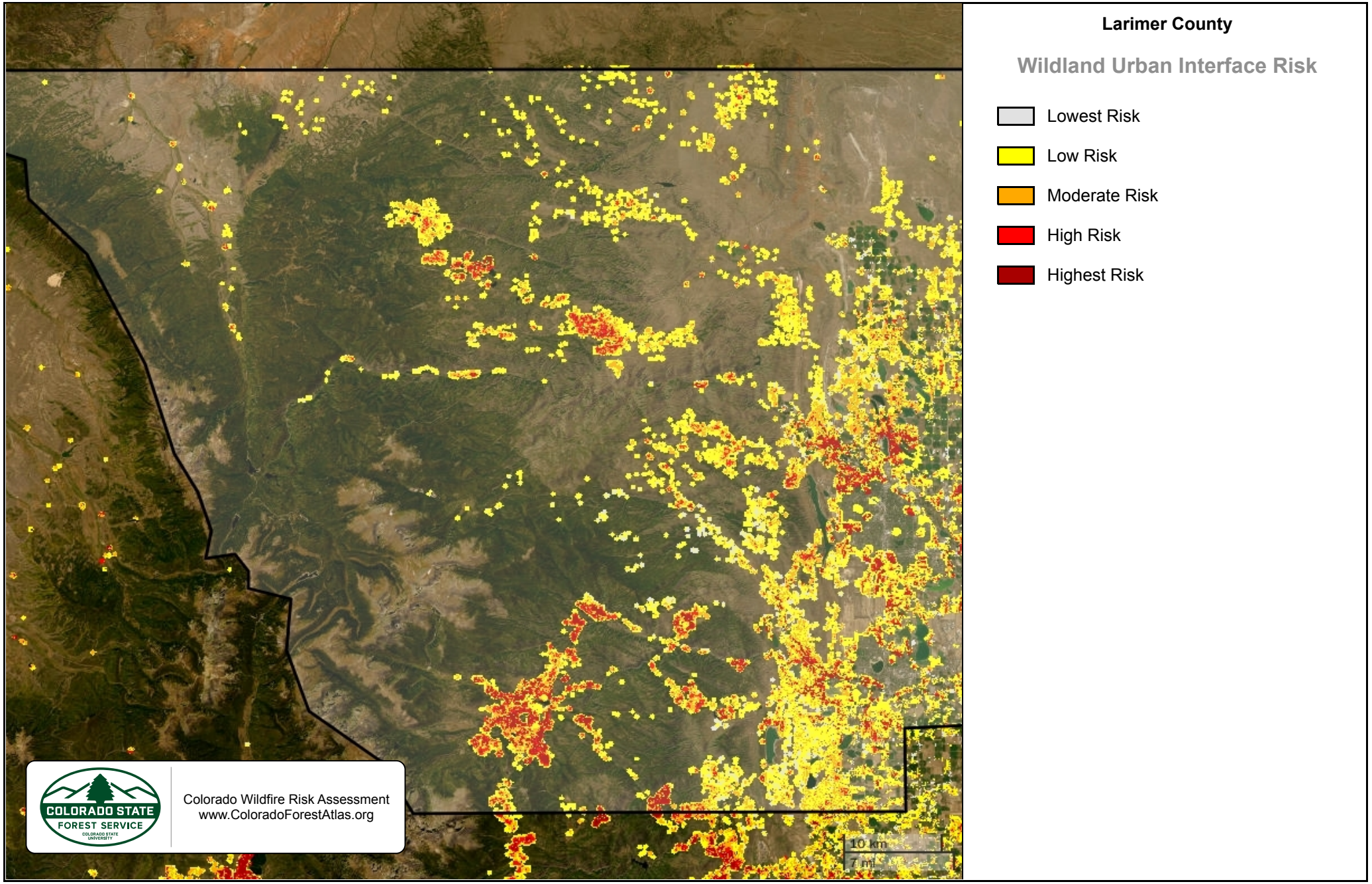
The WUI Risk Index has been calculated consistently for all areas in Colorado, which allows for comparison and ordination of areas across the entire state. Data is modeled at a 20-meter cell resolution, which is consistent with other CO-WRA layers.

WUI Risk Class	Acres	Percent
Lowest Risk	17,894	6.7%
Low Risk	159,784	59.7%
Moderate Risk	52,408	19.6%
High Risk	21,040	7.8%
Highest Risk	16,698	6.2%
Total	**267,825**	**100%**

Wildland Urban Interface Risk

Larimer County




Larimer County
Wildland Urban Interface Risk
Lowest Risk
Low Risk
Moderate Risk
High Risk
Highest Risk
COLORADO STATE
FOREST SERVICE
Colorado Wildfire Risk Assessment
www.ColoradoForestAtlas.org
10 km
7 mi

Firewise USA Recognized Sites

Description

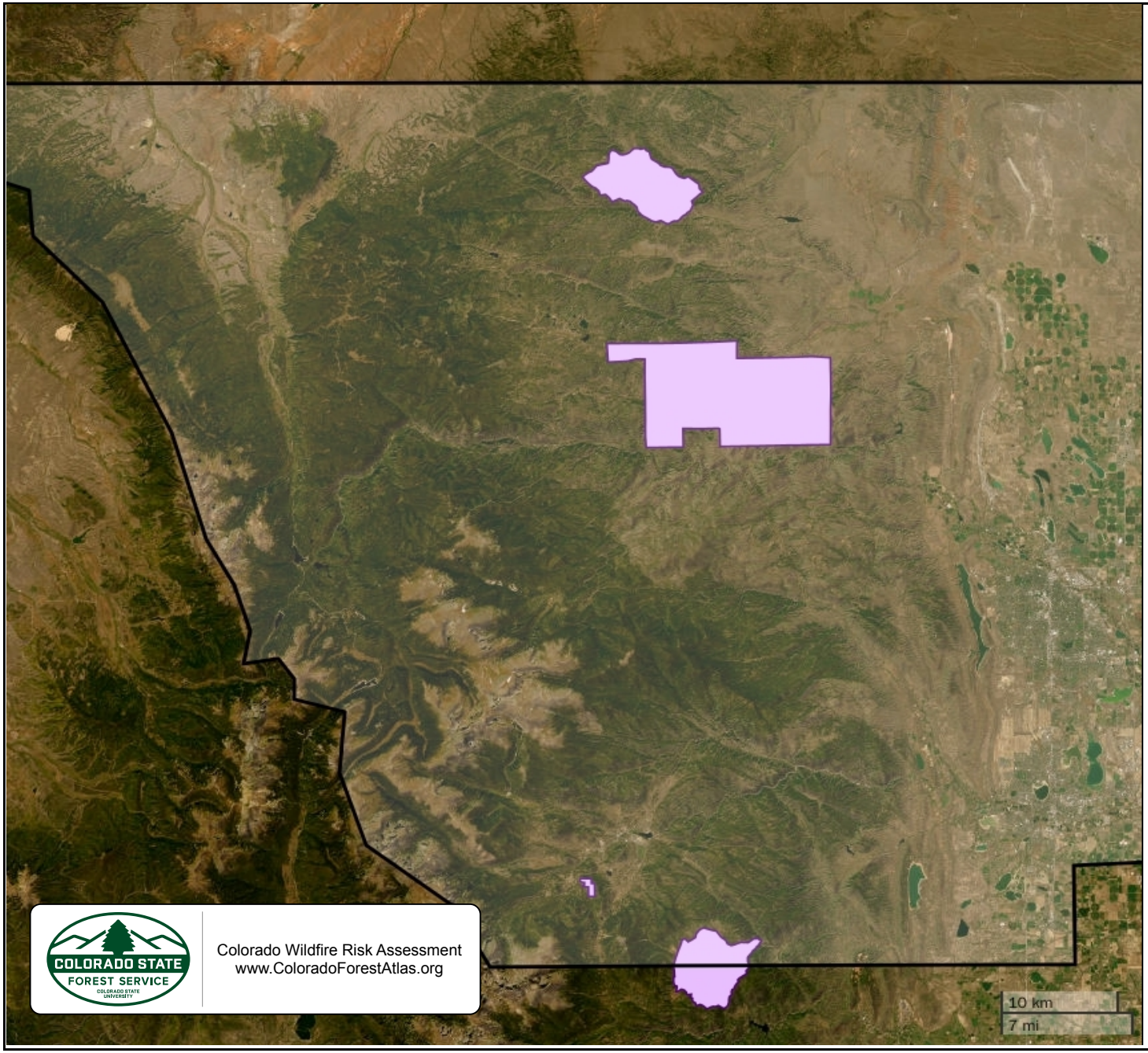
Firewise USA® is a national recognition program that provides resources to inform communities how to adapt to living with wildfire and encourages neighbors to take action together to reduce their wildfire risk. Colorado communities that take the following five steps can be recognized as Firewise:

1. Form a Firewise board or committe
2. Obtain a wildfire risk assessment from the CSFS or local fire department, and create an action plan
3. Hold a Firewise event once per year
4. Invest a minimum of $24.14 per dwelling unit in local Firewise actions annually
5. Create a National Fire Prevention Association (NFPA) profile and follow the application directions located at https://portal.firewise.org/user/login

The Firewise USA® dataset defines the boundaries of the recognized communities. Mapping Firewise USA® boundaries will generally be completed by CSFS staff.

Note: These are estimated boundaries using a variety of methods with varying degrees of accuracy. These are not legal boundaries and should not be construed as such. The boundaries may overlap with CWPP areas and are subject to change over time as the communities develop, change, and continue to implement wildfire mitigation efforts. To learn more about the Firewise USA® recognition program or to fill out an application, visit https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA - OR https://csfs.colostate.edu/wildfire-mitigation/colorado-firewise-communities/

Name	County	Acres Inside Project Area	Total Acres
Windcliff Estates	LARIMER	285	285
Cherokee Meadows	LARIMER	9,707	9,707
Glacier View FPD FWC	LARIMER	34,741	34,741
Big Elk Meadows	LARIMER	4,226	8,666
Total		**48,959**	**53,399**



Larimer County

Firewise USA Recognized Sites

Firewise USA Recognized Sites

Community Wildfire Protection Plans (CWPPs)

Description

A Community Wildfire Protection Plan (CWPP) is a document developed and agreed upon by a community to identify how the community will reduce its wildfire risk. CWPPs identify areas where fuels reduction is needed to reduce wildfire threats to communities and critical infrastructure, address protection of homes and other structures, and plan for wildfire response capability. The Colorado State Forest Service (CSFS) supports the development and implementation of CWPPs and provides resources, educational materials and information to those interested in developing CWPPs.

The CWPP dataset represents the boundaries of those areas that have developed a CWPP. Note that CWPPs can be developed by different groups at varying scales, such as county, Fire Protection District (FPD), community/subdivision, HOA, etc., and as such, can overlap. In addition, the CWPPs can be from different dates. Often a county CWPP is completed first with subsequently more detailed CWPPs done for local communities within that county or FPD. CO-WRAP provides a tool that allows the user to select the CWPP area and retrieve the CWPP document for review (PDF).

At a minimum, a CWPP should include:

- The wildland-urban interface (WUI) boundary, defined on a map, where people, structures and other community values are most likely to be negatively impacted by wildfire
- The CSFS, local fire authority and local government involvement and any additional stakeholders
- A narrative that identifies the community's values and fuel hazards
- The community's plan for when a wildfire occurs
- An implementation plan that identifies areas of high priority for fuels treatments

CWPPs are not shelf documents and should be reviewed, tracked and updated. A plan stays alive when it is periodically updated to address the accomplishments of the community. Community review of progress in meeting plan objectives and determining areas of new concern where actions must be taken to reduce wildfire risk helps the community stay current with changing environment and wildfire mitigation priorities.

Community input is the foundation of a Community Wildfire Protection Plan that identfies community needs and garners community support.

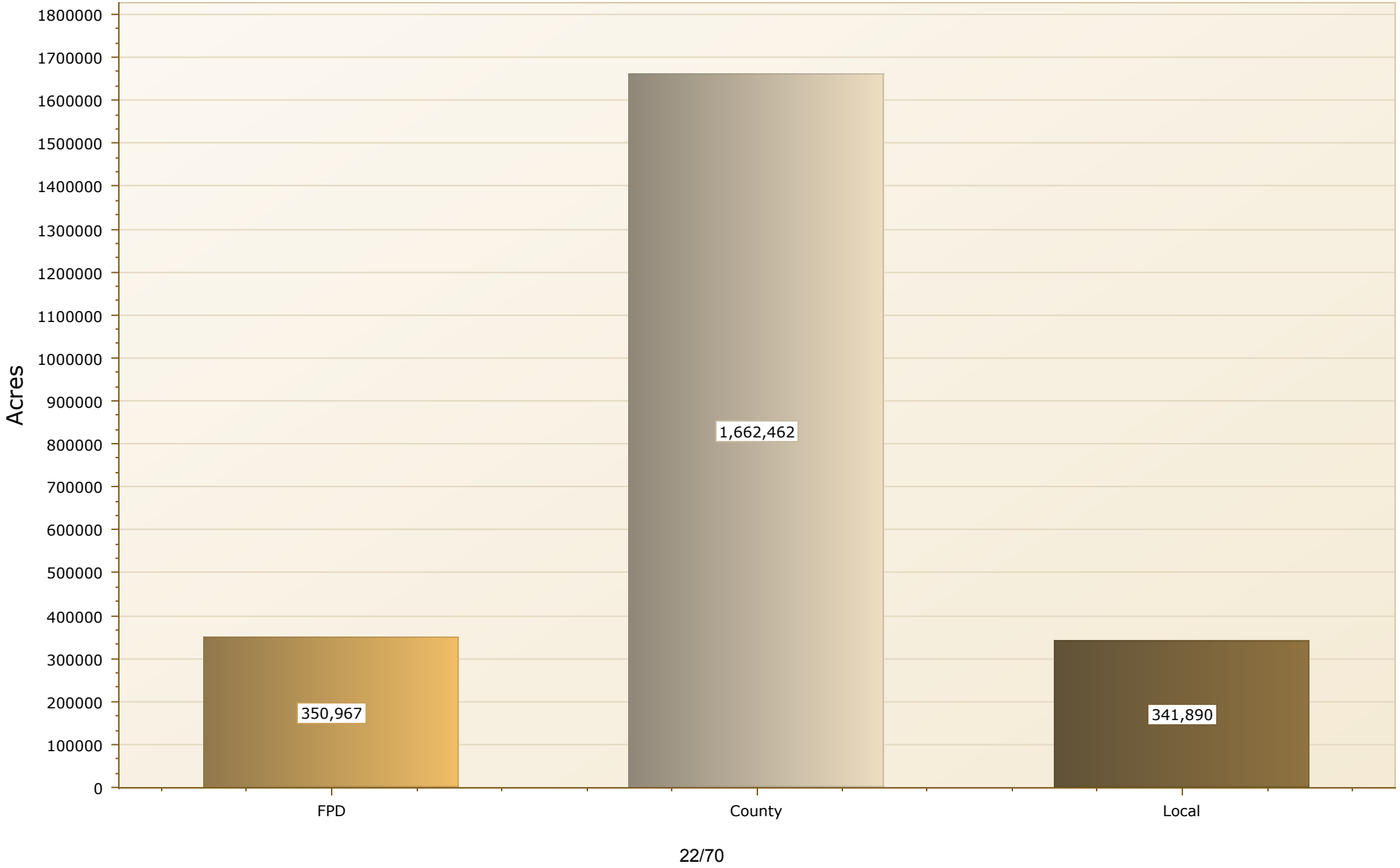
If your community is in an area at risk from wildfire, now is a good time to start working with neighbors on a CWPP and preparing forfuture wildfires. Contact your local CSFS district to learn how to start this process and create a CWPP for your community: http://csfs.colostate.edu/pages/your-local-forester.html
For the **Larimer County** test project area, there are 30 CWPPs areas that are totally or partially in the defined project area.

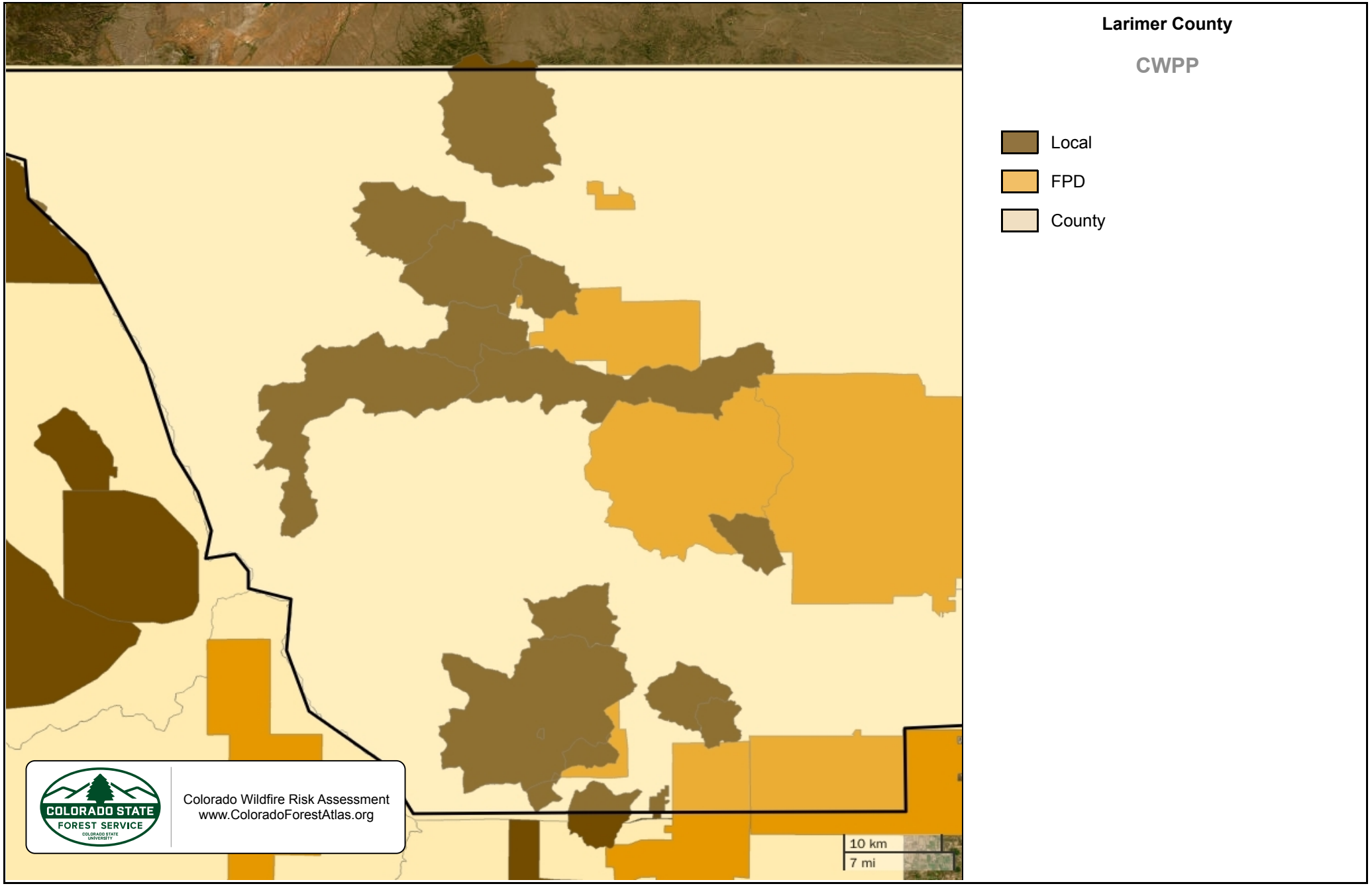
CWPP Name	CWPP Type	CSFS District	Acres inside project area	Total Acres
Berthoud FPD	FPD	Fort Collins	33,298	63,106
Poudre Fire Authority	FPD	Fort Collins	145,000	150,740
Lyons FPD	FPD	Boulder	15,173	42,499
Glacier View FPD	FPD	Fort Collins	35,009	35,011
Estes Valley FPD	FPD	Fort Collins	42,448	42,450
Rist Canyon VFD	FPD	Fort Collins	77,732	77,735
Cherokee Meadows	FPD	Fort Collins	2,307	2,307
Jackson County	County	Steamboat Springs	2,598	1,036,948
Larimer County	County	Fort Collins	1,659,107	1,684,190
Grand County	County	Granby	757	1,196,532
North End	Local	Steamboat Springs	831	307,932
Crystal Lakes	Local	Fort Collins	20,331	20,331
Buckskin Heights	Local	Fort Collins	7,001	7,001
Glen Haven/Retreat	Local	Fort Collins	12,514	12,515
Little Valley HOA	Local	Fort Collins	6,981	6,981
Red Feather Lakes	Local	Fort Collins	26,092	26,093

CWPP Name	CWPP Type	CSFS District	Acres inside project area	Total Acres
East Portal Coalition	Local	Fort Collins	12,482	12,483
Big Elk Meadows	Local	Fort Collins	4,228	8,666
Pole Hill Road	Local	Fort Collins	10,963	10,963
Hermit Park Open Space	Local	Fort Collins	11,901	11,902
Pinewood Reservoir	Local	Fort Collins	4,646	4,647
Rustic	Local	Fort Collins	30,594	30,595
Manhattan Creek	Local	Fort Collins	18,239	18,240
Spencer Heights	Local	Fort Collins	43,082	43,083
Poudre Park	Local	Fort Collins	35,825	35,826
Magic Sky Ranch	Local	Fort Collins	7,871	7,872
Estes Park	Local	Fort Collins	56,438	56,440
Uplands in Estes Park	Local	Fort Collins	161	161
Upper Cherokee Park	Local	Fort Collins	30,762	32,501
Pinewood Springs	Local	Fort Collins	949	1,076
Total Acres			**2,355,319**	**4,986,824**

Community Wildfire Protection Plans

Larimer County




Larimer County
CWPP
Local
FPD
County
COLORADO STATE
FOREST SERVICE
Colorado Wildfire Risk Assessment
www.ColoradoForestAtlas.org
10 km
7 mi

Wildfire Risk to Assets

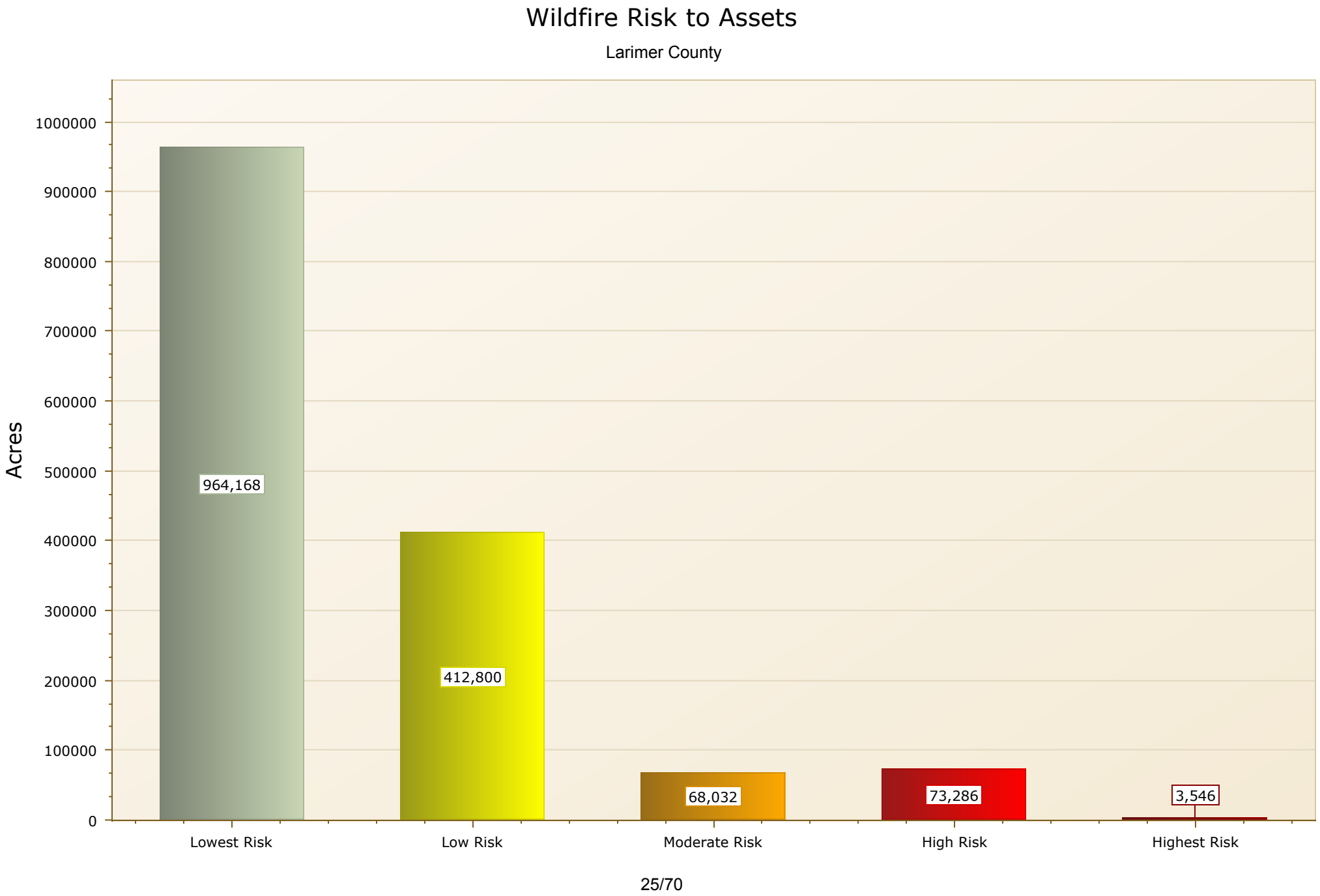
Description

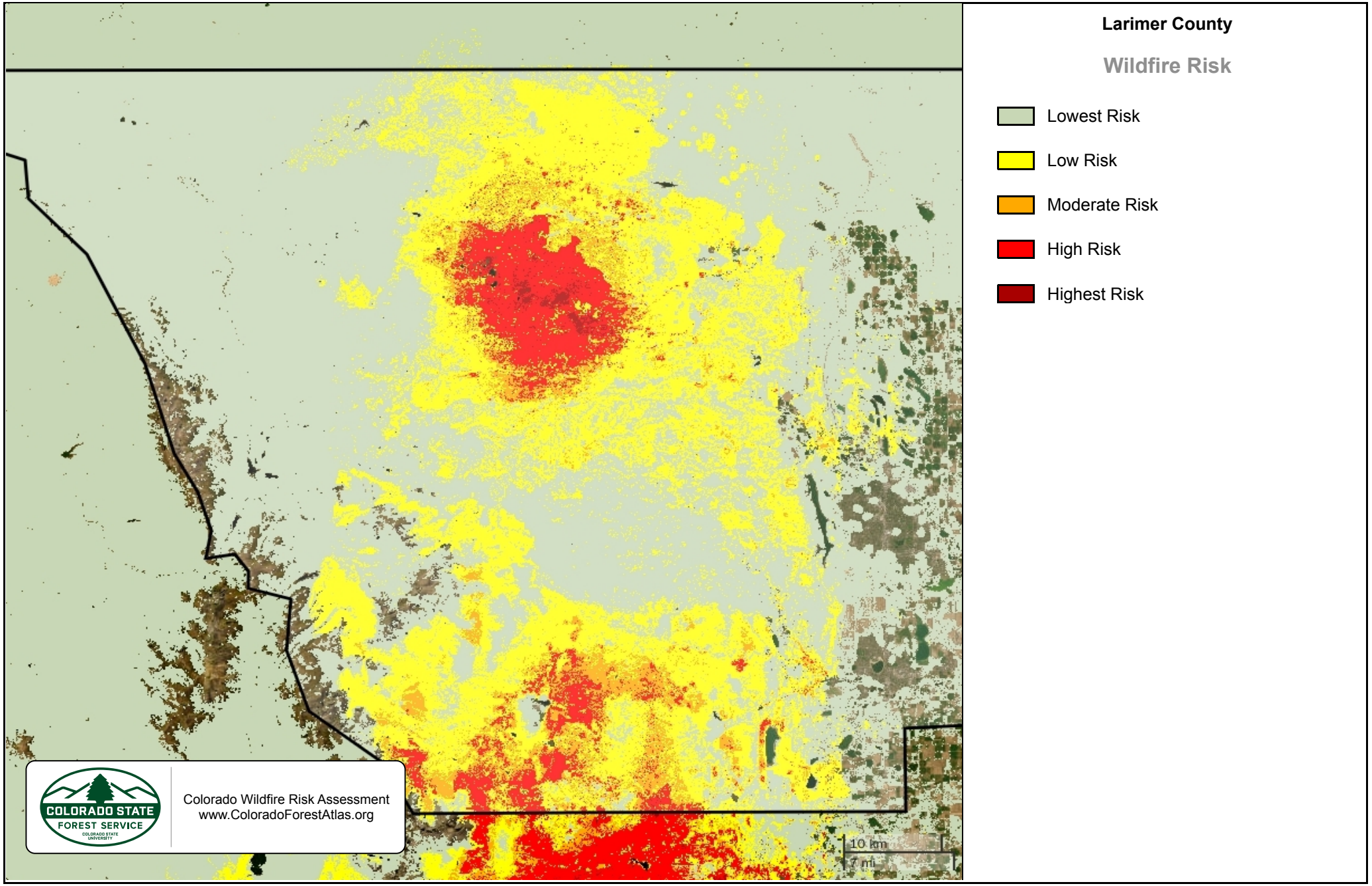
Wildfire Risk is a composite risk map created by combining the Values at Risk Rating and the Burn Probability layers.
It identifies areas with the greatest potential impacts from a wildfire – i.e., those areas most at risk when considering the four values layers.

The Values at Risk Rating is a key component of Wildfire Risk. It is comprised of several individual risk layers including Wildland Urban Interface (housing density), Forest Assets, Riparian Assets and Watershed Protection risk outputs. The WUI component is a key element of the composite risk since it represents where people live in the wildland and urban fringe areas that are susceptible to wildfires and damages. The found individual risk layers are weighted to derive the Values at Risk Rating layer.

The risk map is derived at a 20-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county, or local planning efforts.

Wildfire Risk	Acres	Percent
Lowest Risk	964,168	63.4%
Low Risk	412,800	27.1%
Moderate Risk	68,032	4.5%
High Risk	73,286	4.8%
Highest Risk	3,546	0.2%
Total	**1,521,832**	**100%**


Wildfire Risk to Assets
Larimer County
Acres
1000000
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
964,168
412,800
68,032
73,286
3,546
Lowest Risk
Low Risk
Moderate Risk
High Risk
Highest Risk


Larimer County
Wildfire Risk
Lowest Risk
Low Risk
Moderate Risk
High Risk
Highest Risk
COLORADO STATE
FOREST SERVICE
Colorado Wildfire Risk Assessment
www.ColoradoForestAtlas.org
10 km
7 mi

Burn Probability

Description

Burn Probability (BP) is the annual probability of any location burning due to a wildfire.

The annual BP was calculated as the number of times that a cell was burned and the number of iterations used to run the models. The annual BP was estimated for Colorado by using a wildfire simulation approach with Technosylva's Wildfire Analyst software (Wildfire Analyst). A total number of 2,342,334 fires were simulated (3,200,000 if we consider those fires outside the Colorado border which were used in a buffer area around the study area to compute BP) with a mean ignition density of 8.68 fires/km2. The ignition points were spatially distributed evenly every 500 meters across the state. Only high and extreme weather conditions were used to run the single fires because they usually burn most of the annual burned area. All fires simulations had a duration of 8 h. After simulating all the fires, some cells were not burned by any simulated fire, resulting in a BP value of zero. Some cells were non-burnable due to the associated fuel type (i.e. water, roads, urban, agricultural areas, barren areas). However, the lowest BP value found in "burnable" cells was assigned to cells where the simulated fires did not reach.

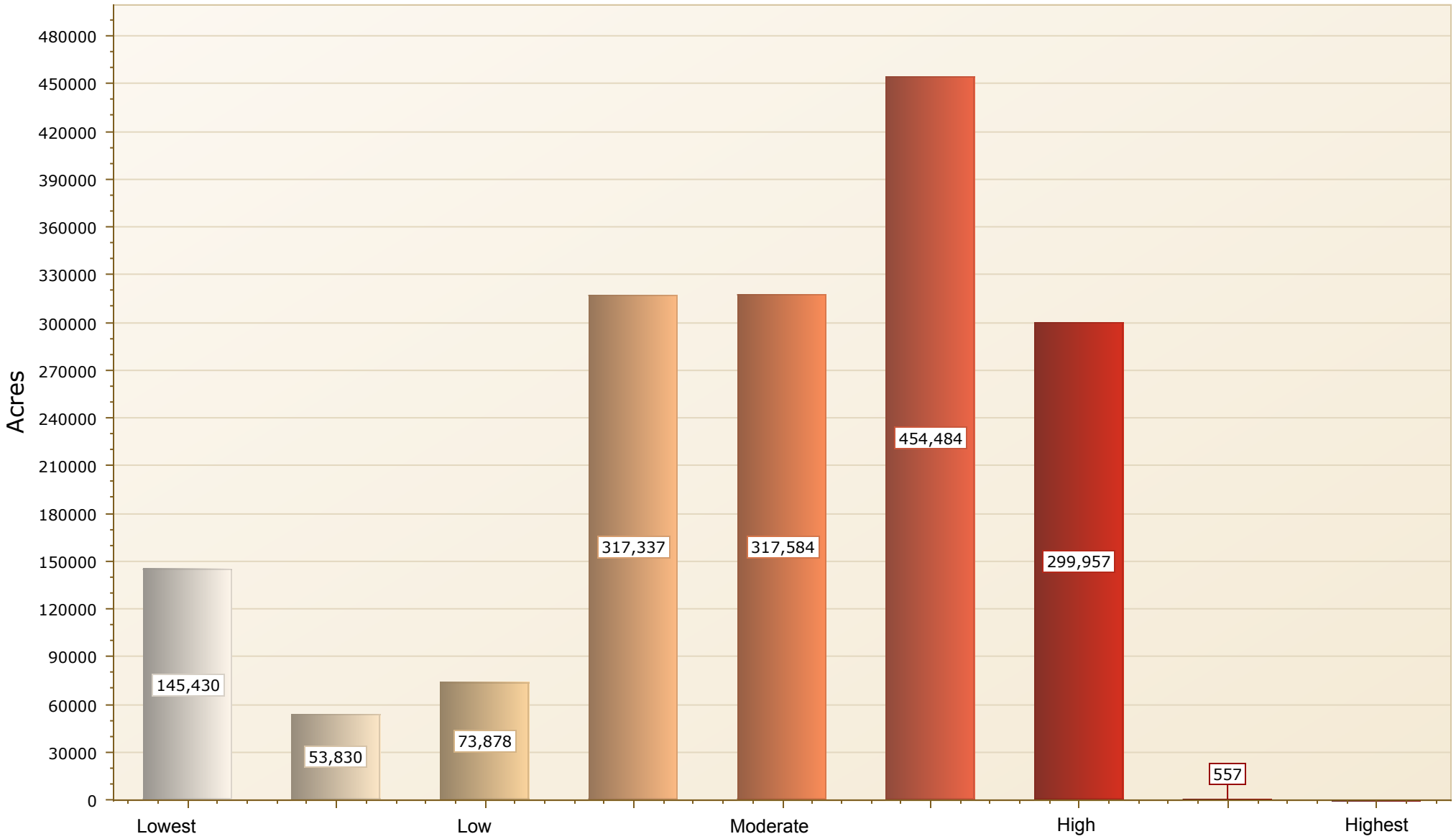
The Wildfire Analyst fire simulator considered the number of times that the simulated fires burned each cell. After that, results were weighted by considering the historical fire occurrence. The weighting was done by assessing the relation between the annual historical fire ignition density in Colorado and the total number of simulated fires with varying input data in high and moderate weather scenarios and the historical spatial distribution of the ignition points.

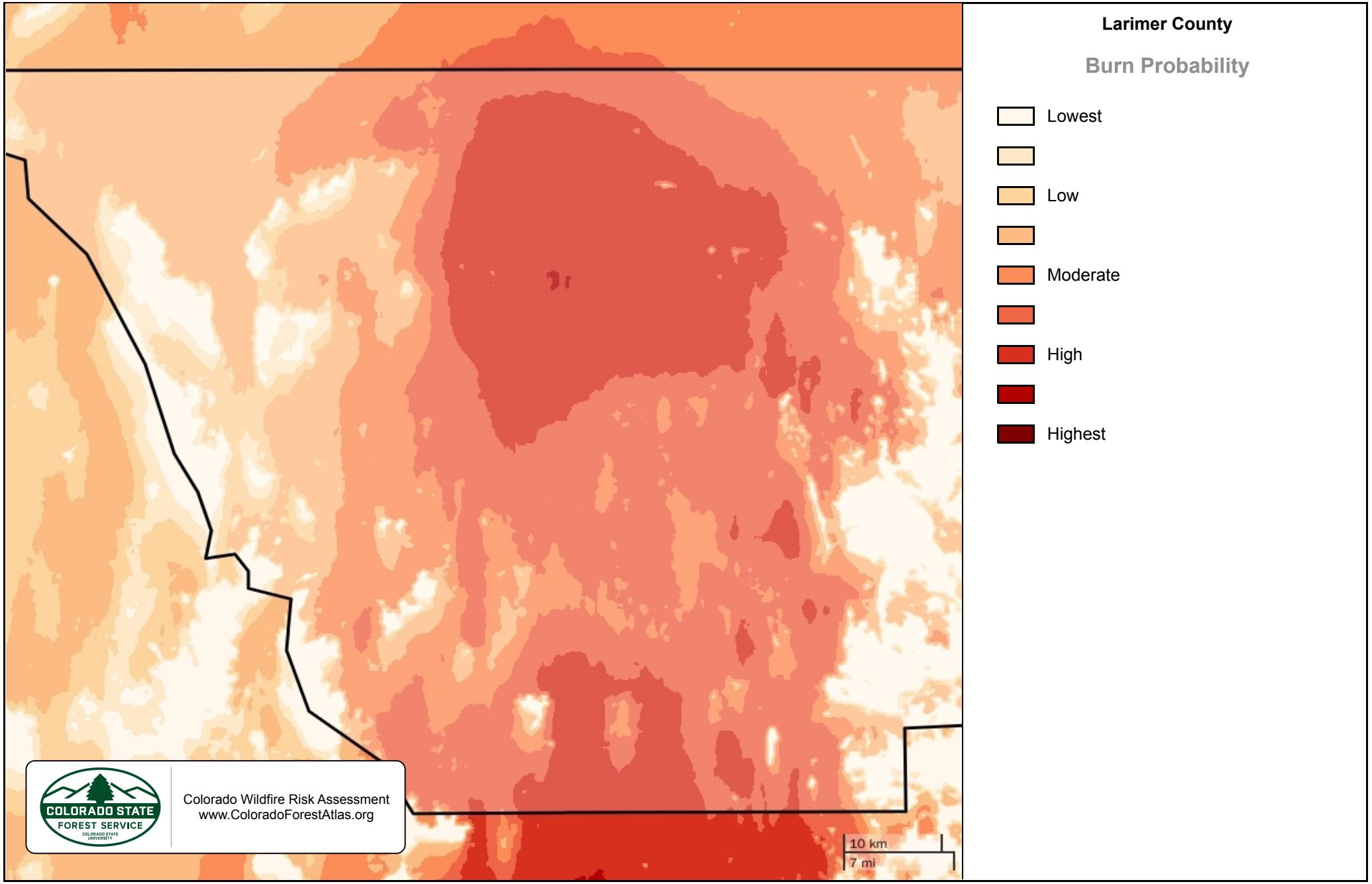
The probability map is derived at a 20-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local protection mitigation or prevention.

Burn Probability	Acres	Percent
Lowest	145,430	8.7%
	53,830	3.2%
Low	73,878	4.4%
	317,337	19.1%
Moderate	317,584	19.1%
	454,484	27.3%
High	299,957	18%
	557	0%
Highest		0%
Total	**1,663,057**	**100%**

Burn Probability

Larimer County




Larimer County
Burn Probability
Lowest
Low
Moderate
High
Highest
COLORADO STATE FOREST SERVICE
COLORADO STATE UNIVERSITY
Colorado Wildfire Risk Assessment
www.ColoradoForestAtlas.org
10 km
7 mi

Terrain Difficulty Index

Description

The 2012 and 2017 CO-WRA included a simple metric that described suppression difficulty based on fireline dozer rates. For 2022 CO-WRA, this standalone metric has been updated to reflect a more enhanced definition of areas where access to fires and suppression from ground resources is difficult. Although not a component of the standard risk assessment outputs, this metric is provided as it helps inform which areas may have limited suppression capabilities, especially for initial attack, across the State.

The Terrain Difficulty Index (TDI) is a metric that describes the characteristics of the landscape which evaluates the difficulty of extinction, especially in initial attack, although it can also be extrapolated to extended attacks. This static index quantifies the availability of access for the arrival of terrestrial means, the ability to penetrate the area where the fire originates, and the difficulty of extinguishing fuels.

Indicators such as the Accessibility Index, Penetrability Index and Fireline Opening Index (construction) have been used for the formulation of TDI. This index is based on other indices such as the Wildfire Suppression Difficulty Index (terrestrial) (SDIt) (Matthew P Thompson et al, 2018. Francisco Rodriguez and Silva et al, 2020.) which is a quantitative rating of the relative difficulty to perform fire control work. However, TDI is dynamic as it incorporates changes in surface fuels over time providing a less static perspective for a planning point of view.

The designated area does not contain data for this section.

Wildfire Behavior Outputs

Description

Fire behavior is the way a fire reacts to the following environmental influences:

1. Fuels
2. Weather
3. Topography

Fire behavior characteristics are attributes of wildland fire that pertain to its spread, intensity, and growth. Fire behavior characteristics utilized in the Colorado WRA include fire type, rate of spread, flame length and fireline intensity (fire intensity scale). These metrics are used to determine the potential fire behavior under different weather scenarios. Areas that exhibit moderate to high fire behavior potential can be identified for mitigation treatments, especially if these areas are in close proximity to homes, business, or other assets.

Fuels

The Colorado WRA includes composition and characteristics for both surface fuels and canopy fuels. Assessing canopy fire potential and surface fire potential allows identification of areas where significant increases in fire behavior affects the potential of a fire to transition from a surface fire to a canopy fire.

Fuel datasets required to compute both surface and canopy fire potential include:

1.Surface Fuels are typically categorized into one of four primary fuel types based on the primary carrier of the surface fire: 1) grass, 2) shrub/brush, 3) timber litter, and 4) slash. They are generally referred to as fire behavior fuel models and provide the input parameters needed to compute surface fire behavior. The 2022 assessment uses the latest 2022 calibrated fuels for Colorado. The following custom fuels were included to improve the fire modeling in timber, WUI and agricultural areas:

- Timber: 2 new categories (171 and 191)

- Urban: 7 new categories (911,912,913,914,915,916 and 919)

- Roads: 5 new categories (941,942,943,944 and 949)

- Agriculture: 4 new categories (931,932,938 and 939)

- Water: 3 new categories (981,982 and 989)

2. Canopy Cover is the horizontal percentage of the ground surface that is covered by tree crowns. It is used to compute wind-reduction factors and shading.

3.Canopy Ceiling Height/Stand Height is the height above the ground of the highest canopy layer where the density of the crown mass within the layer is high enough to support vertical movement of a fire. A good estimate of canopy ceiling height is the average height of the dominant and co-dominant trees in a stand. It is used to compute wind reduction to mid-flame height, and spotting distances from torching trees.

4.Canopy Base Height is the lowest height above the ground above which sufficient canopy fuel exists to vertically propagate fire (Scott & Reinhardt, 2001). Canopy base height is a property of a plot, stand or group of trees, not an individual tree. For fire modeling, canopy base height is an effective value that incorporates ladder fuels, such as tall shrubs and small trees. Canopy base height is used to determine whether a surface fire will transition to a canopy fire.

5. Canopy Bulk Density is the mass of available canopy fuel per unit canopy volume (Scott & Reinhardt, 2001). Canopy bulk density is a bulk property of a stand, plot, or group of trees, not an individual tree. Canopy bulk density is used to predict whether an active crown fire is possible.

Weather

Weather data (1979-2022) from gridMET was used to analyze potential weather scenarios in which assessing fire behavior and spread. gridMET is a dataset of daily high-spatial resolution (~4-km, 1/24th degree) surface meteorological data covering the contiguous US. Air temperature data at 2m, relative humidity at 2m, and wind speed and direction at 10 m were all downloaded and used.

After computing the weather percentiles of the gridMET variables, data was interpolated using IDW algorithms (Inverse Distance Weighting) at 20-meter pixel resolution.

Dead fuel moisture content was estimated using the model of Rothermel and Rinehart (1983). Both temperature and air relative humidity at 2m from gridMET was used to define the fuel moisture model. The model also considered elevation and aspect to take into account the accumulated solar radiation at 14h (local time). 1% and 2% were added to the 1h-dead fuel moisture content to estimate 10h and 100h dead fuel moisture content, respectively.

For the first time in CO-WRA risk assessments, both herbaceous and woody live fuel moisture content was modelled using Technosylva's proprietary models based on optical imagery, drought indices and phenology. The models were trained with the WFAS National live fuel moisture content. Foliar moisture content in the canopies was considered as a constant value (80%) across the entire state.

Wind speed at 10 m was estimated at 20 ft applying a wind adjustment factor to use 20-ft wind speed in the fire spread and behavior equations. Afterward, wind speed percentiles were computed to use these data in the FB analysis at 20-meter pixel resolution. Wind direction for Colorado was analyzed for a 40-year period (1979-2022) considering the calculated wind speed percentiles from gridMET data. Predominant wind direction is from SW to NE, especially when wind speed is high or very high.

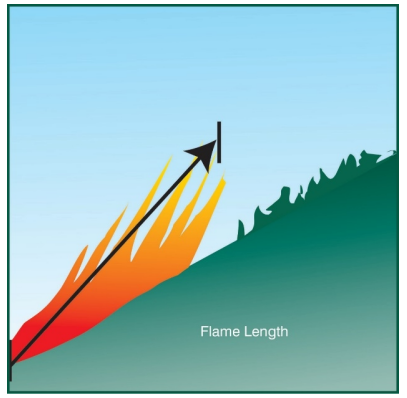
Characteristic Flame Length

The typical or representative flame length of a potential fire based on a weighted average of four percentile weather categories.

Flame Length is defined as the distance between the flame tip and the midpoint of the flame depth at the base of the flame, which is generally the ground surface. It is an indicator of fire intensity and is often used to estimate how much heat the fire is generating.

Flame length is typically measured in feet. Flame length is the measure of fire intensity used to generate the Fire Effects outputs for the CO-WRA and it is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each 20-meter grid cell in Colorado.

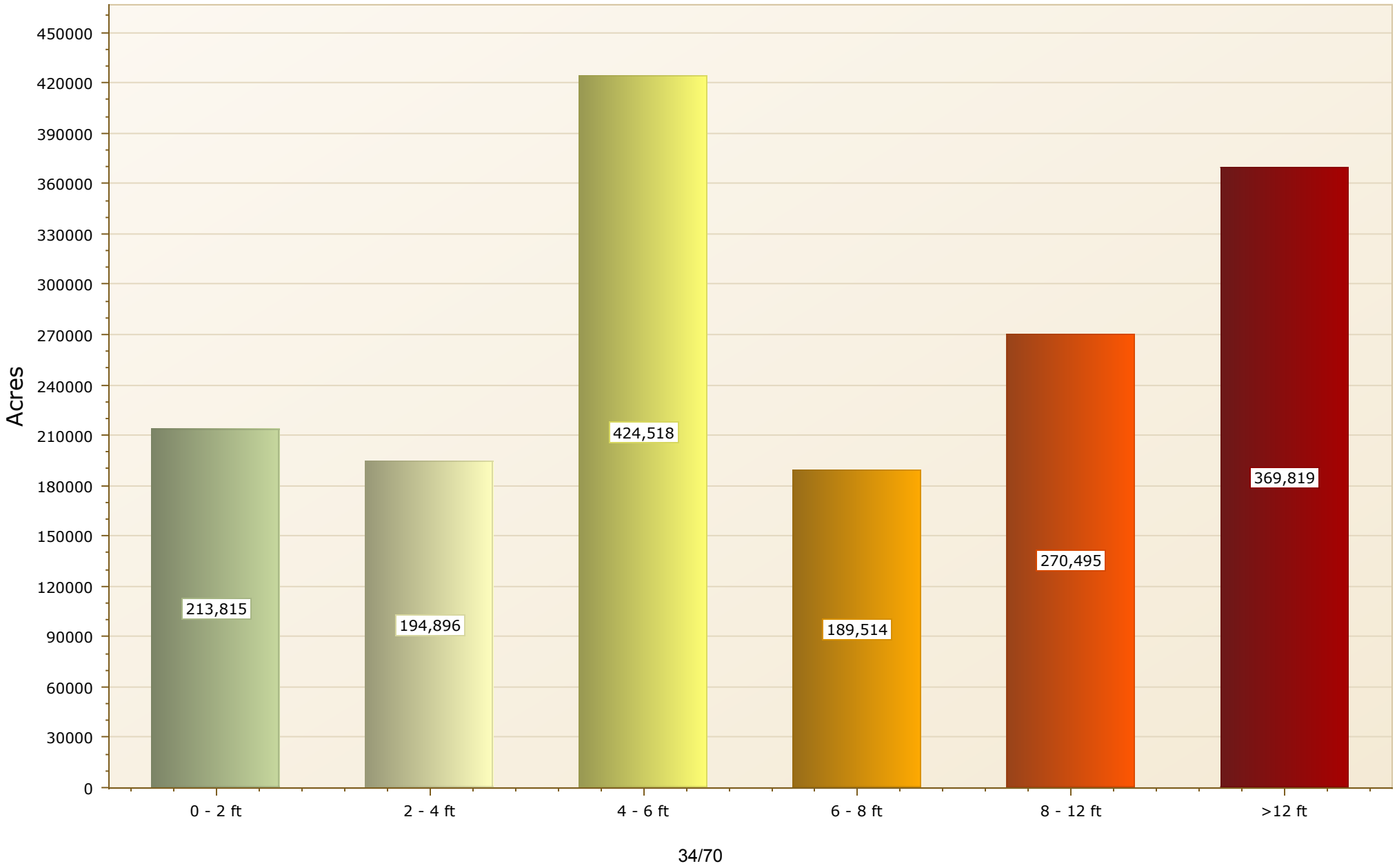
The Characteristic Flame Length represents the weighted average for all four weather percentiles. While not discussed in this report, the individual percentile weather Flame Length outputs are available in the CO-WRA data.

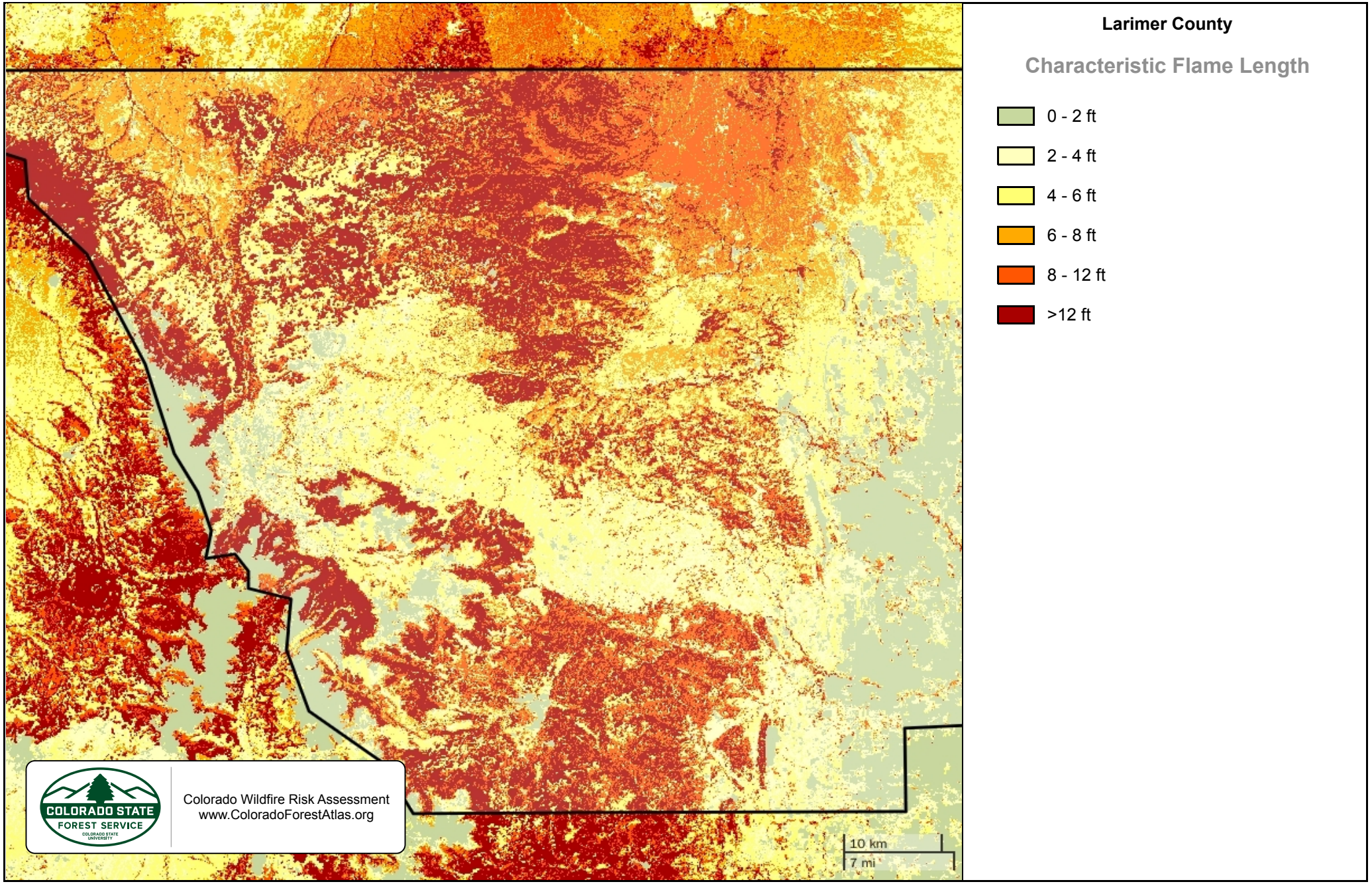


Characteristic Flame Length	Acres	Percent
0 - 2 ft	213,815	12.8%
2 - 4 ft	194,896	11.7%
4 - 6 ft	424,518	25.5%
6 - 8 ft	189,514	11.4%
8 - 12 ft	270,495	16.2%
>12 ft	369,819	22.2%
Total	**1,663,057**	**100%**

Characteristic Flame Length

Larimer County




Larimer County
Characteristic Flame Length
0 - 2 ft
2 - 4 ft
4 - 6 ft
6 - 8 ft
8 - 12 ft
>12 ft
COLORADO STATE
FOREST SERVICE
Colorado Wildfire Risk Assessment
www.ColoradoForestAtlas.org
10 km
7 mi

Fire Intensity Scale

Description

Quantifies the potential fire intensity by orders of magnitude.
Fire Intensity Scale (FIS) specifically identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist. Similar to the Richter scale for earthquakes, FIS provides a standard scale to measure potential wildfire intensity. FIS consist of five (5) classes where the order of magnitude between classes is ten-fold. The minimum class, Class 1, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities.

1. Class 1, Lowest Intensity:
Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.

2. Class 2, Low:
Small flames, usually less than two feet long; small amount of very short-range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.

3. Class 3, Moderate:
Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.

4. Class 4, High:
Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.

5. Class 5, Highest Intensity:
Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

Burn Probability and Fire Intensity Scale are designed to complement each other. Unlike Wildfire Threat, the Fire Intensity Scale does not incorporate historical occurrence information. It only evaluates the potential fire behavior for an area, regardless if any fires have occurred there in the past. This additional information allows mitigation planners to quickly identify areas where dangerous fire behavior potential exists in relationship to nearby homes or other valued assets.

Since all areas in Colorado have fire intensity scale calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high fire intensity area in Eastern Colorado is equivalent to a high fire intensity area in Western Colorado.

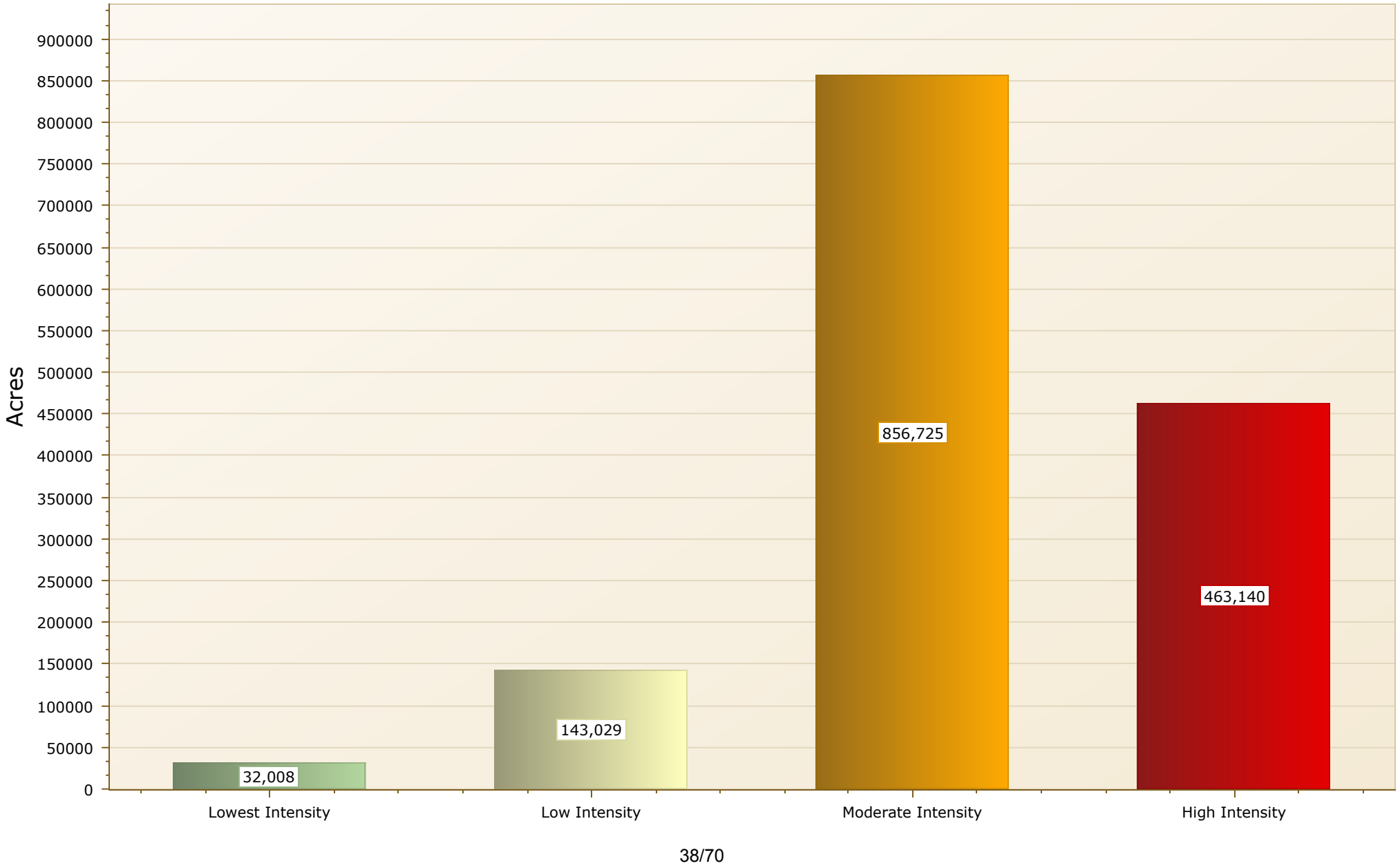
Fire intensity scale is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography – and the spread itself (back, flank or head fire influences fire behavior for a given pixel for a specific fire simulation). Weather is by far the most dynamic variable as it changes frequently. Thus, each pixel may burn many times with different fire spread patterns based on the aforementioned factors. The fire intensity scale maps represent an average fire intensity map.

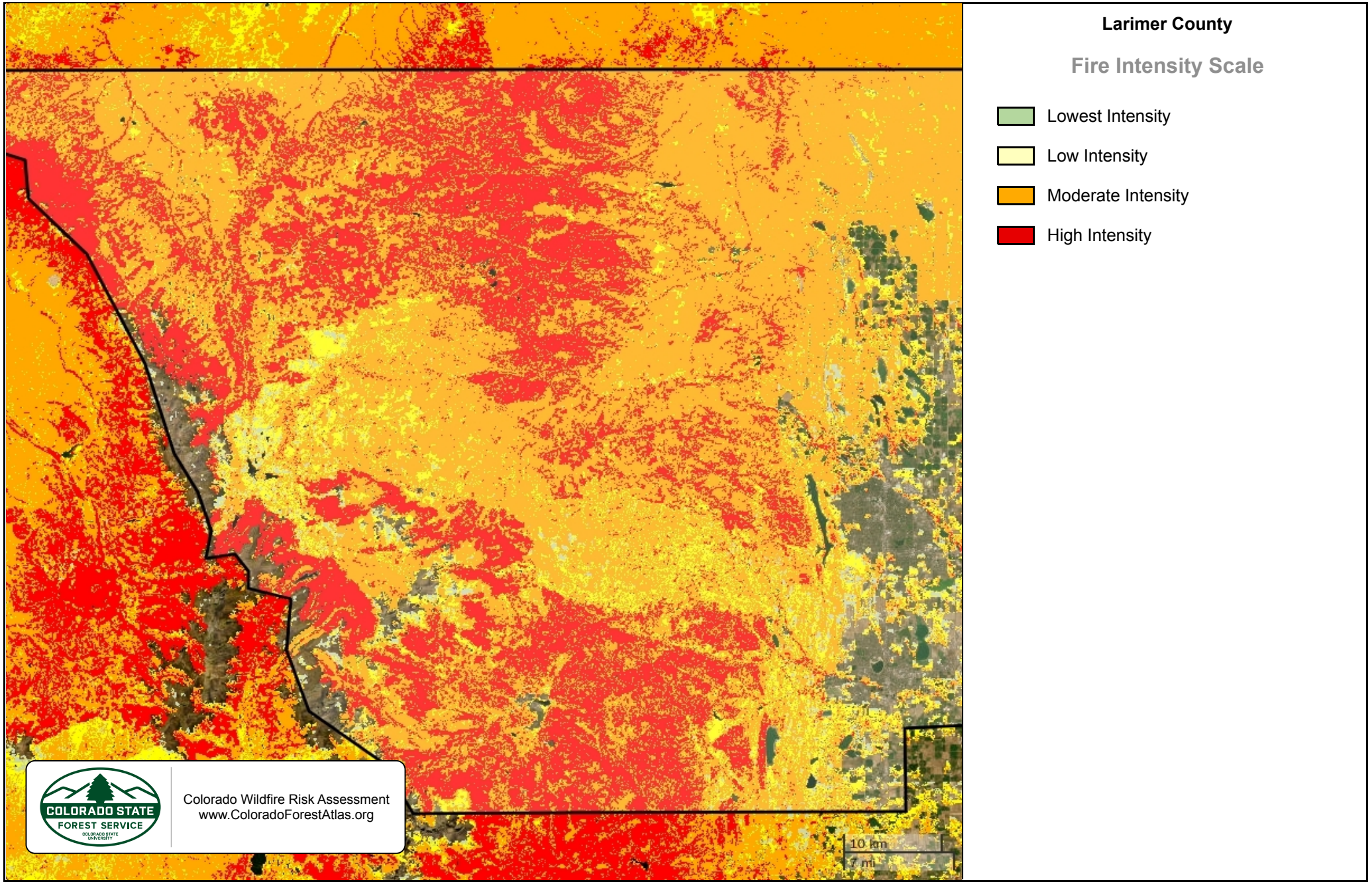
The fire intensity scale map is derived at a 20-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county, or local planning efforts.

FIS Class	Acres	Percent
Lowest Intensity	32,008	2.1%
Low Intensity	143,029	9.6%
Moderate Intensity	856,725	57.3%
High Intensity	463,140	31%
Total	**1,494,901**	**100%**

Fire Intensity Scale

Larimer County




Larimer County
Fire Intensity Scale
Lowest Intensity
Low Intensity
Moderate Intensity
High Intensity
COLORADO STATE
FOREST SERVICE
COLORADO STATE UNIVERSITY
Colorado Wildfire Risk Assessment
www.ColoradoForestAtlas.org
10 km
7 mi

Fire Type

Represents the potential fire type under the extreme percentile weather category.

Canopy fires are very dangerous, destructive and difficult to control due to their increased fire intensity. From a planning perspective, it is important to identify where these conditions are likely to occur on the landscape so that special preparedness measure can be taken if necessary. The Fire Type layer shows the footprint of where these areas are most likely to occur. However, it is important to note that canopy fires are not restricted to these areas. Under the right conditions, it can occur in other canopied areas.

There are two primary fire types – surface fire and canopy fire. Canopy fire can be further subdivided into passive canopy fire and active canopy fire. A short description of each of these is provided below.

• Surface Fire - A fire that spreads through surface fuel without consuming any overlying canopy fuel. Surface fuels include grass, timber litter, shrub/brush, slash and other dead or live vegetation within about 6 feet of the ground.

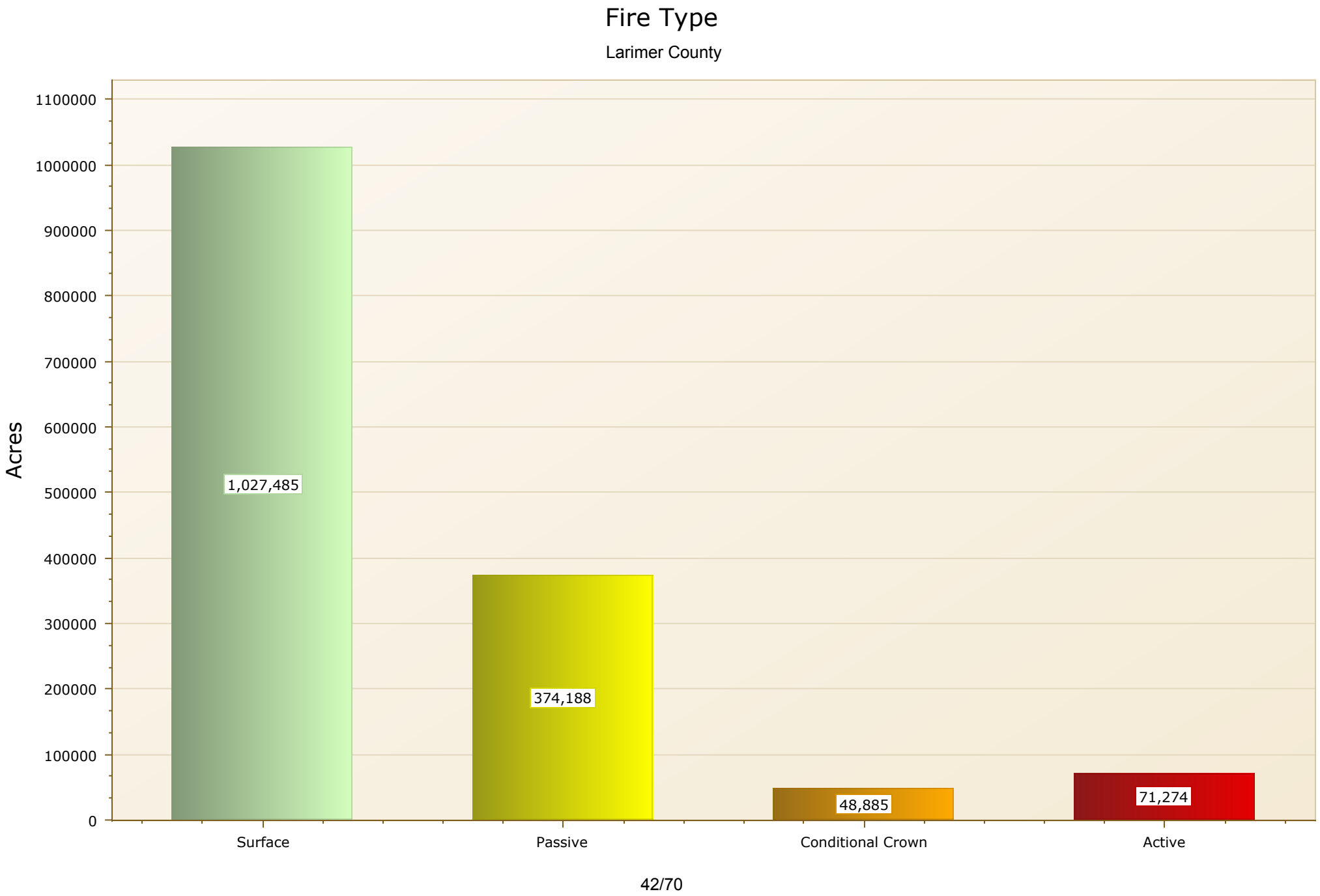
• Passive Canopy Fire – A type of crown fire in which the crowns of individual trees or small groups of trees burn, but solid flaming in the canopy cannot be maintained except for short periods (Scott & Reinhardt, 2001).

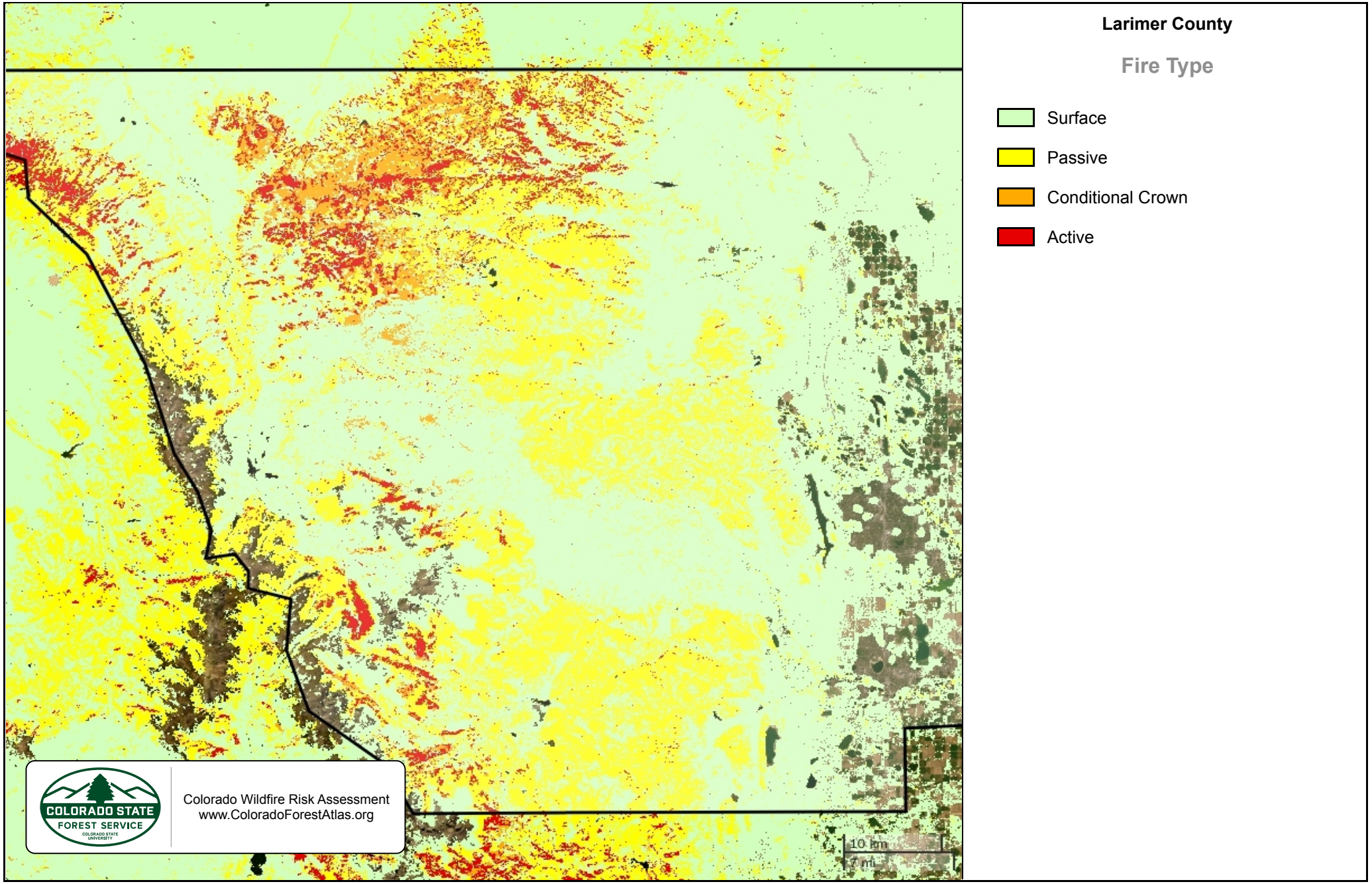
• Conditional Crown Fire – A type of crown fire in which an active crown fire is possible but one would not be predicted to initiate. Two outcomes are possible in that situation: surface fire if the fire starts in the stand as a surface fire, or active crown fire if fire enters the stand as an active crown fire.

• Active Canopy Fire - A crown fire in which the entire fuel complex (canopy) is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread (Scott & Reinhardt, 2001).

The fire type map is derived at a 20-meter resolution and was estimated based on the extreme weather scenario (percentile 97th). This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local planning efforts.

Fire Type	Acres	Percent
Surface	1,027,485	67.5%
Passive	374,188	24.6%
Conditional Crown	48,885	3.2%
Active	71,274	4.7%
Total	**1,521,832**	**100%**


Fire Type
Larimer County
Acres
1100000
1000000
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
1,027,485
374,188
48,885
71,274
Surface
Passive
Conditional Crown
Active


Larimer County
Fire Type
Surface
Passive
Conditional Crown
Active
COLORADO STATE
FOREST SERVICE
COLORADO STATE UNIVERSITY
Colorado Wildfire Risk Assessment
www.ColoradoForestAtlas.org
10 km
7 mi

Rate of Spread

The typical or representative rate of spread of a potential fire based on a weighted average of four percentile weather categories.

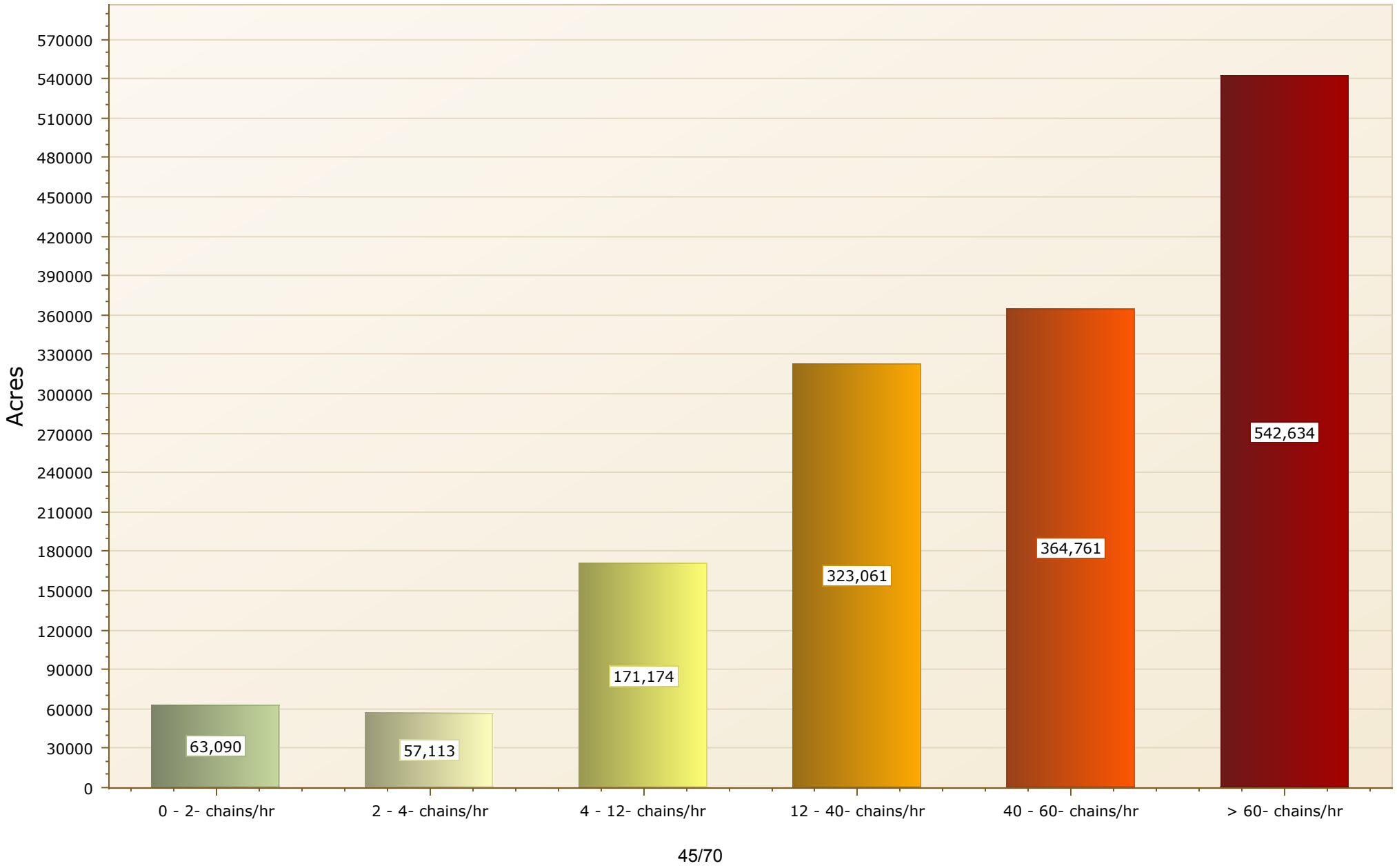
Rate of spread is the speed with which a fire moves in a horizontal direction across the landscape, usually expressed in chains per hour (ch/hr) or feet per minute (ft/min). For purposes of the CO-WRA, this measurement represents the maximum rate of spread of the fire front.

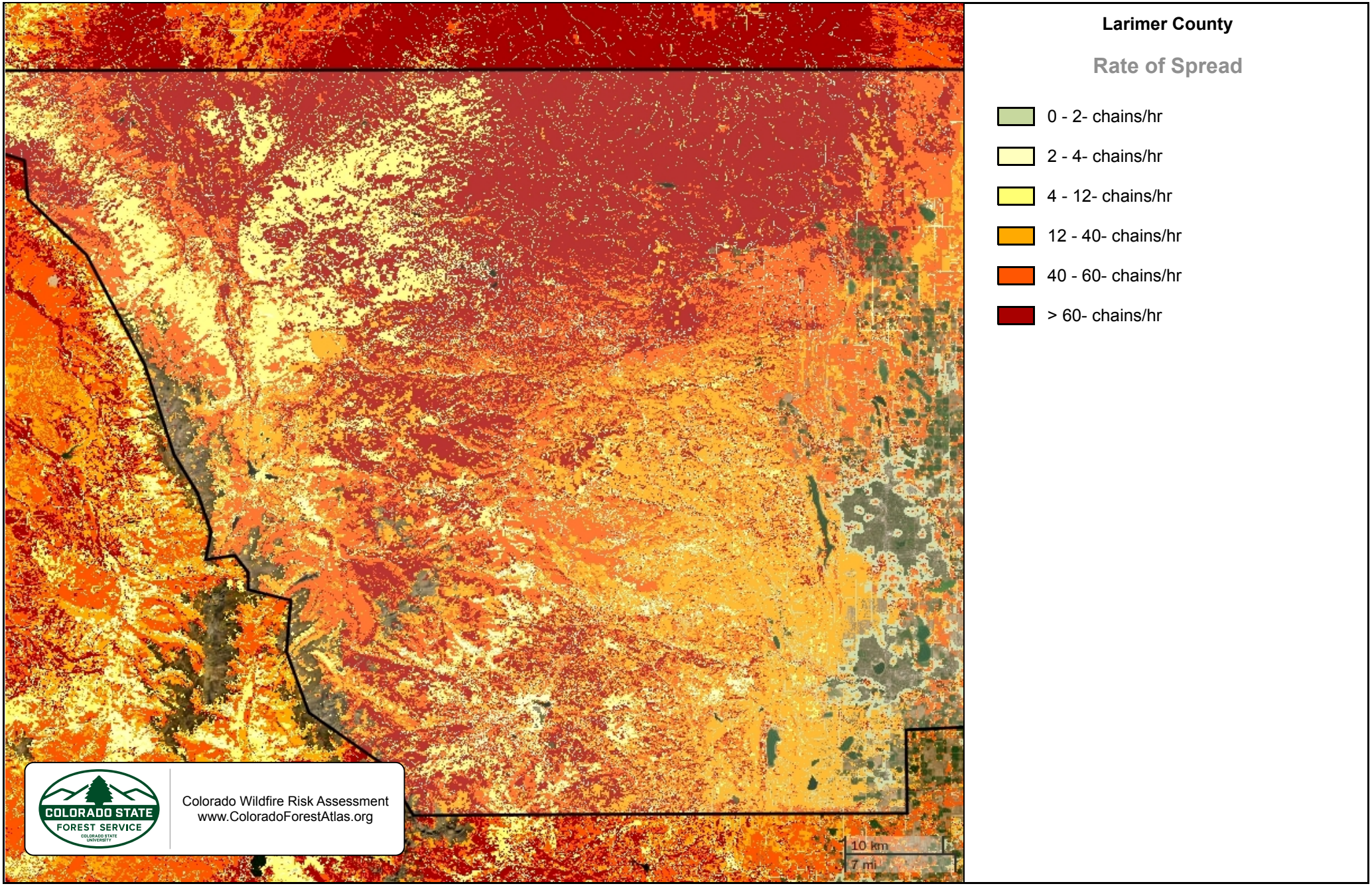
Rate of spread is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for a 20-meter grid cell in Colorado.

Rate of Spread	Acres	Percent
0 - 2- chains/hr	63,090	4.1%
2 - 4- chains/hr	57,113	3.8%
4 - 12- chains/hr	171,174	11.2%
12 - 40- chains/hr	323,061	21.2%
40 - 60- chains/hr	364,761	24%
> 60- chains/hr	542,634	35.6%
Total	**1,521,832**	**100%**

Rate of Spread

Larimer County




Larimer County
Rate of Spread
0 - 2- chains/hr
2 - 4- chains/hr
4 - 12- chains/hr
12 - 40- chains/hr
40 - 60- chains/hr
> 60- chains/hr
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10 km
7 mi

Surface Fuels

Fire behavior fuel models that contain the parameters required to calculate fire behavior outputs.

Surface fuels, or fire behavior fuel models as they are technically referred to, contain the parameters needed by the Rothermel (1972) surface fire spread model to compute surface fire behavior characteristics, e.g. rate of spread, flame length, fireline intensity, and other fire behavior metrics. As the name might suggest, surface fuels account only for surface fire potential. Canopy fire potential is computed through a separate but linked process. The CO-WRA accounts for both surface and canopy fire potential in the fire behavior outputs.

An up-to-date surface fuel dataset at 20-meter (m) resolution was developed for this project, based on Scott and Burgan (2005) fuel models, enhanced with custom fuels created by Technosylva. The custom fuels distinguish this assessment from previous ones performed in Colorado as they allow a better characterization of fire behavior across the landscape. Additionally, the urban and road custom fuel models included in the assessment are key for better characterizing the exposure, vulnerability and risk of both buildings and population in the Wildland Urban Interface (WUI). This also allows for better modeling of fire encroachment in urban areas considering the building density, community structure and fuels surrounding the buildings and urban areas.

The following custom fuels were included in order to improve the fire modeling in timber, WUI and agricultural areas:

- Timber: 2 new categories (171 and 191)
- Urban: 7 new categories (911,912,913,914,915,916 and 919)
- Roads: 5 new categories (941,942,943,944 and 949)
- Agriculture: 4 new categories (931,932,938a and 939)
- Water: 3 new categories (981,982 and 989)

Additionally, we also considered canopy fuel data to better simulate crown fire behavior. This includes:

- canopy bulk density (CBD),
- canopy base height (CBH),
- canopy cover (CC) and
- canopy height (CH).

Unmanaged forest with dead amd dowmed trees and branches

Slash on the ground indicates that forest management treatments have occurred in this area

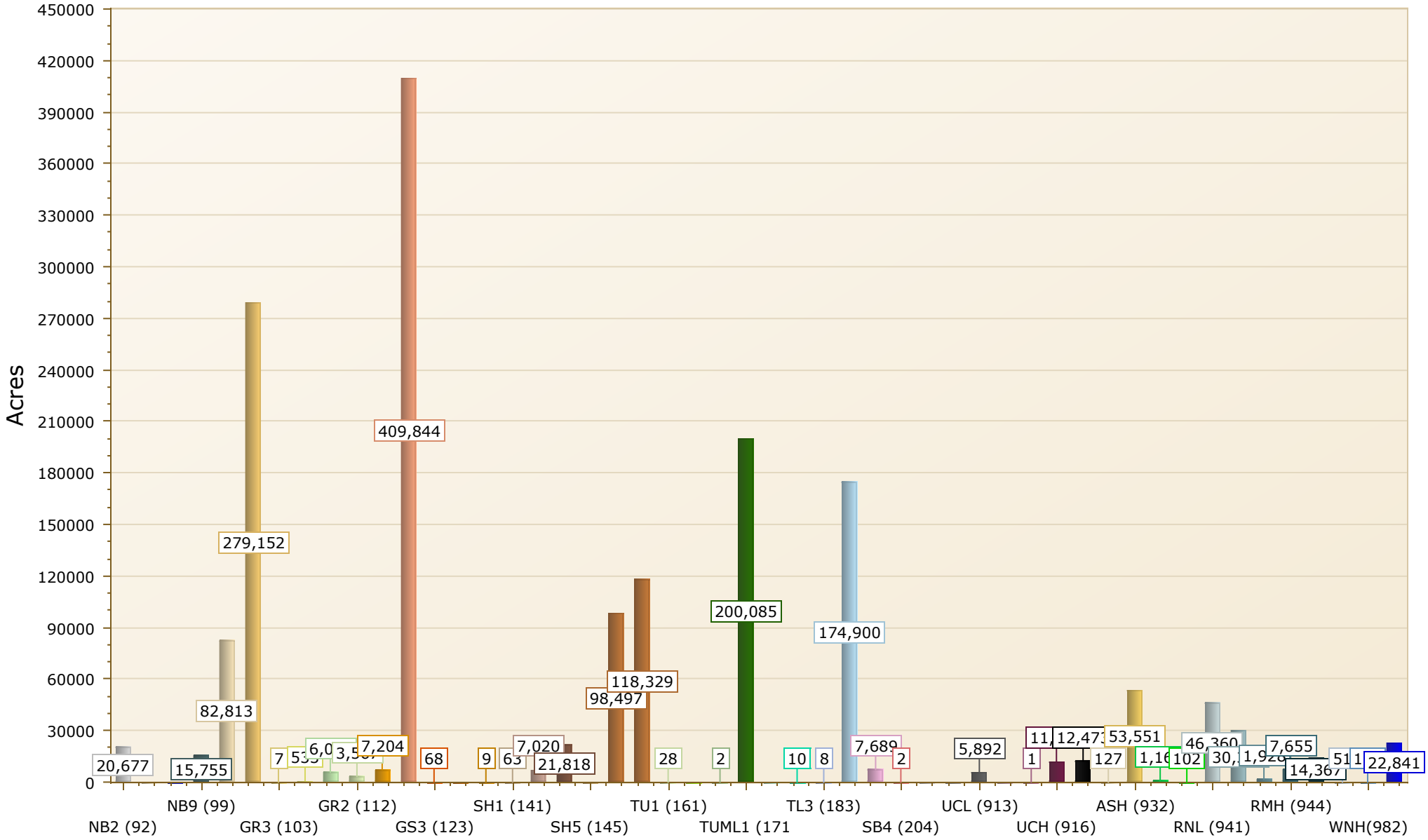
The updated fuel dataset also considered the effects of natural disturbances on vegetation (fires, insect and disease, and harvesting/fuel treatments) that occurred in Colorado from 2013 to 2022. More information about the methods used can be found in the Colorado 2022 Fuels Mapping Final Report.

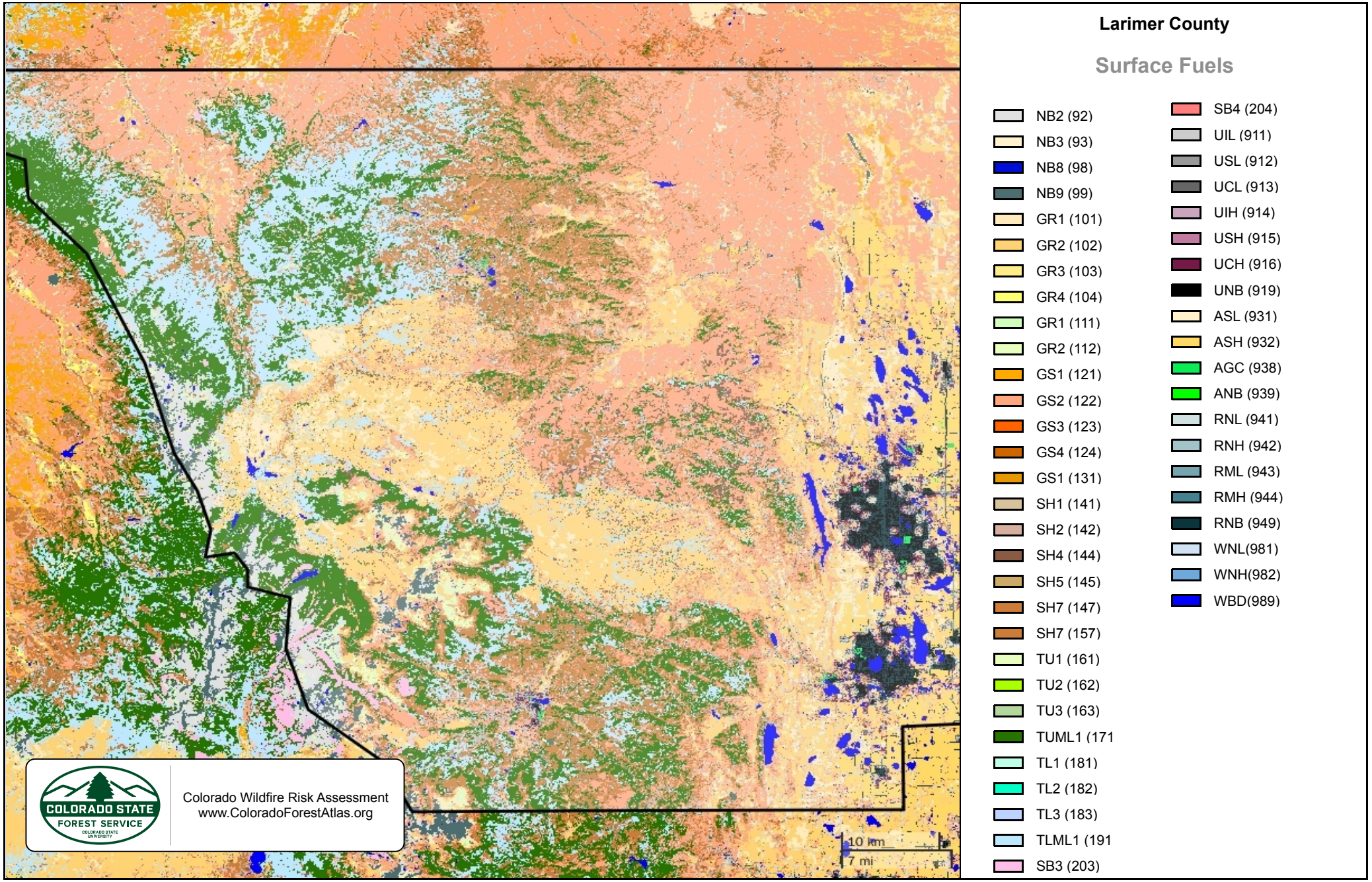
Surface Fuels	Description	Acres	Percent
NB2 (92)	Snow/Ice	20,677	1.2%
NB3 (93)	Agricultural		0%
NB8 (98)	Open Water		0%
NB9 (99)	Bare Ground	15,755	0.9%
GR1 (101)	Short, Sparse Dry Climate Grass	82,813	5%
GR2 (102)	Low Load, Dry Climate Grass	279,152	16.8%
GR3 (103)	Low Load, Very Coarse, Humid Climate Grass	7	0%
GR4 (104)	Moderate Load, Dry Climate Grass	533	0%
GR1 (111)	Short, Sparse Dry Climate Grass - ALPINE	6,047	0.4%
GR2 (112)	Low Load, Dry Climate Grass - ALPINE	3,567	0.2%
GS1 (121)	Low Load, Dry Climate Grass-Shrub	7,204	0.4%
GS2 (122)	Moderate Load, Dry Climate Grass-Shrub	409,844	24.6%
GS3 (123)	Moderate Load, Humid Climate Grass-Shrub	68	0%
GS4 (124)	High Load, Humid Climate Grass-Shrub		0%
GS1 (131)	Low Load, Dry Climate Grass-Shrub - ALPINE	9	0%
SH1 (141)	Low Load Dry Climate Shrub	63	0%
SH2 (142)	Moderate Load Dry Climate Shrub	7,020	0.4%
SH4 (144)	Low Load, Humid Climate Timber-Shrub	21,818	1.3%
SH5 (145)	High Load, Dry Climate Shrub		0%
SH7 (147)	Very High Load, Dry Climate Shrub	98,497	5.9%
SH7 (157)	Very High Load, Dry Climate Shrub	118,329	7.1%
TU1 (161)	Low Load Dry Climate Timber-Grass-Shrub	28	0%
TU2 (162)	Moderate Load, Humid Climate Timber-Shrub		0%
TU3 (163)	Moderate Load, Humid Climate Timber-Grass-Shrub	2	0%
TUML1 (171	Timber Understory Dynamic ML (TSYL 2022)	200,085	12%
TL1 (181)	Low Load Compact Conifer Litter		0%
TL2 (182)	Low Load Broadleaf Litter	10	0%
TL3 (183)	Moderate Load Conifer Litter	8	0%
TLML1 (191	Timber Litter ML (TSYL 2022)	174,900	10.5%

Surface Fuels	Description	Acres	Percent
SB3 (203)	High Load Activity Fuel or Moderate Load Blowdown	7,689	0.5%
SB4 (204)	High Load Blowdown	2	0%
UIL (911)	Isolated urban surrounded by Low FB fuel		0%
USL (912)	Scattered urban surrounded by Low FB fuel		0%
UCL (913)	Urban core surrounded by Low FB fuel	5,892	0.4%
UIH (914)	Isolated urban surrounded by High FB fuel		0%
USH (915)	Scattered urban surrounded by High FB fuel	1	3.6%
UCH (916)	Urban core surrounded by High FB fuel	11,993	0.7%
UNB (919)	Unburnable urban areas	12,473	0.7%
ASL (931)	Agricultural Low Load Fuels, with seasonal changes of its Burnable condition	127	0%
ASH (932)	Agricultural High Load Fuels, with seasonal changes of its Burnable condition	53,551	3.2%
AGC (938)	Golf courses - Non-Burnable (no encroachment)	1,160	0.1%
ANB (939)	Agricultural Fields, maintained in a Non-Burnable condition	102	0%
RNL (941)	Minor roads Low FB	46,360	2.8%
RNH (942)	Minor roads High FB	30,309	1.8%
RML (943)	Major roads Low FB	1,928	0.1%
RMH (944)	Major roads High FB	7,655	0.5%
RNB (949)	Roads surrounded by non-burnable fuels	14,367	0.9%
WNL(981)	Minor Water streams surrounded by Low Load Fuel (moderate encroachment)	51	0%
WNH(982)	Minor Water streams surrounded by High Load Fuel (high encroachment)	122	0%
WBD(989)	Water Bodies	22,841	1.4%
Total		**1,663,057**	**103%**

Surface Fuels

Larimer County




Larimer County
Surface Fuels
NB2 (92)
NB3 (93)
NB8 (98)
NB9 (99)
GR1 (101)
GR2 (102)
GR3 (103)
GR4 (104)
GR1 (111)
GR2 (112)
GS1 (121)
GS2 (122)
GS3 (123)
GS4 (124)
GS1 (131)
SH1 (141)
SH2 (142)
SH4 (144)
SH5 (145)
SH7 (147)
SH7 (157)
TU1 (161)
TU2 (162)
TU3 (163)
TUML1 (171
TL1 (181)
TL2 (182)
TL3 (183)
TLML1 (191
SB3 (203)
SB4 (204)
UIL (911)
USL (912)
UCL (913)
UIH (914)
USH (915)
UCH (916)
UNB (919)
ASL (931)
ASH (932)
AGC (938)
ANB (939)
RNL (941)
RNH (942)
RML (943)
RMH (944)
RNB (949)
WNL(981)
WNH(982)
WBD(989)
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10 km
7 mi

Vegetation

The Vegetation map describes the general vegetation and landcover types across the state of Colorado.

In the CO-WRA, the Vegetation dataset is used to support the development of the Surface Fuels, Canopy Cover, Canopy Stand Height, Canopy Base Height, and Canopy Bulk Density datasets.
The 2020 LANDFIRE program data product (Existing Vegetation Type) was used to compile the Vegetation data for the CO-WRA. This reflects data current to 2020. The LANDFIRE EVT data were classified to reflect general vegetation cover types for representation with CFA.

Oak shrublands are commonly found añlong dry foothills and lower mountain slopes, and are often situates above Piñyon-juniper.

Piñyon-juniper woodlands are common in southern and southwestern Colorado

Douglas-fir understory in a ponderosa pine forest

Grasslands occur both on Colorado's Eastern Plains and on the Western Slope.

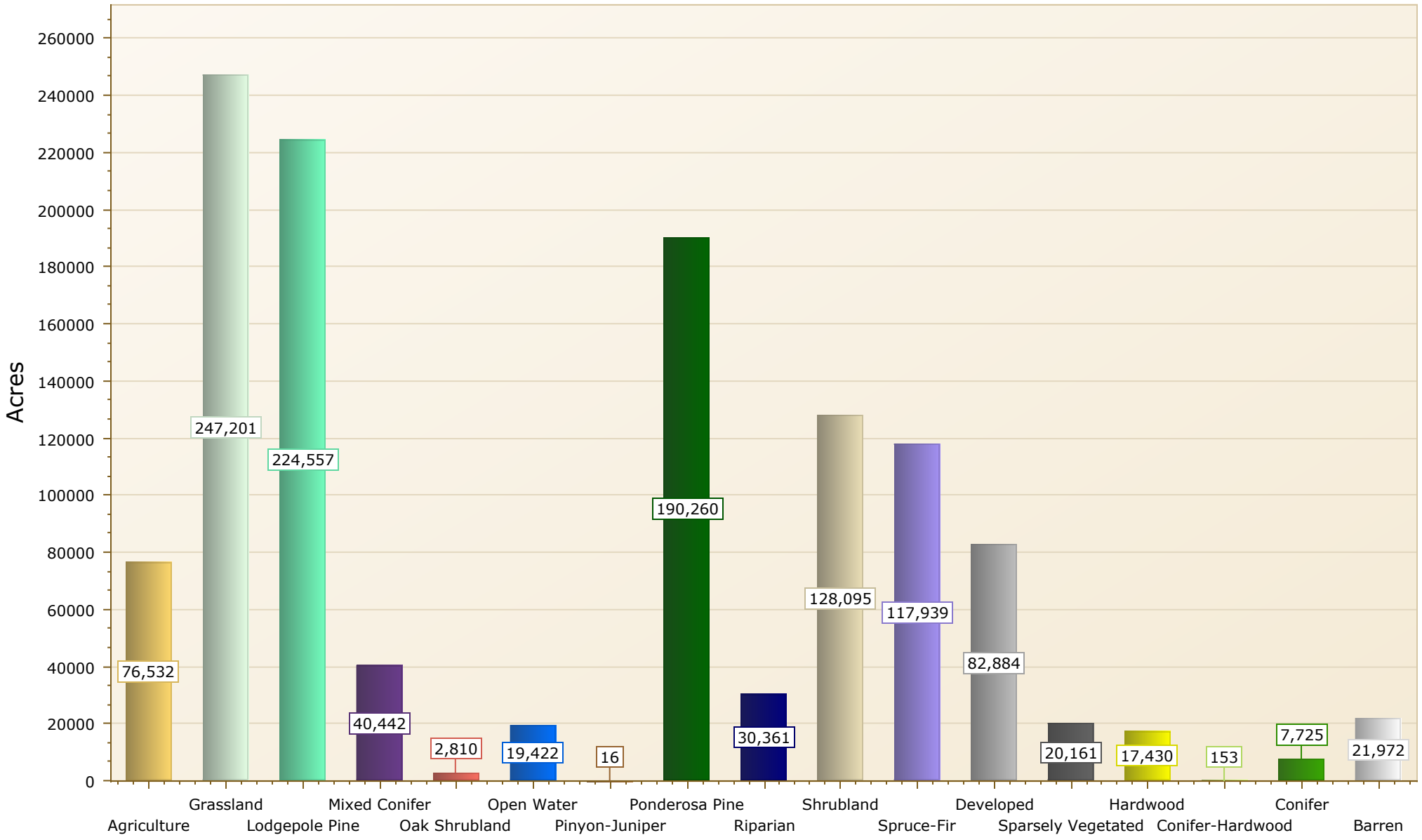
Wildland fire threat increases in lodgepole pine as the dense forest grow old

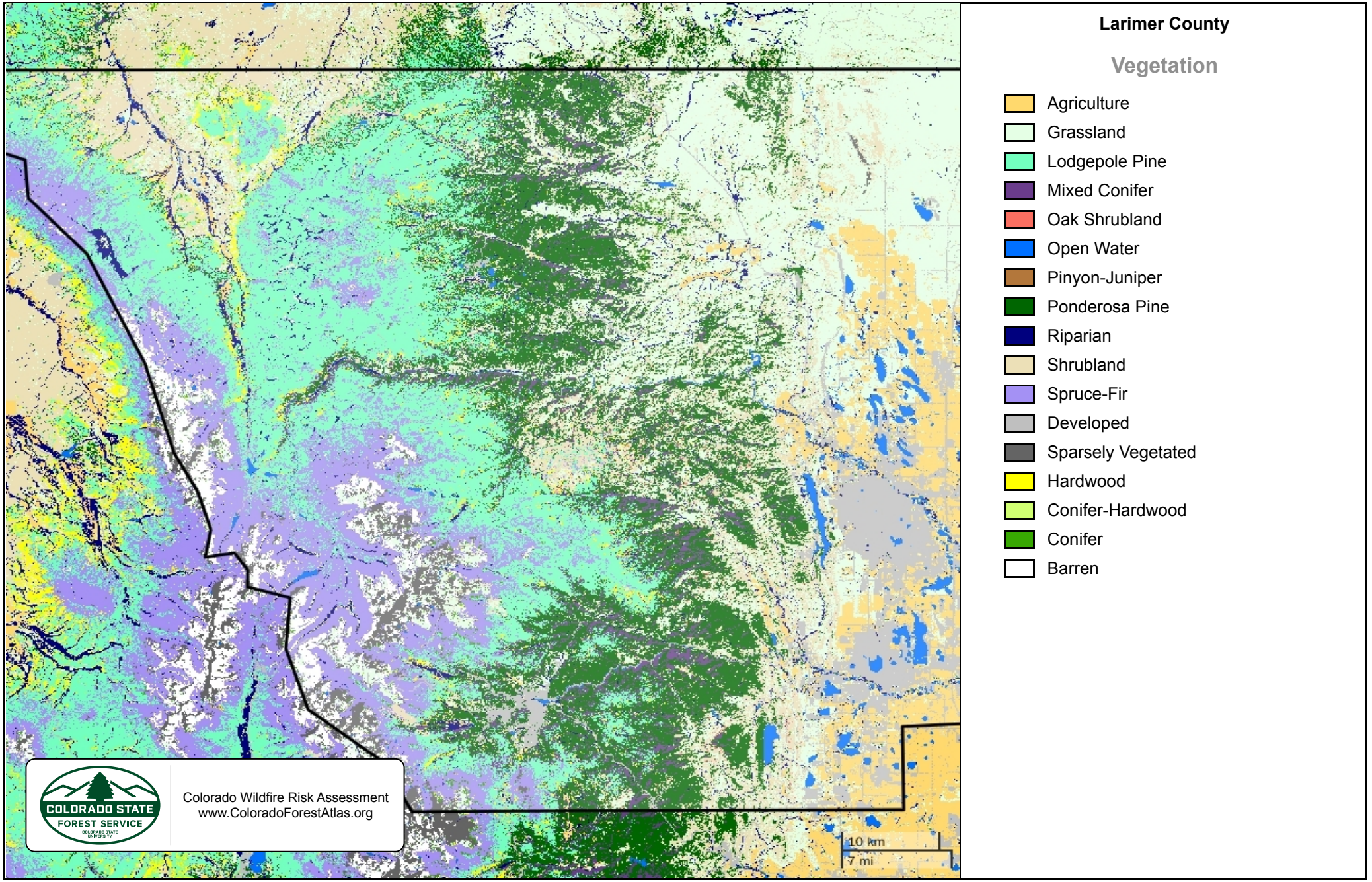
Overly dense ponderosa pine, a dominant species of the montane zone

Vegetation Class	Acres	Percent
Agriculture	76,532	6.2%
Grassland	247,201	20.1%
Lodgepole Pine	224,557	18.3%
Mixed Conifer	40,442	3.3%
Oak Shrubland	2,810	0.2%
Open Water	19,422	1.6%
Pinyon-Juniper	16	0%
Ponderosa Pine	190,260	15.5%
Riparian	30,361	2.5%
Shrubland	128,095	10.4%
Spruce-Fir	117,939	9.6%
Developed	82,884	6.7%
Sparsely Vegetated	20,161	1.6%
Hardwood	17,430	1.4%
Conifer-Hardwood	153	0%
Conifer	7,725	0.6%
Barren	21,972	1.8%
Total	**1,227,958**	**100%**

Vegetation

Larimer County




Larimer County
Vegetation
Agriculture
Grassland
Lodgepole Pine
Mixed Conifer
Oak Shrubland
Open Water
Pinyon-Juniper
Ponderosa Pine
Riparian
Shrubland
Spruce-Fir
Developed
Sparsely Vegetated
Hardwood
Conifer-Hardwood
Conifer
Barren
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Colorado Wildfire Risk Assessment
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10 km
7 mi

Watershed Protection Risk

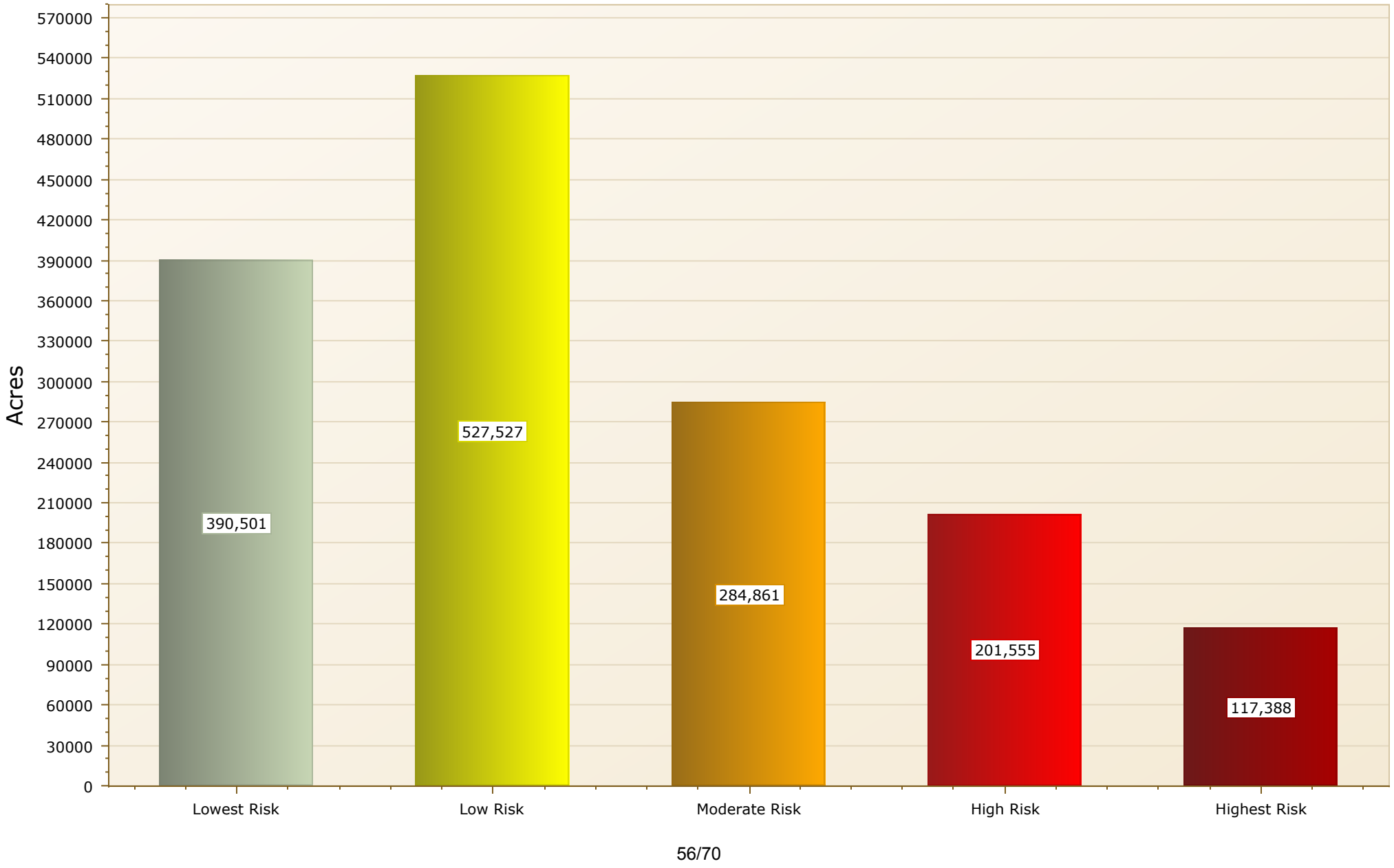
A measure of the risk to Watershed Protection Areas based on the potential negative impacts from wildfire.

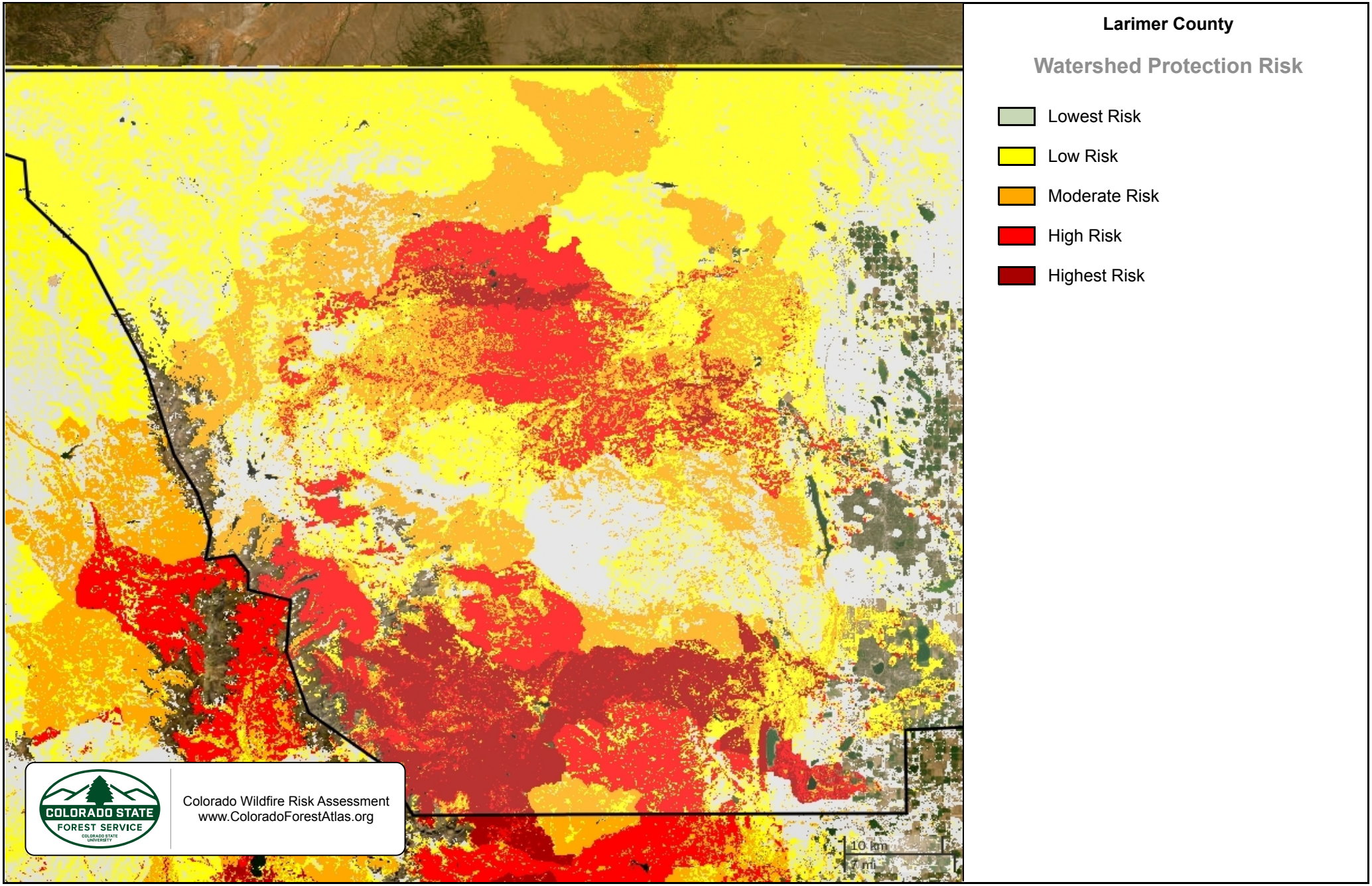
In areas that experience low-severity burns, fire events can serve to eliminate competition, rejuvenate growth and improve watershed conditions. But in landscapes subjected to high, or even moderate-burn severity, the post-fire threats to public safety and natural resources can be extreme.
High-severity wildfires remove virtually all forest vegetation – from trees, shrubs and grasses down to discarded needles, decomposed roots and other elements of ground cover or duff that protect forest soils. A severe wildfire also can cause certain types of soil to become hydrophobic by forming a waxy, water-repellent layer that keeps water from penetrating the soil, dramatically amplifying the rate of runoff.
The loss of critical surface vegetation leaves forested slopes extremely vulnerable to large-scale soil erosion and flooding during subsequent storm events. In turn, these threats can impact the health, safety and integrity of communities and natural resources downstream. The likelihood that such a post-fire event will occur in Colorado is increased by the prevalence of highly erodible soils in several parts of the state, and weather patterns that frequently bring heavy rains on the heels of fire season.
In the aftermath of the 2002 fire season, the Colorado Department of Health estimated that 26 municipal water storage facilities were shut down due to fire and post-fire impacts. The potential for severe soil erosion is a consequence of wildfire because as a fire burns, it destroys plant material and the litter layer. Shrubs, forbs, grasses, trees and the litter layer disperse water during severe rainstorms. Plant roots stabilize the soil, and stems and leaves slow the water to give it time to percolate into the soil profile. Fire can destroy this soil protection.
The risk index has been calculated by combining the Watershed Protection data with a measure of fire intensity using a Response Function approach. Those areas with the highest negative impact (-9) represent areas with high potential fire intensity and high importance for ecosystem services. Those areas with the lowest negative impact (-1) represent those areas with low potential fire intensity and a low importance for ecosystem services. The response function outputs were combined into 5 qualitative classes.

Watershed Protection Risk	Acres	Percent
Lowest Risk	390,501	25.6%
Low Risk	527,527	34.7%
Moderate Risk	284,861	18.7%
High Risk	201,555	13.2%
Highest Risk	117,388	7.7%
Total	**1,521,832**	**100%**

Watershed Protection Risk

Larimer County




Larimer County
Watershed Protection Risk
Lowest Risk
Low Risk
Moderate Risk
High Risk
Highest Risk
COLORADO STATE
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Colorado Wildfire Risk Assessment
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10 km
7 mi

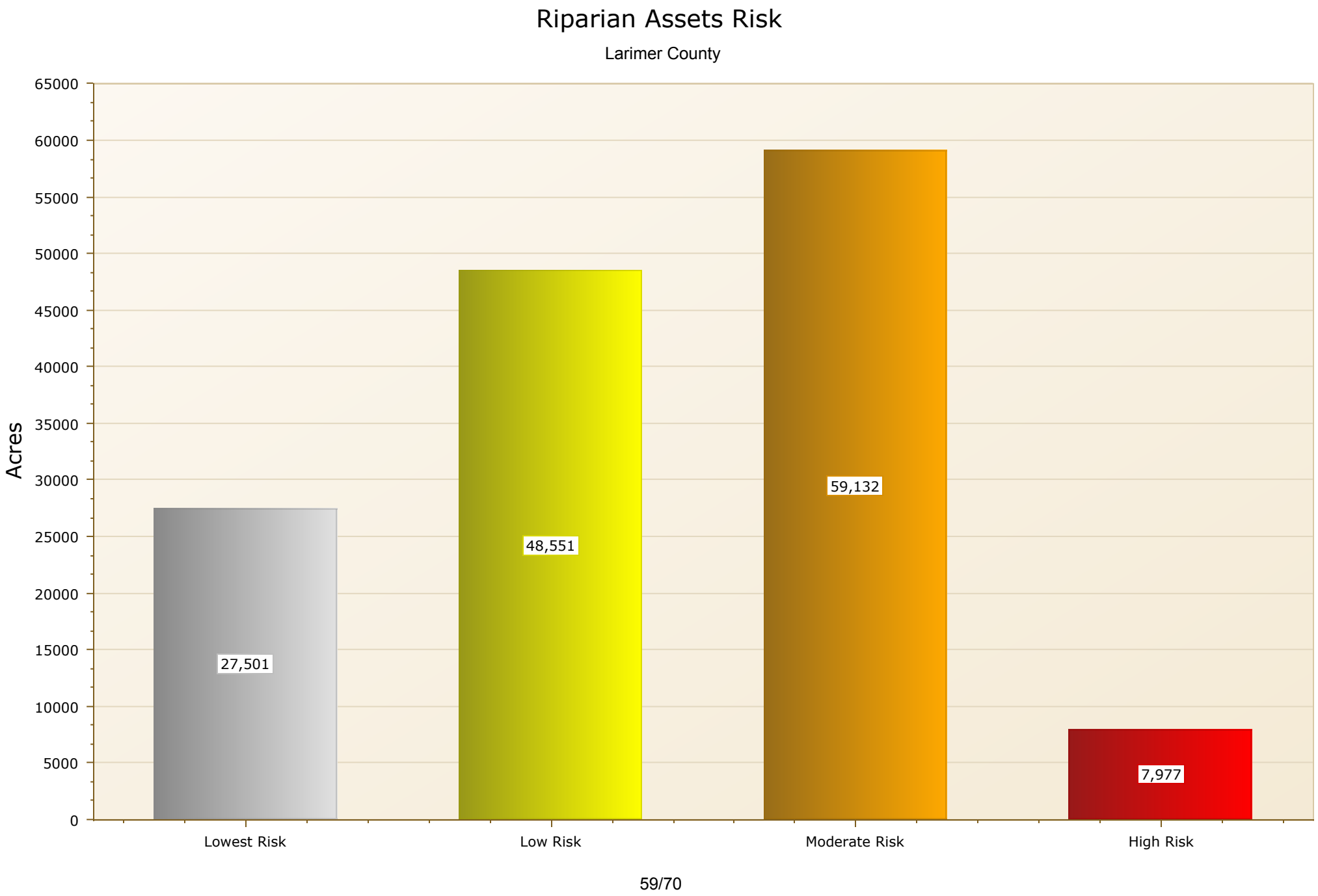
Riparian Assets Risk

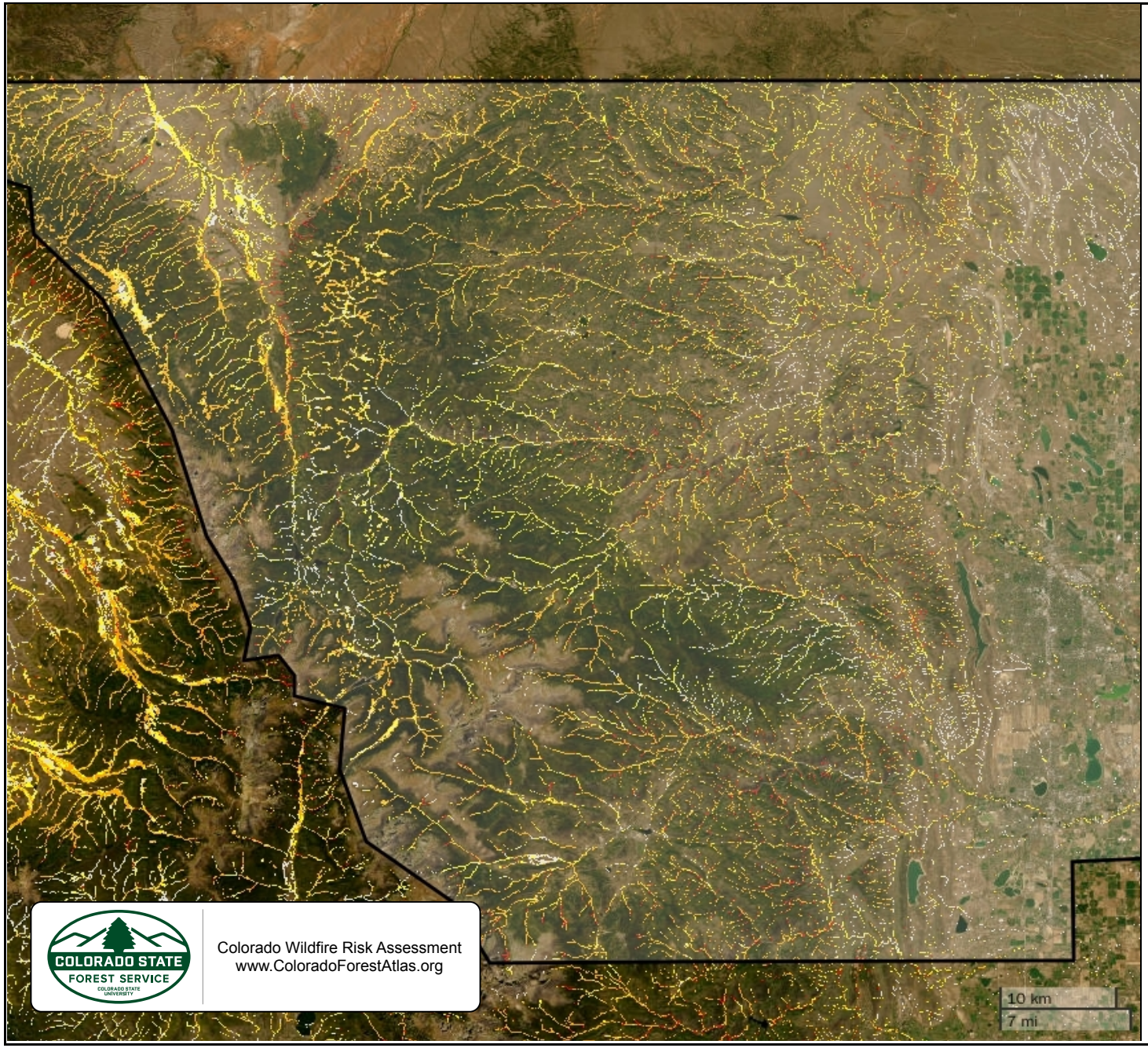
A measure of the risk to riparian areas based on the potential negative impacts from wildfire.

The risk index has been calculated by combining the Riparian Assets data with a measure of fire intensity using a Response Function approach. Those areas with the highest negative impact (-9) represent areas with high potential fire intensity and high importance for ecosystem services. Those areas with the lowest negative impact (-1) represent those areas with low potential fire intensity and a low importance for ecosystem services. The response function outputs were combined into 5 qualitative classes.

This risk output is intended to supplement the Watershed Protection Risk Index by identifying wildfire risk within the more detailed riparian areas.

Riparian Assets Risk		Acres	Percent
	Lowest Risk	27,501	19.2%
	Low Risk	48,551	33.9%
	Moderate Risk	59,132	41.3%
	High Risk	7,977	5.6%
Total		**143,161**	**100%**


Riparian Assets Risk
Larimer County
Acres
65000
60000
55000
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
27,501
48,551
59,132
7,977
Lowest Risk
Low Risk
Moderate Risk
High Risk



Larimer County

Riparian Assets Risk

- Lowest Risk
- Low Risk
- Moderate Risk
- High Risk

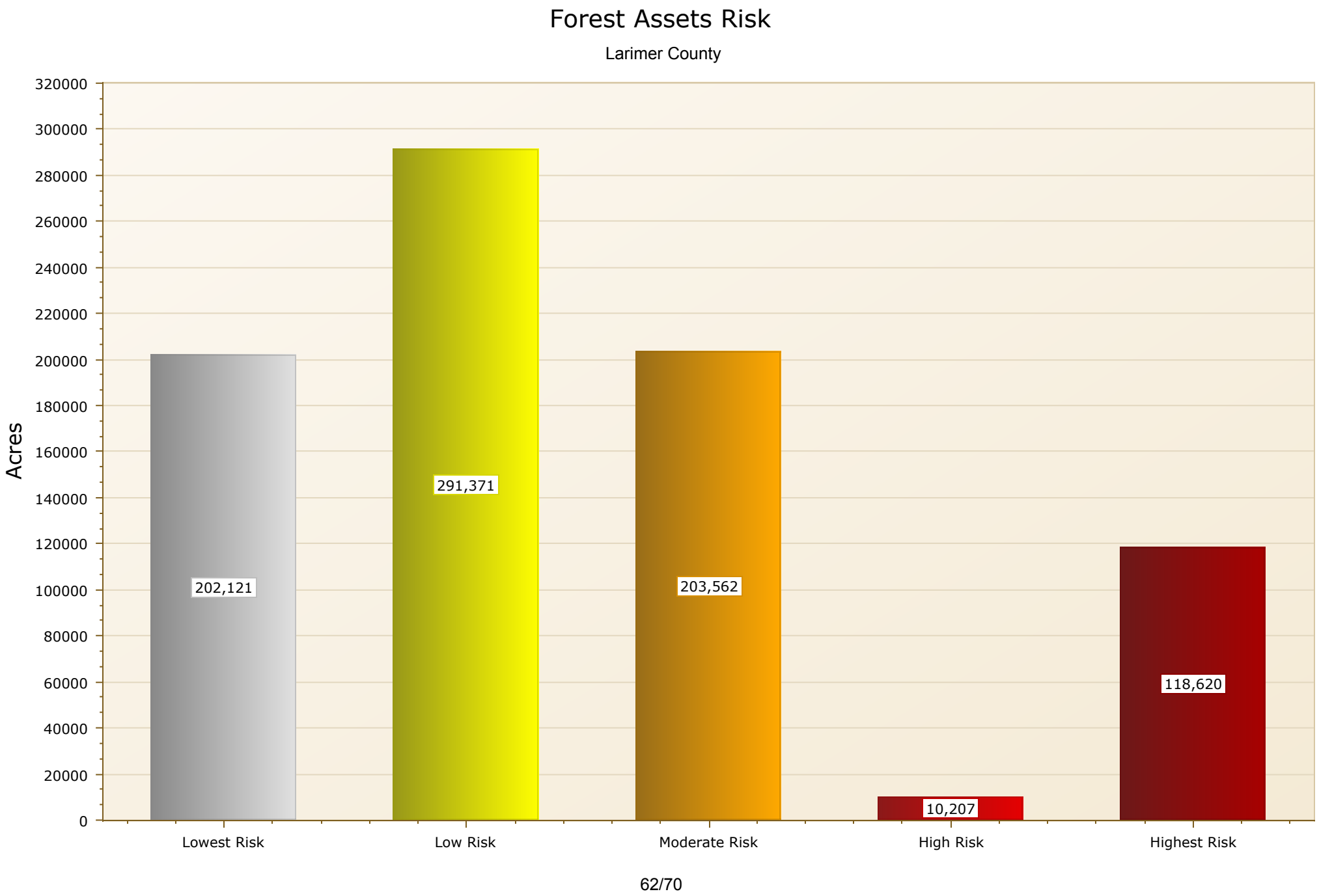
Forest Assets Risk

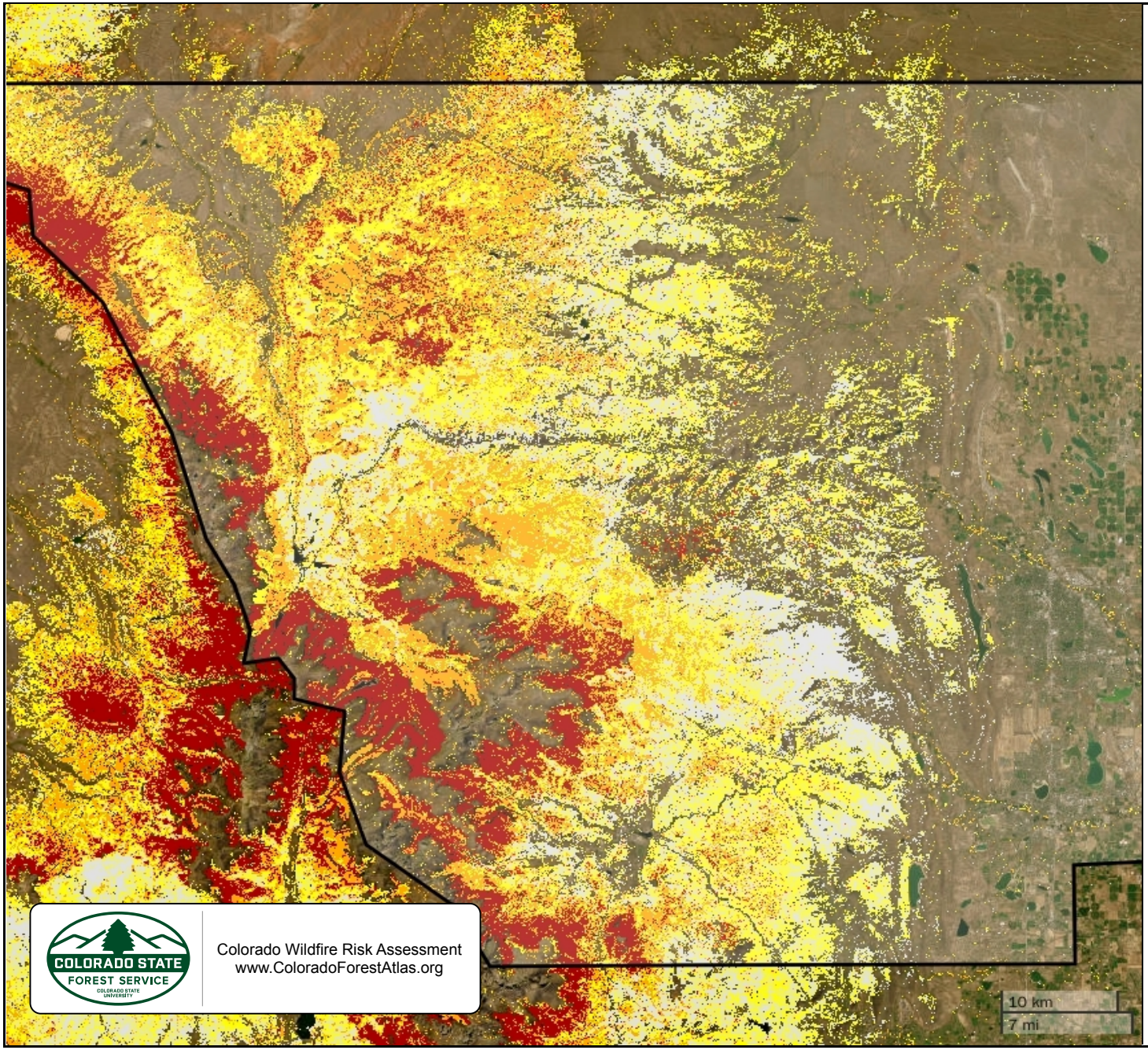
A measure of the risk to forested areas based on the potential negative impacts from wildfire.
This layer identifies those forested areas with the greatest potential for adverse effects from wildfire.This layer identifies those forested areas with the greatest potential for adverse effects from wildfire.

The risk index has been calculated by combining the Forest Assets data with a measure of fire intensity using a Response Function approach. Those areas with the highest negative impact (-9) represent areas with high potential fire intensity and low resilience or adaptability to fire. Those areas with the lowest negative impact (-1) represent those areas with low potential fire intensity and high resilience or adaptability to fire. The response function outputs were combined into 5 qualitative classes.

This risk output is intended to provide an overall forest index for potential impact from wildfire. This can be applied to consider aesthetic values, ecosystem services, or economic values of forested lands.

Forest Assets Risk	Acres	Percent
Lowest Risk	202,121	24.5%
Low Risk	291,371	35.3%
Moderate Risk	203,562	24.6%
High Risk	10,207	1.2%
Highest Risk	118,620	14.4%
Total	**825,882**	**100%**


Forest Assets Risk
Larimer County
Acres
320000
300000
280000
260000
240000
220000
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
202,121
291,371
203,562
10,207
118,620
Lowest Risk
Low Risk
Moderate Risk
High Risk
Highest Risk



Larimer County

Forest Assets Risk

- Lowest Risk
- Low Risk
- Moderate Risk
- High Risk
- Highest Risk

Building Damage Potential

This metric estimates the potential for building loss and was derived using proprietary data from Technosylva Inc. on building damages that was created by analyzing 13 years of building damage data from state agency inspections after large fires.

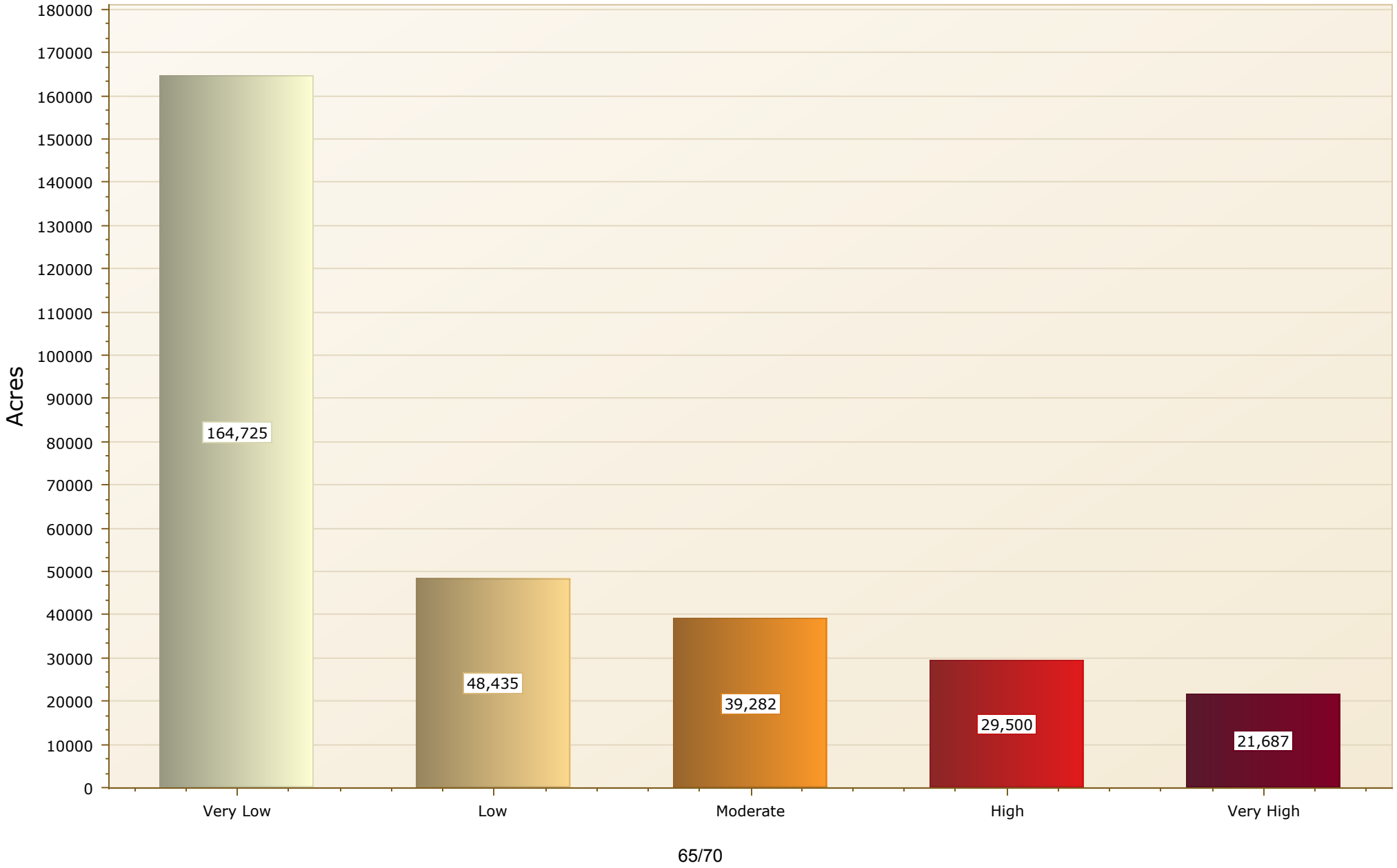
BDP is a spatially variable metric that is calculated on a building-by-building basis and aggregated to Uber H3 hexagons, providing a measure of the number of potential buildings lost based on the number of buildings threatened by fires in the specific area. BDP was calibrated using Machine Learning algorithms that identified the key factors that influenced building loss from historical damage inspection databases. The model has been calibrated using 13 years of damage inspection data and validated across multiple Western States with current wildfire data.

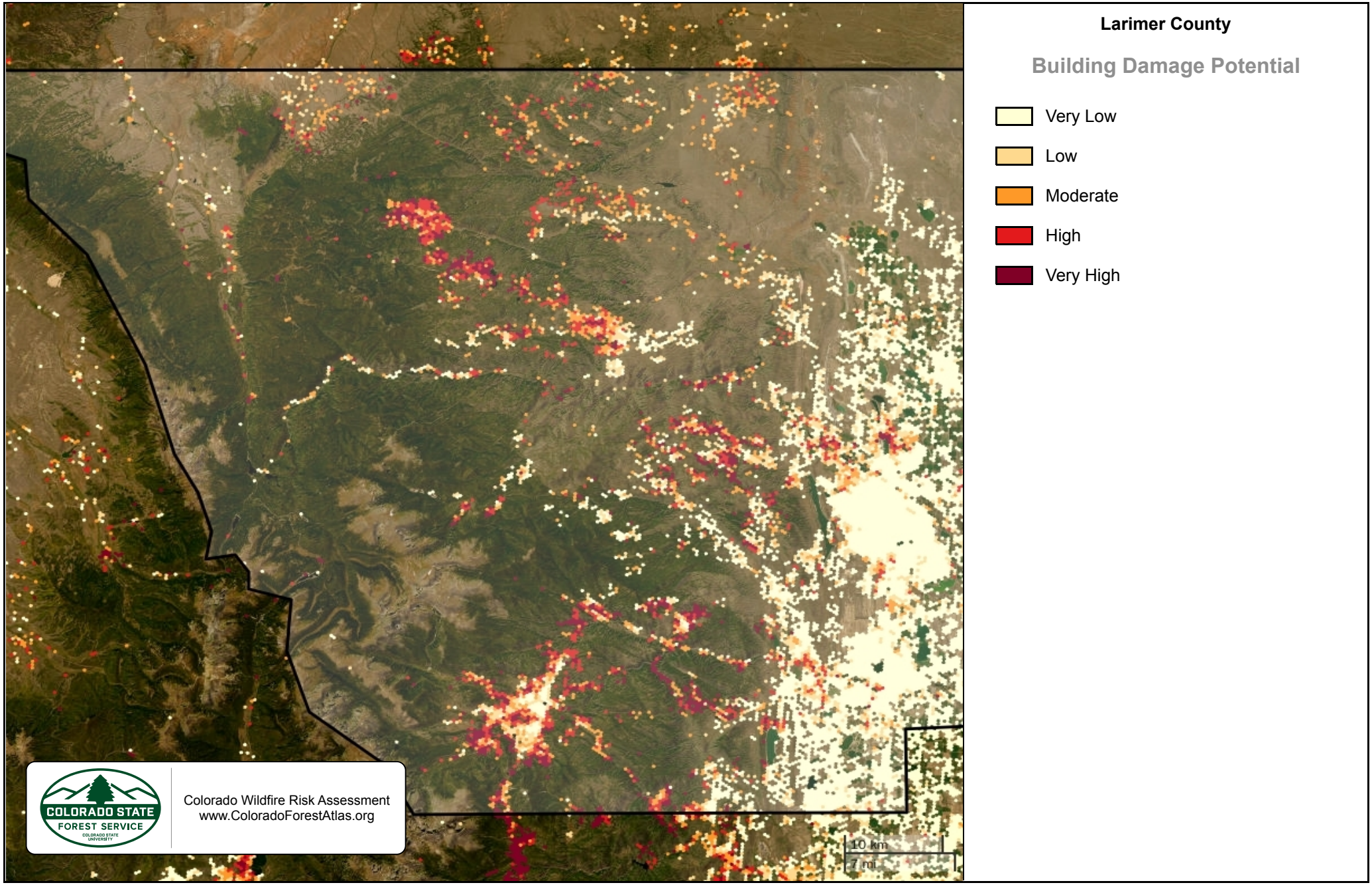
BDP is available as a static risk layer, although a key factor involved in the metric is conditional fire behavior. Conditional Flame Length derived in the fire behavior analysis conducted for the 2022 CO-WRA was used. However, the metric can also be used as a dynamic layer when modulated by the fire intensity of an active wildfire through conventional fire behavior analysis. Although applied as a static layer for the 2022 CO-WRA, the metric is used operationally in California by state agencies and private industry for risk forecasting

Building Damage Potential	Acres	Percent
Very Low	164,725	54.2%
Low	48,435	16%
Moderate	39,282	12.9%
High	29,500	9.7%
Very High	21,687	7.1%
Total	**303,629**	**100%**

Building Damage Potential

Larimer County




Larimer County
Building Damage Potential
Very Low
Low
Moderate
High
Very High
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10 km
7 mi

Defensible Space Index

The defensible space in a Wildfire Urban Interface (WUI) analysis context refers to the space that surrounds a specific building and can be used to define the hazard, or the exposure, to a wildfire occurrence. In this area, natural and manmade fuels are treated, cleared or reduced to slow the spread of wildfire near structures.

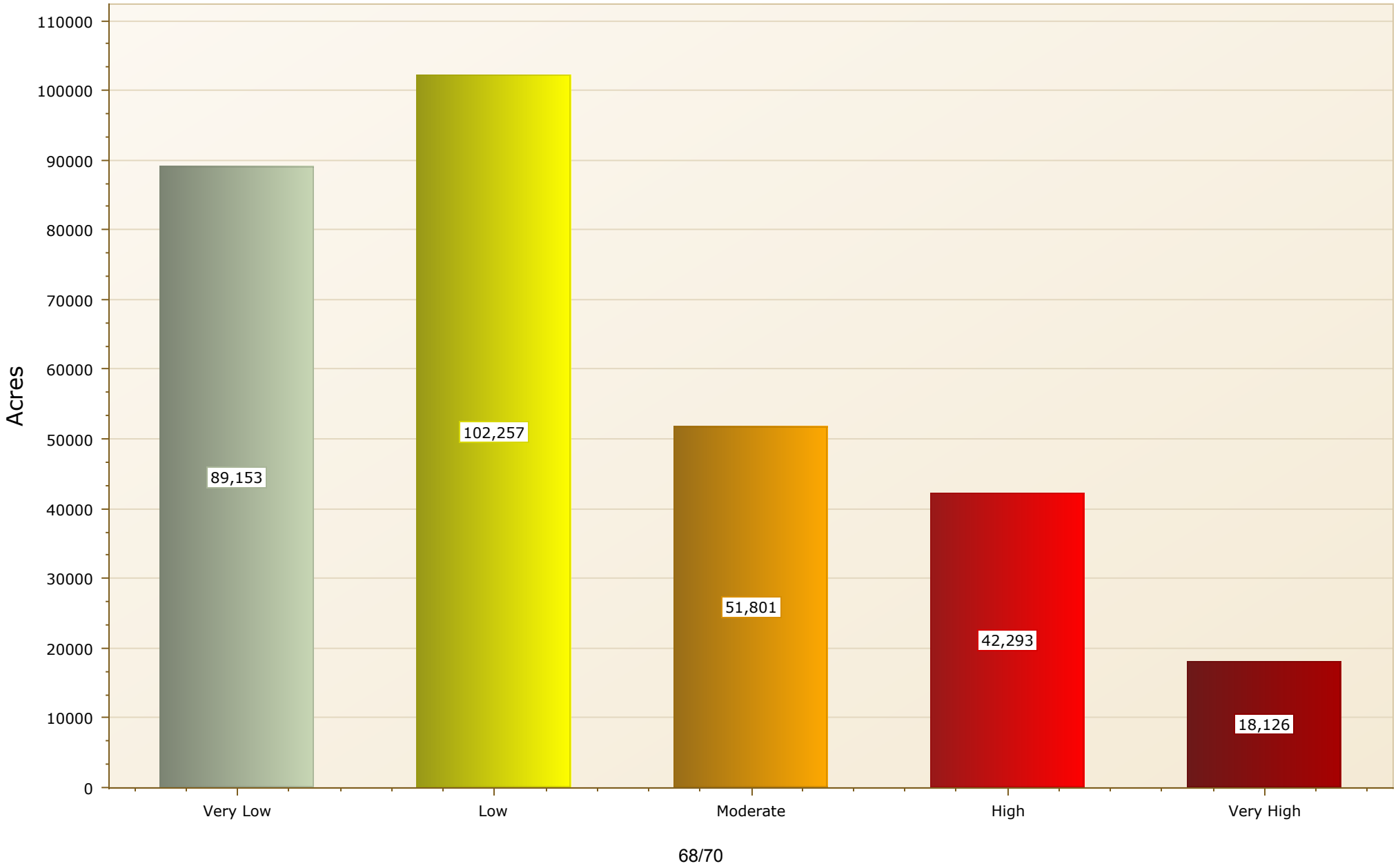
Individual building footprints were used to identify structure locations. Buildings were then grouped using Uber's hexagonal hierarchical spatial index. Within each hexagon, the building values were averaged and applied to the hexagon to remove building specific metrics. This provides a detailed measure of defensible space characteristics for small areas consistent with the accuracy of the structure locations and wildfire fuels and risk analysis data.

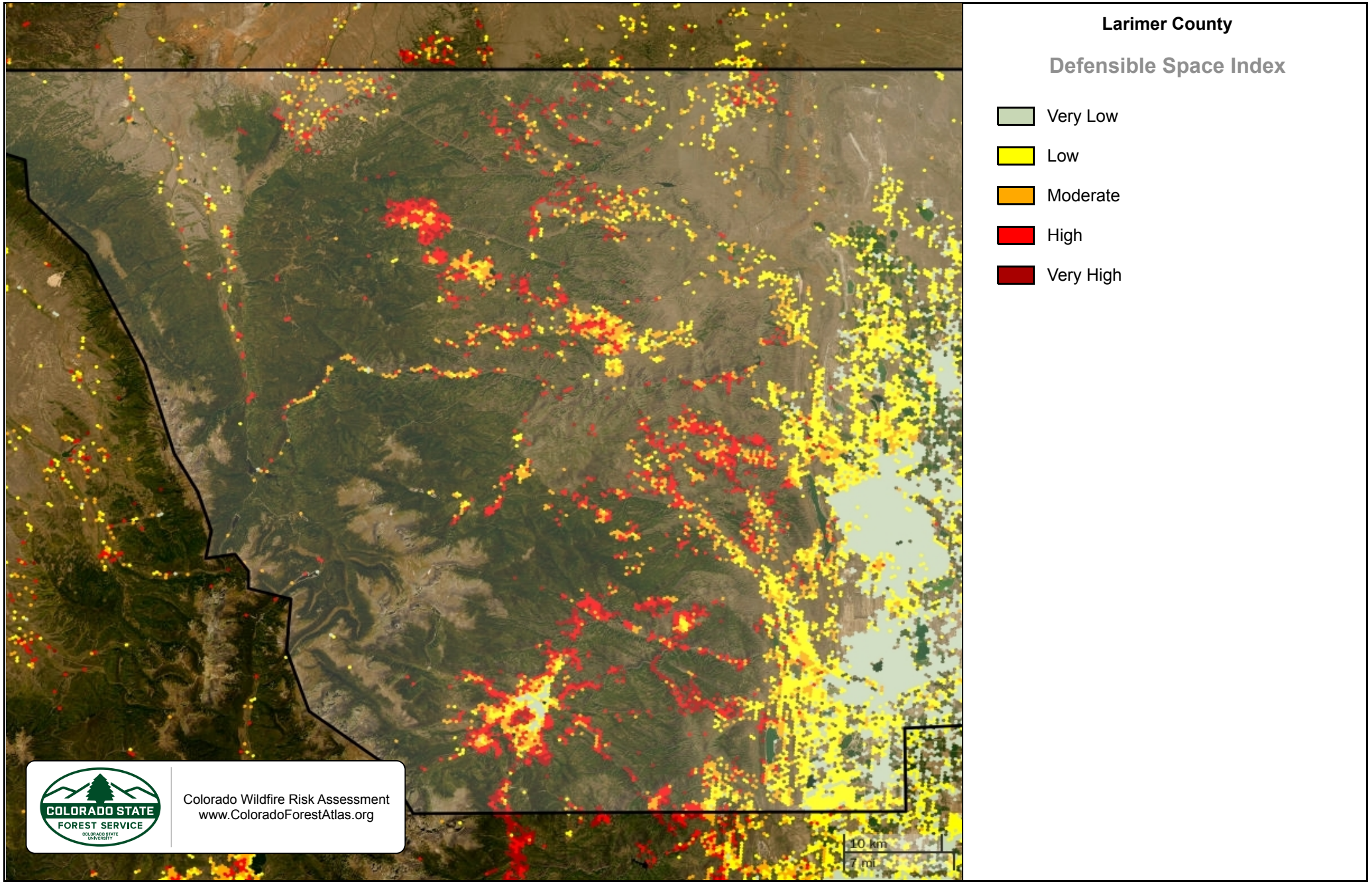
Each hexagon in the defensible space risk has a relative value from 0 to 1 that represents the average building hazard in that hexagon. This defensible space value is based on three spatial components/variables: 1) canopy cover, 2) slope, and 3) fuel models present within the buffer around the buildings analyzed.

Defensible Space Index	Acres	Percent
Very Low	89,153	29.4%
Low	102,257	33.7%
Moderate	51,801	17.1%
High	42,293	13.9%
Very High	18,126	6%
Total	**303,629**	**100%**

Defensible Space Index

Larimer County




Larimer County
Defensible Space Index
Very Low
Low
Moderate
High
Very High
COLORADO STATE
FOREST SERVICE
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10 km
7 mi

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