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Living With Wildfire in Emigration Canyon, Utah: 2022 Data Report

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EXECUTIVE SUMMARY

In Brief

The wildland-urban interface (WUI) is vast and varied. Emigration Canyon, Utah, is one type of WUI community: it is an owner-occupied, full-time resident, well-resourced community. Respondents did not identify many barriers to reducing wildfire risk and yet it is clear that there is more wildfire risk reduction work to be done. Emigration Canyon is a steep canyon with limited egress/access, highlighting the importance of keeping the community moving toward mitigation and wildfire preparedness. The pathway to wildfire resilience is laid ahead of a wildfire event.

Goals and Methods

In 2020–2021, the Wildfire Research Center (WiRē) partnered with the Utah Division of Forestry, Fire and State Lands (FFSL), Unified Fire Authority, Emigration Canyon Metro Town Council, and Emigration Canyon Community Council to assess parcel-level wildfire risk and homeowner perceptions of wildfire risk in Emigration Canyon, Utah.

The goals of this project were twofold: first, to develop data-driven recommendations for wildfire risk education and outreach in Emigration Canyon; and second, to foster dialogue across the diverse set of stakeholders involved in wildfire risk management, including community members and adjacent land managers, as well as local, state, and federal organizations. Data collection that fosters dialogue across such diverse stakeholders can help build pathways toward wildfire adaptation, particularly when driven by the availability of recent and relevant data.

This project centers on two types of data: rapid wildfire risk assessment data and household survey data. The WiRē Rapid Wildfire Risk Assessment (WiRē RA) protocol measures parcel-level risk as the sum of a set of 13 attributes, including access to the property, background fuels and topography, vegetation near the home, and building materials. The assessments were conducted on all properties with residential structures within the study area. Next, a survey was sent to all households in the study area, collecting homeowners' self-assessment of their property's wildfire risk as well as a range of social data related to how residents live with the risk of wildfire. This report summarizes the results of this study.

Results

Most respondents indicated that they know their property is at risk of wildfire (fig. 21) and report understanding how nearby vegetation and development can affect their wildfire risk (figs. 27, 28). Relatedly, most respondents support tree thinning and managing naturally ignited fires on nearby public lands, although fewer support fuels management through intentional fire, whether burning piles of vegetation or conducting prescribed fire (fig. 29). Most respondents also indicated support for the adoption of building codes, limiting development, and requiring vegetation management on private property (fig. 30).

Most respondents agreed that they are responsible for and believe in the effectiveness of wildfire risk reduction on their property (fig. 31). They also report recognition of the limited resources available to respond to fires (fig. 32) and do not expect fire responders to save their home in the event of a wildfire on their property (fig. 25). Concordantly, respondents report high levels of risk reduction activities, especially focusing on defensible space (fig. 36). They also report few barriers to taking action (figs. 37–40).

Despite respondents' awareness of risk and high reported levels of risk reduction activity, study results indicate a gap between professional assessment rapid risk assessments and how respondents evaluated their overall risk in the household survey (fig. 3). This indicates that respondents tend to underestimate their risk, compared to wildfire professionals. The rapid assessment assessed the overall wildfire risk for most parcels in the study area as high (58%) or very high (23%). In comparison, household survey results place most parcels in the moderate (46%) or high (35%) risk categories. The risk gap is largely driven by differences in estimation of defensible space (fig. 8), distance from the home to combustible materials other than vegetation (fig. 9), and the presence of combustible attachments (fig. 6). Professionals conducting the rapid risk assessment were unable to observe the latter two attributes for many parcels in the study area, which may affect the gap.

Critically, all three major drivers of the risk gap are attributes within homeowner control. Respondents identified two key pathways for closing this risk gap: a report describing the property's wildfire risk factors and a one-on-one visit with wildfire risk experts to provide feedback on mitigation. These results point toward the need for increased outreach to residents in order to align perspectives on the contributors to parcel-level wildfire risk.

When considering the scenario of a wildfire on their property, respondents tended to focus on the vegetation on their property, rather than their home, as the main contributor to risk and more likely to suffer damages (figs. 23, 27). This may be related to the fact that almost all respondents (90%) reported having a wildfire come within 10 miles of their property, but only 3% reported experiencing smoke or wildfire damage to their home (figs. 19, 20). That said, respondents also reported the importance of the physical characteristics of their house to wildfire risk on their property, and 55% of respondents reported having hardened their home (fig. 36). This indicates an opportunity for outreach related to home hardening, which aligns with increased focus within the fire management community on identifying vulnerabilities associated with home ignition.

Evacuation preparedness is another crucial component of wildfire preparedness that could be improved in this community, especially given the steep terrain and limited road access, which means that residents will need to evacuate quickly and early in the event of a wildfire. Although most respondents reported having a wildfire evacuation plan (fig. 34), they also indicated that they want more information on several dimensions of evacuation planning, including how to create a checklist for what to take during an evacuation, what to take and what to leave behind, and how they will be notified (fig. 35). Furthermore, only 69% of respondents reported having signed up for the emergency notification system (fig. 35). This indicates another opportunity for directed outreach.

Respondents also reported preferred sources and channels for wildfire risk outreach. Emigration Canyon Metro Township, Unified Fire Authority, and community groups (e.g., homeowners associations) were both the most received and most useful sources of wildfire information (fig. 45). Respondents reported preferring to receive wildfire risk information via email/e-newsletters, mailed newsletters, and in-person interactions (fig. 48). These communication preferences indicate that local, personalized, and interactive outreach is most likely to improve residential wildfire risk knowledge.

WHAT IS WiRē?

The Wildfire Research Center (WiRē¹ Center) works with wildfire practitioners seeking to create communities that are adapted to wildfire through an evidenced-based approach. Historically, immediate threats and wildfire suppression have garnered much attention and resources. While these efforts remain critical, getting in front of the problem by promoting pathways to fire adaptation is of paramount importance. Fire adaptation is about living with wildfire. It's about creating safe and resilient communities that mitigate wildfire risk on their property before a fire, as well as supporting an effective response when fires threaten a community. It is also about allowing fire on the landscape when it is safe to do so.

Over the last decade, a team of researchers and practitioners, referred to as the WiRē Team, has developed and successfully implemented a systematic data collection and integration approach (the WiRē Approach) that informs local wildfire risk education efforts and allows for monitoring of community adaptation over time.

The mission of the WiRē Center is to support evidence-based community wildfire education efforts so that communities can live with wildfire. Specifically, the WiRē Center provides personalized expertise and support to collect, interpret, and use paired parcel-level wildfire risk and social data. The WiRē Approach enables partners to effectively allocate resources and engage with residents. Leveraging lessons learned across projects, the WiRē Center pursues scientific approaches to inform conversations and decisions about wildfire adaptation.

Individual WiRē Team members maintain a connection with the WiRē Center by participating on the Center's Advisory Committee or as a member of the Board of Directors. In this capacity, the WiRē Team provides technical and strategic guidance to the WiRē Center, ensuring the WiRē Approach is implemented with exceptional quality and scientific integrity.

The WiRē Approach

Currently, the core of the WiRē Approach includes two central data collection efforts:

1. A property-level WiRē Rapid Wildfire Risk Assessment (WiRē RA) based on attributes related to building materials, vegetation near the home, background fuels and topography, and access to the property. The WiRē RA also includes an overall risk rating for the property. It is an indicator of the relative risk of the private property within the community rather than an absolute measure of risk (for more information on relative risk, see "Methods: What Did We Do?").
2. A household survey sent to the resident of each assessed property, which represents residents' notions of wildfire risk, how they communicate about wildfire risk, risk mitigation behaviors, including evacuation planning, and barriers and incentives to mitigate wildfire risk on private properties.

¹ Pronounced Wy-REE.

The WiRē Approach aims to empower the voice of wildfire practitioner partners. These partners both participate in the data collection process and share the results with their communities. Experience has demonstrated that sharing results with the community provides a common platform for constructive discussion about adapting to wildfire. During these discussions, wildfire practitioner partners can draw from data that reflect the entire community, not just the vocal few. To support these discussions and other partner goals, the WiRē Center summarizes local data and provides wildfire practitioner partners with the tools to act on research results. The WiRē Center also works with some partners with a regional reach to expand the WiRē Approach into new communities.

At a broader scale, the WiRē Center manages, compiles, and analyzes data collected across communities to provide insights across space and time with respect to wildfire risk on private land and the characteristics, knowledge, and experience of the people who live on those properties. These data are an important contribution to the state of knowledge regarding private land and wildfire risk. In collaboration with the WiRē Team, the WiRē Center advances understandings of effective pathways to community wildfire adaptation.

PROJECT AREA: WHAT DOES THE COMMUNITY LOOK LIKE?

Located in North Central Utah, Emigration Canyon is a prominent and historic canyon that runs northeast from Salt Lake City into the higher elevations of the Wasatch Mountains. The Wasatch Range is characterized by steep, rocky slopes and 26–44 millimeters of annual rainfall,² both of which contribute to a high threat of wildfire. The area’s landscape is diverse with oak woodland at the lower elevations up to a conifer forest type including ponderosa pine, Douglas-fir, and subalpine fir. The Utah Wildfire Risk Assessment Portal (UWRAP) rates the fire danger in Emigration Canyon as “Extreme.” Resultantly, the Utah Division of Forestry, Fire & State Lands, as well as adjacent land management agencies, have identified this wildland-urban interface (WUI) zone as a high priority.³ The Utah Division of Forestry, Fire & State Lands website describes WUI as “the zone where structures and other human development meet and intermingle with undeveloped wildland or vegetative fuels.”⁴ For a map of the study area, see figure 1.

Once part of the historic route of 19th century settlers, Emigration Canyon is now a metro township with 1,500 citizens, 589 households, four subdivisions, a few commercial entities, two homeowners’ associations, and a special needs summer camp. A 10-person Emigration Canyon Community Council meets monthly to discuss fire, police, and other community needs. Access to the canyon, including semi-remote residences and a gated community, is via a singular ingress/egress route.

² meteoblue. 2023. Simulated historical climate & weather data for Wasatch Range. https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/wasatch-range_united-states_5549209. [Accessed 2023 January 2].

³ Utah Catastrophic Wildfire Reduction Steering Committee. 2013. Governor’s catastrophic wildfire reduction strategy. Utah Department of Food and Agriculture. <https://ffsl.utah.gov/catastrophic-wildfire-risk-reduction/>. [Accessed 2022 November 11].

⁴ Utah Division of Forestry, Fire and State Lands. Wildfire community preparedness. <https://ffsl.utah.gov/fire/wildfire-community-preparedness/>. [Accessed 2022 November 11].

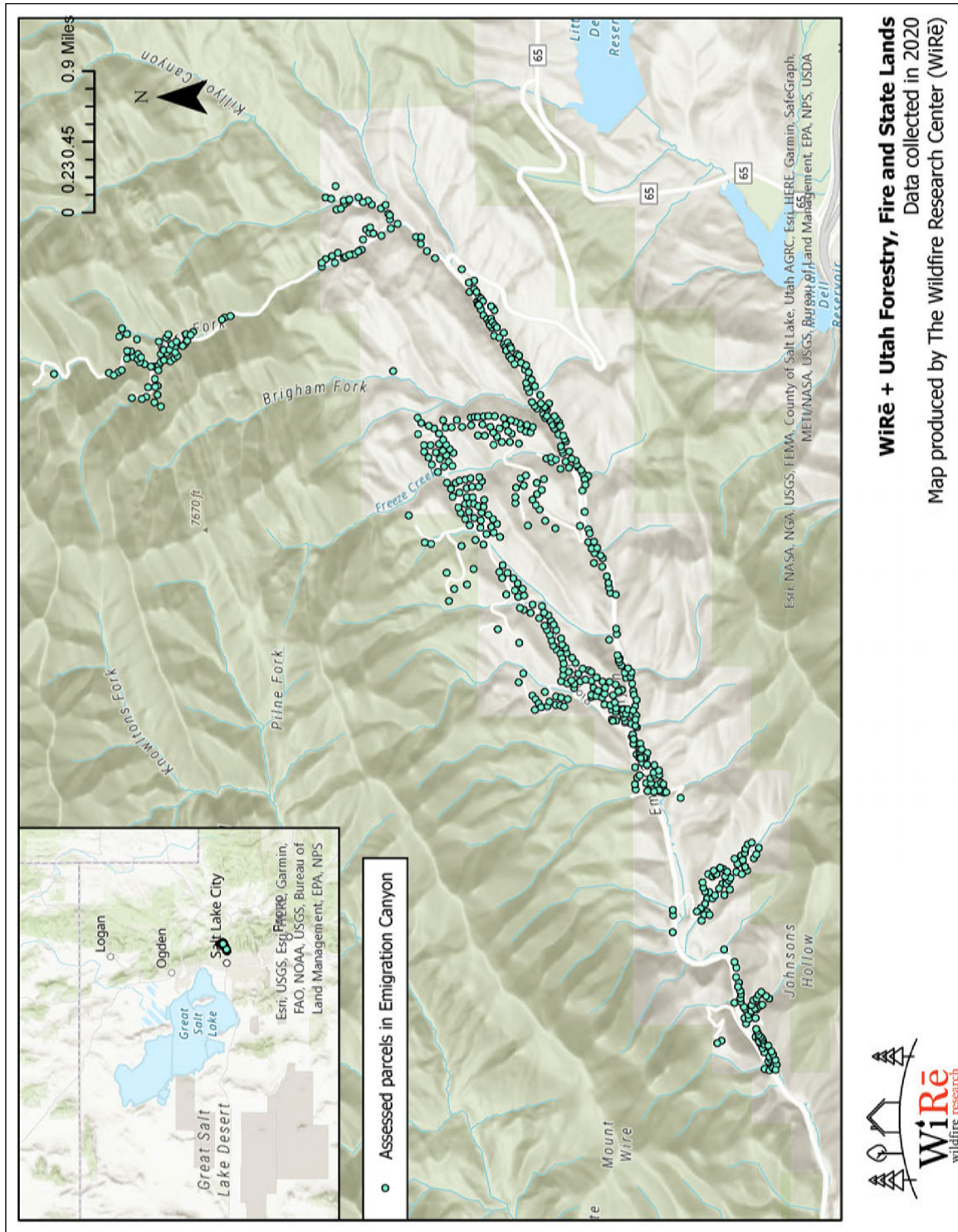


Figure 1—Map of community areas included in the study in Emigration Canyon Metro Township, Salt Lake County, Utah. Inset shows location of Emigration Canyon Metro Township, Utah. Map image is the intellectual property of Esri and is used herein under license. Copyright © 2020 Esri and its licensors. All rights reserved.

WiRē Partner: Utah Division of Forestry, Fire & State Land's Wasatch Front Area

In 2013, the State of Utah adopted the Governor's Catastrophic Wildfire Reduction Strategy (CatFire), a statewide commitment to reducing the risk of catastrophic fire through interagency coordination and implementation of the National Cohesive Wildland Fire Management Strategy. The Utah Division of Forestry, Fire & State Lands was named the responsible entity for implementation. The Division consists of six offices and is the main organization that serves private landowners in forestry management and wildfire mitigation throughout the state.

The primary partner for this project was FFSL's Wasatch Front Area office, which serves over 2.2 million residents living west of the Wasatch Range, encompassing Davis, Morgan, Salt Lake, Tooele, and Utah counties. The service area includes smaller communities within the Wasatch Range, ski resorts tucked into adjacent canyons, and major metropolitan areas such as Salt Lake City.

FFSL's Wasatch Front Area has 11 full-time employees. One staff member, the WUI Coordinator, is solely dedicated to wildfire risk reduction. The WUI Coordinator works with all communities at risk of wildfire in the Wasatch Front Area and is responsible for facilitating and composing Community Wildfire Protection Plans (CWPP) for 90 communities in the five-county area. These plans are guidance documents for private landowners and public land agencies to use for priority fuels mitigation projects and to accelerate grant funding opportunities. Unified Fire Authority (UFA), a partner of FFSL and the primary firefighting organization for Emigration Canyon with a fire station at the mouth of the canyon, helped administer the household survey. Representatives of the Emigration Canyon Metro Town Council and Emigration Canyon Community Council also advised on the project.

METHODS: WHAT DID WE DO?

In the study area, FFSL and WiRē implemented the WiRē Approach, a systematic approach to data collection that includes rapid parcel-level wildfire risk assessment and household survey data collection. Together, these two forms of data collection support better understandings of wildfire risk and the residents whose decisions and actions shape the community landscape. The project launched with the mailing of an initial letter in late fall 2020 to inform residents of the upcoming activities (see Appendix A for correspondence materials).

Rapid Wildfire Risk Assessments

The rapid risk assessment data collection tool was developed in coordination with GIS staff at Utah's FFSL in ArcGIS using an innovative approach. The approach was to collect the data in Survey123 and push the data on the back end into Collector. Both applications enable users to collect data while in the field and send the data directly to a central GIS database; however, the applications have different advantages. In essence, the data collection tool utilized the survey-centric features of Survey123 and blended them with the map-centric features of Collector.

Rapid risk assessment data collection was conducted by the FFSL Wasatch Front Area WUI Coordinator as a census of all residential properties with a structure in the study area. Several commercial structures were also assessed but not included in the data presented in this report. The rapid risk assessments were conducted for 614 residential properties in the fall and winter of 2020 using the standard WiRē Rapid Wildfire Risk Assessment (WiRē RA), which is comprised of a set of 13 attributes that includes building materials, vegetation near the home, background fuels and topography, and access to the property.

To calculate a parcel's overall "risk score" (continuous number on a 1,000-point scale), each WiRē RA attribute is weighted, reflecting its relative contribution to parcel-level wildfire risk. For example, because roofing materials can present a more significant risk than address posting, these attributes are weighted differently, constituting 30% and 1% of the overall risk score, respectively. See Appendix B for specific RA attribute weightings.

To support comparison of risk across properties, the overall risk scores for each parcel are placed into five categorical "risk ratings" (low, moderate, high, very high, and extreme). These risk ratings are defined by the distribution of risk scores in WiRē's compiled dataset, which includes all applicable WiRē projects to date. Specifically, the cut-offs between each risk rating are the 10th, 25th, 75th, and 90th percentile of the full distribution across WiRē projects. This resulted in the following overall risk ratings: low (20–240), moderate (241–305), high (306–435), very high (436–505), extreme (506–1,000).

Importantly, a parcel-level risk rating does not account for all components of risk, including variable or extreme weather conditions and some factors that can only be captured during a comprehensive on-site consultation (e.g., vent screen size, windows, fire-resistant flashing, and so on). Thus, WiRē risk scores are not an absolute measure of risk but are estimates of risk using a standardized suite of variables observed by a particular person at one point in time.

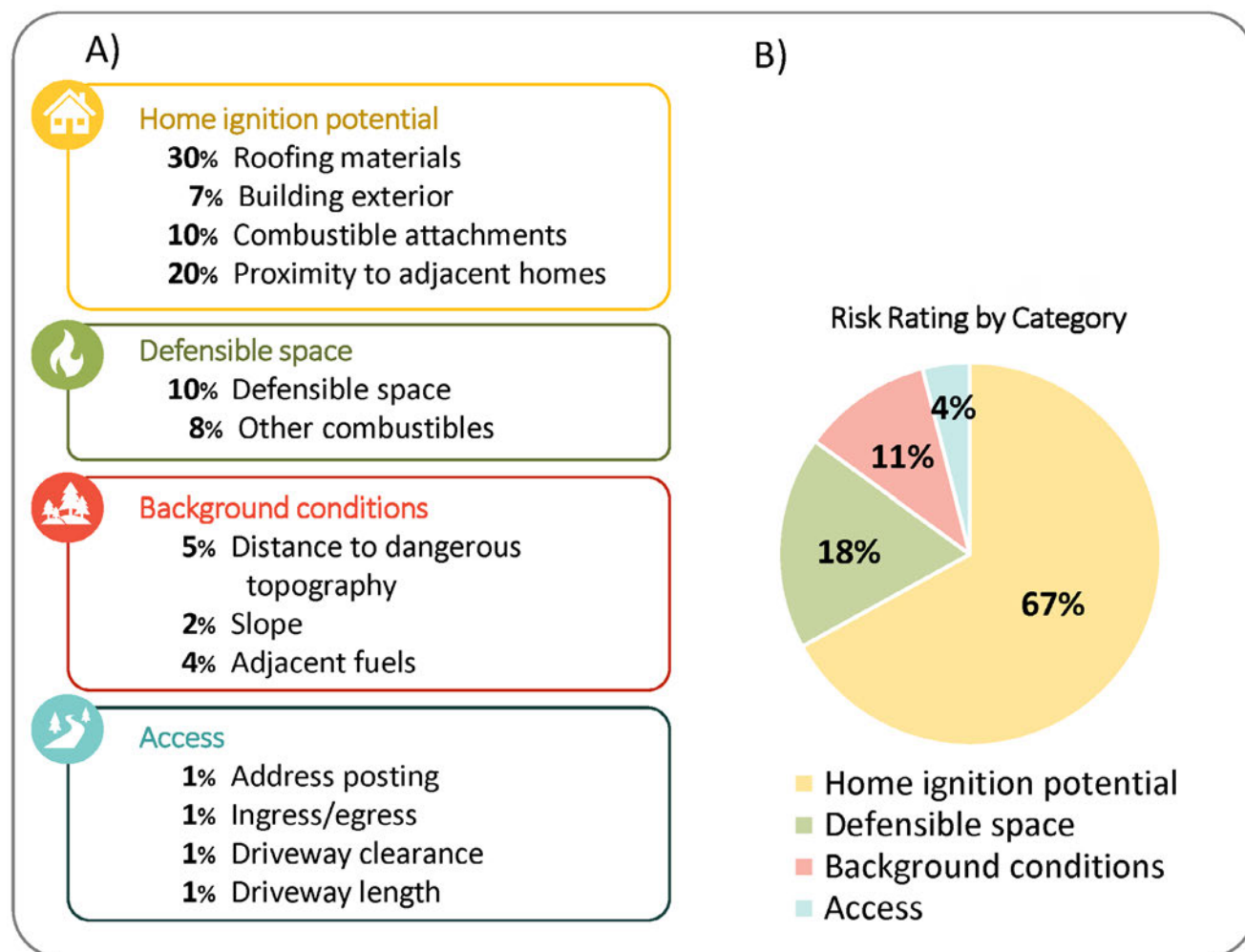


Figure 2—(A) Relative weight of each wildfire risk attribute within the overall risk score. (B) Relative weight of each risk category within the overall risk score.

To ensure consistent, high quality data collection, WiRē wildfire practitioners conducted a virtual training for those who would conduct the rapid risk assessments. A standardized reference sheet for data collectors was available for use in the field (see Appendix B, “Assessor Reference Guide”).

All parcel-level risk assessments were conducted on the property being assessed unless access was blocked by a gated driveway or posted with no trespassing signage. While environmental and situational variables may occasionally affect the data collection process, FFSL is confident that the data collected for this project provide an accurate representation of relative wildfire risk to the parcels in Emigration Canyon. In instances when the mitigation specialist could

not observe a risk attribute, the specialist selected “unknown/not observed.” During data processing, these responses were assigned the highest risk score. For this project, many of the responses to the other combustibles and combustible attachments attributes were coded as “unknown/not observed.”

It is important to note that the WiRē RA is based on evaluation by fire professionals familiar with how risk assessment occurs during emergency response. Therefore, the WiRē RA considers wildfire risk to homes not just in terms of physical combustibility but also whether fire personnel will be able to safely defend the home. For this reason, the WiRē RA includes attributes such as driveway length and clearance, which determine whether a Type 1 fire engine can access the home. For the same reason, attributes categorized as “unobservable” during the rapid assessment are assigned the highest risk category when presented in this report, following the logic that if professionals conducting the WiRē RA cannot see an attribute, emergency responders will not be able to see it either, and therefore they will assume the highest risk category when deciding how to defend the home.

Household Survey

The household survey is designed to collect a range of social data related to how residents live with the risk of wildfire. Some questions are repeated in every project using the WiRē Approach. Other questions are modified through iterative processes between WiRē and our practitioner partners. In this case, WiRē and FFSL met virtually several times to step through the household survey and then iterate on drafts until the final version settled.

A household survey was mailed to the owners of all the properties for which the WiRē RA was conducted. Household survey data were collected using a modified Dillman approach⁵ that includes three mailings after the initial letter announcing project activities and the data collection efforts (see table 1 for survey administration timing). The first mailing was a survey packet containing a cover letter, a household survey, and a postage-paid and addressed return envelope. The second mailing, a reminder/thank you postcard, was mailed to the entire mailing list approximately one month after the initial survey packet. The final mailing was a second complete survey packet with an updated cover letter mailed to nonrespondents approximately one month after the reminder postcard.

⁵ For details, see Dillman, Don A. 2000. *Internet and mail surveys: the tailored design method*, 2000. New York: John Wiley. 480 p.

The household survey administration process resulted in 249 completed surveys for a 45% response rate.

Table 1—Timing of the household survey administered to residents of Emigration Canyon, Utah, by United Fire Authority and the Wildfire Research Center (WiRē) to collect information related to wildfire risk.

Mailing	Date of Mailing
Initial letter	11/13/2020
First survey package	3/19/2021
Postcard reminder	4/14/2021
Second survey package	5/27/2021

Paired Rapid Assessment and Household Survey Data

All of the data from the 614 rapid assessments and 249 household surveys were compiled into a dataset (618 records) containing three types of data: properties for which we have both rapid assessments and household surveys (245 records), properties for which we have only a rapid assessment (369 records), and properties for which we have only a household survey (4 records). The paired WiRē RA and household survey data are the foundation for the results presented below.⁶

⁶ Any differences between the numbers reported here, in the Household Survey Summary (Appendix C), and in the Comparison of Rapid Assessment and Household Survey (Appendix D), should be minor and the result of rounding.

RESULTS SECTION 1: PAIRED WiRē RAPID ASSESSMENT AND HOUSEHOLD SURVEY

Community Risk

Examining the rapid risk assessment ratings for all 614 property rapid assessments conducted in Emigration Canyon, 3% were characterized as low-risk, 7% as moderate-risk, over half (58%) as high-risk, 27% as very high-risk, and 6% as extreme-risk.⁷

Rapid Risk Assessment Attributes: Observed in WiRē Rapid Assessment vs. Self-Assessed by Household Survey Respondents

Below, the WiRē RA and household survey data are compared by looking at the overall wildfire risk rating and the results for each attribute. The household survey includes a section asking residents to evaluate their property using the same attributes as the WiRē RA, which allows for this comparison. The rapid risk assessment data used in this section represents only properties for which a household survey was returned. The sections are organized by overall risk and then risk categories of home ignition potential, defensible space, background conditions, and access. For parcel-level spatial distribution of the rapid risk assessment data, see Appendix F.

Overall wildfire risk rating

In order to better understand the perspective of study area owners, household survey respondents were asked to provide an overall assessment of their property's risk, after having self-assessed their property based on the 13 attributes described in the following sections. The survey question provided a five-point scale: low, moderate, high, very high, or extreme risk. The survey's overall rating scale matches the rapid assessment overall rating scale; however, unlike the survey overall ratings, the WiRē RA overall ratings were calculated as the sum of each individual attribute score.

⁷ For the distribution of rapid assessment ratings by risk attribute across all 614 assessed parcels, see Appendix E. This report focuses on rapid assessments for the subset of parcels that have paired rapid assessment and household survey data (Appendix D).

The rapid assessment placed most (81%) properties in the high-risk category (58%) or very high-risk category (23%). In contrast, most (81%) respondents characterized their properties as moderate- (46%) or high-risk (35%). The largest gap between household survey and rapid assessment ratings is the moderate-risk category, in which household survey responses placed far more parcels. The household survey and rapid assessment ratings have a similar portion of parcels in the low- and extreme-risk categories. See figure 3.

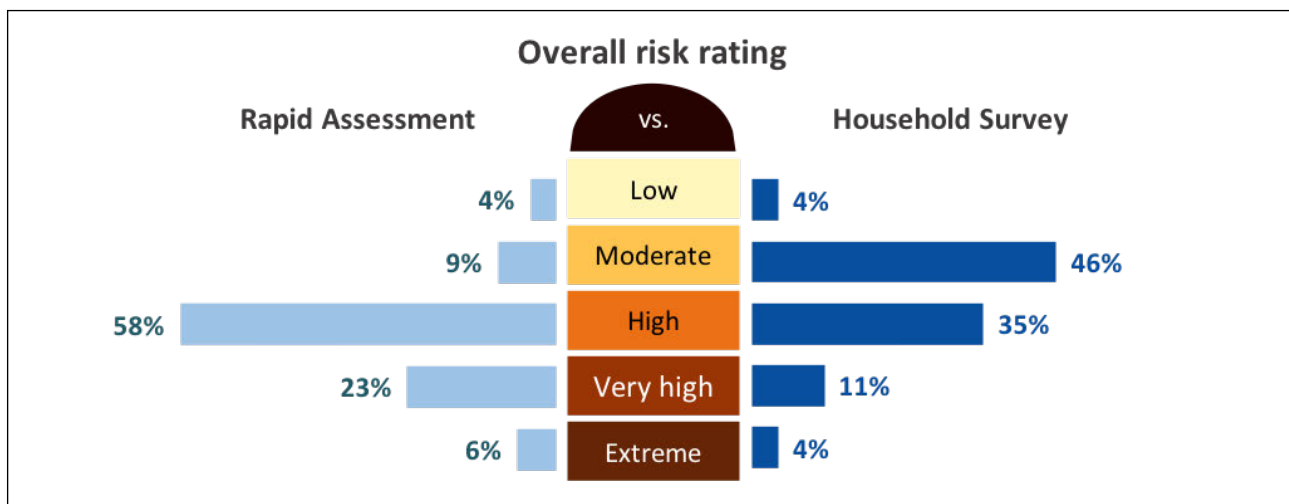


Figure 3—Comparison of overall ratings obtained through rapid assessment versus household survey for study area properties in Emigration Canyon, Utah. N = 240 respondents to this survey question.

Home ignition potential

The design of a structure and the building materials utilized in its construction play a significant role in the ignitability of a home in a wildfire event. With prolonged exposure to convective and radiant heat, even the most fire-resistant materials can fail. The following four attributes relate to home ignition potential.

Roof

Roof material has been shown to have a dramatic influence on the ignitability of a residence during a wildfire. Roof covering such as metal, tile, or asphalt composition shingles resist ignition to wildfire (are noncombustible), while combustible materials such as wood shingles can catch on fire easily.

The rapid risk assessment characterized the roofs of almost all parcels (98%) as noncombustible. The household survey aligns with this assessment. See figure 4.

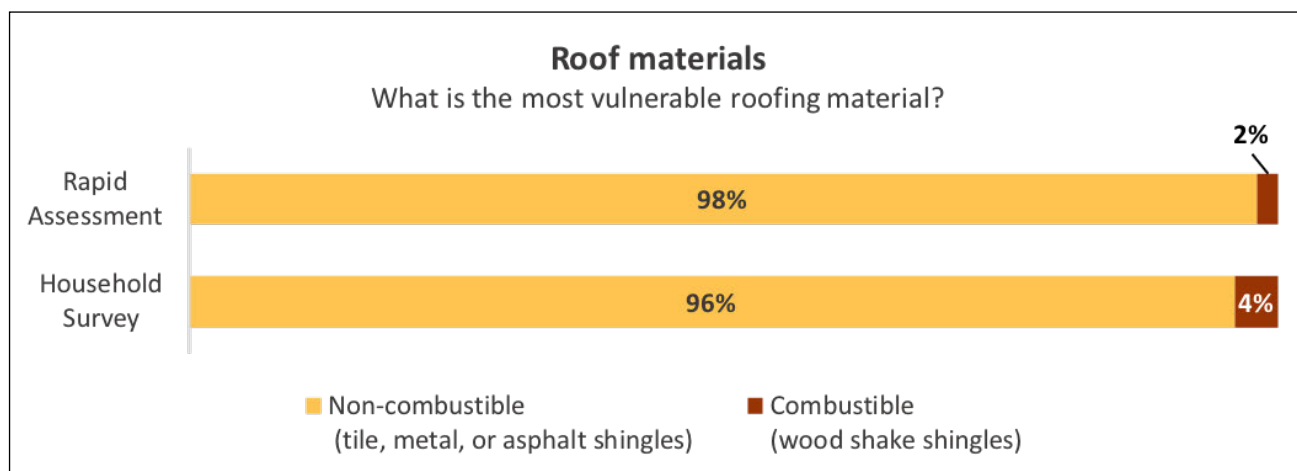


Figure 4—Combustibility of residential roof type, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 219 respondents to this survey question.

Siding

The design, materials, and construction of a structure's exterior walls have an impact on the ignitability of a home during a wildfire event. Wood siding that is unmaintained and has noticeable gaps is more receptive to trapping blowing embers than noncombustible materials like metal or stucco. Siding is categorized here as low-risk or noncombustible (e.g., stucco, brick, stone), medium-risk of combustion (log or heavy timbers), or high-risk of combustion (unmaintained wood, vinyl, or other ember-receptive siding).

Across the paired dataset, most homes either had low-risk siding (56%) or high-risk siding (42%), with few in the moderate-risk category (2%). Household survey is relatively similar, with slightly more parcels placed in the moderate-risk category (10%) and slightly fewer parcels placed in the high-risk category (35%). See figure 5.

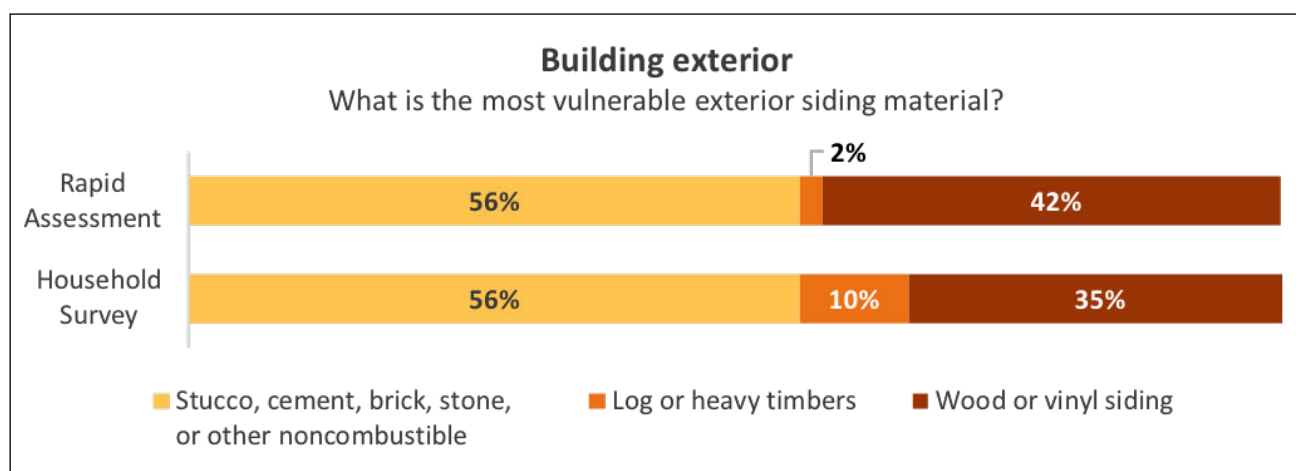


Figure 5—Residential exterior siding type, categorized by material into low- (yellow), medium- (orange), and high- (red) risk categories, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 219 respondents to this survey question.

Combustible attachments (decking and fencing)

Building materials used for the construction of attachments to the structure (e.g., decks, fences) present a significant ignition vulnerability. These expansive surfaces are exposed to wind-driven embers and may trap them, increasing convective and radiant heat. The rapid risk assessment evaluated whether homes had combustible attachments (e.g., made of wood or composite) or no combustible attachments.

The rapid risk assessment found that the majority (94%) of homes had attachments made of combustible materials. Fewer respondents (65%) reported combustible attachments. However, it is important to note that for this attribute, the rapid risk assessment assigned 49% of parcels (115 parcels) to the “missing/unobserved” category. Those parcels are included here in the highest risk category, following the reasoning that if firefighters cannot see a risk attribute, they will assume the highest risk scenario when deciding their plan of defense. See figure 6.

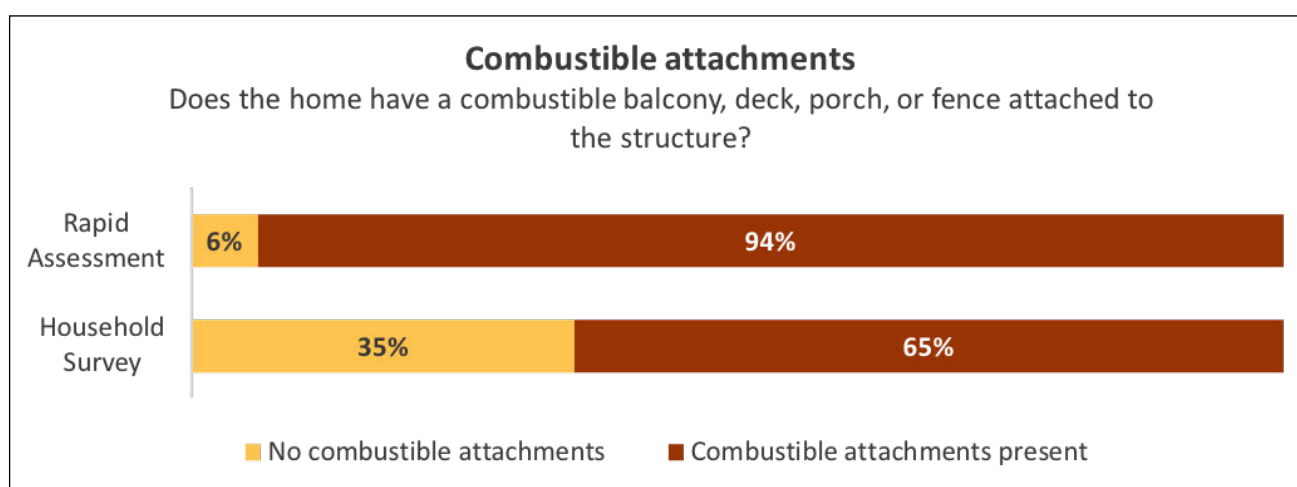


Figure 6—Residential attachments (e.g., deck or fence) categorized by combustion risk, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 237 respondents to this survey question.

Proximity to adjacent structures

Home-to-home ignitions (i.e., conflagration) are a significant factor in the spread of fire through more densely built environments. Homes and structures are generally built with combustible materials which can ignite due to radiant heat. They also contain gutters, porches, and other vulnerable locations where embers can become trapped and ignite the home. Homes located in proximity are more likely to result in home-to-home ignition, wherein homes transition from being not the recipients of fire, but rather the drivers of fire (see fig. 27).

More than half (56%) of homes are more than 100 feet from the closest neighboring home, the safest category, and the rest are 30 to 100 feet from the closest neighboring home, the second safest category. Rapid risk assessment and respondent ratings are similar for this category. See figure 7.

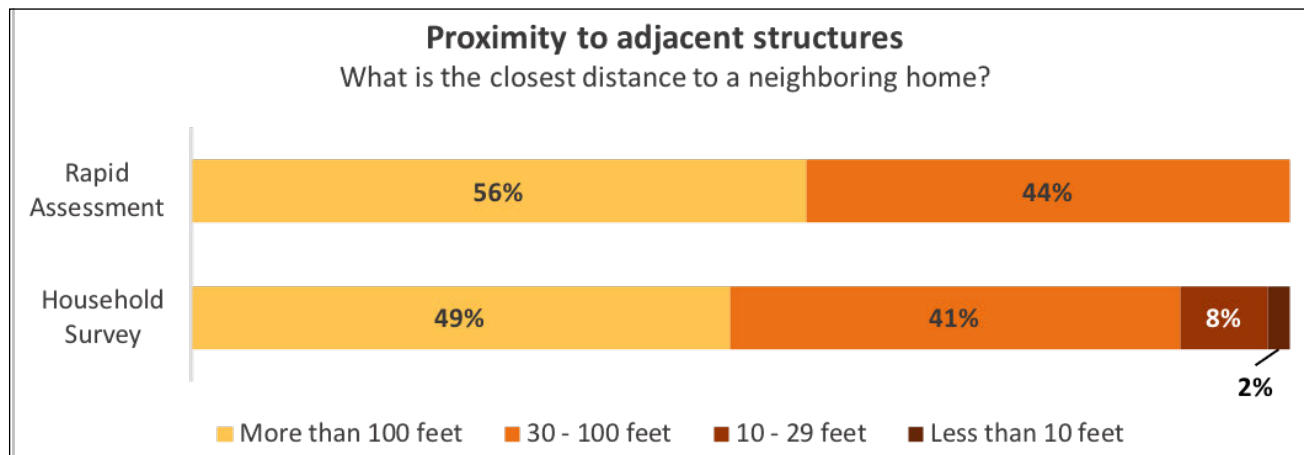


Figure 7—Distance to adjacent structures, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 239 respondents to this survey question.

Defensible space

Vegetation and other combustible materials near or touching the home can play a large role in home ignition, as they can catch fire and pass the flames to the home.

Defensible space

The quality of the defensible space around the home, in addition to the home's ignition potential, form the home ignition zone. Continuous or connected fuels within the home ignition zone increase the home's risk for damage by wildfire. Flammable or abundant vegetation near the home may catch on fire and spread the fire to the home. Parcels were assessed based on the closest distance from the residence to overgrown, dense, or unmaintained vegetation.

Few homes (2%) had more than 100 feet of defensible space. Most homes (63%) had 5–29 feet of defensible space. Household survey respondents consistently overestimated the size of their defensible space compared to the rapid risk assessment. See figure 8.

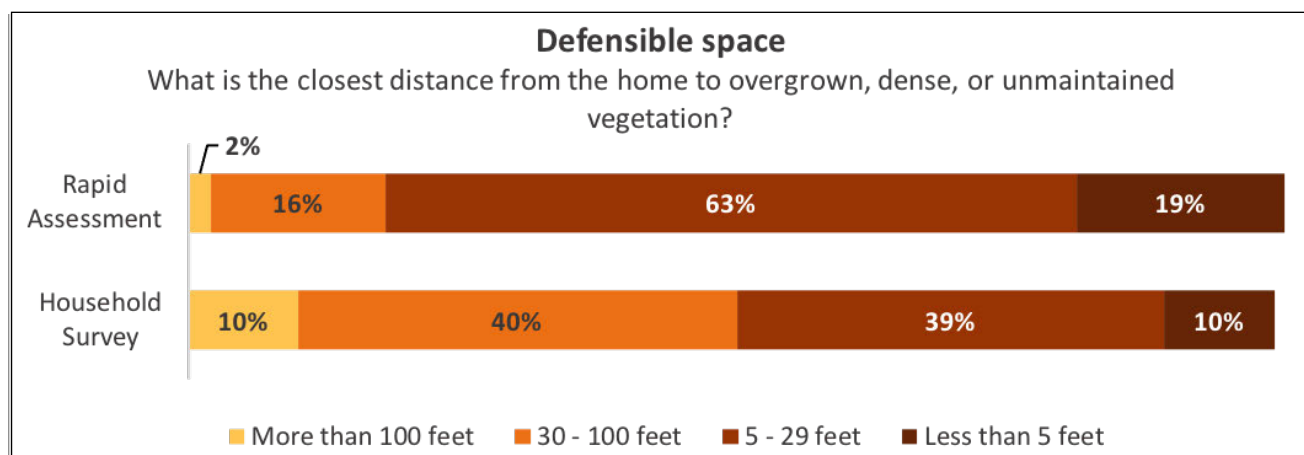


Figure 8—Defensible space, categorized by distance between the home and dense vegetation, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 236 respondents to this survey question.

Combustible materials other than vegetation within 30 feet

Beyond vegetation, other combustible materials within 30 feet of the home can also affect the quality of defensible space. Household survey respondents were also asked to report on other nonvegetative combustibles near their home, such as lumber, firewood, propane tanks, hay bales, and other easily ignitable materials.

The rapid assessment reports combustible materials less than 5 feet from the home for almost all parcels (95%). There is a notable difference between rapid risk assessment and household survey ratings for this attribute. Only 13% of household survey respondents estimated a distance of less than 5 feet from their home to combustible materials. Most respondents (52%) placed their property in the safest category, more than 30 feet from their home to combustible materials.

However, the gap between rapid risk assessment and household survey assessment is not the full story for this attribute. It is important to note that for this attribute, the rapid assessment assigned 92% of parcels to the “missing/unobserved” category. Those parcels are included here in the highest risk category, following the reasoning that if firefighters cannot see a risk attribute, they will assume the highest risk scenario when deciding their plan of defense. See figure 9.

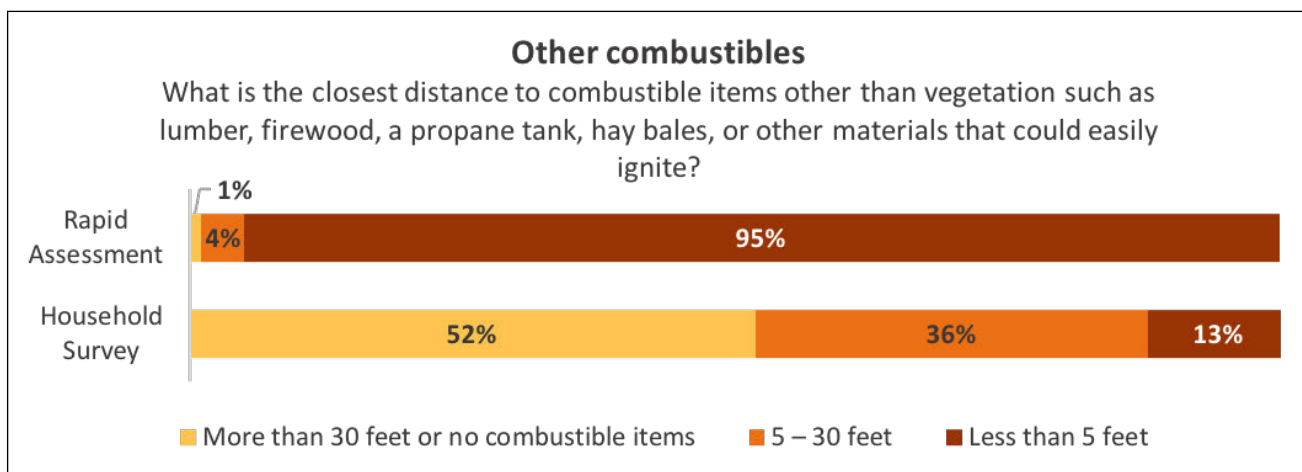


Figure 9—Distance from home to combustible materials other than vegetation, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 237 respondents to this survey question.

Background conditions

Background conditions at the parcel-level affect a property's wildfire risk. These conditions include dangerous topography, overall slope of the property, and the density of nearby vegetation, each of which is described below.

Dangerous topography

Topography is one of the three main factors that influence wildland fire behavior. It is well documented and understood that certain topographic features, such as ridges, chimneys, narrow canyons, and drainages are known to dramatically increase fire behavior (rate of spread, flame length, etc.). As such, homes that are located close to and in direct alignment with these features are at significantly higher risk than homes that are situated back and away from such features. Properties are assessed on the distance between the home and steep or dangerous topography with distance categories of less than 50 feet, 50 feet to 150 feet, and more than 150 feet.

According to the rapid risk assessment, most (62%) of properties are less than 50 feet away from dangerous topography, the riskiest category. There are large disparities between rapid risk assessment and household survey ratings for this category. Far fewer respondents (19%) estimated their property to be less than 150 feet from dangerous topography. The household survey and rapid risk assessment characterize a similar percentage of parcels in the moderate-risk category, 50–150 feet. See figure 10.

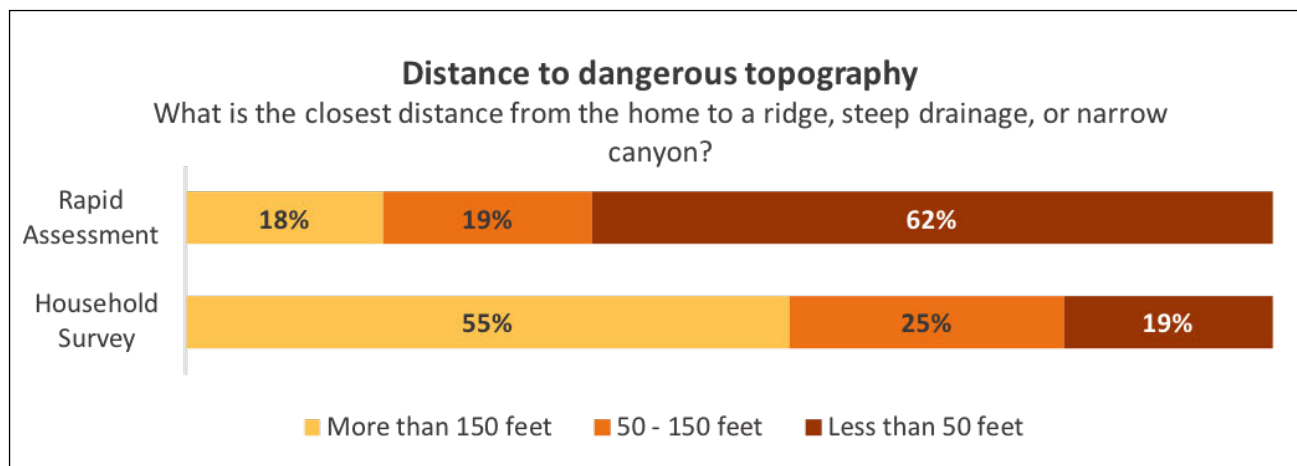


Figure 10—Distance of home to dangerous topography (e.g., ridge, steep drainage, narrow canyon), for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 238 respondents to this survey question.

Slope

The slope of the land on which a home is located can also affect its wildfire risk. Wildfire tends to burn more quickly when moving up a steeper slope. Furthermore, very steep slopes can limit firefighter access. Properties are assessed into three categories based on the overall slope of the property being either: gentle (less than 20%), moderate (between 20% and 45%), or steep (greater than 45%). The household survey included a diagram to visually demonstrate different slopes to aid respondents in their self-assessment.

Rapid risk assessment data characterized half of parcels (50%) as having a gentle slope. Fewer household survey respondents rated their slope as gentle (23%). The rapid risk assessment and household survey characterized a similar number of properties as having moderate slope but differed in the number of properties characterized as having gentle or steep slopes. See figure 11.

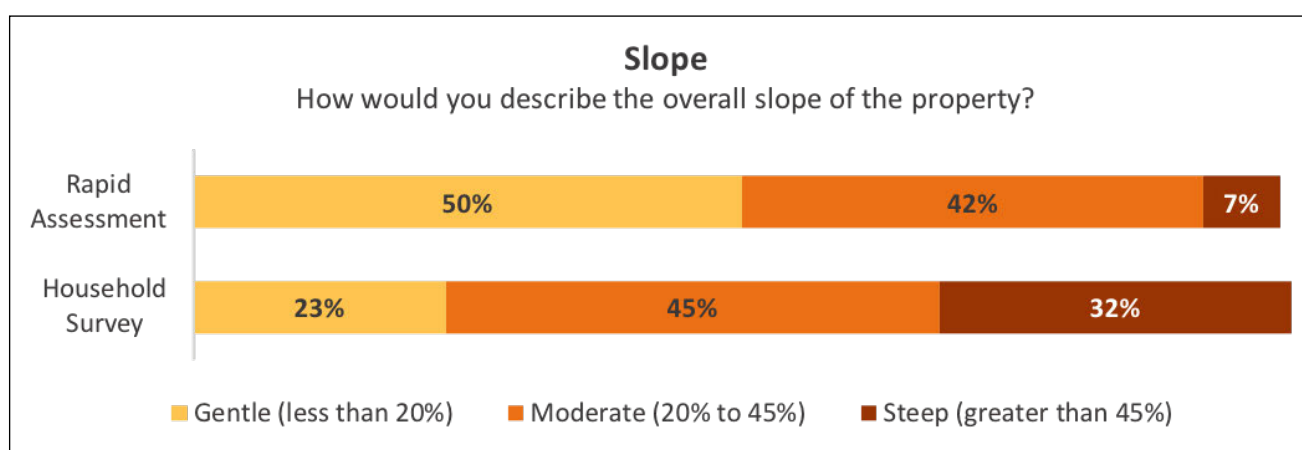


Figure 11—Overall slope of property, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 238 respondents to this survey question.

Adjacent fuels

Vegetation beyond the defensible space zone can shape how fire travels across the landscape. As such, properties are assessed based on the density and characteristics of the majority of vegetation in the zone between 100 feet and 150 feet from the home, even if this area is outside the property boundary. The assessment categories are light (grasses), moderate (light brush and/or isolated trees), or dense (dense brush and/or dense trees).

The rapid risk assessment scored most (81%) of properties as having dense vegetation. There is a disparity between rapid risk assessment and household survey responses for this attribute. Notably, only 44% of survey respondents placed their property in that category. Household survey respondents placed far more properties in the moderate-risk category (48%) compared to the rapid risk assessment (17%). See figure 12.

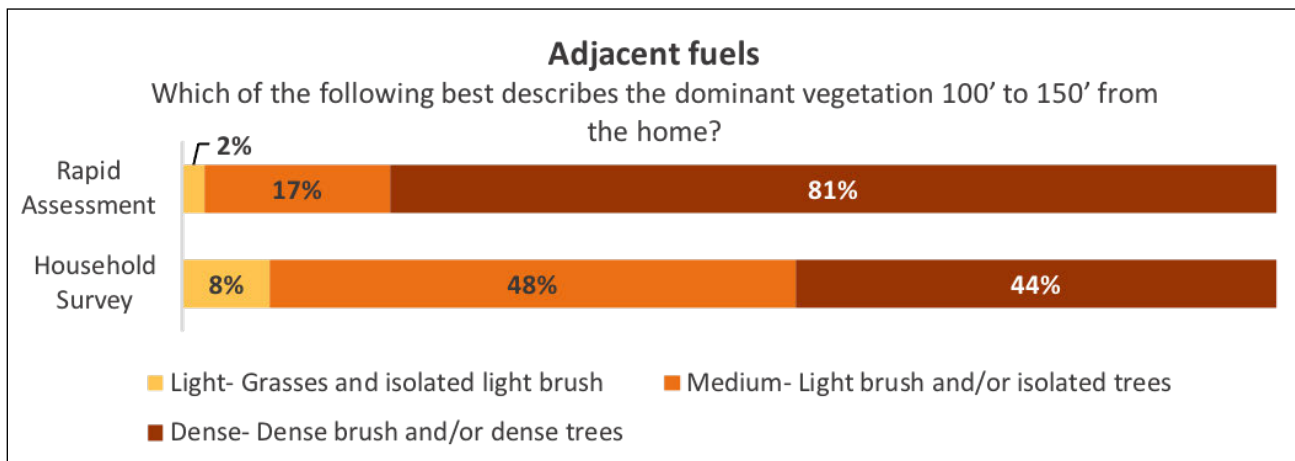


Figure 12—Type and density of fuels adjacent to the home, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 240 respondents to this survey question.

Access

During a wildfire, the ability for emergency responders to safely locate and access a property, as well as the ability for residents to evacuate, is critical. During a wildfire, evacuation routes could be blocked, limiting residents' ability to move to a safe area. The following four attributes relate to access.

Address visible

When firefighters receive notice that a house is in immediate danger from wildfire, every second spent finding the property is crucial. Easy identification of a property's address can speed up the process. In Emigration Canyon, properties were evaluated based on whether the address was posted at the driveway entrance and thus visible from the road, and whether the address was reflective and thus visible during heavy smoke or in low light.

Most parcels (76%) observed during the rapid risk assessment did not fully meet local standards of being posted and reflective. Survey respondents reported a much higher level of compliance with local standards. Fifty percent of respondents reported that their address was posted and had reflective signage, and therefore fully meets the standard, whereas professional rapid risk assessment classified only 25% parcels as fully meeting standards. See figure 13.

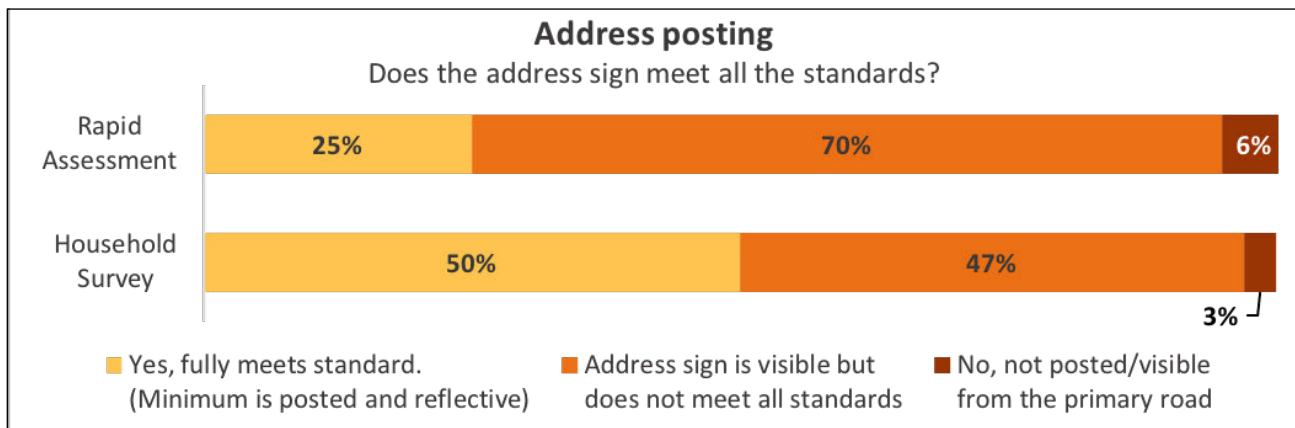


Figure 13—Visibility of property address for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 227 respondents to this survey question.

Ingress/egress

The ability to evacuate during a wildfire, as well as the ability for emergency responders to safely access a property, is critical. Access to and from a property is determined by the available road system. During a wildfire, evacuation routes could be blocked by fire, limiting residents' ability to move to a safe area. Properties were evaluated based on having one or two (or more) roads in/out of the community. The rapid risk assessment defined this type of road as one that allows a resident to exit their neighborhood and access a main road out of the community.

The rapid risk assessment characterized most properties (76%) as having two or more roads going in or out of their communities. Fewer (41%) household survey respondents placed themselves in that category. See figure 14.

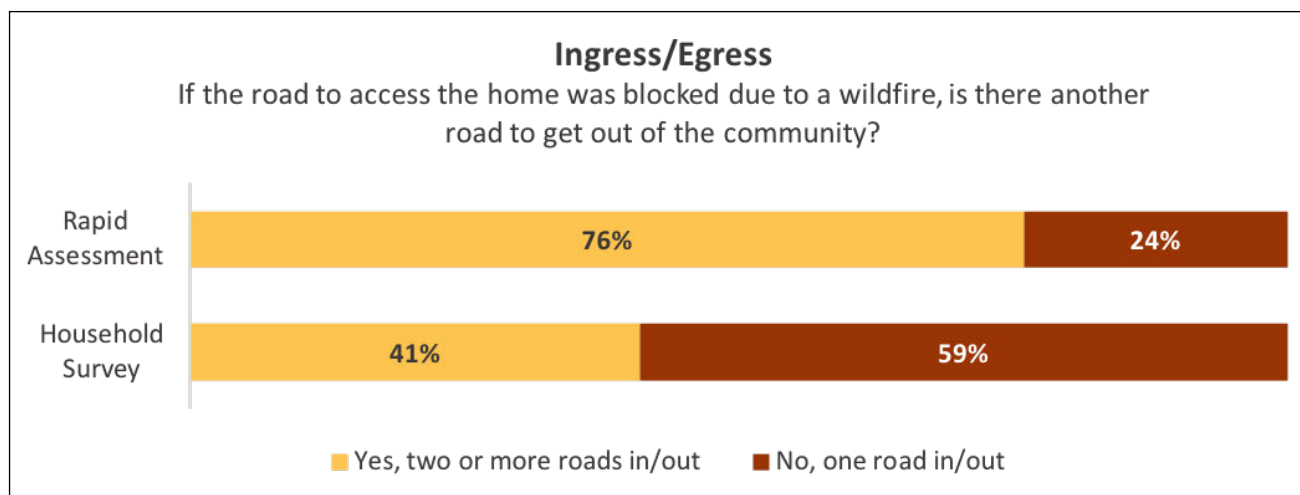


Figure 14—Number of evacuation routes in or out of the community, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 237 respondents to this survey question.

Driveway clearance

Driveway clearance, including width, length, and the presence of a turnaround, affects the ability of fire engines to enter a property—and rapidly exit if necessary. For example, tree branches hanging over a driveway might block the entrance of a tall vehicle or pose a risk if the tree catches on fire. A narrow driveway, such as one lined by trees or with a narrow gate, makes it difficult for two firefighting vehicles to pass each other. Driveway clearance is assessed based on width: wide enough for two vehicles to pass (at least 20 feet) or only wide enough for one vehicle (less than 20 feet). The driveway width assessment can include unpaved, flat, obstruction-free ground on either side of the driveway. Driveway clearance is also assessed based on height: a vertical distance of at least 13.5 feet.

The WiRē RA data indicate that half of parcels assessed (52%) meet both clearance standards. Household survey ratings are generally consistent with rapid risk assessment ratings. See figure 15.

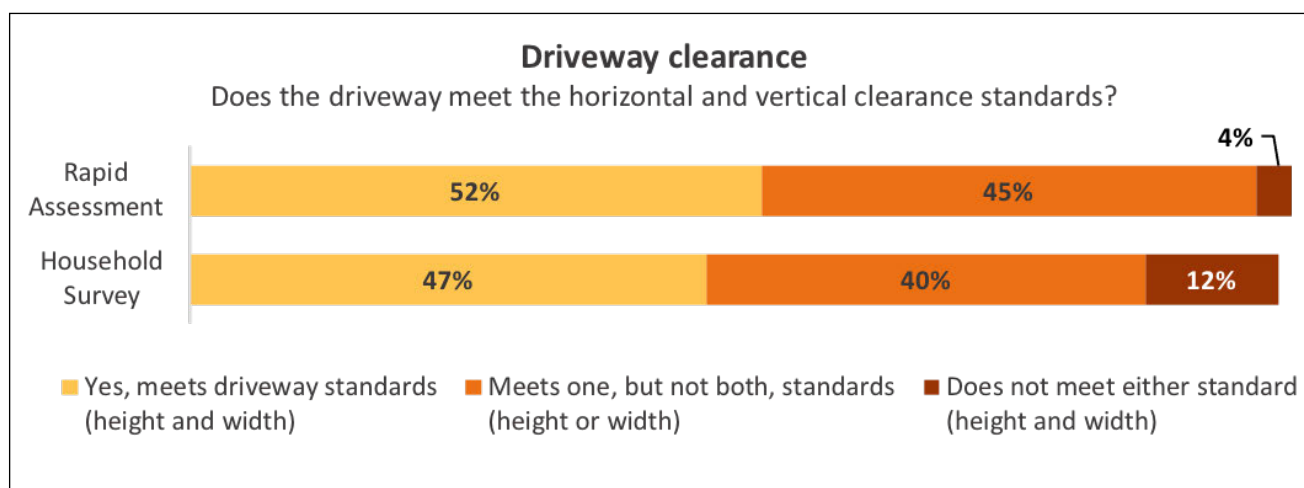


Figure 15—Properties whose driveway meets clearance standards for height (at least 13.5 feet) and width (at least 20 feet), for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 218 respondents to this survey question.

Driveway length

As with driveway clearance, driveway length and the availability of space for response vehicles to turn around influence accessibility for safe fire response. Properties are assessed into three categories: those with driveways less than 150 feet, driveways longer than 150 feet with a turnaround suitable for a Type 1 engine, and driveways longer than 150 feet and lacking an adequate turnaround.

The rapid risk assessment characterized most parcels (65%) as having a driveway less than 150 feet long, similar to the percentage of household survey respondents (77%). In general, rapid risk assessment and household survey ratings are similar for this attribute. The rapid

risk assessment characterized few parcels (3%) in the moderate-risk category of having driveways longer than 150 feet with a turnaround and placed almost a third of parcels (32%) in the highest risk category of having driveways longer than 150 feet and without a turnaround adequate for a Type 1 engine. See figure 16.

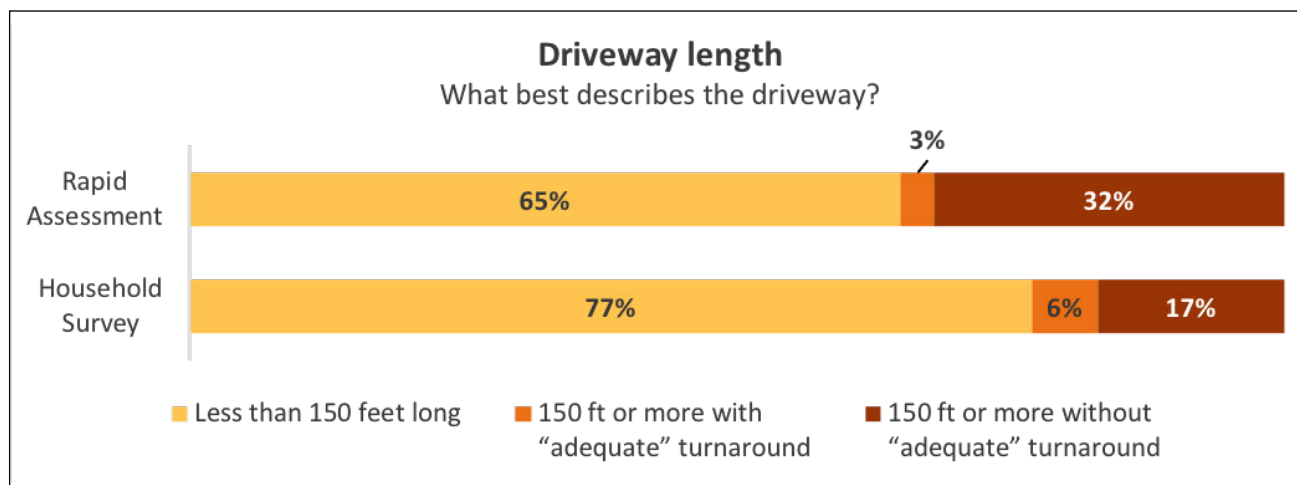


Figure 16—Driveway length and presence of a turnaround, for study area properties in Emigration Canyon, Utah. Comparison of information obtained through rapid assessment versus household survey. N = 224 respondents to this survey question.

RESULTS SECTION 2: SOCIAL DIMENSIONS OF WILDFIRE IN EMIGRATION CANYON—HOUSEHOLD SURVEY RESULTS

In this section, we first characterize household survey respondents based on demographic and other relevant data. Then, we describe respondents' wildfire risk information communication preferences, their experience with wildfire, and their perceptions of wildfire hazard and response. Lastly, we describe how respondents are responding to wildfire risk through preparedness and mitigation, as well as barriers and incentives for such activities.

Who Were the Respondents?

The respondents' homes were built as long ago as 1902 and as recently as 2019, with an average year built of 1983. Respondents moved into their home as long ago as 1947, with an average move-in date of 2002, more than 20 years ago. Most respondents reported that they were at least somewhat aware of the wildfire risk to their home at the time of purchase. See figure 17. At time of survey, just 1% of respondents reported plans to move out of the area in the next 12 months due to wildfires. See figure 18.

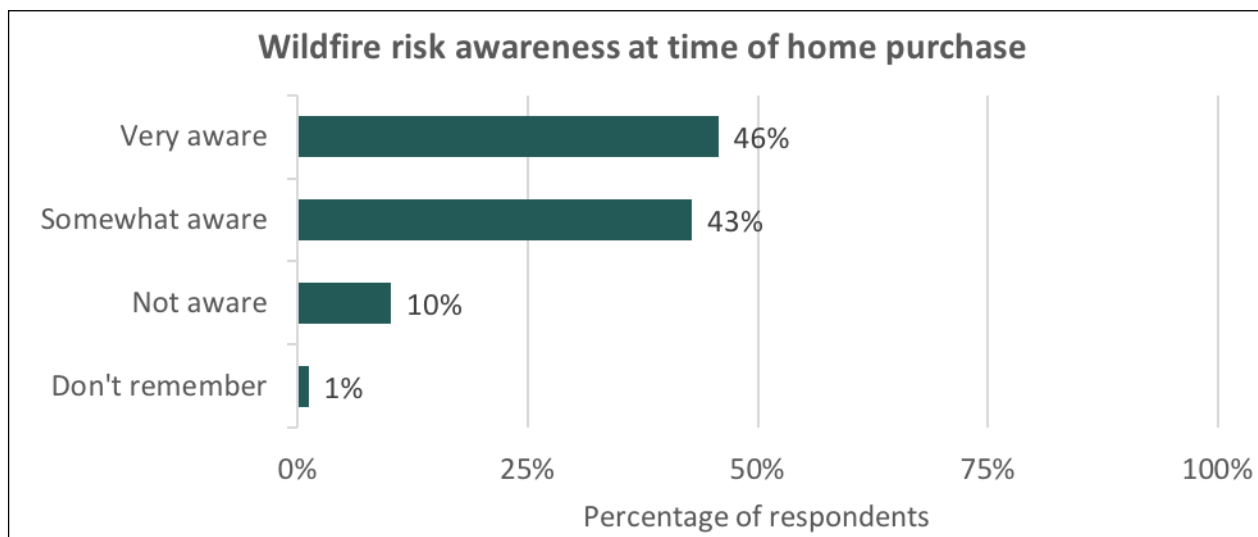


Figure 17—Awareness of wildfire risk, when they bought their home, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 245 respondents to this survey question.

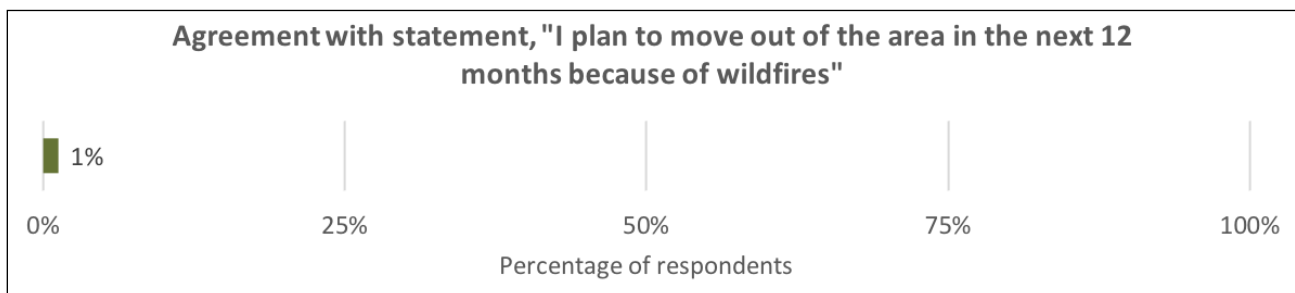


Figure 18—Agreement ("agree" or "strongly agree") with the statement, "I plan to move out of the area in the next 12 months because of wildfires," as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 242 respondents to this survey question.

Homeowners across the wildland-urban interface can vary widely in how often they occupy their properties, from full-time residences to seasonal camps. In Emigration Canyon, most respondents (94%) occupy their residence every month of the year. Few respondents (less than 2%) occupy their Emigration Canyon residence 6 months or less per year. Seasonal variation in home occupancy is negligible (approximately 1% more residents in the summer). The residences of all respondents (100%) are owner occupied.

More than half the respondents were male (62%), and the average respondent age was 62 years. Thirty-eight percent of respondents were retired, while 48% were employed full-time, and 12% were employed part-time. Most respondents were highly educated, with 88% having at least a college degree, and 64% having an advanced degree (e.g., M.D., M.A., M.S., Ph.D., etc.). More than three-fourths (85%) reported a household income over \$75,000, and 42% reported a household income of \$200,000 or more.

Wildfire experience

Some survey respondents have past experience with wildfire. Almost all (90%) survey respondents have had a wildfire come within 10 miles of their property, and over half (53%) have had a wildfire come within 2 miles of their property. See figure 19.

Despite their proximity to wildfire, the majority of survey respondents have not experienced property impacts due to wildfire. Very few respondents have had fire damage, smoke damage, or a home destroyed by fire. However, 26% have evacuated due to a wildfire. See figure 20.

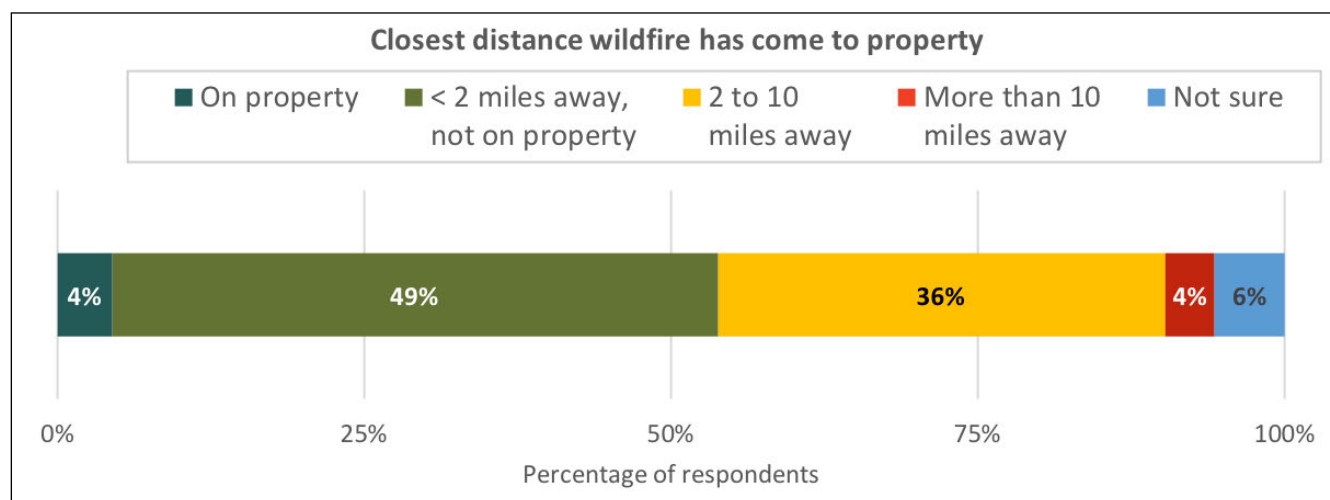


Figure 19—Respondent estimates of how close a wildfire has come to their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 247 respondents to this survey question.

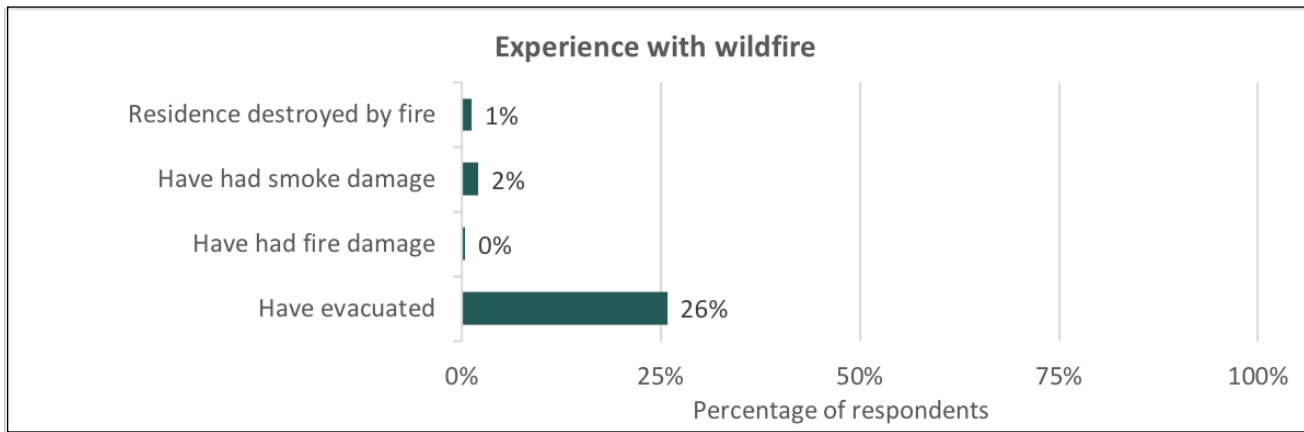


Figure 20—Experience with various impacts of wildfire, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 244–247 respondents to these survey questions.

What Are Respondents' Perceptions of Wildfire Risk and Response?

This section describes⁸ survey respondents' expectations and attitudes, related to:

- Wildfire risk and likelihood of wildfire on their property;
- Possible outcomes in the event of a wildfire on their property;
- Contributors to their property's wildfire risk;
- Support for community-level risk reduction activities or policies;
- Personal responsibility and self-efficacy for reducing wildfire risk; and
- Wildfire management.

Wildfire risk level

Ninety percent of respondents agreed that “My property is at risk of wildfire.” See figure 21. However, when asked more specifically to estimate the chances of wildfire on their property in the next 12 months, only 26% of respondents thought it likely (> 50% chance). A greater percentage of respondents (49%) thought it likely that if there were a wildfire on their property, their Emigration Canyon home would be destroyed or severely damaged. See figure 22.

⁸ The household survey contains several types of questions that measure respondents' wildfire-related perceptions and attitudes. These include questions about the likelihood of certain events (response categories range from Extremely likely to Not at all likely), questions about the percent chance of certain events (response categories range from 0% to 100%), questions about level of agreement with wildfire-related statements (response categories range from Strongly agree to Strongly disagree), and questions about the acceptability of certain wildfire risk reduction actions (response categories range from Extremely acceptable to Not at all acceptable). All three types of survey questions are interwoven in this section.

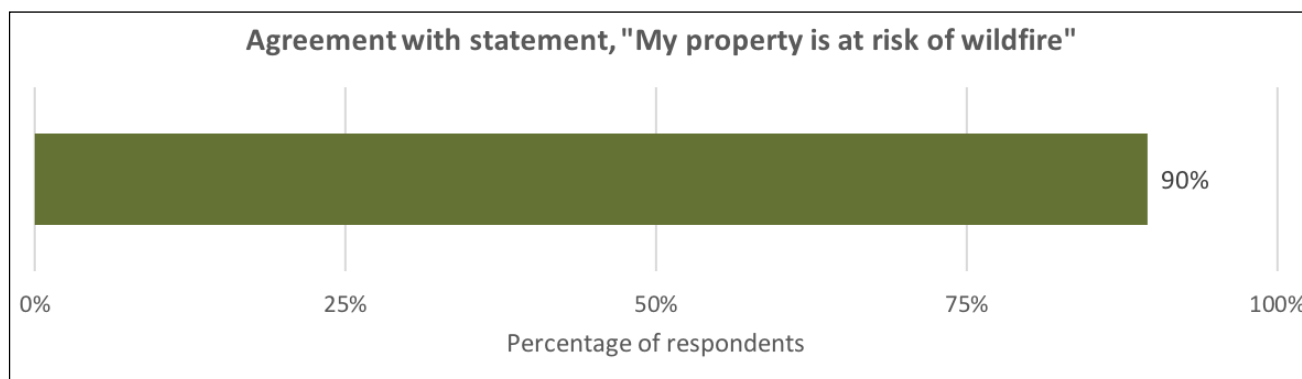


Figure 21—Percentage of respondents who “agree” or “strongly agree” with the statement, “My property is at risk of wildfire,” as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 240 respondents to each survey statement listed.

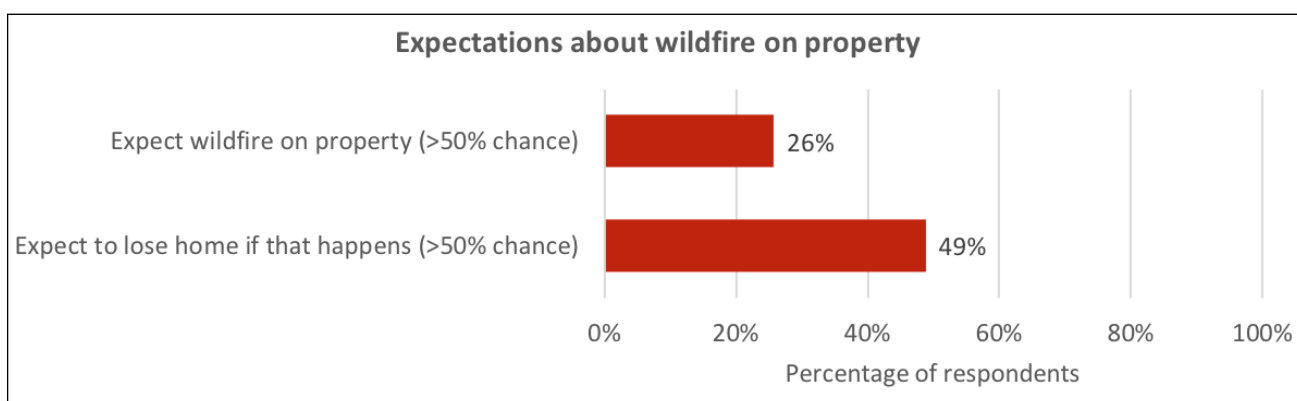


Figure 22—Percentage of respondents who estimate a greater than 50 percent chance of a wildfire on property in the next year and a greater than 50 percent chance of losing their home in that case, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 245 and 246 respondents to the two survey statements listed, respectively.

Wildfire outcomes

Respondents were also asked to consider the likelihood of various outcomes if there was a wildfire on their property. The most frequently expected outcome was that their trees and landscape would burn (65%), followed by smoke damage (56%) and physical damage (50%). Few (17%) thought their home would be destroyed. See figure 23.

Looking beyond homeowners’ properties, around half (52%) of respondents agreed that “Wildfires threaten my community water supply.” See figure 24.

In the event of a wildfire on their property, less than half (43%) of respondents thought it very or extremely likely that the fire department would save their home, and few (12%) thought it likely that they would put the fire out themselves. See figure 25.

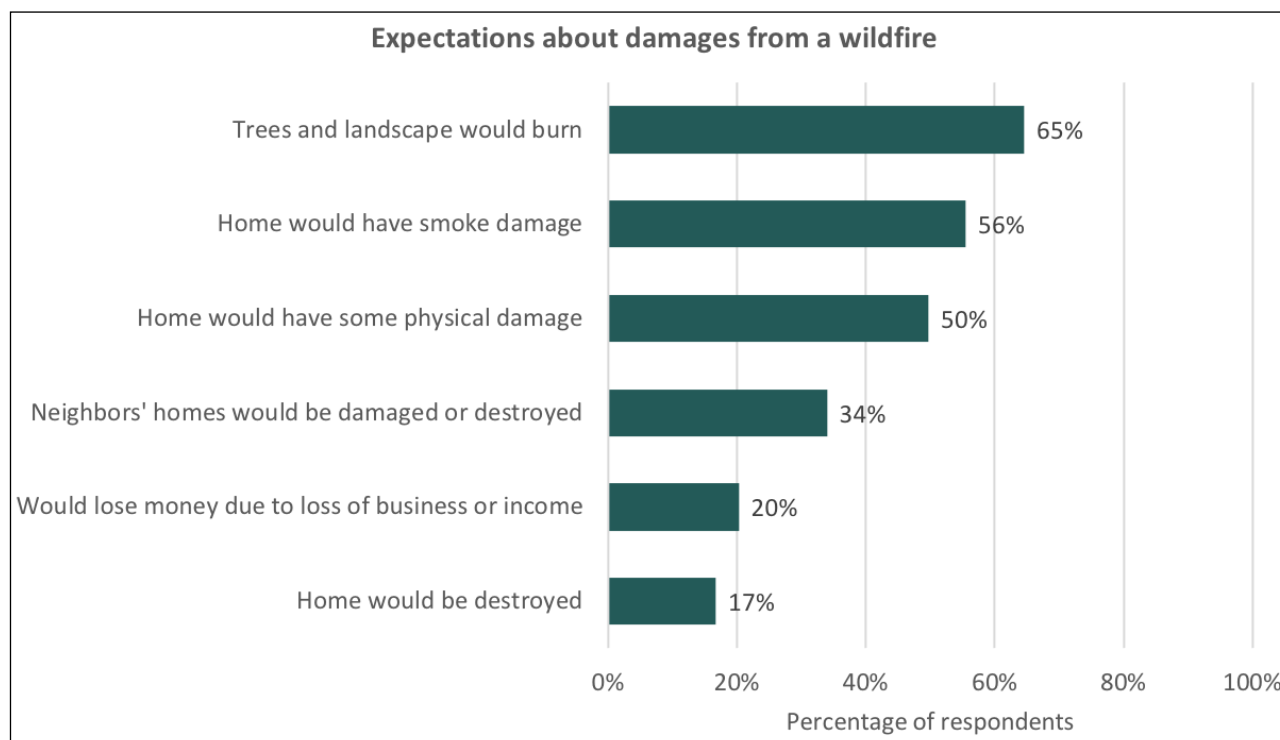


Figure 23—Percentage of respondents who think the listed forms of wildfire damage are “very likely” or “extremely likely” in the event of a wildfire on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 244–246 respondents to each survey statement listed.

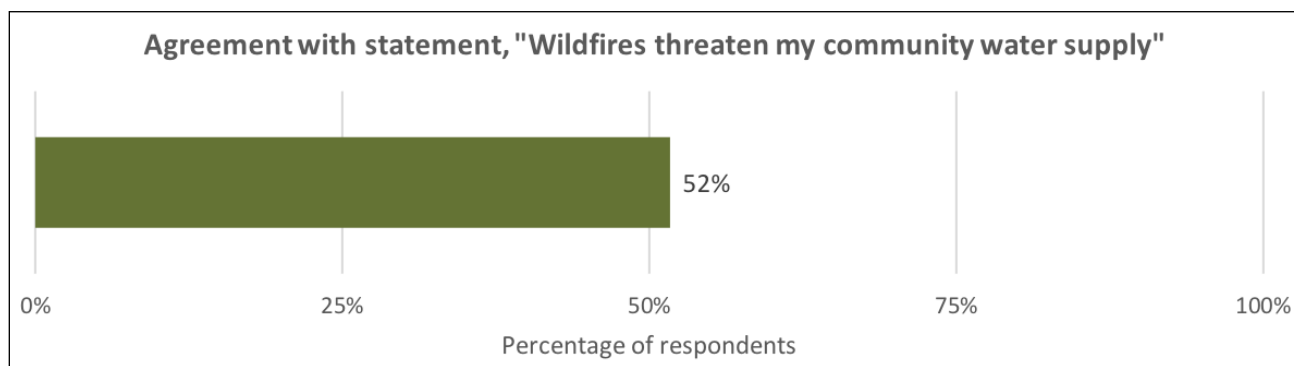


Figure 24—Percentage of respondents who “agree” or “strongly agree” with the statement, “Wildfires threaten my community water supply” as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 240 respondents to each survey statement listed.

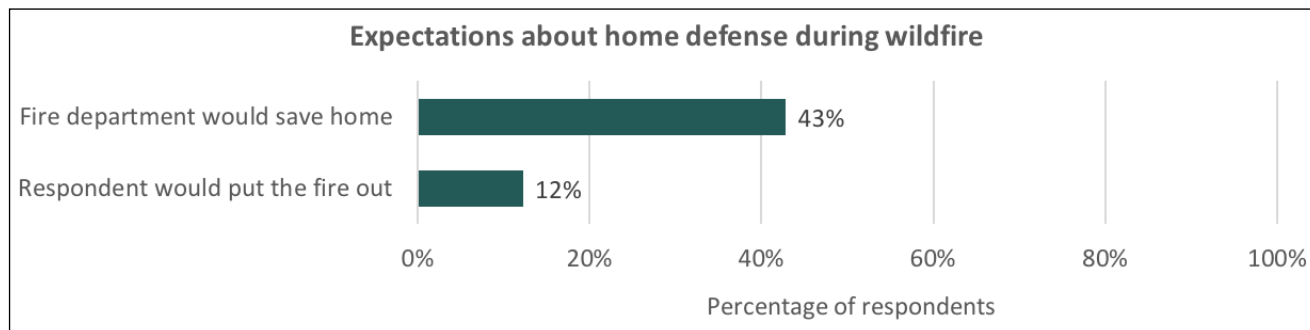


Figure 25—Percentage of respondents who think the listed home defense outcomes are “very likely” or “extremely likely” in the event of a wildfire on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 243 and 245 respondents to each survey statement listed.

Sources of wildfire risk

When asked about mechanisms for home ignition, less than a third of survey respondents thought it likely that embers, direct flame, or nearby homes would be a source of ignition for their home. See figure 26.

However, when asked about factors that contribute to the chances of a wildfire damaging their property in the next 12 months, almost all respondents thought vegetation was a major contributor, whether on their property, neighboring properties, or nearby public lands. Furthermore, 68% of respondents thought physical characteristics of their home were a contributing factor. Fewer (45%) thought lack of a nearby water supply was a contributing characteristic. See figure 27.

Relatedly, most respondents (61%) also agreed that nearby development contributes to their wildfire risk. See figure 28.

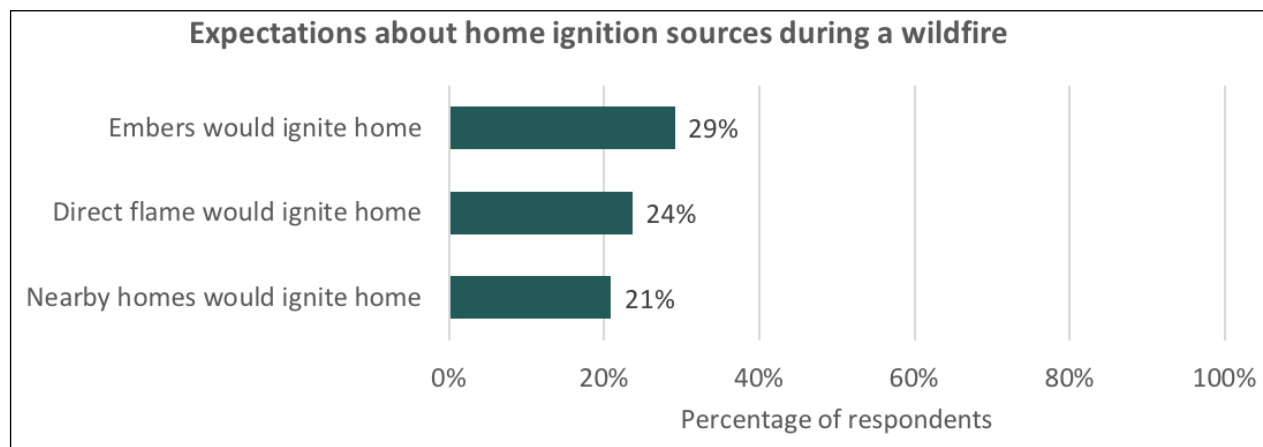


Figure 26—Percentage of respondents who think the listed sources of ignition are “very likely” or “extremely likely” in the event of a wildfire on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 244–245 respondents to each survey statement listed.

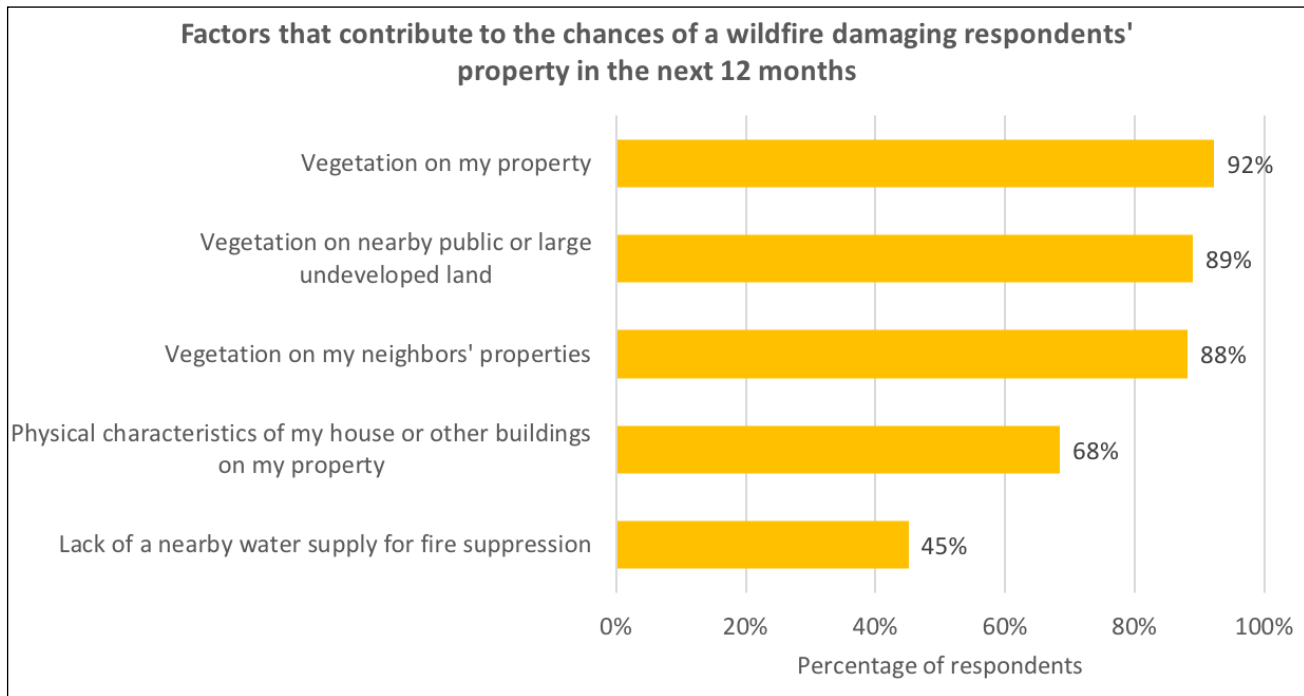


Figure 27—Percentage of respondents who think the listed factors contribute “a lot” or “somewhat” to the chances of a wildfire damaging their property in the next 12 months, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 244–246 respondents to each survey statement listed.

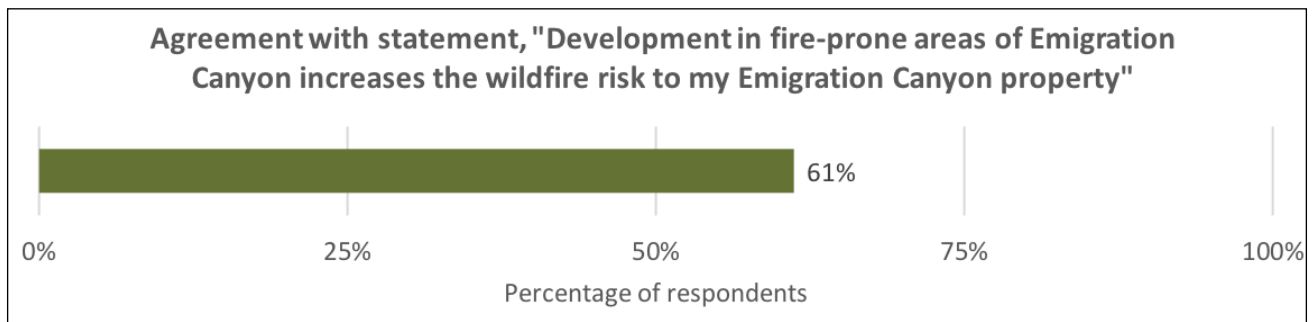


Figure 28—Percentage of respondents who “agree” or “strongly agree” with the statement, “Development in fire-prone areas of Emigration Canyon increases the wildfire risk to my Emigration Canyon property,” as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 242 respondents to each survey statement listed.

Community-level risk reduction activities and regulations

When asked about ways to reduce wildfire risk within the community, survey respondents expressed variable support for fuels treatments but broad support for regulations related to development.

Most respondents found tree removal and managing naturally ignited fires acceptable. However, fewer found intentional burning an acceptable management approach, whether slash pile burning or conducting prescribed fire. See figure 29.

Most respondents indicated that the adoption of building codes, limiting development, and requiring vegetation management on lots in Emigration Canyon would be acceptable ways to reduce wildfire risk within the community. See figure 30.

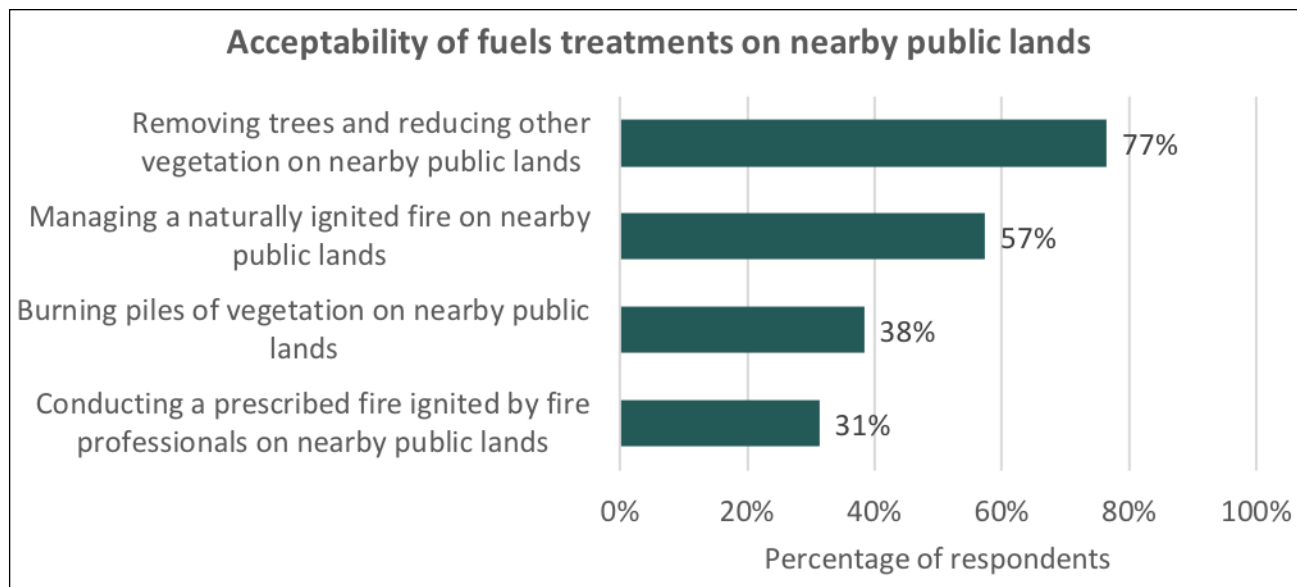


Figure 29—Percentage of respondents who see the listed fuels management approaches as “very acceptable” or “extremely acceptable,” as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 244–247 respondents for each of the above statements.

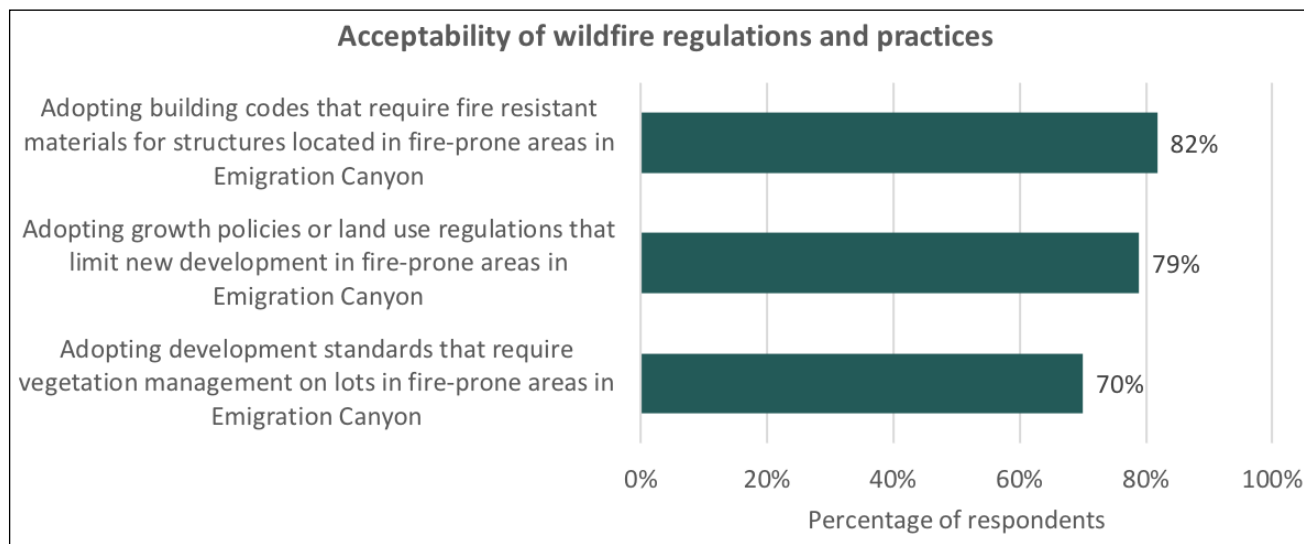


Figure 30—Percentage of respondents who see the listed wildfire-related policies as “very acceptable” or “extremely acceptable,” as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 246–247 respondents for each of the above statements.

Personal responsibility and self-efficacy

Notably, survey responses indicate a willingness to take responsibility for and belief in the effectiveness of personal wildfire risk mitigation action. In particular, very few respondents agreed that managing wildfire danger is solely a government responsibility, that firefighters should put their lives at risk to protect their home, that homeowners' mitigation actions are ineffective, or that they are unwilling to remove trees. Only a fifth (20%) thought their mitigation actions were ineffective due to vegetation on neighboring properties. See figure 31.

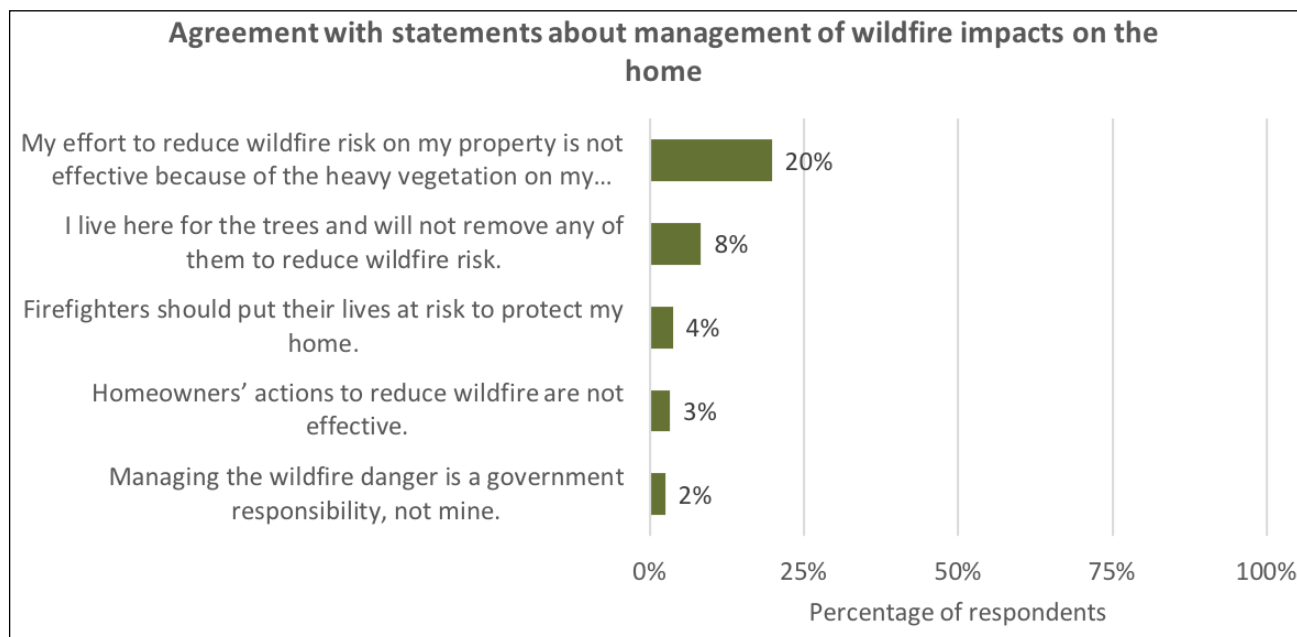


Figure 31—Percentage of respondents who “agree” or “strongly agree” with statements about personal and community management of wildfire impacts on respondents’ homes, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 240-243 respondents to each survey statement listed.

Wildfire Management Beliefs

Respondents were asked to what extent they agree or disagree with a series of wildfire attitude statements. Relatively few respondents agreed that wildfires can be controlled, even with proper technology (36%), and even fewer thought local firefighters had sufficient resources to protect threatened homes (16%) or stop the spread of wildfires (10%). See figure 32.

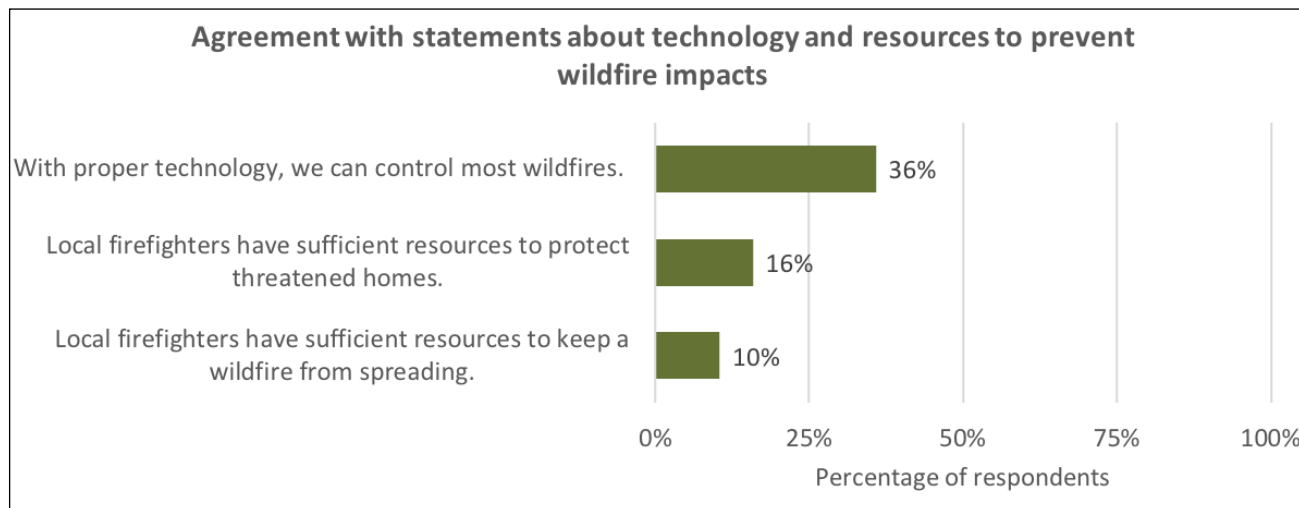


Figure 32— Percentage of respondents who “agree” or “strongly agree” with statements about available technology and resources to prevent wildfire impacts, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 238–240 respondents to each survey statement listed.

Although most respondents agree that firefighters may not have the capacity or ability to control wildfire, almost all respondents agreed that wildfires should be put out if they threaten human life (97%) and homes (95%). However, 90% agreed that “Wildfires are a natural part of the balance of a healthy forest/ecosystem.” Providing more context to that statement, 76% agreed that “During a wildfire, saving homes should be a priority over saving forests.” See figure 33.

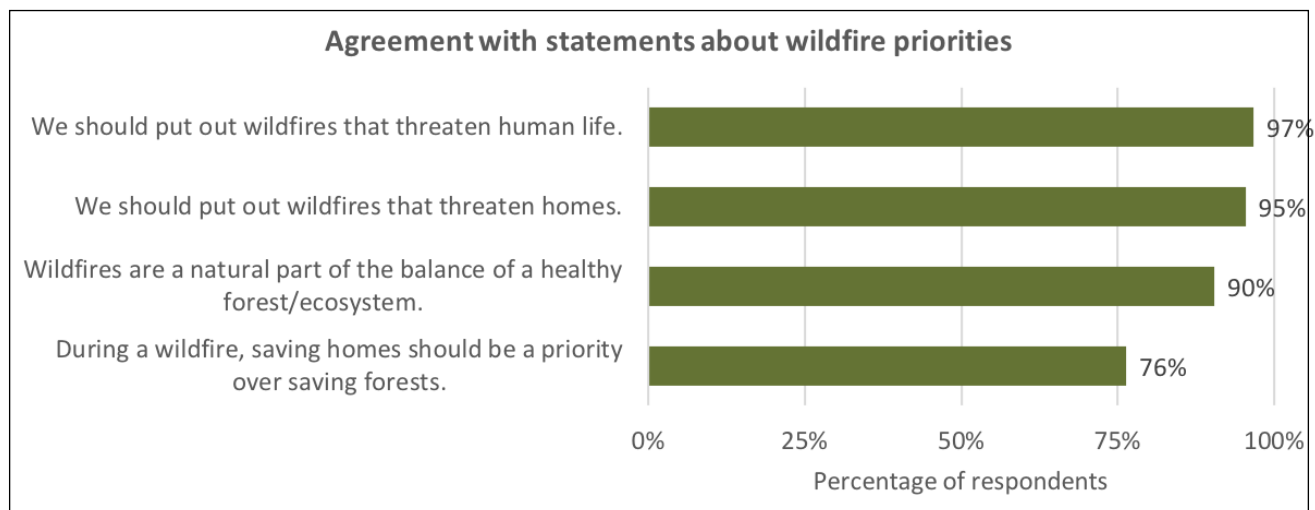


Figure 33— Percentage of respondents who “agree” or “strongly agree” with statements about priorities between human and natural resources during a wildfire, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 241–243 respondents to each survey statement listed.

What Are Respondents Doing About Wildfire?

This section describes respondents' reported preparedness and mitigation activities, and what would help them to take further action. Topics include:

- Evacuation preparedness and related information gaps;
- Respondents' risk reduction activities;
- Barriers preventing residents' risk reduction;
- Incentives that would encourage risk reduction; and
- Experiences with insurance-related incentives.

Evacuation preparedness

A critical component of being prepared for a wildfire is being able to evacuate quickly. Seventy percent of respondents reported having an evacuation plan for the people in their household. Seventy-two percent of respondents have pets on their property, and 62% of those respondents have a plan for those pets. Twelve percent of respondents have livestock on their property, but only 1% of those respondents have a plan for those livestock. See figure 34.

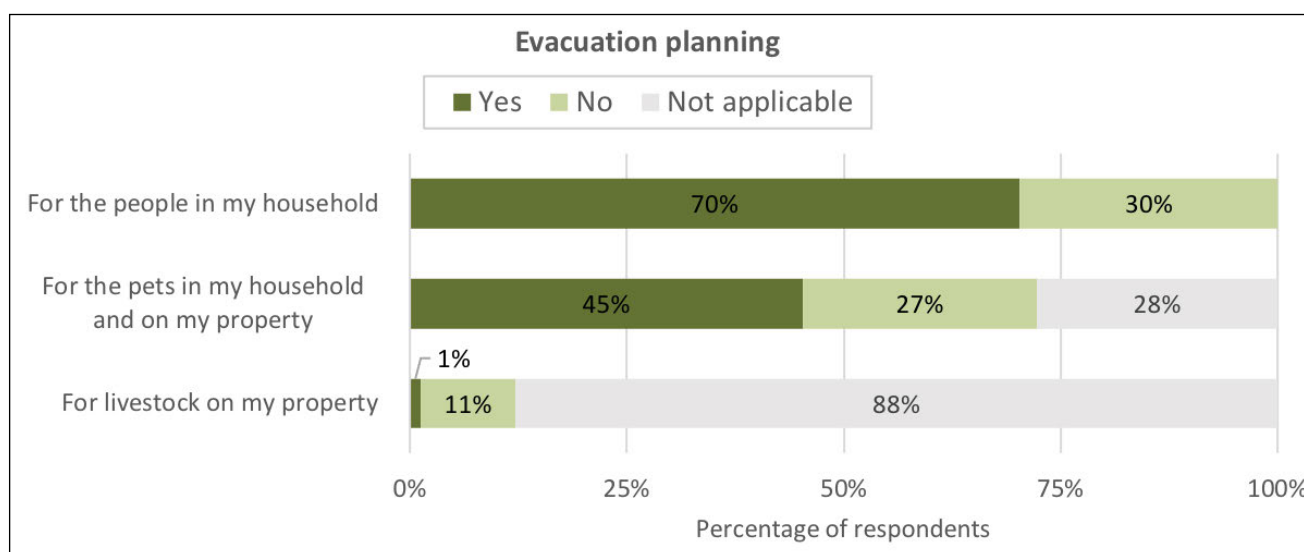


Figure 34—Percentage of respondents who have wildfire evacuation plans for the above categories, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 239–245 respondents for each of the above categories.

Respondents also reported what evacuation planning actions they have completed, and what type of information would help them develop an evacuation plan. Respondents generally wanted more information, regardless of whether they had completed the associated evacuation preparedness action. See figure 35.

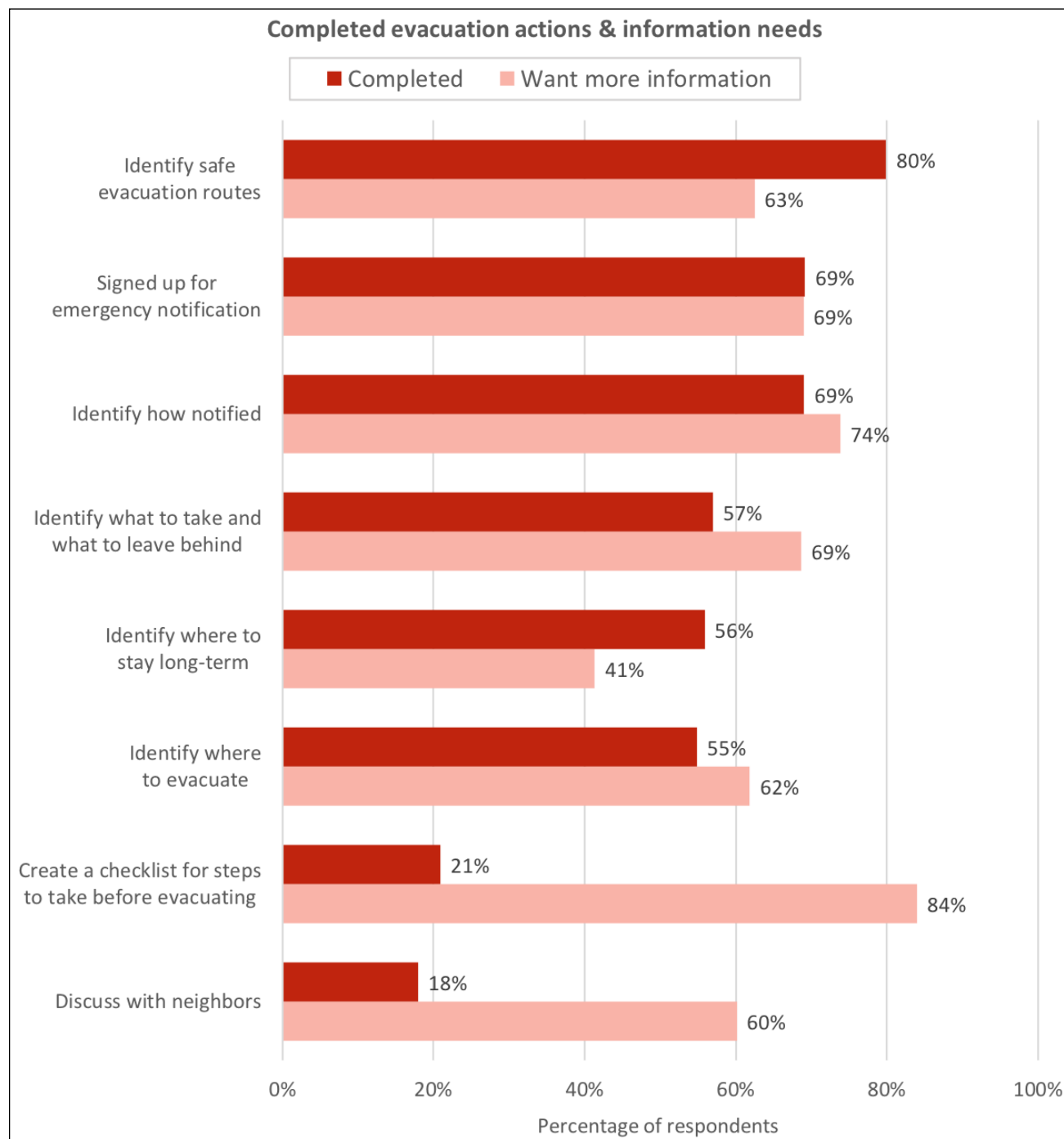


Figure 35—Percentage of respondents who indicated “yes” to having completed the listed evacuation preparedness actions, and who indicated “yes” to wanting more information, ordered by actions completed, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 223–229 respondents to completed action segment; N = 133–156 respondents to wanting more information segment.

Risk reduction activities

Respondents were asked to report on their wildfire risk reduction activity on their property or nearby. Respondents generally reported large amounts of activity on their property, though fewer had sought a home site evaluation of their wildfire risk. Slightly less than a third had helped with mitigation outside their property. See figure 36.

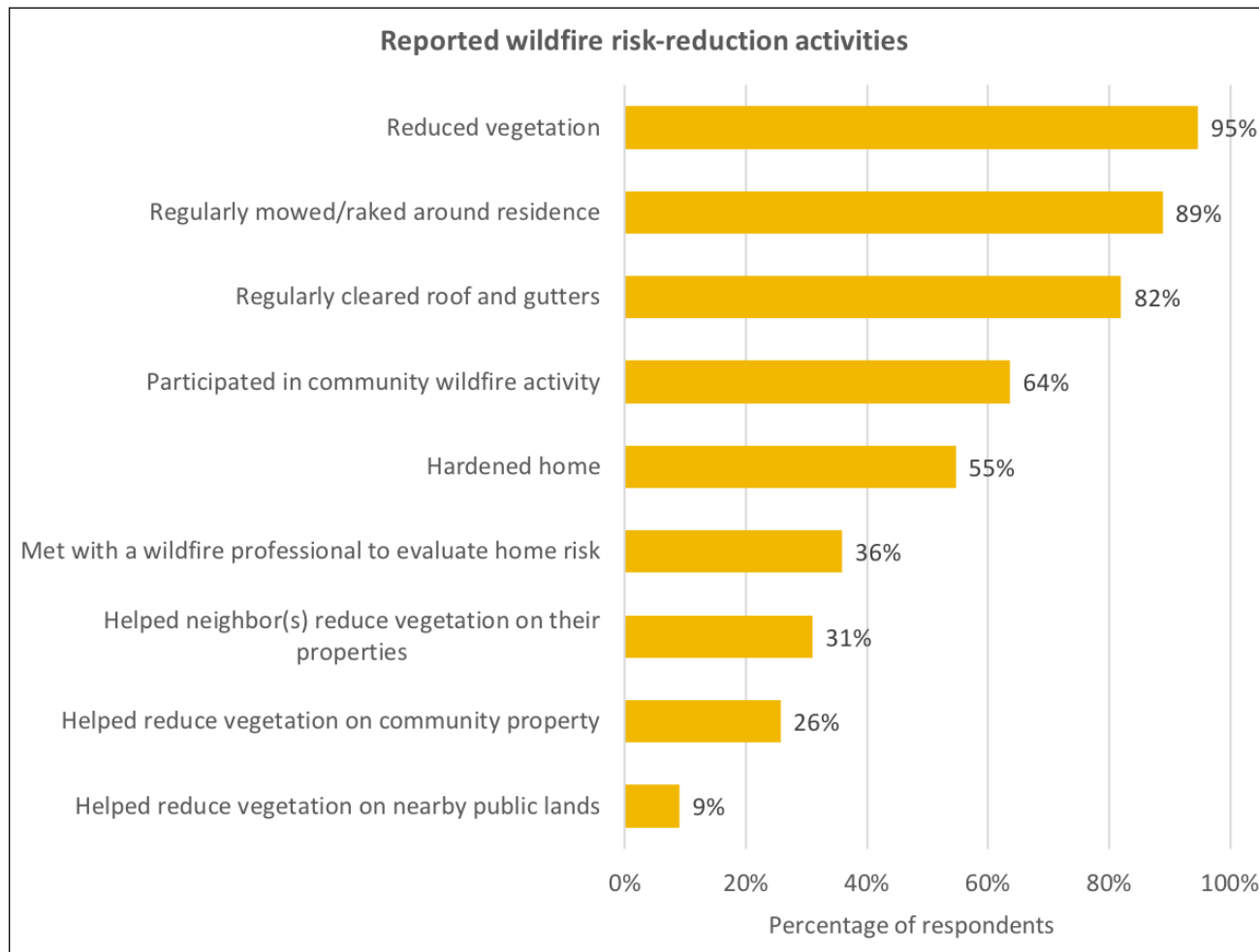


Figure 36—Percent of respondents who reported doing the above wildfire risk mitigation activities, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 239–245 respondents for each of the above activity statements.

Barriers and incentives for wildfire risk mitigation

Survey respondents generally reported few barriers to wildfire risk mitigation.

Personal resources were the most reported type of barrier to mitigation, with “time to do the work” most reported by respondents (36%). However, 41% of respondents indicated none of these personal resource barriers prevented them from taking action. See figure 37.

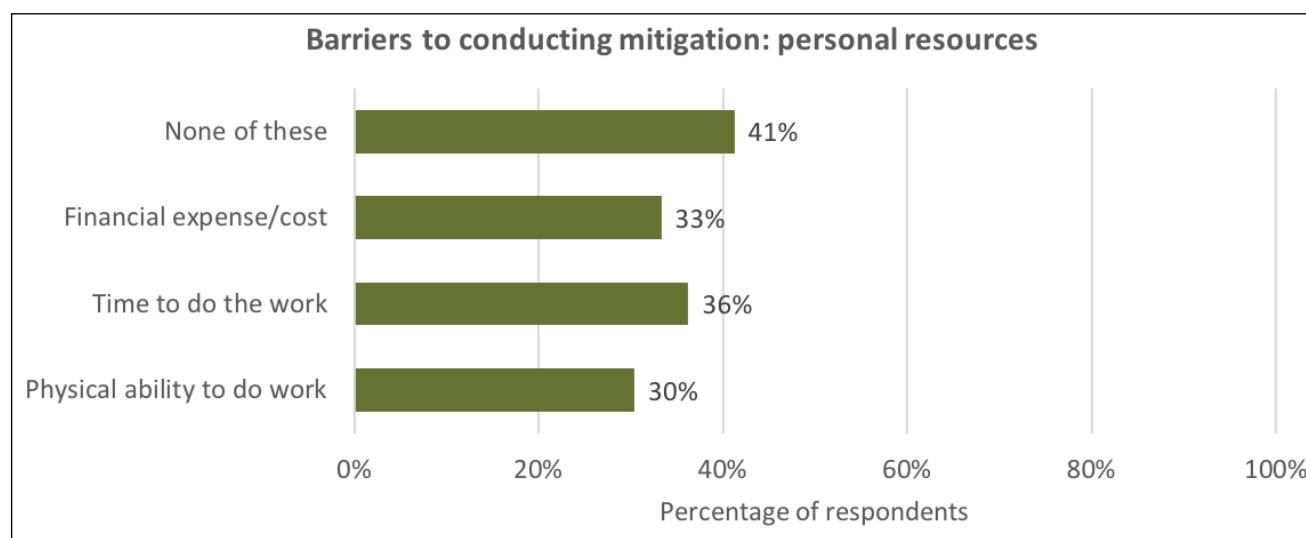


Figure 37—Percentage of respondents who selected personal resource barriers as preventing them from taking action to reduce risk on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 240 respondents for each of the above barriers.

The majority of respondents (53%) reported that lack of information was not preventing them from doing mitigation work. See figure 38.

Even fewer respondents reported that personal perspectives were a barrier to mitigation, with 68% of respondents indicating that none of the listed community barriers prevented them from taking action. See figure 39.

Community-related factors were the least reported barrier to mitigation, with 71% of respondents indicating that none of the listed community barriers prevented them from taking action. See figure 40.

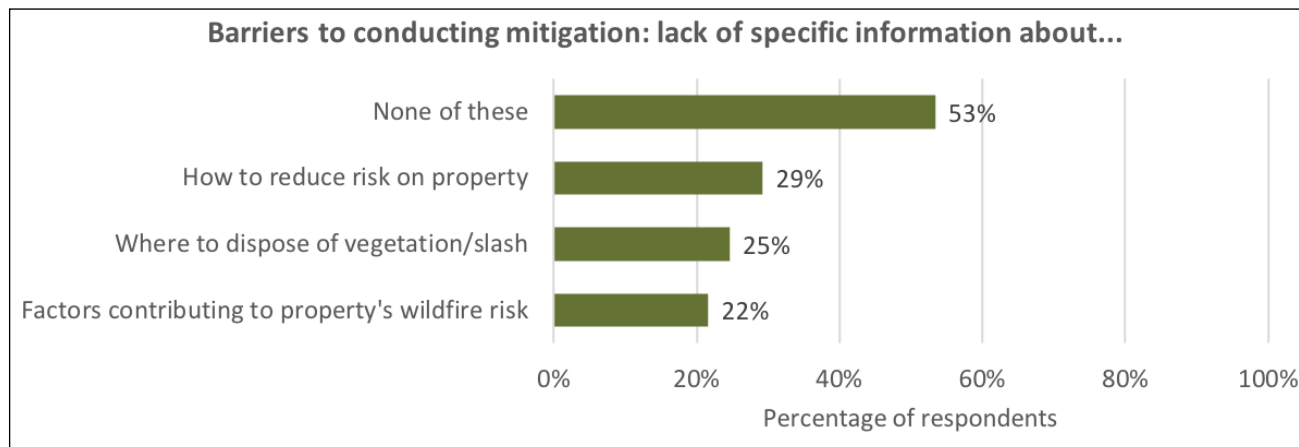


Figure 38—Percentage of respondents who selected information barriers as preventing them from taking action to reduce risk on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 236 respondents for each of the above barriers.

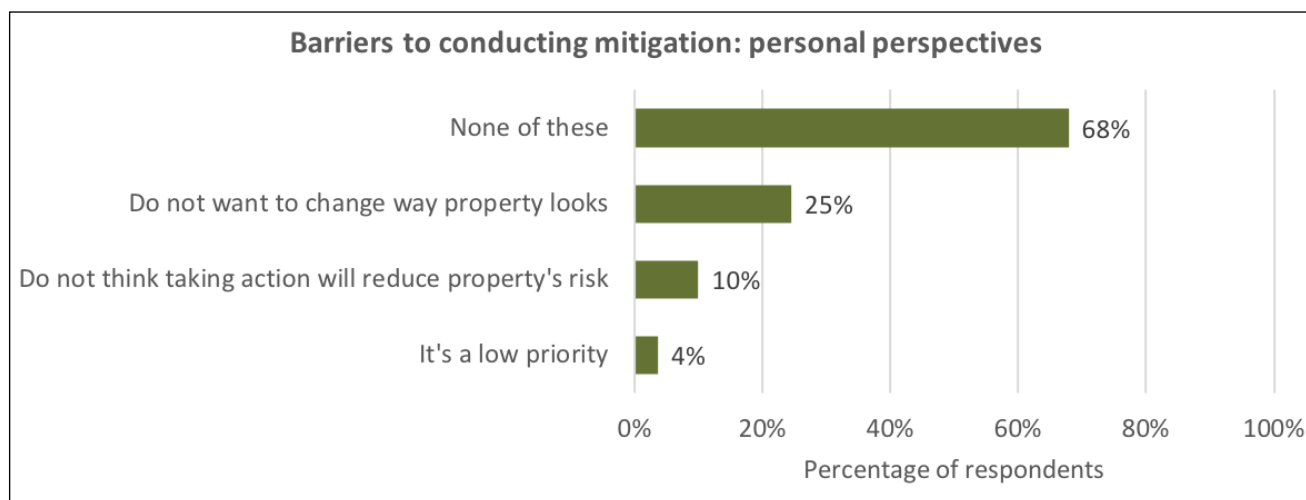


Figure 39—Percentage of respondents who selected personal perspectives or values as preventing them from taking action to reduce risk on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 240 respondents for each of the above barriers.

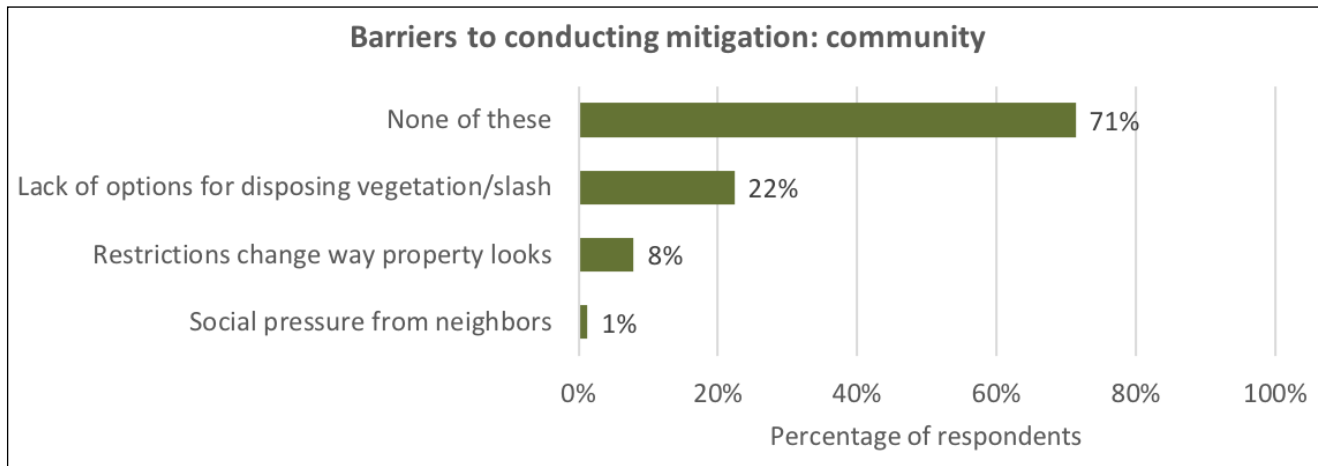


Figure 40—Percentage of respondents who selected community-related barriers as preventing them from taking action to reduce risk on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 241 respondents for each of the above barriers.

The survey also asked what would encourage respondents to reduce wildfire risk on their property. The top incentive in the information incentives category, as well as overall, is a one-on-one visit with wildfire risk experts (71%), followed by a report describing the property's wildfire risk factors (65%). Videos showing risk reduction methods were less of an incentive. See figure 41.

Within the resource incentives category, over half of respondents indicated that help doing the work (56%) and financial assistance (51%) would encourage them to take action to reduce their wildfire risk. Forty percent of respondents indicated a list of recommended contractors would be an incentive. See figure 42.

Feedback on work already done (53%) and neighborhood-organized risk reduction activities (46%) were selected as incentives by around half of respondents. However, a third of respondents indicated that none of these were incentives. Notably, few respondents (13%) selected recognition for taking action as an incentive for conducting mitigation. See figure 43.

The potential role of insurance providers to incentivize wildfire risk mitigation activities among policy holders is often touted as an important complement to local wildfire risk mitigation efforts. Over half of respondents (60%) reported believing their home is adequately insured against loss from a wildfire. However, the percentage of respondents who reported insurance-related mitigation incentives is low. The most common insurance action reported was to provide information on reducing risk (25%). See figure 44.

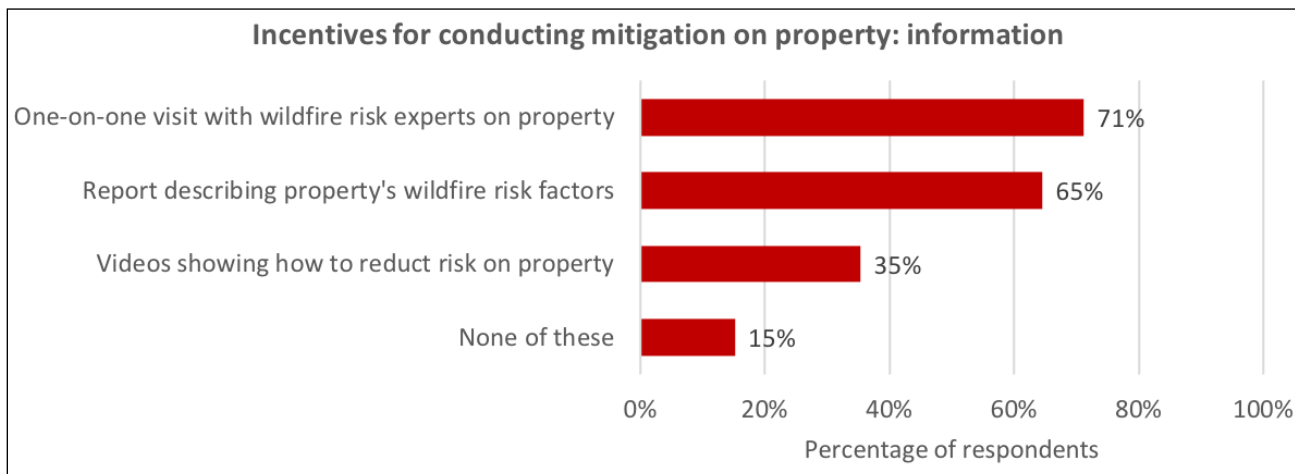


Figure 41—Percentage of respondents who selected information incentives for taking action to reduce risk on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 243 respondents for each of the above incentives.

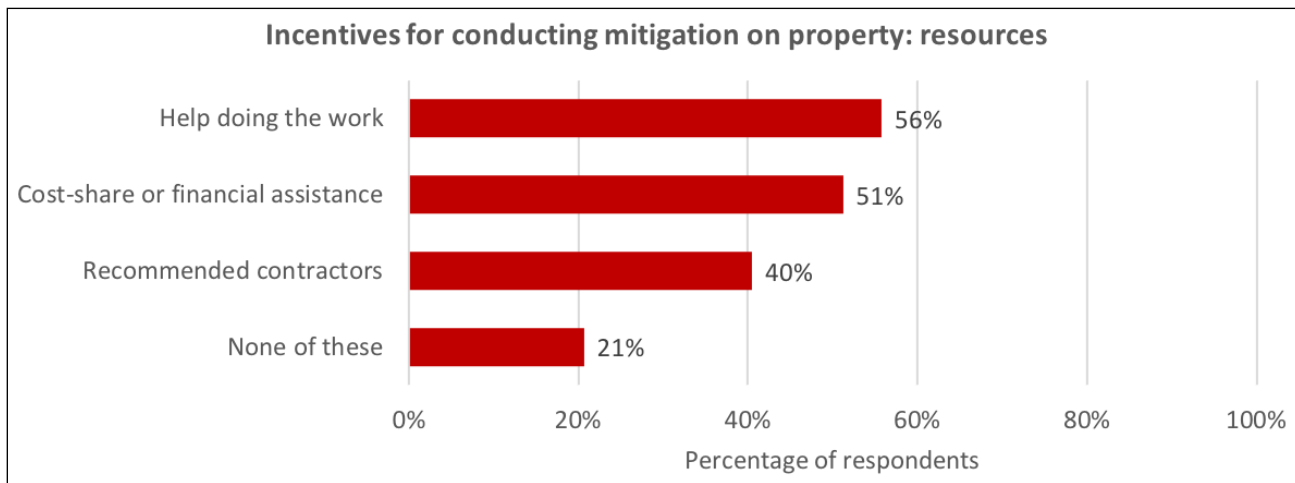


Figure 42—Percentage of respondents who selected resource-related incentives for taking action to reduce risk on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 242 respondents for each of the above incentives.

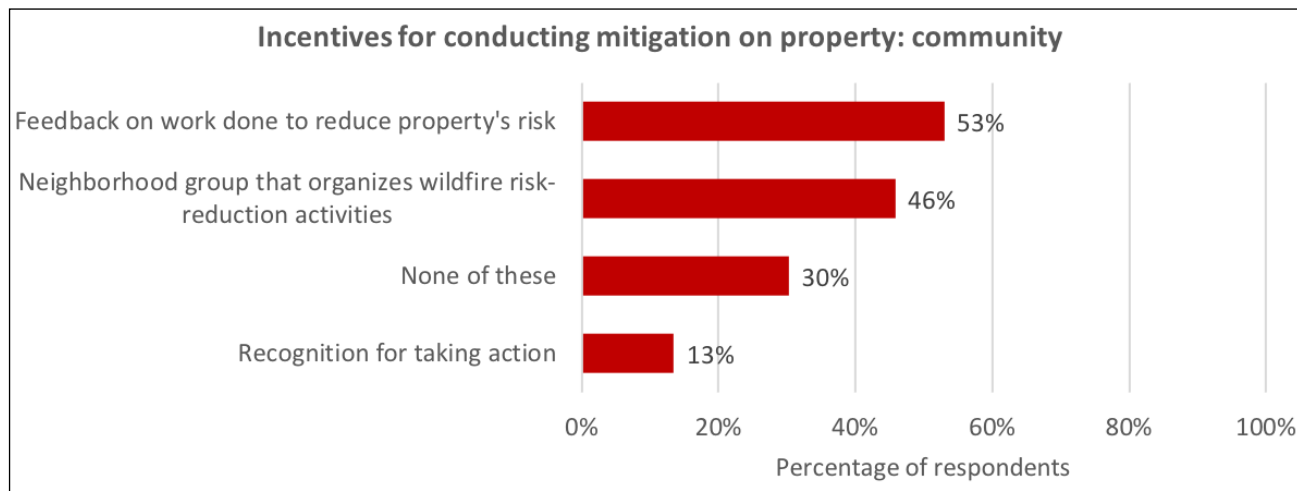


Figure 43—Percentage of respondents who selected community incentives for taking action to reduce risk on their property, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 238 respondents for each of the above incentives.

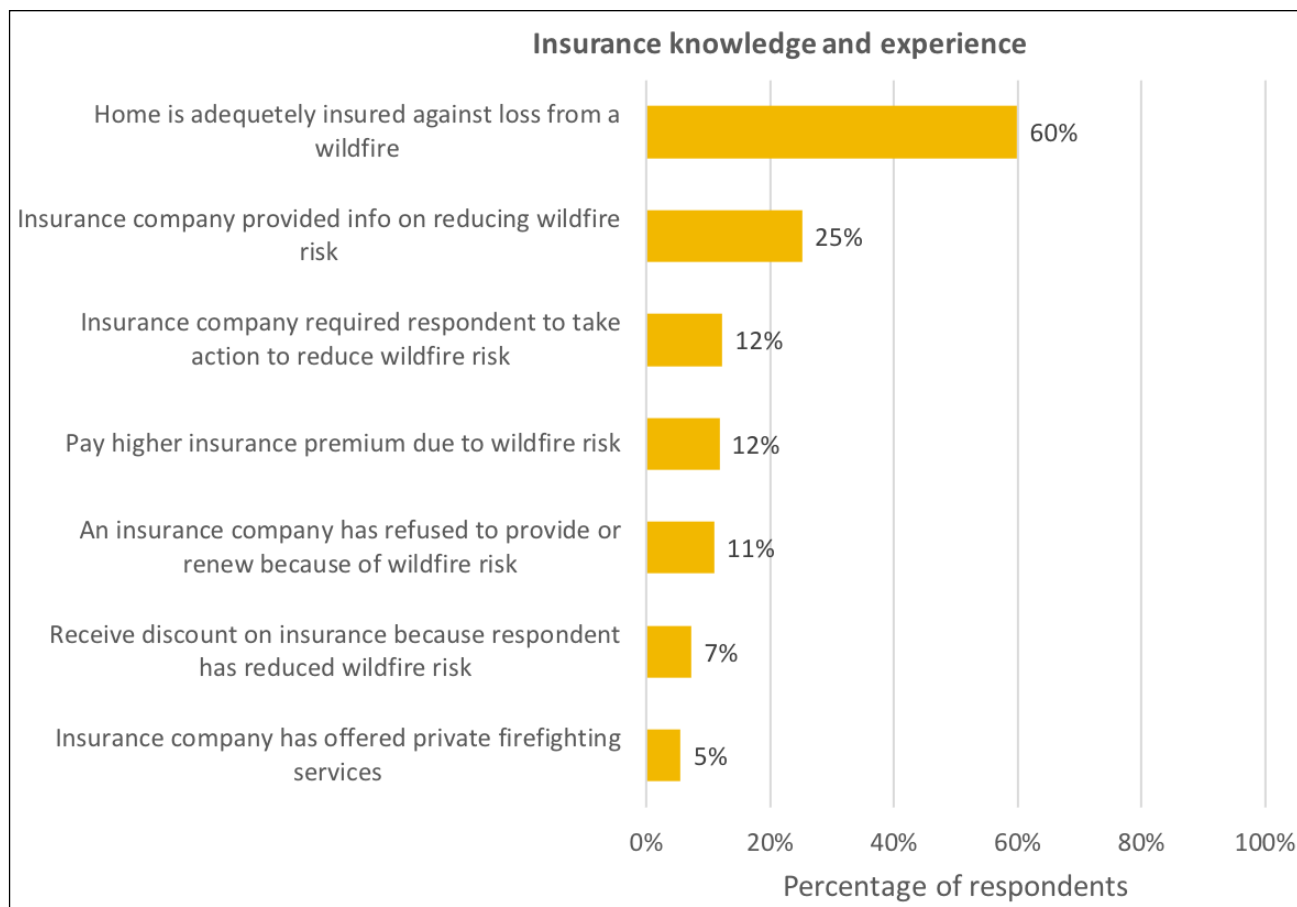


Figure 44—Percentage of respondents who responded “yes” to the above insurance-related statements (other response options were “no” and “don’t know”), which were formulated in the survey as questions, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 237–238 respondents to each statement.

How Have Respondents Learned About Wildfire Risk, and How Would They Like To?

This section describes:

- Current sources of wildfire risk communication, and the usefulness of each source;
- Whether respondents talk about wildfire with neighbors and their perceptions of their neighbors' wildfire mitigation activities;
- Current and preferred methods of communication about wildfire risk information; and
- Past experience with wildfire.

Sources of information and reported usefulness

The household survey asked respondents whether they have received wildfire risk information from various sources and to indicate the usefulness of that information. In the table below, the percentage of respondents who found the source very or extremely useful are calculated as a percentage of only the respondents who indicated that they have received the source.

The three most received sources of information were also some of the most local sources: Emigration Canyon Metro Township (82%), Unified Fire Authority (80%), and community groups (e.g., homeowners associations; 67%). These sources were also rated as very or extremely useful by most respondents who received them: Emigration Canyon Metro Township (56%), Unified Fire Authority (76%), and community groups (59%). See figure 45.

The third and fourth most received sources of information were media (60%) and Firewise USA (58%). However, few respondents (18%) who received information from media found it very or extremely useful. In contrast, the majority (61%) of respondents who received information from Firewise USA found it useful. The Firewise in Emigration Canyon is a well-established local program, as it was certified 20 years ago.⁹ See figure 45.

Nonlocal sources (e.g., the Bureau of Land Management and National Park Service) were the least commonly used sources of wildfire risk information, with less than half of respondents receiving them or finding them very or extremely useful. See figure 45.

⁹ Firewise Open House Community Day | Emigration Canyon Community Council (<http://www.emigrationcanyon.org/events/firewise/>)

Sources of wildfire risk information: Percentage of survey respondents who...			
Source of wildfire risk information	...Received wildfire risk information	...Received the information & found it very/extremely useful	
Emigration Metro Township	82%	56%	Legend 90% or more 80-89% 70-79% 60-69% 50-59% 40-49% 30-39% 20-29% 10-19% Less than 10%
Unified Fire Authority	80%	76%	
Community group (ex. HOA)	67%	59%	
Media	60%	18%	
Firewise USA	58%	61%	
Utah Division of Forestry, Fire and State Lands	34%	48%	
Local arborist/contractor	33%	27%	
USDA Forest Service	19%	51%	
Ready, Set, Go! Program	17%	44%	
Bureau of Land Management	11%	44%	
National Park Service	11%	48%	

Figure 45—Percentage of respondents who received wildfire risk information, by source, as reported by respondents residing in the study area in Emigration Canyon, Utah. This data is compared to the percentage of people who said they found each source's wildfire risk information very or extremely useful (percentage of all respondents who received wildfire risk information from that particular source). N = 233–236 respondents to source receipt questions; N = 25–193 respondents to source usefulness questions. HOA = homeowners association; USDA = U.S. Department of Agriculture.

Communication with neighbors

In addition to formal sources of information, respondents also receive and provide information through informal interactions with neighbors. Seventy-two percent of survey respondents reported talking with a neighbor about wildfire. See figure 46.

It is possible neighbors' actions influence each other. Most respondents (93%) reported that at least some of their neighbors have taken action. See figure 47.

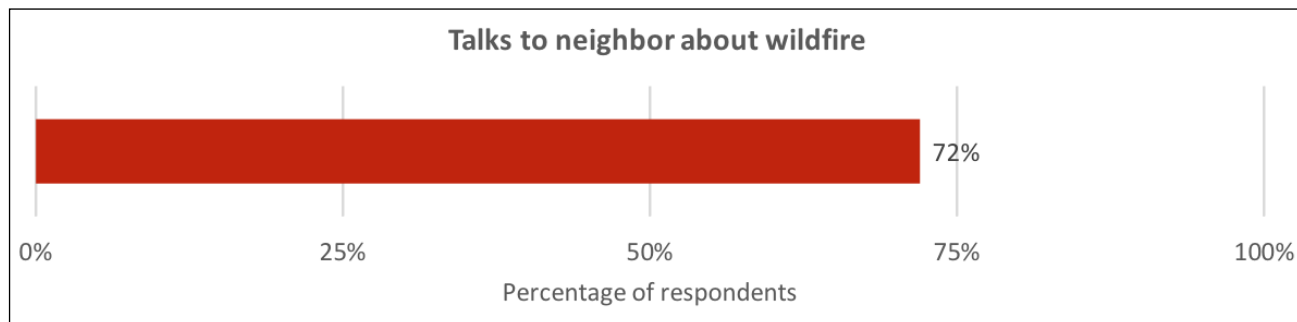


Figure 46—Percentage of respondents residing in the study area in Emigration Canyon, Utah, who reported talking to their neighbor about wildfire. N = 246 respondents to this survey question.

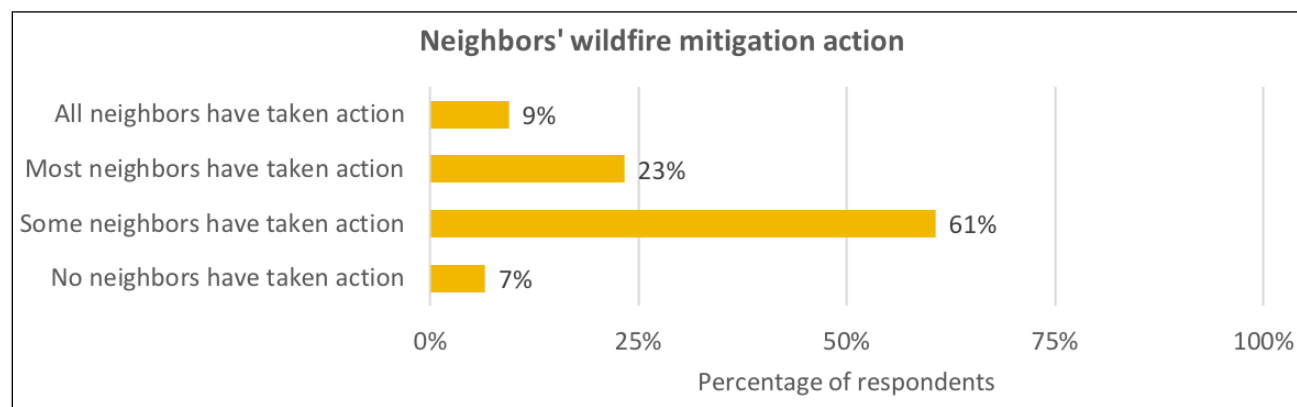


Figure 47—Respondents' estimates of how many neighbors take wildfire mitigation action, as reported by respondents residing in the study area in Emigration Canyon, Utah. N = 244 respondents to these two survey questions.

Current and preferred methods of communication

In order to gain more insight into communication about wildfire, respondents were asked to report on the modes by which they currently receive wildfire information as well as how they prefer to receive this information.

The top five ways respondents are currently receiving wildfire information are: email/e-newsletters, mailed newsletter, community meetings, in-person interactions, and the internet (nonsocial media). See figure 48.

Overall, respondents preferred to receive information about wildfire from more personalized information sources. The top preferred methods of receiving information were email/e-newsletters, mailed newsletters, and in-person interactions. See figure 48.

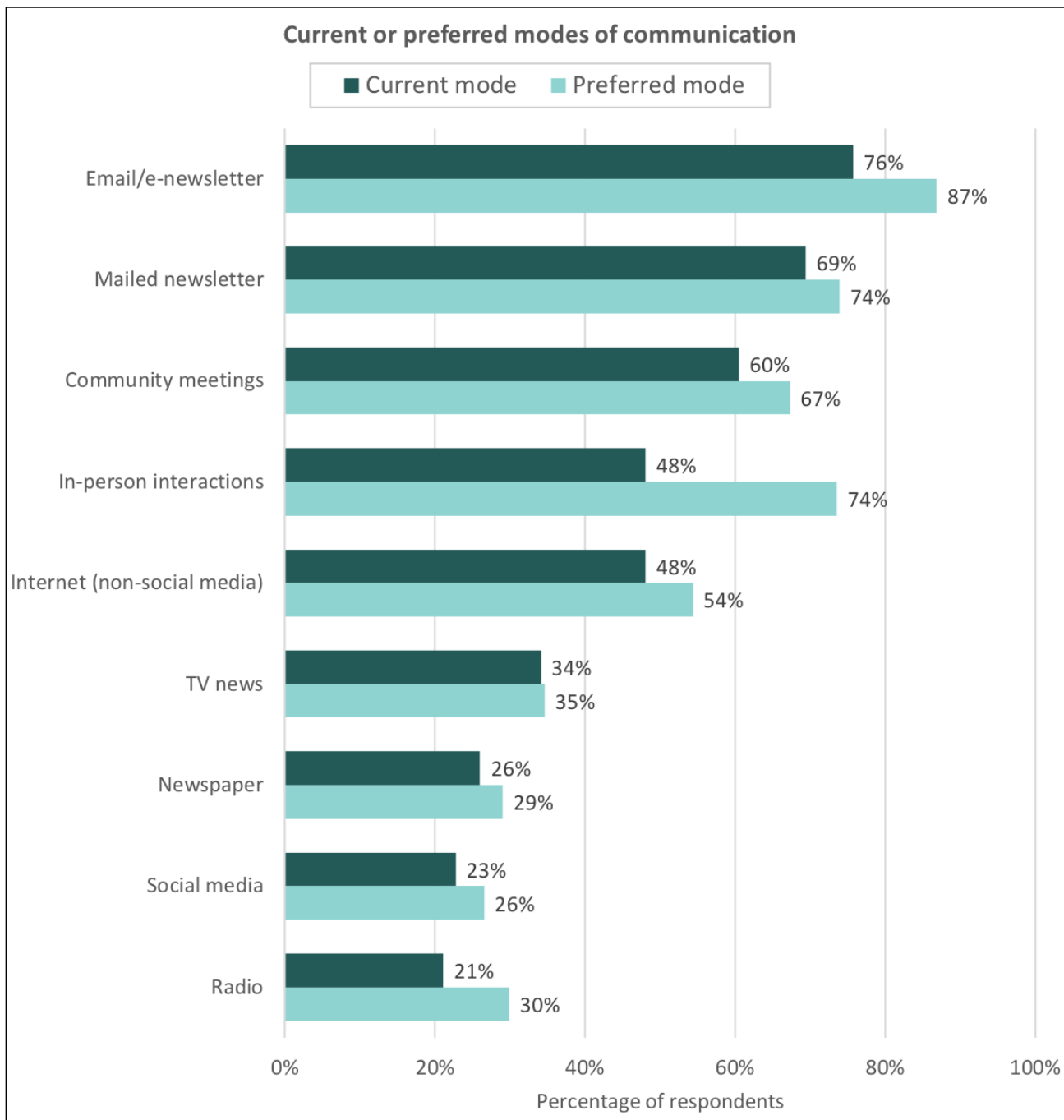


Figure 48—Comparison of current and preferred modes of communication about wildfire risk, ordered by current modes of communication, as reported by respondents residing in the study area in Emigration Canyon, Utah. Survey respondents were able to select multiple options. N = 225–235 respondents to current modes; N = 219–228 respondents to preferred modes.

CONCLUSION

This report compares professional rapid risk assessment and homeowner estimation of parcel-level wildfire risk in Emigration Canyon, Utah. The report also highlights the social dimensions of wildfire, including respondents' perceptions of wildfire risk and responsibility for wildfire risk reduction, perceptions of public land management strategies for wildfire risk mitigation, current mitigation and evacuation preparedness activities, barriers and incentives to mitigation, and communication preferences.

Results indicate that respondents differ in their evaluation of wildfire risk as compared to wildfire professionals. The major contributors to this gap are estimation of distance to combustible vegetation, distance to other combustibles, and combustible home attachments (e.g., deck, fencing). However, respondents indicate willingness and belief in their ability to reduce risk on their property, as well as few barriers to action. This points toward the need for increased outreach to align homeowner and professional perspectives on the components of wildfire risk and to improve the effectiveness of homeowner action. Results also indicate that respondents would appreciate more information about evacuation preparedness, which is an essential component of wildfire preparedness.

Results indicate several ways to improve wildfire risk mitigation and preparedness within Emigration Canyon. First, in order to address the gap between the rapid risk assessment and respondent self-assessment, wildfire professionals can provide more specific information on vegetation management in the home ignition zone (HIZ) and home hardening. Results also indicate respondents may benefit from education about the mechanisms of home ignition, such as the possibility of ember and home-to-home ignition. Second, using existing and trusted information pathways, wildfire professionals can expand opportunity for on-site visits, reports, and feedback on mitigation, which were the top incentives for mitigation. Third, survey results related to talking with neighbors about wildfire and seeing neighbors mitigate on their properties indicate that strengthening social norms about wildfire risk reduction among neighbors may lead to increased action. This third pathway supports the reality that wildfire does not respect property boundaries, so encouraging collective action is important in this context.

Survey results also indicate the most socially feasible fuel management strategies for adjacent public lands. Few respondents indicated support for strategic intentional fire use (i.e., prescribed fire and pile burning). However, they do support tree and vegetation removal, as well as regulatory measures affecting building codes, development standards, and growth policies. This indicates that there are likely additional stakeholders and agencies who can join the effort to strengthen wildfire preparedness in Emigration Canyon.

The results presented in this report have already been used to inform community action toward wildfire preparedness. For example, the author team collaborated with representatives from the Emigration Canyon Community Council and Emigration Canyon Metro Township to develop an outreach mailer for homeowners, to address major informational needs reported in the survey (see Appendix G). The author team also developed a customizable document that displays the comparison between a respondent's self-assessment of risk and the professional assessment of their property, which a member

of Emigration Canyon Community Council has shared upon request with homeowners in the study area. Study results also informed discussion of updates to the 2006 WUI Code. A member of Emigration Canyon Metro Town Council was heartened to see in this project's survey results the broad community support for regulatory measures that could be part of a WUI Code update. The author team provided a one-page memo that highlighted project data for use in meetings promoting updates to the code (see Appendix H).

APPENDICES

Appendix A: Correspondence Materials

Appendix B: Wildfire Research Center (WiRē) Rapid Assessment, Community Wildfire Risk Evaluation Form Information (“Assessor Reference Guide”)

Appendix C: Emigration Canyon Household Survey Summary

Appendix D: Comparison of Rapid Assessment and Household Survey

Appendix E: Emigration Canyon Rapid Assessment Codebook

Appendix F: Parcel Maps of Rapid Assessment Data

Appendix G: Infographic-Style Outreach Pamphlet

Appendix H: Memorandum: Summary of Household Survey Results Regarding Acceptability of Codes

Appendix A: Correspondence Materials

Utah Division of Forestry, Fire and State Lands
Wasatch Front Area Office
1594 W. North Temple, Rm. 150
Salt Lake City, UT 84116



Utah Division of
Forestry, Fire & State Lands

Dear Emigration Canyon Resident,

The Utah Division of Forestry, Fire and State Lands (FFSL) is dedicated to helping communities such as Emigration Canyon Metro Township prepare for the eventuality of wildfire. While fire is an important part of the canyon's natural ecosystem, large and intense fires have the potential to devastate homes and lives. For example, last summer's Pinecrest fire, while contained early, was an eye-opening experience for many. FFSL is partnering with Emigration Canyon Metro Township Council (or Emigration Canyon Community Council) and United Fire Authority, to learn about the community's current state of wildfire preparedness as well as residents' knowledge, experience, and attitudes. Our investigation will have two components: parcel-level wildfire risk assessments and a mail-in survey.

Wildfire Risk Assessment

This fall, FFSL personnel will conduct parcel-level wildfire risk assessments from the sidewalk or street to determine how each canyon household can be better prepared to survive a wildfire. Parcel-level assessments are a quick overview of the property characteristics that contribute to wildfire risk, including roof type, vegetation density, and evacuation routes. If you are interested in a more in-depth, on-site, no cost wildfire risk assessment of your home and property, email Geoff Whatcott, Wildland Urban Interface (WUI) Coordinator, Unified Fire Authority at gwhatcott@unifiedfire.org. Please include your name, address, and phone number.

Living with Wildfire in Emigration Canyon in 2020 Survey

The second part of the investigation is a survey that will help us understand your knowledge and perspectives on wildfire. Questionnaires will be mailed to all households later this year. Your participation in this survey is voluntary, but the information you provide will help emergency responders better prepare for future fires as well as improve our outreach and education efforts. A project report will be available in early 2021, at the conclusion of the project.

If you have any questions about the parcel-level wildfire risk assessments or the survey, please email or call Dax Reid, Wasatch Front Area Wildland Urban Interface (WUI) Coordinator, FFSL at daxreid@utah.gov or (801) 678-1655.

Thank you for participating.
Sincerely,

Anthony Widdison
Wildland Division Chief
Unified Fire Authority

Joe Smolka
Mayor
Emigration Canyon Metro Township

Dax Reid
WUI Coordinator
Forestry, Fire and State Lands



Utah Division of
Forestry, Fire & State Lands

Utah Division of Forestry, Fire and State Lands
Wasatch Front Area Office
1594 W. North Temple, Rm. 150
Salt Lake City, UT 84116



Dear Emigration Canyon Resident,

The Utah Division of Forestry, Fire and State Lands is partnering with Emigration Canyon Metro Township Council (or Emigration Canyon Community Council), United Fire Authority, researchers at the University of Colorado, and the Wildfire Research (WiRe) Center to send the "Living with Wildfire in Emigration Canyon in 2021" survey to all residents of Emigration Canyon.

To create the most effective programs possible, Forestry, Fire and State Lands needs to understand what you know about wildfire, your experiences with wildfire, as well as the characteristics of your property. The information you provide will help Forestry, Fire and State Lands and emergency responders better prepare for future fires as well as improve our outreach and education efforts. At the conclusion of the project, results will be shared with local, state, and federal groups considering wildfire risk management.

Participation in this study is completely voluntary and will take about 20 minutes. We realize your time is valuable and we appreciate you taking the time to fill out the survey.

When you return the survey, your name will be deleted from the mailing list and never connected to your answers in any way. After completing the survey, please fold it and put it in the postage paid return envelope. By returning the survey, you acknowledge your rights as a study participant (please see more details on the back of this letter).

If you have any questions about the survey, please email or call Dax Reid, Wasatch Front Area Wildland Urban Interface (WUI) Coordinator, Forestry, Fire and State Lands at daxreid@utah.gov or (801) 678-1655.

Thank you for participating.

Sincerely,

A handwritten signature in black ink, appearing to read 'A Widdison'.

Anthony Widdison
Wildland Division Chief
Unified Fire Authority

A handwritten signature in black ink, appearing to read 'Mayor Joe Smolka'.

Joe Smolka
Mayor
Emigration Canyon Metro Township

A handwritten signature in black ink, appearing to read 'Dax E. Reid'.

Dax Reid
WUI Coordinator
Forestry, Fire and State Lands



Your Rights as a Participant

We will make every effort to maintain the confidentiality of the study data. We will never publish information about individuals who participate in the study; we will present research results in summary form and keep all records and data secure.






There are no foreseeable risks associated with your participation in the survey.

You may withdraw from the study at any time and for any reason. If you have questions, concerns, or complaints about this research and you would like to talk to the research team, please contact Dr. Hannah Brenkert-Smith at hannahb@colorado.edu. This research has been reviewed and approved by an Institutional Review Board (IRB). You may talk to them at 303-735-3702 or irbadmin@colorado.edu if: your questions, concerns, or complaints are not being answered by the research team; you cannot reach the research team; you want to talk to someone besides the research team; you have questions about your rights as a research subject; or you want to get information or provide input about this research.

Living with Wildfire in Emigration Canyon in 2021



Section 1: In this first section of the survey, we ask about your home in Emigration Canyon. Please answer the following questions with respect to your ***Emigration Canyon home***.

When choosing a response, please fill in the circle completely. Correct:  Incorrect:    

1.1. Do you own or rent your Emigration Canyon home? (*Fill in one circle*)

☐ Own

☐ Rent

1.2. In what months do you typically spend time at your Emigration Canyon home? (*Fill in all that apply*)

All 12 months	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	No months
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1.3. In what year did you move to your Emigration Canyon home? (*Fill in the blank*)

_____ Year moved to my Emigration Canyon home

1.4. In what year was your Emigration Canyon home originally built? (*Fill in the blank*)

_____ Year my Emigration Canyon home was built

1.5. How aware of wildfire risk were you when you bought or decided to rent your Emigration Canyon home? (*Fill in one circle*)

☐ Very aware

☐ Somewhat aware

☐ Not aware

☐ Don't remember

Section 2: In this section, we ask about your experience with, and preparation for, wildfire at your Emigration Canyon home.

2.1. What is the closest distance (as a crow flies) a wildfire has come to your Emigration Canyon property? *(Fill in one circle)*

- ☐ There has been a wildfire on my property
- ☐ Less than 2 miles away but not on my property
- ☐ 2 to 10 miles away
- ☐ More than 10 miles away
- ☐ Not sure

2.2. Have you had any of the following wildfire experiences at your Emigration Canyon home? *(Fill in one circle per row)*

	No	Yes
I have evacuated from my Emigration Canyon home due to a wildfire or threat of a wildfire	<input type="radio"/>	<input type="radio"/>
My Emigration Canyon home has had smoke damage	<input type="radio"/>	<input type="radio"/>
My Emigration Canyon home has had wildfire damage	<input type="radio"/>	<input type="radio"/>
My Emigration Canyon home was destroyed by a wildfire	<input type="radio"/>	<input type="radio"/>

2.3. Do you currently have an evacuation plan in the event a wildfire threatens your Emigration Canyon home? *(Fill in one circle per row)*

	No	Yes	Not applicable
For the people in my household	<input type="radio"/>	<input type="radio"/>	
For the pets in my household and on my property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For livestock on my property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.4. Have you completed any of the following actions to prepare for a **wildfire evacuation** and do you want more information about how to complete any of the actions?

(Fill in two circles per row, one for each question)

	Completed action?		Want more information about action?	
	No	Yes	No	Yes
Identify how I will be notified about an evacuation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sign up for a wildfire evacuation notification system (CodeRED)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify safe evacuation routes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify a location that my household will evacuate to (area of refuge)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify what to take and what to leave behind during an evacuation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss evacuation with my neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create a checklist for steps to take before evacuating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify a place to stay during a long-term evacuation (i.e. more than a few days)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.5. Please tell us about your experiences with your **homeowners insurance** for your Emigration Canyon home. (Fill in one circle per row)

	No	Yes	Don't know
Has your current or a previous insurance company ever provided information on reducing the risk of wildfire?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Did an insurance company ever refuse to provide or renew insurance because of the risk of wildfire?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you pay a higher premium for your insurance due to wildfire risk?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you receive a discount on your insurance premium because you have reduced wildfire risk on your property?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you think your home is adequately insured against loss from a wildfire?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has your current insurance company ever required you to take action to reduce wildfire risk in order to continue coverage?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has your current insurance company offered private firefighting services?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 3: In this section, we ask about the characteristics of your Emigration Canyon home and the area near your Emigration Canyon home.

- 3.1. Does your Emigration Canyon home have any of the following roofing materials?
(Fill in all that apply)
- ☐ Tile, metal, or asphalt shingles
 - ☐ Wood (shake shingles)
- 3.2. Does your Emigration Canyon home have any of the following exterior siding materials?
(Fill in all that apply)
- ☐ Stucco, cement, brick, stone, or other noncombustible siding
 - ☐ Log or heavy timbers
 - ☐ Wood or vinyl siding
- 3.3. Does your Emigration Canyon home have a **combustible** balcony, deck, porch, or fence attached to the structure? (Fill in one circle)
- ☐ No
 - ☐ Yes
- 3.4. What is the **closest** distance from your Emigration Canyon home to combustible items other than vegetation such as lumber, firewood, a propane tank, hay bales, or other materials that could easily ignite? (Fill in one circle)
- ☐ More than 30 feet or no combustible items
 - ☐ 5 – 30 feet
 - ☐ Less than 5 feet

3.5. What is the **closest** distance from your Emigration Canyon home to overgrown, dense, or unmaintained vegetation? (*Fill in one circle*)

- ☐ More than 100 feet
- ☐ 30 – 100 feet
- ☐ 5 – 29 feet
- ☐ Less than 5 feet

3.6. Which of the following best describes the **majority** of vegetation on your Emigration Canyon property 100 to 150 feet from your home? That area might be outside your property boundary and include properties immediately surrounding you. (*Fill in one circle*)

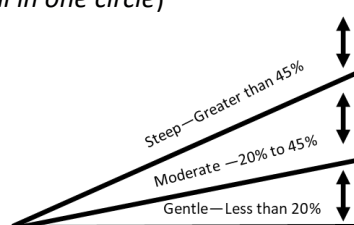
- ☐ Grasses and sagebrush
- ☐ Light brush and/or isolated trees (*ex. Interspersed Gambel oak and conifers and scattered aspen*)
- ☐ Dense brush and/or dense trees (*ex. Continuous Gambel oak and conifers and dense aspen*)

3.7. What is the **closest** distance from your Emigration Canyon home to a neighboring home? (*Fill in one circle*)

- ☐ More than 100 feet
- ☐ 30 – 100 feet
- ☐ 10 – 29 feet
- ☐ Less than 10 feet

3.8. The “slope” or “grade” of a property refers to the steepness of the land. A large property may have steep, moderate, and gentle slopes. How would you describe the average slope within 150 feet of your Emigration Canyon home? (*Fill in one circle*)

- ☐ Steep – Greater than 45%
- ☐ Moderate – 20% to 45%
- ☐ Gentle – Less than 20%



3.9. What is the closest distance from your Emigration Canyon home to a ridge, steep drainage, or narrow canyon? *(Fill in one circle)*

- ☐ More than 150 feet
- ☐ 50 – 150 feet
- ☐ Less than 50 feet

3.10. Do any of the following describe your driveway? My driveway... *(Fill in one circle per row)*

	No	Yes
has an overhead obstruction (ex. tree limbs) lower than 13.5 feet	<input type="radio"/>	<input type="radio"/>
is narrower than 20 feet wide	<input type="radio"/>	<input type="radio"/>
is longer than 150 feet	<input type="radio"/>	<input type="radio"/>
has room for a fire truck to turn around	<input type="radio"/>	<input type="radio"/>

3.11. Is the address number of your Emigration Canyon home posted? *(Fill in one circle)*

☐ No

☐ Yes →

	No	Yes
Is the posted number visible from the road? <i>(Fill in one circle)</i>	<input type="radio"/>	<input type="radio"/>
Is the posted number reflective? <i>(Fill in one circle)</i>	<input type="radio"/>	<input type="radio"/>

3.12. If the road you use to access your Emigration Canyon home was blocked during a wildfire, is there another road you could use to get out of your community? *(Fill in one circle)*

☐ No

☐ Yes

3.13. Properties in your community are assessed for overall wildfire risk based on the items asked about in questions 3.1 – 3.12 above. What do you think is your Emigration Canyon property's current overall wildfire risk rating? *(Fill in one circle)*

- ☐ Low risk
- ☐ Moderate risk
- ☐ High risk
- ☐ Very high risk
- ☐ Extreme risk

Section 4: In this section, we ask about wildfire risk reduction activities.

4.1. Have you ever talked about wildfire issues with a neighbor? *(Fill in one circle)*

- ☐ No
☐ Yes

4.2. Have you done any of the following wildfire-related activities? *(Fill in one circle per row)*

	No	Yes
Reduced vegetation on my Emigration Canyon property (ex. cleared/pruned weeds, brush, and trees)	<input type="radio"/>	<input type="radio"/>
Regularly cleared my roof and gutters of leaves and pine needles	<input type="radio"/>	<input type="radio"/>
Regularly mowed and raked around my Emigration Canyon home	<input type="radio"/>	<input type="radio"/>
Made my Emigration Canyon home more fire resistant (ex. replaced roofing, siding, added hardscaping)	<input type="radio"/>	<input type="radio"/>
Helped neighbor(s) reduce vegetation on their properties	<input type="radio"/>	<input type="radio"/>
Helped reduce vegetation on community property (ex. HOA, subdivision)	<input type="radio"/>	<input type="radio"/>
Helped reduce vegetation on nearby public lands (ex. county, state, federal lands)	<input type="radio"/>	<input type="radio"/>
Participated in a community wildfire activity (ex. meeting, chipper day, etc.)	<input type="radio"/>	<input type="radio"/>
Met with a wildfire professional at your home to evaluate and discuss your property's wildfire risk	<input type="radio"/>	<input type="radio"/>

4.3. How much do you think each of the following factors increases the chances of a wildfire damaging your Emigration Canyon property **in the next 12 months**?
(Fill in one circle per row)

	A lot	Somewhat	Not at all
Vegetation on my property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical characteristics of my house or other buildings (ex. roofing or siding) on my property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vegetation on my neighbors' properties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vegetation on nearby public or large undeveloped land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of nearby water supply (ex. hydrant or cistern) for fire suppression	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.4. How many of your immediate neighbors do you think have taken action to reduce wildfire risk on their properties (ex. removing dense vegetation or switching to noncombustible siding) *(Fill in one circle)*

- ☐ All my neighbors have taken action
- ☐ Most of my neighbors have taken action
- ☐ Some of my neighbors have taken action
- ☐ None of my neighbors have taken action

4.5. How acceptable are the following approaches to **reducing wildfire risk** in Emigration Canyon to you? *(Fill in one circle per row)*

	Extremely acceptable	Very acceptable	Moderately acceptable	Slightly acceptable	Not at all acceptable
Removing trees and reducing other vegetation (thinning/fuel breaks) on nearby public lands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Burning piles of vegetation (slash piles) on nearby public lands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conducting a prescribed fire ignited by fire managers on nearby public lands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing a naturally ignited fire (lightning) on nearby public lands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adopting growth policies or land use regulations that limit new development in fire-prone areas in Emigration Canyon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adopting building codes that require fire resistant materials for structures located in fire-prone areas in Emigration Canyon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adopting development standards that require vegetation management (ex. removing or thinning trees and mowing grass) on lots located in fire-prone areas in Emigration Canyon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 5: In this section, we ask about your notions, expectations, and risk perceptions related to wildfire.

5.1. How much do you agree or disagree with the following statements about wildfire?
(Fill in one circle per row)

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
With proper technology, we can control most wildfires.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We should put out wildfires that threaten human life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We should put out wildfires that threaten homes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During a wildfire, saving homes should be a priority over saving forests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildfires are a natural part of the balance of a healthy forest/ecosystem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I live here for the trees and will not remove any of them to reduce wildfire risk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing the wildfire danger is a government responsibility, not mine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Homeowners' actions to reduce wildfire are not effective.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My property is at risk of wildfire.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My effort to reduce wildfire risk on my property is not effective because of the heavy vegetation on my neighbors' properties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local firefighters have sufficient resources to keep the wildfire from spreading.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local firefighters have sufficient resources to protect threatened homes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Firefighters should put their lives at risk to protect my home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildfires threaten my community water supply.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to move out of the area in the next 12 months because of wildfires.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development in fire-prone areas of Emigration Canyon increases the wildfire risk to my Emigration Canyon property.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.2. If there is a wildfire on your Emigration Canyon property, how likely do you think it is that the following would occur? *(Fill in one circle per row)*

	Extremely likely	Very likely	Moderately likely	Slightly likely	Not at all likely	Not applicable
I would put the fire out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The fire department would save my home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My home would have smoke damage.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My home would have some physical damage.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My home would be destroyed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would lose money due to the loss of business or income on my property.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My trees and landscape would burn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My neighbors' homes would be damaged or destroyed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Direct flame would ignite my home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Embers would ignite my home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nearby homes would ignite my home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.3. What do you think is the chance that a wildfire will be on your Emigration Canyon property **in the next 12 months**? *(Fill in one circle)*

For sure										No chance
100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.4. If there is a wildfire on your property **in the next 12 months**, what do you think is the chance that it will destroy or severely damage your Emigration Canyon home? *(Fill in one circle)*

For sure										No chance
100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 6: In this section, we ask where you get information about wildfire, how useful the information is, how you receive information, and how you would like to receive information.

6.1. The following sources provide information about wildfire risk. If you have received information from one of these sources, how useful has it been? (*Fill in one circle per row*)

	Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful	Fill in this circle if you have NOT received information from this source
Unified Fire Authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community group (ex. homeowners association)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local arborist/contractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emigration Canyon Metro Township	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Firewise USA®	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ready, Set, Go! program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utah Division of Forestry, Fire and State Lands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
USDA Forest Service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
National Park Service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bureau of Land Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media (newspaper, TV, radio, internet)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6.2. How do you currently receive information about wildfire risk reduction and how would you prefer to receive information? Please answer **both** questions for each row.
(Fill in two circles per row, one for each question)

	I receive information about how to reduce wildfire risk on my property by...		I prefer to receive information about how to reduce wildfire risk by...	
	No	Yes	No	Yes
Email/e-newsletter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mailed newsletter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In-person interactions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social media (Facebook, Twitter, Nextdoor)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet (non-social media)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TV news	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Newspaper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 7: In this section, we would like to know why you do or do not take action to reduce the risk of wildfire to your Emigration Canyon property.

- 7.1. Do any of the following **prevent you** from taking action to reduce the wildfire risk on your Emigration Canyon property (ex. cutting trees, changing roof/siding)?
(Fill in all that apply for each row)

Personal resources	Financial cost <input type="radio"/>	Time to do the work <input type="radio"/>	Physical ability to do the work <input type="radio"/>	None of these <input type="radio"/>
Lack of specific information about...	The factors contributing to my property's wildfire risk <input type="radio"/>	How to reduce wildfire risk on my property <input type="radio"/>	Where to dispose of vegetation/slash <input type="radio"/>	None of these <input type="radio"/>
Personal perspectives	I do not want to change the way my property looks <input type="radio"/>	I do not think taking action would reduce my property's wildfire risk <input type="radio"/>	It's a low priority to me <input type="radio"/>	None of these <input type="radio"/>
Community	Lack of options for disposing vegetation/slash <input type="radio"/>	Restrictions on the changes I can make to my property <input type="radio"/>	Social pressure from neighbors <input type="radio"/>	None of these <input type="radio"/>

- 7.2. Would any of the following **encourage you** to take action to reduce the wildfire risk on your Emigration Canyon property? (Fill in all that apply for each row)

Resources	Cost-share or financial assistance <input type="radio"/>	Help doing the work <input type="radio"/>	Recommended contractors <input type="radio"/>	None of these <input type="radio"/>
Information	A report describing my property's wildfire risk factors <input type="radio"/>	Videos showing how to reduce risk on a property in my area <input type="radio"/>	One-on-one visit with wildfire risk experts on my property <input type="radio"/>	None of these <input type="radio"/>
Other	Feedback on the work I've done to reduce my property's risk <input type="radio"/>	Recognition for taking action <input type="radio"/>	Neighborhood group that organizes wildfire risk-reduction activities <input type="radio"/>	None of these <input type="radio"/>

Section 8: In this section, we ask about personal and household characteristics. Your name will never be connected to your answers in any way.

8.1. In general, do you view yourself as someone who is not at all willing to take risks or very willing to take risks? (*Fill in one circle*)

Very willing
to take risks

Not at all willing
to take risks

10	9	8	7	6	5	4	3	2	1	0
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8.2. What is your age? (*Fill in the blank*)

_____ years old

8.3. Are you? (*Fill in one circle*)

- ☐ Male
- ☐ Female

8.4. What is the highest grade or year of school you completed? (*Fill in one circle*)

- ☐ Less than high school
- ☐ High school graduate
- ☐ Some college or technical school
- ☐ Technical or trade school
- ☐ College graduate
- ☐ Some graduate work
- ☐ Advanced degree (M.D., M.A., M.S., Ph.D., etc.)

8.5. Which of the following best describes your current employment situation?

(Fill in one circle)

- ☐ Employed full time (including self-employed)
- ☐ Employed part time (including self-employed)
- ☐ Unemployed or do not work outside of the home
- ☐ Retired

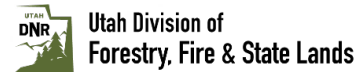
8.6. Which of the following categories describes your annual household income?

(Fill in one circle)

- ☐ Less than \$15,000
- ☐ \$15,000 - \$24,999
- ☐ \$25,000 – \$34,999
- ☐ \$35,000 - \$49,999
- ☐ \$50,000 - \$74,999
- ☐ \$75,000 - \$99,999
- ☐ \$100,000 - \$149,999
- ☐ \$150,000 - \$199,999
- ☐ \$200,000 or more

Thank you for your help. Please use the space below to write any additional comments. If you would like to schedule an onsite visit with a wildfire professional to learn how you can reduce risk on your property, contact Geoff Whatcott, Wildland Urban Interface (WUI) Coordinator, Unified Fire Authority at gwhatcott@unifiedfire.org.

Utah Division of Forestry, Fire and State Lands
Wasatch Front Area Office
1594 W. North Temple, Rm. 150
Salt Lake City, UT 84116



Dear Emigration Canyon Resident,

We recently requested your participation in an important survey about Emigration Canyon Metro Township and wildfire. Many residents have completed and returned the survey to us. However, we would like to hear from you so we can consider your opinions. If you have already returned the survey, thank you for your participation. If you have not yet responded, please complete and return the enclosed survey.

The Utah Division of Forestry, Fire and State Lands (FFSL) needs your help to develop more effective community wildfire programs. It is our goal to proactively confront wildfire preparedness issues before the smoke is in the air. The "Living with Wildfire in Emigration Canyon in 2021" survey is intended to take roughly 20 minutes.

Participation in this study is completely voluntary. We realize your time is valuable and we appreciate you taking the time to fill out the survey.

When you return the survey, your name will be deleted from the mailing list and never connected to your answers in any way. After completing the survey, please fold it and put it in the postage paid return envelope. By returning the survey, you acknowledge your rights as a study participant (please see more details on the back of this letter).

If you have any questions about the survey, please email or call Dax Reid, Wasatch Front Area Wildland Urban Interface (WUI) Coordinator, Forestry, Fire and State Lands at daxreid@utah.gov or (801) 678-1655.

Thank you for participating.

Sincerely,

A handwritten signature in black ink, appearing to read 'A Widdison'.

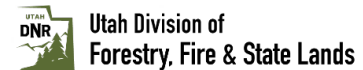
Anthony Widdison
Wildland Division Chief
Unified Fire Authority

A handwritten signature in black ink, appearing to read 'Mayor Joe Smolka'.

Joe Smolka
Mayor
Emigration Canyon Metro Township

A handwritten signature in black ink, appearing to read 'Dax E. Reid'.

Dax Reid
WUI Coordinator
Forestry, Fire and State Lands



Your Rights as a Participant

We will make every effort to maintain the confidentiality of the study data. We will never publish information about individuals who participate in the study; we will present research results in summary form and keep all records and data secure.

There are no foreseeable risks associated with your participation in the survey.

You may withdraw from the study at any time and for any reason. If you have questions, concerns, or complaints about this research and you would like to talk to the research team, please contact Dr. Hannah Brenkert-Smith at hannahb@colorado.edu. This research has been reviewed and approved by an Institutional Review Board (IRB). You may talk to them at 303-735-3702 or irbadmin@colorado.edu if: your questions, concerns, or complaints are not being answered by the research team; you cannot reach the research team; you want to talk to someone besides the research team; you have questions about your rights as a research subject; or you want to get information or provide input about this research.



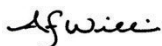
The Wildfire Research Center
8117 Alfalfa Ct
Niwot, CO 80503

Dear Emigration Canyon Resident,

We recently sent you the “Living with Wildfire in Emigration Canyon in 2021” survey. If you have not had a chance to complete and mail the survey, please do so today. We value your opinions. The information you provide is very important for the development of programs to reduce the risk of losses due to catastrophic wildfires.

If you have recently returned the survey, thank you for your participation!

Sincerely,



Anthony Widdison
Wildland Division Chief




Joe Smolka
Mayor




Dax Reid
WUI Coordinator



Utah Division of
Forestry, Fire & State Lands

Appendix B: Wildfire Research Center (WiRē) Rapid Assessment, Community Wildfire Risk Evaluation Form Information ("Assessor Reference Guide")

Starts on next page.

WiRē Rapid Assessment Form: Emigration Canyon_Wasatch

	Attribute	Attribute description	Response categories	Attribute weight	Category score	
Background Conditions	Slope	The "slope" or "grade" of a property refers to the steepness of the land. A large property may have steep, moderate, and gentle slopes. How would you describe the overall slope of the	Gentle - Less than 20%	2%	0	
			Moderate - Between 20% - 45%		10	
			Steep - Greater than 45%		20	
			Unknown - not observed		21	
Access	Address posting	Does the address sign meet all of the standards as identified in the Assessor Reference Guide?	Yes, fully meets standard. (Minumum is posted and reflective)	1%	0	
			Address sign is visible, but does not meet all standards		5	
			No, not posted/visible from the primary road		10	
	Ingress/Egress	If the road to access the home was blocked due to a wildfire, is there another road to get out of the community?	Yes, two or more roads in/out	1%	0	
			No, one road in/out		10	
			Unknown - not observed		11	
	Driveway clearance	Does the driveway meet the horizontal and vertical clearance standards as identified in the Assessor Reference Guide?	Yes, meets all driveway standards. Meets both height (at least 13.5') and width clearance (at least 20')	1%	0	
			Meets one, but not both , standards (height or width)		5	
			Does not meet either standard (height and width)		10	
			Unknown - not observed		11	
	Driveway length	What best describes the driveway?	Less than 150' long	1%	0	
			150' or more with "adequate" turnaround		5	
			150' or more without "adequate" turnaround		10	
			Unknown - not observed		11	
	Background Conditions	Distance to dangerous topography	What is the closest distance from the home to a ridge, steep drainage, or narrow canyon?	More than 150'	5%	0
				50' - 150'		25
Less than 50'				50		
Unknown - not observed				51		
Adjacent fuels		Which of the following best describes the dominant vegetation 100' - 150' from the home. <i>This may be outside the property boundary.</i>	Light- Grasses and isolated light brush	4%	10	
			Medium- Light brush and/or isolated trees		20	
			Dense- Dense brush and/or dense trees		40	
			Unknown - not observed		41	
Defensible Space	Defensible Space	What is the closest distance from the home to overgrown, dense, or unmaintained vegetation?	More than 100'	10%	0	
			30' - 100'		50	
			5' - 29'		75	
			Less than 5'		100	
			Unknown - not observed		101	
	Other combustibles	What is the closest distance from the home to combustible items other than vegetation such as lumber, firewood, a propane tank, hay bales, or other materials that could easily ignite?	More than 30' or no combustible items	8%	0	
			5' - 30'		40	
			Less than 5'		80	
Unknown - not observed			81			
Home Ignition Potential	Roofing materials	What is the most vulnerable roofing material?	Tile, metal, or asphalt shingles	30%	0	
			Wood (shake shingles)		300	
			Unknown - not observed		301	
	Building exterior	What is the most vulnerable exterior siding material?	Stucco, cement, brick, stone, or other noncombustible siding	7%	0	
			Log or heavy timbers		35	
			Wood or vinyl siding		70	
			Unknown - not observed		71	
	Combustible attachments	Does the home have a combustible balcony, deck, porch, or fence attached to the structure?	No	10%	0	
			Yes		100	
			Unknown - not observed		101	
	Proximity to adjacent structures	What is the closest distance to a neighboring home?	More than 100'	20%	0	
			30' - 100'		50	
			10' - 29' away		100	
			Less than 10'		200	
Unknown - not observed			201			
Total checks				100%	#REF!	

Wildfire Research Center (WiRe) Assessor Reference Guide

Field Name	Description	Response categories	Score	Attribute weight	Rationale & Additional Considerations	Related
n/a	<WiRe Partner Organization> Assessor Name	Select Assessor from menu.	n/a	n/a		
n/a	Assessment Date	This information will be auto filled.	n/a	n/a		
n/a	Street Address: House Number / Street Name	This information will be auto filled. Assessor can manually update if necessary.	n/a	n/a		
n/a	Parcel ID	This information will be auto filled.	n/a	n/a		
n/a	WiRe ID	This information will be auto filled.	n/a	n/a		
n/a	Subdivision Name	Select the subdivision that the parcel is located in.	n/a	n/a		
n/a	Place pin on structure	Assessor can manual place pin on the structure being assessed while in the field or on the backend after the parcel is assessed.	n/a	n/a		
n/a	Primary use of structure	Residential Outbuilding Commercial Industrial Mixed Use Other	n/a	n/a		
Slope	The "Slope" or "grade" of a property refers to	Gentle - Less than 20%	0	2%	Slope is autopopulated using GIS. In general, the GIS tool will calculate average slope on property within a	

Continued ...

	the steepness of the land. A large property may have steep, moderate, and gentle slopes. How would you describe the overall slope of the property?	Moderate - Between 20% - 45%	10		150 foot buffer of the home. The output of this calculation (the average slope) will then be used to categorize the slope as 'Gentle', 'Moderate', or 'Steep'. The results of this GIS tool will be used to prepopulate that database. Each assessor, however, will have the capability to overwrite this data point and select a different slope category.	
		Steep - Greater than 45%	20			
		Unknown - not observed	21		If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	
Address Posting	Does the address sign meet all of the standards as identified in the Assessor Reference Guide?	Yes, fully meets standard. (Minimum is posted and reflective)	0	1%	Use this category if the address sign fully meets or exceeds the local standard: Unified Fire Authority (UFA) is offering Emigration Canyon residents address signs that are 8" by 24" with the "Emigration Township" logo, metal, highly reflective and available in horizontal and vertical formats. Address signs must be visible from the road. Use this category if the address sign is not the exact UFA standard but is visible from the public road and reflective.	A clearly visible address sign, that remains visible in the dark (e.g., night, smoky) is critical for safe and effective emergency response - particularly EMS. In many locations, a local jurisdiction (e.g., county, city, FPD) may have a standard for address signs. Typical standards for wildfire considerations include: The sign and post are non-combustible, the lettering is at least 4 inches tall, the sign incorporates a retroreflective contrasting color scheme, and the sign has been posted in a highly visible location at the juncture of the public road and the driveway. In some instances, multiple homes are accessed from a common driveway. In these instances, it may be necessary to post multiple address signs where the common driveway junctures with the public road and then additional individual address signs where each individual driveway breaks off. For the purposes of this rapid assessment, "posted" is meant to imply that the address sign is visible at the juncture of the public road and the driveway. This assessment is not considering sign material or any other potential local standards.
		Address sign is visible, but does not meet all standards	5		Use this category if the address sign is visible from the road but IS NOT reflective. If there is a local address sign standard, use this category if the address sign is visible from the road but does not meet all of the local standards.	
		No, not posted/visible from the primary road	10		Use this category if the address sign either (A) does not appear to exist or (B) is not visible. Use this category regardless of the whether or not the address sign meets the WiRe or local standard or not.	
Ingress/Egress	If the road to access the home was blocked due to a wildfire, is there another road to get out of the community?	YES, two or more roads in/out	0	1%	Safe and effective ingress and egress is a critical component to community planning as well as safe and effective emergency response and evacuation. Numerous types of emergency ingress/egress situations can exist such that there may be certain locations that will have more than one road out from the immediate house, but then over some distance, these multiple ingress/egress routes funnel back in to a single ingress/egress route. It will be up to the discretion of the assessor (<i>should be determined prior to beginning RA what the determining factors are</i>) to determine if a property has more than one VIABLE route for getting in and out of the property and to a reasonably far away location, that will more likely than not be considered a safe location, during a future wildfire incident.	Does the family have a plan for evacuation, including a meeting location A and location B in case cell phone communications are lost? Is the resident aware of the main routes for evacuating the home, and have they driven them?
		NO, one road in/out	10			
		Unknown - not observed	11		If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	

DrivewayClear	Does the driveway meet the horizontal and vertical clearance standards as identified in the Assessor Reference Guide?	Yes, meets all driveway standards. Meets both height (at least 13.5') and width clearance (at least 20')	0	1%	<p>The rationale behind this question is primarily related to emergency access, and in particular, access for wildland fire engines, structure fire apparatus, and other emergency responders to access the property. Horizontal Standard: Under ideal circumstances, each WUI driveway would provide enough horizontal width so that two vehicles could easily pass one another along the driveway. By width, we are talking about horizontal obstruction-free clearance that would permit vehicle access. We are not talking solely about road base. In other words, if a driveway road base is 12 feet wide and is bordered by flat ground, that could easily be driven on by any of the above listed vehicles, with no obstructions in either direction for at least 4 feet on each side (a total of 20 feet), then the assessor should mark the driveway as "More than 20 ft". However, if there are obstructions, such as vegetation, driveway gateways or anything else deemed as an obstruction that would make it difficult or impossible for two vehicles to pass each other along the driveway, at any point, then the assessor should rate this domain as "Meets one, but not both, standards (height or width)" or "Does not meet either standard (height and width)"—depending on an observational estimate of the width of the driveway. The takeaway for homeowners is that they may need to remove obstructions, such as vegetation or gateways, so that emergency vehicles can safely utilize their driveway during a future incident. Vertical Standard: Vertical obstructions are another consideration. Overhanging tree branches or ranch style gateways can create vertical obstructions. The vertical standard for this assessment is 13.5 feet.</p> <p>If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."</p>	
		Meets one, but not both, standards (height or width)	5			
		Does not meet either standard (height and width)	10			
		Unknown - not observed	11			
DrivewayLength	What best describes the driveway?	Less than 150' long	0	1%	<p>Similar to DrivewayClear, length is related to the safety of emergency responders that are accessing the home. The longer the driveway, the more risk exposure for responders. Length may be estimated by driving down the driveway (which will be very helpful to answer several other additional questions), satellite imagery, or visual estimate. Similarly, the "turnaround" aspect of the question relates to whether or not an adequate and appropriate turnaround exists along the driveway. By "adequate" - we mean that a turnaround exists that meets/exceeds the local FPD/county/relevant jurisdictional standards for emergency vehicle turnarounds.</p> <p>If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."</p>	<p>If a local FPD/county/local jurisdictional standard for emergency vehicle turnarounds does not exist, your jurisdiction may elect to develop a standard - whether or not there is a strict requirement for homeowners to meet the standard. One such standard, from Boulder County, has a nice companion flyer which provides visuals which can be helpful when trying to relay this information to the public. Boulder County Turnaround Standards Link: https://assets.bouldercounty.org/wp-content/uploads/2017/03/w04-emergency-vehicles-access.pdf</p>
		150' or more with "adequate" turnaround	5			
		150' or more without "adequate" turnaround	10			
		Unknown - not observed	11			

DistanceTo DangerTopo	What is the closest distance from the home to a ridge, steep drainage, or narrow canyon?	More than 150'	0	5%	Topography is one of the three main factors that influence wildland fire behavior. It is well documented and understood that certain topographic features, such as ridges, chimneys, and drainages are known to dramatically increase fire behavior (rate of spread, flame length, etc.). As such, homes that are located close to and in direct alignment with these features are at significantly higher risk than those homes that are situated back and away from such features. The goal of this domain is to assess the relative proximity of the home to any observed feature.	This category has obvious overlap with the Slope category. However, slope is designed to capture the "grade" of the land, and this category is focused on specific topographic features.
		50' - 150'	25			
		Less than 50'	50			
		Unknown - not observed	51		If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	
AdjacentFuels	Which of the following best describes the dominant vegetation 100' - 150' from the home. This may be outside the property boundary.	Light <grassland/sagebrush>	10	4%	Grasses and sagebrush	Fuels are one of the three categories on the wildfire behavior triangle. This domain looks at a proxy of fuel type and fuel load/density. It does not necessarily analyze factors related to fuel conditions that are critical to understanding future potential wildfire behavior including: true fuel type, fuel arrangement, fuel continuity (vertical and horizontal), fuel moistures, fuel loads, combustion characteristics, etc. As such, this domain is subject to a significant amount of assessor interpretation and subjectivity. That said, we recommend the following methodology: Look at the area where the home is situated. Within a band starting at 100 feet from the home (limits of defensible space category) and extending out to 150 feet of the home, in all directions, estimate what is the dominant and primary fuel description. By "dominant and primary" we mean which of the fuels within this area will more likely than not play the greatest role in fire behavior should those fuels become involved in the fire.
		Medium <light brush and/or isolated trees>	20		Interspersed Gambel oak, mountain mahogany, scattered aspen, Douglas-fir blue spruce, engelmann spruce or other conifers	
		Dense <dense brush and/or dense trees>	40		Continuous gambel oak, mountain mahogany, dense aspen, Douglas-fir, blue spruce, engelmann spruce or other conifers	
		Unknown - not observed	41		If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	
DefendSpace	What is the closest distance from the home to overgrown, dense, or unmaintained vegetation?	More than 100'	0	10%	Primary experimental research from the International Crown Fire Modeling Experiment (1998) demonstrated that structures (stick built, T-1-111 siding, composite shingles) were able to survive (with light scorch) from the radiant heat of an active crown fire (Jack Pine) at a distance as little as 10 meters (32.8 feet), without direct flame contact, but did ignite when the structure was exposed to direct flames. At a distance of 30 meters (98.42 ft), the same structures survived without any scorch. Along with modeling, case studies and other research, this famous experiment laid the foundation for the classic zones of defensible space: Zone 1 (0-30 feet) / Zone 2 (30-100 feet) / Zone 3 (100 feet or more with slope factor). Additional understanding and research has lead to a fuller understanding of ignition vulnerabilities for the home (primarily related to ember ignitions). A new 5	Truly assessing defensible space requires a more thorough evaluation of the home and its immediate surroundings and typically necessitates an in-person walk through with the homeowner. Determining an appropriate prescription for vegetation management will depend upon a number of factors. The intent of question is to raise and/or increase awareness related to the fact that additional vegetation management is necessary to adequately reduce the potential for radiant or convective heat exposure to the home from burning vegetation during a wildland fire. The new 5 foot zone should be devoid of all combustible materials (including bark mulch or combustible vegetation).
		30' - 100'	50			
		5' - 29'	75			

		Less than 5'	100		foot zone has emerged from the work being conducted by IBHS and has begun to gain more widespread adoption. For this domain, each assessor will need to determine, using best professional judgement, the amount of distance (in feet) between the home and any "overgrown, dense or unmaintained vegetation". To this extent, it is important to consider the vegetation in question and whether or not that <i>particular</i> vegetation would more likely than not contribute to an active wildland fire and thusly expose the home in question to direct flames and/or radiant heat and/or convective heat that could presumably result in ignition in most imagined scenarios. In other words, if you were recommending treatment/mitigation for defensible space, would you recommend that the vegetation in question be managed within 5 feet of the home? Within 30 feet of the home? Within 100 feet of the home?	
		Unknown - not observed	101		If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	
OtherCombust	What is the closest distance from the home to combustible items <i>other than vegetation</i> such as lumber, firewood, a propane tank, hay bales, or other materials that could easily ignite?	More than 30' or no combustible items	0	8%	Are there any other combustible materials, near the home (within Zone 1), that a structure triage group would likely want to remove/clean up in the event of an approaching wildfire? Common items include lumber, construction materials, firewood, propane tanks, hay bales, leaves, wicker furniture, decorative ornaments, etc. If so, how close to the home are these items? If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	Other combustibles are extremely common. It is important for homeowners to be aware that these materials represent a risk, particularly during the fire season, and particularly related to ember ignition exposure.
		5' - 30'	40			
		Less than 5'	80			
		Unknown - not observed	81			
RoofingMat	What is the most vulnerable roofing material?	Tile, metal, or asphalt shingles	0	30%	Tile, metal or asphalt shingles are commonly associated with a Class A roofing assembly - though not in all cases. Tar or rubberized roofs are most commonly found with adobe SW style homes with a flat roof. Certainly there are some additional types of roofing materials that are used besides the ones listed - in which case the assessor should make a determination using best available information related to the roofing material and its potential ignitability. In other instances, multiple types of roofing materials are used, particular in homes with complex roof lines, dormers and extensions. In these cases, we recommend rating the entire roof as whatever is the most vulnerable section. If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	It is important to note that roofing material is only one factor in the roofing equation as it relates to wildland fire. During a more in-depth analysis, it will be important to consider the entire roofing assembly with regards to the potential for future ignition during a wildland fire. Certain asphalt shingle and even metal roofs remain vulnerable to ignition due to the assembly. Important related factors to the roof are eaves and gutters. Open eaves represent a higher risk than soffited eaves. All vents/openings should at minimum incorporate 1/8" metal screening. Additionally, gutters play a major role.
		Wood (shake shingles)	300			
		Unknown - not observed	301			

BuildingExterior	What is the most vulnerable exterior siding material?	Stucco, cement, brick, stone, or other noncombustible siding	0	7%	This category includes brick, stone, block, concrete synthetic stone, metal, stucco (3 stage or EIFS), fiber cement (e.g. Hardie Board) or other materials that are considered Class A or B.	This is probably the most challenging domain to assess during the Rapid Assessment. There are literally dozens of commonly used materials that exist on the market for the exterior cladding of a home. Many of these materials claim to be resistant to fire, resistant to ignition or noncombustible. In addition, it is very common for a home to incorporate multiple different types of exterior cladding/siding. Additionally, some of the newer available products that fall in the general category of "fiber cement siding" have been designed to mimic wood - and are increasingly getting better at 'looking the part'. These products can make it difficult to discern the difference. Additionally, it is known that not all stucco applications meet fire resistant standards. All of this said, the intent of this domain is to increase awareness related to the potential for home ignition via risk exposure vulnerabilities on the home, and the role of the assessor is to determine if any such ignition vulnerabilities likely exist. Using all available information, including visual observation, photographs, county assessor data, it is up to the assessor to make a determination if any exterior cladding/siding represents a potential risk for ignition on the home and to utilize the response categories to denote these risk. After the roof, the exterior siding represents the second largest (in terms of square feet) surface that is exposed to potential ignition risks. However, mitigating the risk, even to wood siding, can be achieved through defensible space combined with a variety of other "ember mitigation" techniques.
		Log or heavy timbers	35		In order to qualify as log, it needs to be considered "heavy log construction" with a minimum log diameter of 6 inches with all bark striped and incorporating a chinking material to fill the gaps between the logs. Faux logs, D-Link, and square logs DO NOT qualify for this category and should be counted as "Wood or open sided".	
		Wood or vinyl siding	70		Wood or vinyl siding only	
		Unknown - not observed	71		If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	
CombustibleAttachments	Does the home have a combustible balcony, deck, porch, or fence attached to the structure?	No	0	10%	Decks and fences are well known to be considerable home ignition vulnerabilities. If no deck or fence is attached to the structure, then the answer is no. However, if a deck or fence is attached, the assessor will need to determine to what extent the attached deck or fence poses an ignition risk based upon an observation of the combustibility of such attachment. While composite decking boards (e.g. Trex) are considered by many to be a better alternative than standard decking boards, for the purposes of this risk assessment, we are considering composite decking to fall in to the category of "combustible."	Attached decks and fences is a complicated subject. There are many, many types of decks construction styles and materials on the market. Recent research has indicated some novel approaches to mitigation for decks, including covering the tops of joists with a metal wrap.
		Yes	100		If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	
		Unknown - not observed	101			
ProximityAdjacentStructures	What is the closest distance to a neighboring home?	More than 100'	0	20%	Home to home ignitions (i.e. conflagration) are a significant factor in the spread of fire through more densely built environments. Homes and structures are generally built with combustible materials and contain	
		30' - 100'	50			

		10' - 29'	100		gutters, porches and vulnerable locations where embers can get trapped and combust. When assessing the home, determine the relative proximity of the nearest home. Is the nearest home more than 100 feet away? Is it less than 100 feet, but more than 30 feet? Is the nearest home within 10 feet of the home being assessed?	
		Less than 10'	200			
		Unknown - not observed	201		If you observe the attribute, but are unsure of the correct response category, choose the riskiest option. If you can not observe the attribute at all, choose "Unknown - not observed."	
	Enter additional comments necessary to understand this assessment.				This is a great place to add any notes that will help the back end data compilation and analysis efforts. Type away and help everyone understand what other things we might all need to know!	

Additional Instructions and Tips	
Structure Location Pins	Use +/- to zoom in and out
Structure Location Pins	If pin is accidentally moved, hit back button OR use location services to locate yourself then move pin back on to house.
Structure Location Pins	Pin locations can be adjusted - but be careful!
When to use 'Unknown-not observed' category	If the assessor cannot truly observe the Attribute Description, we recommend using the 'Unknown-not observed' category. The 'Unknown-not observed' category is essentially the same score as the most riskiest option, plus one point. This category should not be used if the assessor can see the values presented in the category, but is not sure of the answer. For example, if the siding looks like wood but could be hardi board, the assessor should rate it as the most risky option instead of 'Unknown-not observed.'
Unsure of how to respond to a question?	The default answer should be the most vulnerable/high risk answer. Be conservative with answering questions.

Appendix C: Emigration Canyon Household Survey Summary

Starts on next page.

The Wildfire Research Center

WiRē



Emigration Canyon Household Survey Summary

Living with Wildfire in Emigration Canyon in 2021



Entered survey responses: 249 n = number of observations

Response rate: 45%

Blue numbers are percent responses (might not total to 100% due to rounding)

Red ALL CAPS are variable names

Please note: We encourage use of this document for applied, research, and/or publication purposes but request to be notified before any such use at info@wildfireresearchcenter.org.

**Household survey administration was supported with funding from the Utah Division of Forestry, Fire and State Lands.*

**All data received and processed as of October 25, 2021*

**Document prepared May 17, 2022*

Section 1: In this first section of the survey, we ask about your home in Emigration Canyon. Please answer the following questions with respect to your ***Emigration Canyon home***.

When choosing a response, please fill in the circle completely. Correct: ☒ Incorrect: ☐ ☐ ☐ ☐

OWNRENT (n=245)

1.1. Do you own or rent your Emigration Canyon home? (*Fill in one circle*)

100% Own

0% Rent

MONTHS (n=244)

1.2. In what months do you typically spend time at your Emigration Canyon home? (*Fill in all that apply*)

All 12 months	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	No months
94%	96%	96%	96%	97%	97%	97%	97%	96%	97%	96%	96%	96%	1%

FULLTIME (n=243)

1.3. In what year did you move to your Emigration Canyon home? (*Fill in the blank*)

AVERAGE = 2002

YRBUILD (n=239)

1.4. In what year was your Emigration Canyon home originally built? (*Fill in the blank*)

AVERAGE = 1983

RISKAWAR (n=245)

1.5. How aware of wildfire risk were you when you bought or decided to rent your Emigration Canyon home? (*Fill in one circle*)

45% Very aware

43% Somewhat aware

10% Not aware

1% Don't remember

Section 2: In this section, we ask about your experience with, and preparation for, wildfire at your Emigration Canyon home.

FIRE (n=247)

2.1. What is the closest distance (as a crow flies) a wildfire has come to your Emigration Canyon property? *(Fill in one circle)*

- 4% There has been a wildfire on my property
- 49% Less than 2 miles away but not on my property
- 36% 2 to 10 miles away
- 4% More than 10 miles away
- 6% Not sure

2.2. Has your Emigration Canyon home ever had smoke or fire damage from a wildfire? *(Fill in one circle per row)*

		No	Yes
EVACUATED (n=247)	I have evacuated from my Emigration Canyon home due to a wildfire or threat of a wildfire	74%	26%
SMOKEDAM (n=244)	My Emigration Canyon home has had smoke damage	98%	2%
FIREDAM (n=244)	My Emigration Canyon home has had wildfire damage	100%	0%
DESTROY (n=244)	My Emigration Canyon home was destroyed by a wildfire	99%	1%

2.3. Do you currently have an evacuation plan in the event a wildfire threatens your Emigration Canyon home? *(Fill in one circle per row)*

		No	Yes	Not applicable
EVACPPL (n=242)	For the people in my household	30%	70%	
EVACPETS (n=245)	For the pets in my household and on my property	27%	45%	28%
EVACLIVSTOC (n=239)	For livestock on my property	11%	1%	88%

- 2.4. Have you completed any of the following actions to prepare for a wildfire **evacuation** and do you want more information about how to complete any of the actions?
(Fill in two circles per row, one for each question)

		Completed action?		Want more information about the action?	
		No	Yes	No	Yes
Identify how I will be notified about an evacuation	EVACACT1 (n=223)	31%	69%	EVACINFO1 (n=149)	26% 74%
Sign up for a wildfire evacuation notification system (CodeRED)	EVACACT2 (n=227)	31%	69%	EVACINFO2 (n=145)	31% 69%
Identify safe evacuation routes	EVACACT3 (n=224)	20%	80%	EVACINFO3 (n=136)	38% 63%
Identify a location that my household will evacuate to (area of refuge)	EVACACT4 (n=226)	45%	55%	EVACINFO4 (n=139)	36% 62%
Identify what to take and what to leave behind during an evacuation	EVACACT5 (n=228)	43%	57%	EVACINFO5 (n=150)	31% 67%
Discuss evacuation with my neighbors	EVACACT6 (n=228)	82%	18%	EVACINFO6 (n=143)	39% 61%
Create a checklist for steps to take before evacuating	EVACACT7 (n=225)	79%	21%	EVACINFO7 (n=156)	16% 84%
Identify a place to stay during a long-term evacuation (i.e. more than a few days)	EVACACT8 (n=229)	44%	56%	EVACINFO8 (n=133)	59% 41%

- 2.5. Please tell us about your experiences with your **homeowners insurance** for your Emigration Canyon home. (Fill in one circle per row)

		No	Yes	DK
INSURE2 (n=238)	Has your current or a previous insurance company ever provided information on reducing the risk of wildfire?	60%	25%	15%
INSURE3 (n=238)	Did an insurance company ever refuse to provide or renew insurance because of the risk of wildfire?	83%	11%	6%
INSURE4 (n=238)	Do you pay a higher premium for your insurance due to wildfire risk?	33%	12%	55%
INSURE10 (n=238)	Do you receive a discount on your insurance premium because you have reduced wildfire risk on your property?	64%	7%	29%
INSURE12 (n=237)	Do you think your home is adequately insured against loss from a wildfire?	10%	60%	30%
INSURE13 (n=237)	Has your current insurance company ever required you to take action to reduce wildfire risk in order to continue coverage?	83%	12%	5%
INSURE14 (n=237)	Has your current insurance company offered private firefighting services?	87%	5%	8%

Section 3: In this section, we ask about the characteristics of your Emigration Canyon home and the area near your Emigration Canyon home.

3.1. Does your Emigration Canyon home have any of the following roofing materials?

(Fill in all that apply)

		No	Yes
ROOFTYPE1 (n=224)	Tile, metal, or asphalt shingles	2%	98%
ROOFTYPE2 (n=224)	Wood (shake shingles)	96%	4%

3.2. Does your Emigration Canyon home have any of the following exterior siding materials?

(Fill in all that apply)

		No	Yes
SIDETYPE1 (n=242)	Stucco, cement, brick, stone, or other noncombustible siding	24%	76%
SIDETYPE2 (n=242)	Log or heavy timbers	86%	14%
SIDETYPE3 (n=242)	Wood or vinyl siding	66%	34%

ATTACHCOMB (n=242)

3.3. Does your Emigration Canyon home have a combustible balcony, deck, porch, or fence attached to the structure? *(Fill in one circle)*

35% No

65% Yes

COMBUST_A (n=242)

3.4. What is the **closest** distance from your Emigration Canyon home to combustible items other than vegetation such as lumber, firewood, a propane tank, hay bales, or other materials that could easily ignite? *(Fill in one circle)*

51% More than 30 feet or no combustible items

36% 5 – 30 feet

13% Less than 5 feet

CLOSEVEG_A (n=241)

3.5. What is the **closest** distance from your Emigration Canyon home to overgrown, dense, or unmaintained vegetation? *(Fill in one circle)*

10% More than 100 feet

40% 30 – 100 feet

39% 5 – 29 feet

10% Less than 5 feet

DOMVEG_A (n=245)

3.6. Which of the following best describes the **majority** of vegetation on your Emigration Canyon property 100 to 150 feet from your home? That area might be outside your property boundary and include properties immediately surrounding you. *(Fill in one circle)*

- 8% Grasses and sagebrush
- 48% Light brush and/or isolated trees (*ex. Interspersed Gambel oak and conifers and scattered aspen*)
- 44% Dense brush and/or dense trees (*ex. Continuous Gambel oak and conifers and dense aspen*)

CLOSEHOME (n=244)

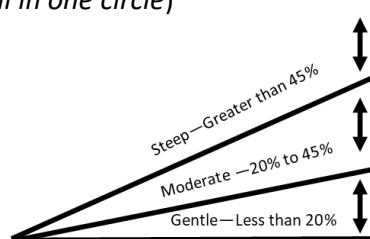
3.7. What is the **closest** distance from your Emigration Canyon home to a neighboring home? *(Fill in one circle)*

- 49% More than 100 feet
- 41% 30 - 100 feet
- 8% 10 – 29 feet
- 2% Less than 10 feet

SLOPE (n=243)

3.8. The “slope” or “grade” of a property refers to the steepness of the land. A large property may have steep, moderate, and gentle slopes. How would you describe the average slope within 150 feet of your Emigration Canyon home? *(Fill in one circle)*

- 32% Steep – Greater than 45%
- 46% Moderate – 20% to 45%
- 22% Gentle – Less than 20%

**RIDGE (n=242)**

3.9. What is the closest distance from your Emigration Canyon home to a ridge, steep drainage, or narrow canyon? *(Fill in one circle)*

- 54% More than 150 feet
- 26% 50 – 150 feet
- 19% Less than 50 feet

3.10 Do any of the following describe your driveway? My driveway... *(Fill in one circle per row)*

		No	Yes
DRIVEWAYV (n=229)	has an overhead obstruction (ex. tree limbs) lower than 13.5 feet	86%	14%
DRIVEWAYW_B (n=231)	is narrower than 20 feet wide	48%	52%
DRIVEWAYL_A (n=230)	is longer than 150 feet	75%	25%
TURNARND_A (n=237)	has room for a fire truck to turn around	82%	18%

HOMENUM (n=244)

3.11 Is the address number of your Emigration Canyon home posted at the end of your driveway? *(Fill in one circle)*

3% No

97% Yes

	No	Yes
HOMENUMVIS (n=235)		
Is the posted number visible from the road? <i>(Fill in one circle)</i>	6%	94%

REFLECT (n=229)

Is the posted number reflective? <i>(Fill in one circle)</i>	50%	50%
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ROADS (n=242)

3.12 If the road you use to access your Emigration Canyon home was blocked due to a wildfire, is there another road you could use to get out of your community? *(Fill in one circle)*

60% No

40% Yes

RISKRATE (n=245)

3.13 Properties in your community are assessed for overall wildfire risk based on the items asked about in questions 3.1 – 3.13 above. What do you think is your Emigration Canyon property's current overall wildfire risk rating? *(Fill in one circle)*

4% Low risk

46% Moderate risk

35% High risk

11% Very high risk

4% Extreme risk

Section 4: In this section, we ask about wildfire risk reduction activities.

TALKFIRE (n=246)

4.1. Have you ever talked about wildfire issues with a neighbor? *(Fill in one circle)*

28% No

72% Yes

4.2. Have you done any of the following wildfire-related activities? *(Fill in one circle per row)*

		No	Yes
ACTIVITIES1 (n=245)	Reduced vegetation on my Emigration Canyon property (ex. cleared/pruned weeds, brush, and trees)	5%	95%
ACTIVITIES7 (n=239)	Regularly cleared my roof and gutters of leaves and pine needles	18%	82%
ACTIVITIES8 (n=243)	Regularly mowed and raked around my Emigration Canyon home	11%	89%
ACTIVITIES2 (n=245)	Made my Emigration Canyon home more fire resistant (ex. replaced roofing, siding, added hardscaping)	45%	56%
ACTIVITIES3 (n=245)	Helped neighbor(s) reduce vegetation on their properties	69%	31%
ACTIVITIES4 (n=245)	Helped reduce vegetation on community property (ex. HOA, subdivision)	74%	26%
ACTIVITIES5 (n=243)	Helped reduce vegetation on nearby public lands (ex. county, state, federal lands)	91%	9%
ACTIVITIES6 (n=245)	Participated in a community wildfire activity (ex. meeting, chipper day, etc.)	36%	64%
ACTIVITIES9 (n=245)	Met with a wildfire professional at your home to evaluate and discuss your property's wildfire risk	64%	36%

4.3. How much do you think each of the following factors contributes to the chances of a wildfire damaging your Emigration Canyon property **in the next 12 months**?
(Fill in one circle per row)

		A lot	Somewhat	Not at all
CONTRIB1 (n=246)	Vegetation on my property	38%	54%	8%
CONTRIB2 (n=244)	Physical characteristics of my house or other buildings (ex. roofing or siding) on my property	22%	46%	32%
CONTRIB3 (n=244)	Vegetation on my neighbors' properties	30%	59%	12%
CONTRIB4 (n=244)	Vegetation on nearby public or large undeveloped land	44%	45%	11%
CONTRIB5 (n=244)	Lack of nearby water supply (ex. hydrant or cistern) for fire suppression	19%	26%	54%

NEIGHBORACT (n=244)

4.4. How many of your immediate neighbors do you think have taken action to reduce wildfire risk on their properties (ex. removing dense vegetation or switching to noncombustible siding) *(Fill in one circle)*

- 9% All my neighbors have taken action
- 23% Most of my neighbors have taken action
- 61% Some of my neighbors have taken action
- 7% None of my neighbors have taken action

4.5. How acceptable to you are the following approaches to reducing wildfire risk on nearby public lands? *(Fill in one circle per row)*

		Extremely acceptable	Very acceptable	Moderately acceptable	Slightly acceptable	Not at all acceptable
ACCEPT1 (n=247)	Removing trees and reducing other vegetation (thinning/fuel breaks) on nearby public lands	43%	34%	14%	6%	4%
ACCEPT2 (n=245)	Burning piles of vegetation (slash piles) on nearby public lands	14%	24%	17%	17%	28%
ACCEPT3 (n=246)	Conducting a prescribed fire ignited by fire managers on nearby public lands	11%	20%	25%	20%	25%
ACCEPT4 (n=244)	Managing a naturally ignited fire (lightning) on nearby public lands	32%	25%	20%	10%	12%
ACCEPT6 (n=246)	Adopting growth policies or land use regulations that limit new development in fire-prone areas in Emigration Canyon	59%	20%	14%	6%	2%
ACCEPT7 (n=247)	Adopting building codes that require fire resistant materials for structures located in fire-prone areas in Emigration Canyon	53%	29%	11%	5%	2%
ACCEPT8 (n=247)	Adopting development standards that require vegetation management (ex. removing or thinning trees and mowing grass) on lots located in fire-prone areas in Emigration Canyon	40%	29%	17%	8%	6%

Section 5: In this section, we ask about your notions, expectations, and risk perceptions related to wildfire.

5.1. How much do you agree or disagree with the following statements about wildfire?
(Fill in one circle per row)

		Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
STATE2 (n=240)	With proper technology, we can control most wildfires.	5%	30%	28%	28%	8%
STATE3 (n=243)	We should put out wildfires that threaten human life.	66%	30%	3%	1%	0%
STATE4a (n=242)	We should put out wildfires that threaten homes.	57%	39%	4%	0%	0%
STATE5 (n=241)	During a wildfire, saving homes should be a priority over saving forests.	39%	37%	21%	2%	0%
STATE6 (n=242)	Wildfires are a natural part of the balance of a healthy forest/ecosystem.	44%	46%	8%	1%	0%
STATE11 (n=240)	I live here for the trees and will not remove any of them to reduce wildfire risk.	2%	6%	20%	43%	29%
STATE13 (n=242)	Managing the wildfire danger is a government responsibility, not mine.	0%	2%	16%	54%	27%
STATE14 (n=243)	Homeowners' actions to reduce wildfire are not effective.	0%	3%	40%	51%	35%
STATE15 (n=240)	My property is at risk of wildfire.	30%	60%	7%	3%	1%
STATE17 (n=242)	My effort to reduce wildfire risk on my property is ineffective because of the heavy vegetation on my neighbors' properties.	3%	17%	31%	41%	8%
STATE19 (n=239)	Local firefighters have sufficient resources to keep the wildfire from spreading.	2%	9%	36%	41%	13%
STATE20 (n=239)	Local firefighters have sufficient resources to protect threatened homes.	2%	13%	42%	32%	11%
STATE21 (n=241)	Firefighters should put their lives at risk to protect my home.	2%	2%	13%	38%	46%
STATE22 (n=240)	Wildfires threaten my community water supply.	10%	42%	35%	10%	3%
STATE24 (n=242)	I plan to move out of the area in the next 12 months because of wildfires.	0%	1%	2%	28%	68%
STATE25 (n=242)	Development in fire-prone areas of Emigration Canyon increases the wildfire risk to my Emigration Canyon property	24%	37%	23%	12%	4%

5.2. If there is a wildfire on your Emigration Canyon property, how likely do you think it is that the following would occur? *(Fill in one circle per row)*

		Extremely likely	Very likely	Moderately likely	Slightly likely	Not at all likely	Not applicable
LACT1 (n=245)	I would put the fire out.	4%	9%	18%	26%	43%	1%
LACT2 (n=243)	The fire department would save my home.	5%	38%	39%	14%	4%	0%
LACT3 (n=245)	My home would have smoke damage.	16%	40%	35%	9%	1%	0%
LACT4 (n=245)	My home would have some physical damage.	13%	36%	35%	15%	1%	0%
LACT5 (n=245)	My home would be destroyed.	6%	11%	33%	36%	15%	0%
LACT6 (n=246)	I would lose money due to the loss of business or income on my property.	8%	13%	13%	11%	26%	29%
LACT7 (n=246)	My trees and landscape would burn.	24%	41%	29%	6%	0%	0%
LACT9 (n=244)	My neighbors' homes would be damaged or destroyed.	11%	23%	41%	19%	5%	1%
LACT12 (n=245)	Direct flame would ignite my home.	8%	16%	29%	33%	13%	1%
LACT13 (n=244)	Embers would ignite my home.	8%	21%	37%	25%	9%	0%
LACT14 (n=244)	Nearby homes would ignite my home.	6%	15%	19%	27%	31%	2%

CHANCES1 (n=245)

5.3. What do you think is the chance that a wildfire will be on your Emigration Canyon property **in the next 12 months**? *(Fill in one circle)*

For sure										No chance
100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
0%	1%	3%	2%	2%	16%	2%	12%	23%	35%	2%

CHANCES2 (n=246)

5.4. If there is a wildfire on your property **in the next 12 months**, what do you think is the chance that it will destroy or severely damage your Emigration Canyon home? *(Fill in one circle)*

For sure										No chance
100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
4%	5%	9%	4%	6%	20%	7%	15%	17%	12%	1%

Section 6: In this section, we ask where you get information about wildfire, how useful the information is, how you receive information, and how you would like to receive information.

- 6.1. The following sources provide information about wildfire risk. If you have received information from one of these sources, how useful has it been? *(Fill in one circle per row)*

			Usefulness of information among respondents who received information from the source (sums to ~100%)					
		Received information from source		Extremely useful	Very useful	Moderately useful	Slightly useful	Not at all useful
Unified Fire Authority	SOURCEREC1 (n=235)	80%	SOURCEUSE1 (n=188)	29%	47%	19%	5%	1%
Community group (ex. homeowners association)	SOURCEREC2 (n=236)	67%	SOURCEUSE2 (n=158)	20%	39%	26%	11%	4%
Local arborist/contractor	SOURCEREC28 (n=235)	33%	SOURCEUSE28 (n=78)	9%	18%	33%	27%	13%
Emigration Canyon Metro Township	SOURCEREC35 (n=236)	82%	SOURCEUSE35 (n=193)	19%	38%	26%	15%	3%
Firewise USA®	SOURCEREC5 (n=233)	58%	SOURCEUSE5 (n=134)	25%	36%	23%	13%	2%
Ready, Set, Go! program	SOURCEREC24 (n=236)	17%	SOURCEUSE24 (n=39)	10%	33%	26%	26%	5%
Utah Division of Forestry, Fire and State Lands	SOURCEREC36 (n=234)	34%	SOURCEUSE36 (n=80)	15%	33%	31%	19%	3%
USDA Forest Service	SOURCEREC14 (n=234)	19%	SOURCEUSE14 (n=45)	18%	33%	24%	18%	7%
National Park Service	SOURCEREC34 (n=234)	11%	SOURCEUSE34 (n=25)	24%	24%	12%	20%	20%
Bureau of Land Management	SOURCEREC15 (n=236)	11%	SOURCEUSE15 (n=27)	15%	30%	26%	22%	7%
Media (newspaper, TV, radio, internet)	SOURCEREC4 (n=234)	60%	SOURCEUSE4 (n=141)	10%	9%	36%	35%	11%

Section 5: In this section, we ask about your notions, expectations, and risk perceptions related to wildfire.

5.1. How much do you agree or disagree with the following statements about wildfire?
(Fill in one circle per row)

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
With proper technology, we can control most wildfires.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We should put out wildfires that threaten human life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We should put out wildfires that threaten homes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During a wildfire, saving homes should be a priority over saving forests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildfires are a natural part of the balance of a healthy forest/ecosystem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I live here for the trees and will not remove any of them to reduce wildfire risk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing the wildfire danger is a government responsibility, not mine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Homeowners' actions to reduce wildfire are not effective.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My property is at risk of wildfire.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My effort to reduce wildfire risk on my property is not effective because of the heavy vegetation on my neighbors' properties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local firefighters have sufficient resources to keep the wildfire from spreading.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local firefighters have sufficient resources to protect threatened homes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Firefighters should put their lives at risk to protect my home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildfires threaten my community water supply.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to move out of the area in the next 12 months because of wildfires.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development in fire-prone areas of Emigration Canyon increases the wildfire risk to my Emigration Canyon property.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 7: In this section, we would like to know why you do or do not take action to reduce the risk of wildfire to your Emigration Canyon property.

- 7.1. Do any of the following **prevent you** from taking action to reduce the wildfire risk on your Emigration Canyon property (ex. cutting trees, changing roof/siding)?
(Fill in all circles that apply for each row)

	FACTOR1 (n=240)	FACTOR2 (n=240)	FACTOR3_a (n=240)	FACTORNO1 (n=240)
Personal resources	Financial cost 33%	Time to do the work 36%	Physical ability to do the work 30%	None of these 41%
Lack of specific information about...	FACTOR11 (n=236) The factors contributing to my property's wildfire risk 22%	FACTOR4 (n=236) How to reduce wildfire risk on my property 30%	FACTOR12 (n=236) Where to dispose of vegetation/slash 25%	FACTORNO2 (n=236) None of these 53%
Personal perspectives	FACTOR6 (n=240) I do not want to change the way my property looks 25%	FACTOR5_a (n=240) I do not think taking action would reduce my property's wildfire risk 10%	FACTOR13 (n=240) It's a low priority to me 4%	FACTORNO3 (n=240) None of these 68%
Community	FACTOR14 (n=241) Lack of options for disposing vegetation/slash 22%	FACTOR9_a (n=241) Restrictions on the changes I can make to my property 8%	FACTOR15 (n=241) Social pressure from neighbors 1%	FACTORNO4 (n=241) None of these 71%

7.2. Would any of the following encourage you to take action to reduce the wildfire risk on your Emigration Canyon property? (Fill in all that apply for each row)

Resources	INCENTV1 (n=242) Cost-share or financial assistance 51%	INCENTV3 (n=242) Help doing the work 56%	INCENTV4 (n=242) Recommended contractors 41%	INCENTVNO1 (n=242) None of these 21%
	INCENTV6 (n=243) A report describing my property's wildfire risk factors 65%	INCENTV7 (n=243) Videos showing how to reduce risk on a property in my area 35%	INCENTV8 (n=243) One-on-one visit with wildfire risk experts on my property 71%	INCENTVNO2 (n=243) None of these 15%
Information	INCENTV9 (n=238) Feedback on the work I've done to reduce my property's risk 53%	INCENTV10 (n=238) Recognition for taking action 13%	INCENTV11 (n=238) Neighborhood group that organizes wildfire risk-reduction activities 46%	INCENTVNO3 (n=238) None of these 30%
Other				

Section 8: In this section, we ask about personal and household characteristics. Your name will never be connected to your answers in any way.

RISKTAK1 (n=247)

8.1. In general, do you view yourself as someone who is not at all willing to take risks or very willing to take risks? (*Fill in one circle*)

Very willing to take risks									Not at all willing to take risks	
10	9	8	7	6	5	4	3	2	1	0
3%	2%	9%	16%	13%	25%	11%	12%	5%	2%	1%

AGE (n=245)

8.2. What is your age? (*Fill in the blank*)

AVERAGE AGE: 62 years old

GENDER (n=242)

8.3. Are you? (*Fill in one circle*)

62% Male

38% Female

EDUC (n=245)

8.4. What is the highest grade or year of school you completed? (*Fill in one circle*)

- 0% Less than high school
- 1% High school graduate
- 8% Some college or technical school
- 2% Technical or trade school
- 24% College graduate
- 5% Some graduate work
- 59% Advanced degree (M.D., M.A., M.S., Ph.D., etc.)

EMPLOY (n=242)

8.5. Which of the following best describes your current employment situation?
(Fill in one circle)

- 48% Employed full time (including self-employed)
- 12% Employed part time (including self-employed)
- 2% Unemployed or do not work outside of the home
- 38% Retired

INCOME (n=214)

8.6. Which of the following categories describes your annual household income?
(Fill in one circle)

- 0% Less than \$15,000
- 1% \$15,000 - \$24,999
- 1% \$25,000 – \$34,999
- 3% \$35,000 - \$49,999
- 9% \$50,000 - \$74,999
- 12% \$75,000 - \$99,999
- 14% \$100,000 - \$149,999
- 17% \$150,000 - \$199,999
- 42% \$200,000 or more

Thank you for your help. Please use the space below to write any additional comments. If you would like to schedule an onsite visit with a wildfire professional to learn how you can reduce risk on your property, contact Geoff Whatcott, Wildland Urban Interface (WUI) Coordinator, Unified Fire Authority at gwhatcott@unifiedfire.org.

Appendix D: Comparison of Rapid Assessment and Household Survey

Starts on next page.

Emigration Canyon Rapid Assessment Compared to Household Survey Responses

Utah Division of Forestry, Fire and State Lands conducted parcel-level rapid wildfire risk assessments (RA) and administered a household survey in 2020 and 2021, respectively. The rapid assessment provides the professional's risk rating for each parcel, and the household survey provides, among other things, respondent's self-assessed risk for their own parcel. Pairing these data is the heart of the WiRē Approach because it allows us to analyze the risk gap between how professionals rate wildfire risk and how survey respondents (i.e., homeowners) perceive their risk.

Overall, there are 614 properties for which we have a rapid assessment and 245 of those for which we have a "paired rapid assessment"—that is, a rapid assessment for which we also have a paired household survey. Within this document, we present the following:

- 1) A comparison of A) Professional risk ratings for the subset of properties for which we have a paired rapid assessment compared to B) paired household survey respondent's self-assessed risk ratings (Section 1).
- 2) A three-way comparison of A) professional risk ratings for all properties for which we have a rapid assessment, B) professional risk ratings for the subset of properties for which we have paired rapid assessments, and C) household survey respondents' self-assessed risk ratings (Section 2).

Section 1 and Section 2 are organized by overall risk rating, followed by the attribute-level risk ratings, which are organized by categories of access, background conditions, defensible space, and home ignition potential.

** This project was supported with funding from USDA Forest Service, Washington Office Fire and Aviation Management, Co-Management of Fire Risk Transmission Project. Utah Division of Forestry, Fire and State Lands provided funding for and administered the household survey.*

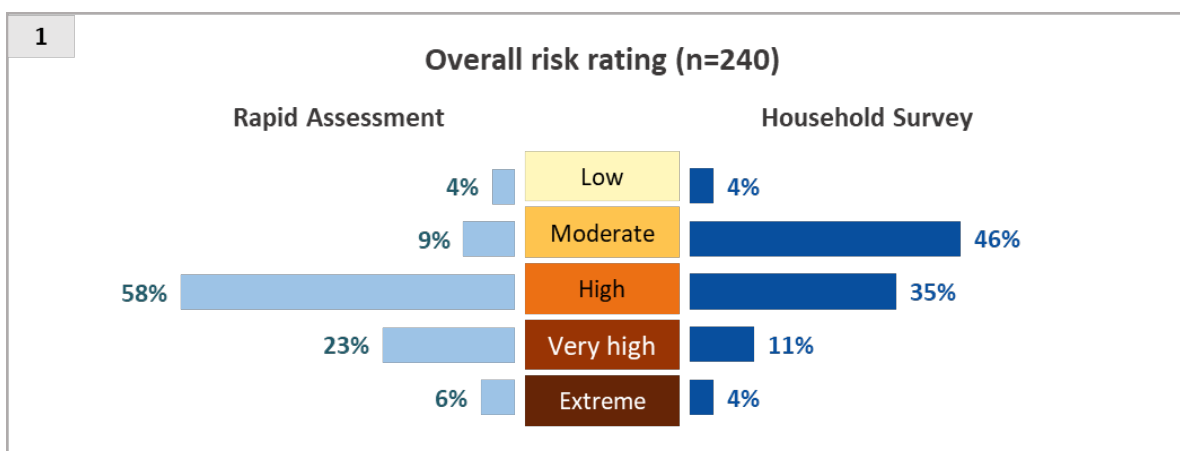
**All data received and processed as of October 25, 2021*

**Document prepared January 25, 2022*

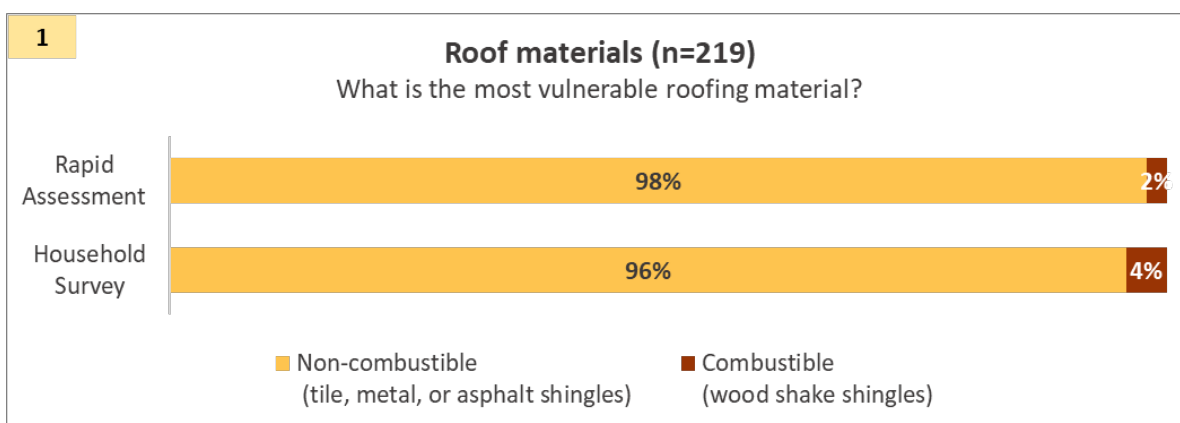
1. Comparison of paired WiRē Rapid Assessment vs. Household Survey

In this section, we compare professional risk ratings and household survey respondents' self-assessments for parcels' overall risk rating and the 13 risk attributes included in the rapid assessment. These comparisons are presented as graphs, where the first bar shows the professional risk rating, and the second bar presents the household survey respondents' self-assessment. For each individual risk attribute, our comparisons only include the data from parcels for which we have both rapid assessment and household survey data for that particular attribute, and thus the number of records (signified by "n=") varies by attribute and is reported for each.

1.1. Overall risk rating



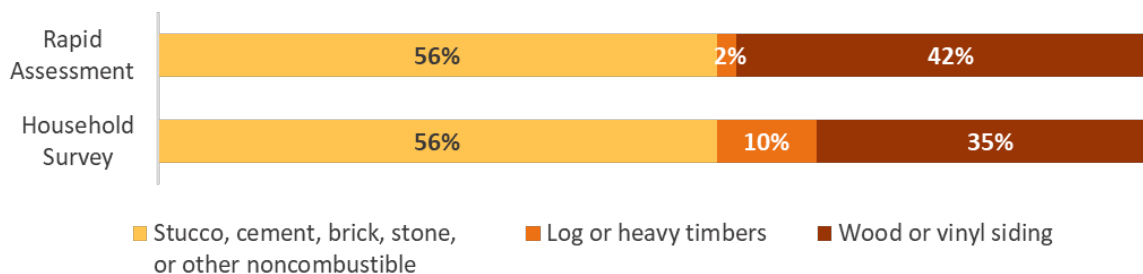
1.2. Home ignition potential



2

Building exterior (n=219)

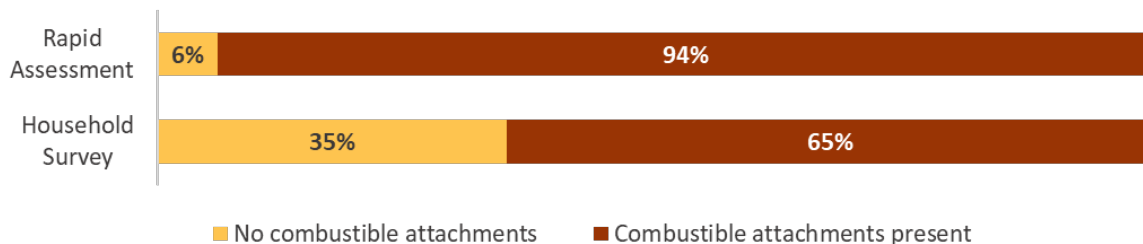
What is the most vulnerable exterior siding material?



3

Combustible attachments (n=237)

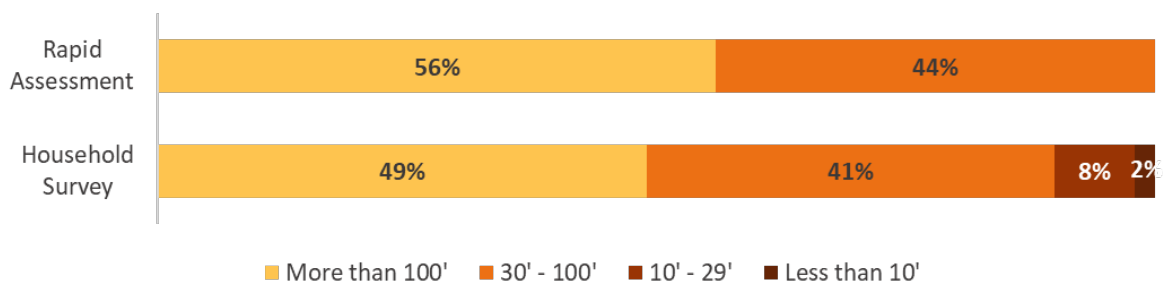
Does the home have a combustible balcony, deck, porch, or fence attached to the structure?



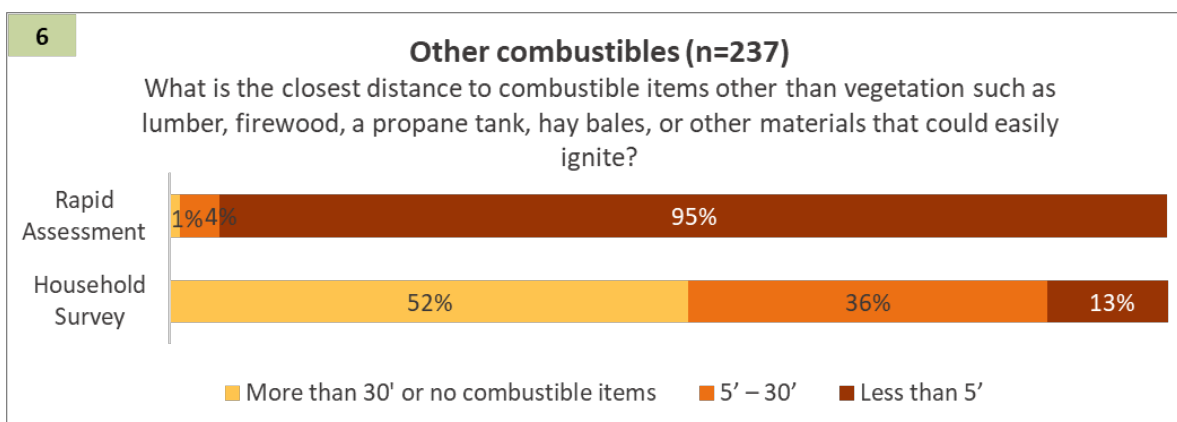
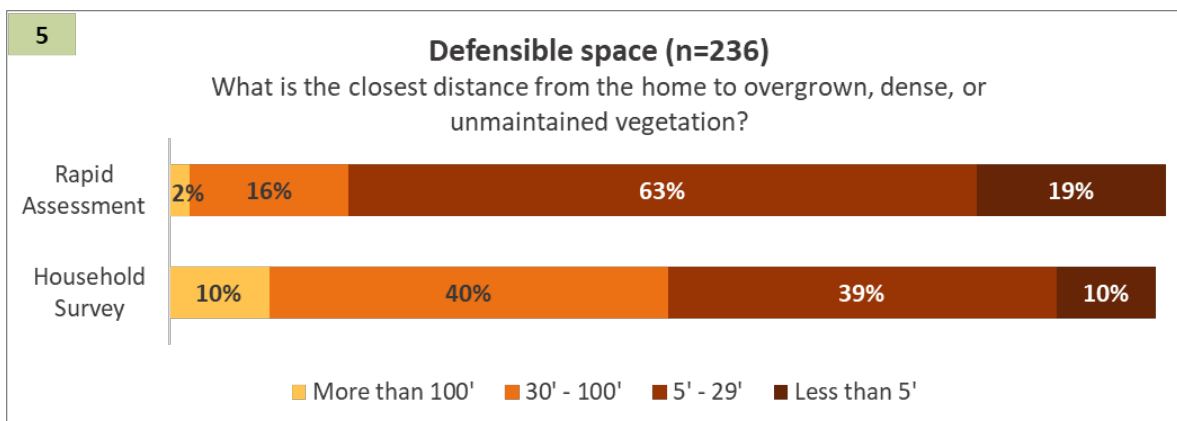
4

Proximity to adjacent structures (n=239)

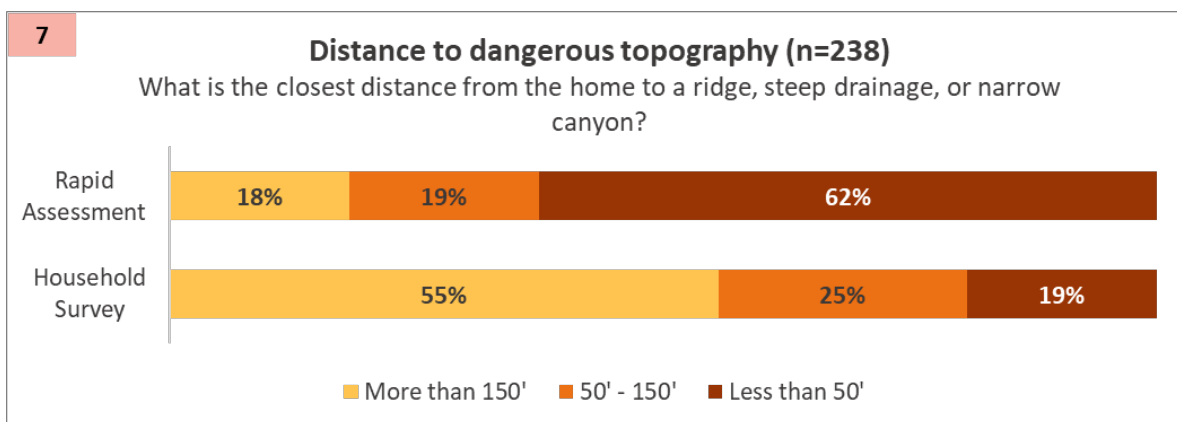
What is the closest distance to a neighboring home?



1.3. Defensible space



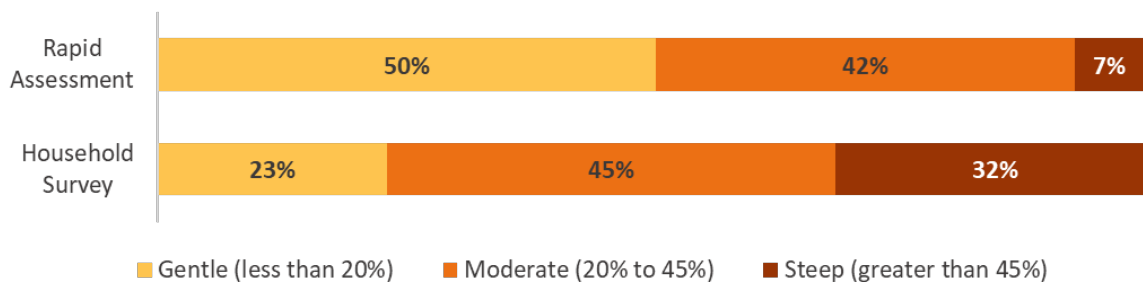
1.4. Background conditions



8

Slope (n=238)

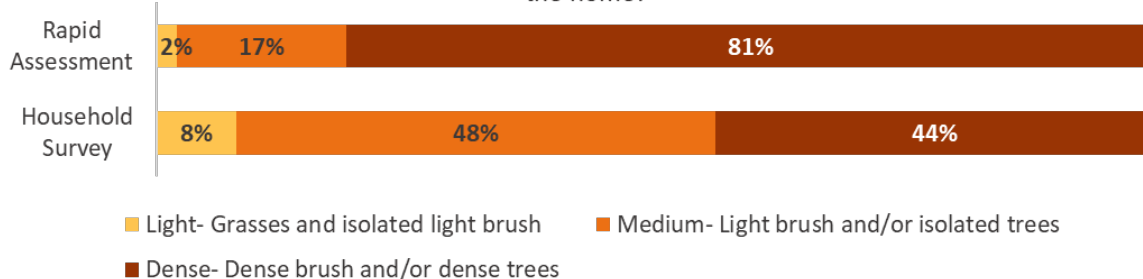
How would you describe the overall slope of the property?



9

Adjacent fuels (n=240)

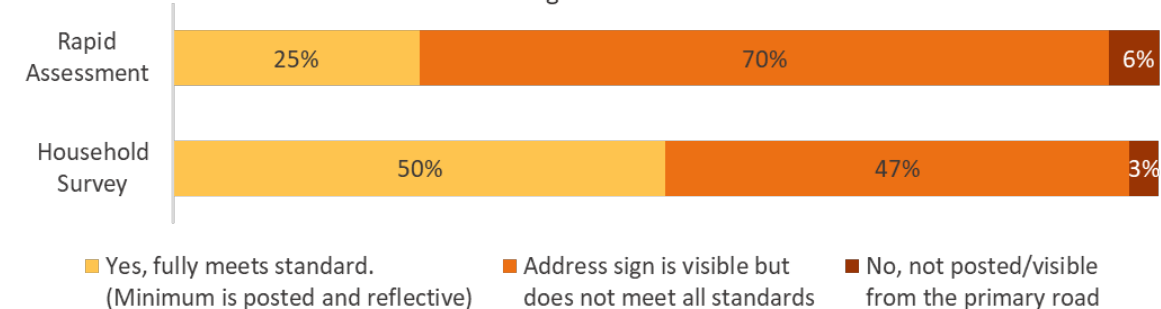
Which of the following best describes the dominant vegetation 100' to 150' from the home?

**1.5. Access**

10

Address posting (n=227)

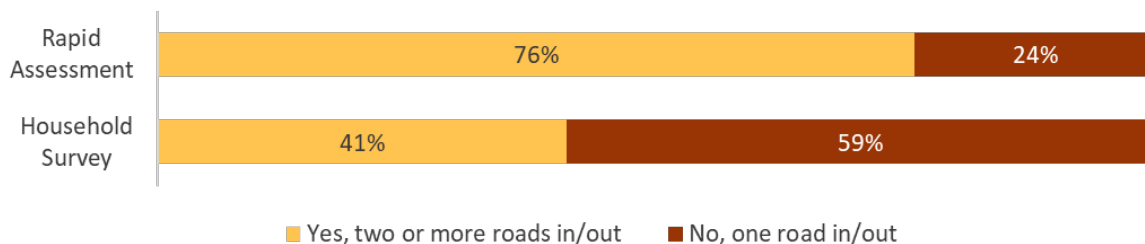
Does the address sign meet all the standards?



11

Ingress/Egress (n=237)

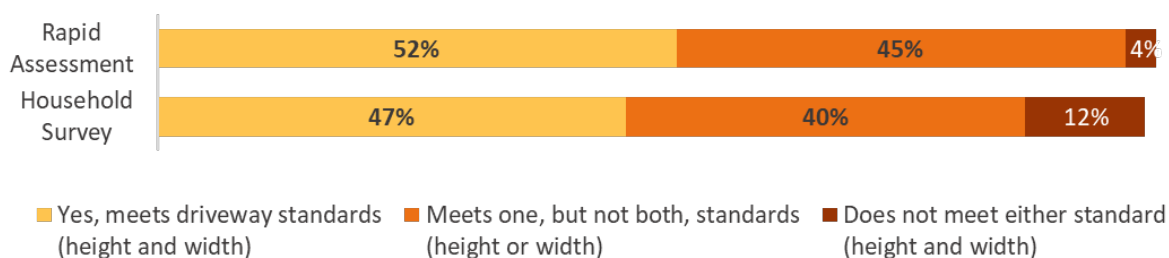
If the road to access the home was blocked due to a wildfire, is there another road to get out of the community?



12

Driveway clearance (n=218)

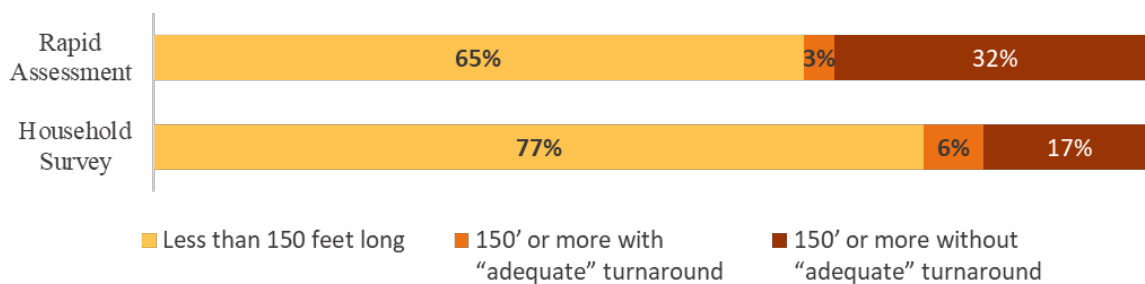
Does the driveway meet the horizontal and vertical clearance standards?



13

Driveway length (n=224)

What best describes the driveway?



2. Comparison of all Rapid Assessments vs. paired Rapid Assessment and Household Survey

In this section, we provide a three-way comparison of A) professional risk ratings for all properties for which we have a rapid assessment, B) professional risk ratings for the subset of properties for which we have paired risk assessments and household surveys, and C) household survey respondent's self-assessed risk ratings.

1.1 Overall risk rating

Overall risk rating:

RA: Based on the sum of the 13 attribute scores. Homeowner's self-assessment response to: What do you think is your Wasatch property's current overall wildfire risk rating?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=240)	Self-assessment from household surveys (N=240)
Low	3%	4%	4%
Moderate	7%	9%	46%
High	57%	58%	35%
Very high	27%	23%	11%
Extreme	6%	6%	4%

1.2 Home ignition potential

Risk attribute: Roof

What is the most vulnerable roofing material?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=219)	Self-assessment from household surveys (N=219)
Non-combustible (tile, metal, or asphalt shingles)	98%	98%	96%
Combustible (wood shake shingles)	2% ^a	2% ^b	4%

a. Out of all RAs in study area, 9 were missing/unobserved (1%) and included in the highest risk category.

b. Out of the subset of RAs for parcels that returned a household survey, 4 were missing/unobserved (2%) and included in the highest risk category.

Risk attribute: Building exterior

What is the most vulnerable exterior siding material?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=237)	Self-assessment from household surveys (N=237)
Stucco, cement, brick, stone, or other noncombustible siding	52%	56%	56%
Log or heavy timbers	2%	2%	10%
Wood or vinyl siding	46% ^a	42% ^b	35%

a. Out of all RAs in study area, 16 were missing/unobserved (3%) and included in the highest risk category.

b. Out of the subset of RAs for parcels that returned a household survey, 8 were missing/unobserved (3%) and included in the highest risk category.

Risk attribute: Combustible Attachments (Decking and Fencing)**Does the residence have a combustible balcony, deck, porch, or fence attached to the structure?**

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=237)	Self-assessment from household surveys (N=237)
No combustible attachments	6%	6%	35%
Combustible attachments present*	94% ^a	94% ^b	65%

a. Out of all RAs in study area, 296 were missing/unobserved (48%) and included in the highest risk category.

b. Out of the subset of RAs for parcels that returned a household survey, 115 were missing/unobserved (49%) and included in the highest risk category.

Risk attribute: Proximity to adjacent structures**What is the closest distance to a neighboring home?**

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=239)	Self-assessment from household surveys (N=239)
More than 100'	50%	56%	49%
30' – 100'	49%	44%	41%
10' – 29'	1%	0%	8%
Less than 10'	1% ^a	0% ^b	2%

a. Out of all RAs in study area, 3 were missing/unobserved (1%) and included in the highest risk category.

b. Out of the subset of RAs for parcels that returned a household survey, 0 were missing/unobserved.

1.3 Defensible space

Risk attribute: Defensible Space

What is the closest distance from the residence to overgrown, dense, or unmaintained vegetation?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=236)	Self-assessment from household surveys (N=236)
More than 100'	3%	2%	10%
Between 30' - 100'	12%	16%	40%
Between 5' - 29'	62%	63%	39%
Less than 5'	22% ^a	19% ^b	10%

a. Out of all RAs in study area, 9 were missing/unobserved (1%) and included in the highest risk category.
b. Out of the subset of RAs for parcels that returned a household survey, 5 were missing/unobserved (2%) and included in the highest risk category.

Risk attribute: Other combustibles

What is the closest distance to combustible items other than vegetation such as lumber, firewood, a propane tank, hay bales, or other materials that could easily ignite?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=237)	Self-assessment from household surveys (N=237)
None, greater than 30' from structure	1%	1%	52%
Between 5'-30' from structure	3%	4%	36%
Less than 5' from structure*	96% ^a	95% ^b	13%

a. Out of all RAs in study area, 542 were missing/unobserved (88%) and included in the highest risk category.
b. Out of the subset of RAs for parcels that returned a household survey, 219 were missing/unobserved (92%) and included in the highest risk category.

1.4 Background conditions

Risk attribute: Distance to dangerous topography

What is the closest distance from the home to a ridge, steep drainage, or narrow canyon?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=238)	Self-assessment from household surveys (N=238)
More than 150'	17%	18%	55%
50' - 150'	19%	19%	25%
Less than 50'	65% ^a	62% ^b	19%

a. Out of all RAs in study area, 2 were missing/unobserved (<1%) and included in the highest risk category.

b. Out of the subset of RAs for parcels that returned a household survey, 0 were missing/unobserved.

Risk attribute: Slope

The "slope" of a property refers to the steepness of the land. A large property may have steep, moderate, and gentle slopes. How would you describe the overall slope of the residence?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=238)	Self-assessment from household surveys (N=238)
Gentle (less than 20%)	51%	50%	23%
Moderate (between 20% and 45%)	41%	42%	45%
Steep (greater than 45%)	8% ^a	7% ^b	32%

a. Out of all RAs in study area, 0 were missing/unobserved.

b. Out of the subset of RAs for parcels that returned a household survey, 0 were missing/unobserved.

Risk attribute: Adjacent Fuels

Which of the following best describes the dominant vegetation 100'-150' from the home? This may be outside the property boundary.

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=240)	Self-assessment from household surveys (N=240)
Light - Grasses	3%	2%	8%
Moderate - Light brush and/or isolated trees	18%	17%	48%
Dense - Dense brush and/or dense trees	79% ^a	81% ^b	44%

a. Out of all RAs in study area, 1 was missing/unobserved (<1%) and included in the highest risk category.

b. Out of the subset of RAs for parcels that returned a household survey, 0 were missing/unobserved.

1.5 Access

Risk attribute: Address Posting

Does the address sign meet all of the standards (posted and reflective)?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=227)	Self-assessment from household surveys (N=227)
Yes, fully meets standard. (Minimum is posted and reflective)	17%	25%	50%
Address sign is visible, but does not meet all standards	73%	70%	47%
No, not posted/visible from the primary road	10% ^a	6% ^b	3%
a. Out of all RAs in study area, 0 were missing/unobserved.			
b. Out of the subset of RAs for parcels that returned a household survey, 0 were missing/unobserved.			

Risk attribute: Ingress/Egress

If the road to access the residence was blocked due to a wildfire, is there another road to get out of the community?

Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=237)	Self-assessment from household surveys (N=237)
Two or more roads in/out	75%	76%	41%
One road in/out	25% ^a	24% ^b	59%
a. Out of all RAs in study area, 1 was missing/unobserved (<1%) and included in the highest risk category.			
b. Out of the subset of RAs for parcels that returned a household survey, 1 was missing/unobserved (<1%) and included in the highest risk category.			

Risk attribute: Driveway clearance

Does the driveway meet the horizontal and vertical clearance standards?			
Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=218)	Self-assessment from household surveys (N=218)
Yes, meets all driveway standards. Meets both height (at least 13.5') and width clearance (at least 20')	52%	52%	47%
Meets one, but not both, standards (height or width)	44%	45%	40%
Does not meet either standard (height and width)	4% ^a	4% ^b	12%
a. Out of <i>all RAs in study area</i> , 9 were missing/unobserved (1%) and included in the highest risk category. b. Out of the <i>subset of RAs for parcels that returned a household survey</i> , 6 were missing/unobserved (3%) and included in the highest risk category.			

Risk attribute: Driveway length What best describes the driveway?			
Response categories	All RAs in study area (N=614)	Subset of RAs for parcels that returned a household survey (N=224)	Self-assessment from household surveys (N=224)
150 feet long or less	72%	65%	77%
Longer than 150 feet with turnaround “adequate” turnaround	2%	3%	6%
Longer than 150 feet without “adequate” turnaround	27% ^a	32% ^b	17%
a. Out of <i>all RAs in study area</i> , 9 were missing/unobserved (1%) and included in the highest risk category. b. Out of the <i>subset of RAs for parcels that returned a household survey</i> , 6 were missing/unobserved (3%) and included in the highest risk category.			

Appendix E: Emigration Canyon Rapid Assessment Codebook

Starts on next page.

The Wildfire Research Center

WiRē



Emigration Canyon Rapid Assessment Codebook

The Utah Division of Forestry, Fire & State Lands mitigation specialists conducted parcel-level rapid wildfire risk assessments in 2020. Risk assessment data collection was collected as a census of all residential properties with a structure in the study area. The rapid wildfire risk assessments were conducted for 614 residential properties using the standard WiRē Rapid Wildfire Risk Assessment (RA), which is comprised of a set of 13 attributes that includes access to the property, background fuels and topography, vegetation near the home, and building materials. Each attribute of the RA is evaluated relative to other private land parcels within the study area. As a result, the RA serves as an indicator of the relative risk of private land parcels within the study area, rather than an absolute measure of risk.

The 13 attributes are weighted and summed to produce an overall risk score for each parcel. The weights reflect the attributes' relative contribution (ranging from 1% - 30% per attribute) to overall wildfire risk. Following our process for a standard RA, we apply a standard approach for placing the overall risk scores into five risk categories: **low** (20-240), **moderate** (241-305), **high** (306-435), **very high** (436-505), **extreme** (506-1000). This process can be iterative over time but has been validated across previous WiRē projects.

To ensure consistent, high quality data collection WiRē wildfire practitioners conducted a virtual training for those who would conduct the rapid risk assessments. A standardized reference sheet for data collectors was available for use in the field.

All parcel level assessments were conducted on the property being assessed unless access was blocked by a gated driveway or posted with no trespassing signage. While environmental and situational variables may occasionally impact the rapid assessment data collection process, Utah Division of Forestry, Fire & State Lands is confident that the rapid assessments collected for this project provide an accurate representation of relative wildfire risk to the parcels in the study area.

In instances when Utah Division of Forestry, Fire & State Lands mitigation specialists could not observe a risk attribute, the specialist selected “unknown/not observed.” It is WiRē’s protocol to assign the “unknown/not observed” and true missing data (i.e., the mitigation specialist did not select a response) the highest risk score for the attribute in question. This is consistent with other parcel risk and structure protection assessments. If a particular attribute is “unknown/not observed” or missing, practitioners and firefighters assume that a hazard exists. At best, the correct attribute response is chosen; at worst, the assessment invites a conversation with the parcel owner to delve deeper into the mitigation needs of the parcel in question and an update to their parcel risk assessment.

This protocol allows us to report results for all residential parcels in the study area rather than only those for which all attributes could be observed. For each risk attribute in the tables below, we report the number of “unknown/not observed” and missing as a footnote.

** This project was supported with funding from USDA Forest Service, Washington Office Fire and Aviation Management, Co-Management of Fire Risk Transmission Project, and Utah Division of Forestry, Fire and State Lands.*

**All data received and processed as of October 25, 2021*

**Document prepared October 28, 2021*

The following tables present a summary of the Utah Division of Forestry, Fire & State Lands mitigation specialists' responses to the 13 risk attributes in the RA. Additionally, the tables present the results of the overall wildfire risk rating, which is the sum of the attribute scores. The percentages might not add to 100% due to rounding.

1.1 Overall risk rating

Overall risk rating: RA: Based on the sum of the 13 attribute scores.		
Response categories	Score range	All RAs in study area (N=614)
Low	20-240	3%
Moderate	241-305	7%
High	306-435	57%
Very high	436-505	27%
Extreme	506-1000	6%

1.2 Access

Risk attribute: Address Posting (1% of total RA score) Is the house number posted at the end of the driveway and is the posted number reflective?		
Response categories	Score	All RAs in study area (N=614)
Yes, fully meets standard. (Minimum is posted and reflective)	0	17%
Address sign is visible, but does not meet all standards	5	73%
No, not posted/visible from the primary road	10	10% ^a
a. Out of all RAs in study area, 0 were missing/unobserved.		

Risk attribute: Ingress/Egress (1% of total RA score)

If the road to access the residence was blocked due to a wildfire, is there another road to get out of the community?

Response categories	Score	All RAs in study area (N=614)
Yes, two or more roads in/out	0	75%
No, one road in/out	10	25% ^a

a. Out of all RAs in study area, 1 was missing/unobserved (<1%) and included in the highest risk category.

Risk attribute: Driveway clearance (1% of total RA score)

How wide is the driveway of the residence at the narrowest point?

Response categories	Score	All RAs in study area (N=614)
Yes, meets all driveway standards. Meets both height (at least 13.5') and width clearance (at least 20')	0	52%
Meets one, but not both , standards (height or width)	5	44%
Does not meet either standard (height and width)	10	4% ^a

a. Out of all RAs in study area, 9 were missing/unobserved (1%) and included in the highest risk category.

Risk attribute: Driveway length (1% of total RA score)

What best describes the driveway?

Response categories	Score	All RAs in study area (N=614)
150 feet long or less	0	72%
Longer than 150 feet with turnaround "adequate" turnaround	5	2%
Longer than 150 feet without "adequate" turnaround	10	27% ^a

a. Out of all RAs in study area, 9 were missing/unobserved (1 %) and included in the highest risk category.

1.3 Background conditions

Risk attribute: Distance to dangerous topography (5% of total RA score)

What is the closest distance from the home to a ridge, steep drainage, or narrow canyon?

Response categories	Score	All RAs in study area (N=614)
More than 150'	0	17%
50' - 150'	25	19%
Less than 50'	50	65% ^a

a. Out of all RAs in study area, 2 were missing/unobserved (<1%) and included in the highest risk category.

Risk attribute: Slope (2% of total RA score)

The "slope" or "grade" of a property refers to the steepness of the land. A large property may have steep, moderate, and gentle slopes. How would you describe the overall slope of the residence?

Response categories	Score	All RAs in study area (N=614)
Gentle (less than 20%)	0	51%
Moderate (between 20% and 45%)	10	41%
Steep (greater than 45%)	20	8% ^a

a. Out of all RAs in study area, 0 were missing/unobserved.

Risk attribute: Adjacent Fuels (4% of total RA score)

Which of the following best describes the dominant vegetation 100' to 150' from the home on the property and those properties immediately surrounding it?

Response categories	Score	All RAs in study area (N=614)
Light – Grasses and isolated light brush	10	3%
Moderate - Light brush and/or isolated trees	20	18%
Dense - Dense brush and/or dense trees	40	79% ^a

a. Out of all RAs in study area, 1 was missing/unobserved (<1%) and included in the highest risk category.

1.4 Defensible space

Risk attribute: Defensible Space (10% of total RA score)

What is the closest distance from the residence to overgrown, dense, or unmaintained vegetation?

Response categories	Score	All RAs in study area (N=614)
More than 100'	0	3%
Between 30' - 100'	50	12%
Between 5' - 29'	75	62%
Less than 5'	100	22% ^a

a. Out of all RAs in study area, 9 were missing/unobserved (1%) and included in the highest risk category.

Risk attribute: Other combustibles (8% of total RA score)

What is the closest distance to combustible items other than vegetation such as lumber, firewood, a propane tank, hay bales, or other materials that could easily ignite?

Response categories	Score	All RAs in study area (N=614)
None, greater than 30' from structure	0	1%
Between 5'-30' from structure	40	3%
Less than 5' from structure*	80	96% ^a

a. Out of all RAs in study area, 542 were missing/unobserved (88%) and included in the highest risk category.

1.5 Home ignition potential

Risk attribute: Roof (30% of total RA score)

What is the most vulnerable roofing material?

Response categories	Score	All RAs in study area (N=614)
Non-combustible (tile, metal, or asphalt shingles)	0	98%
Combustible (wood shake shingles)	300	2% ^a

a. Out of all RAs in study area, 9 were missing/unobserved (1%) and included in the highest risk category.

Risk attribute: Building Exterior (7% of total RA score)

What is the most vulnerable exterior siding material?

Response categories	Score	All RAs in study area (N=614)
Stucco, cement, brick, stone, or other noncombustible siding	0	52%
Log or heavy timbers	35	2%
Wood or vinyl siding	70	46%
a. Out of all RAs in study area, 16 were missing/unobserved (3%) and included in the highest risk category.		

Risk attribute: Combustible Attachments (10% of total RA score)

Does the residence have a combustible balcony, deck, porch, or fence attached to the structure?

Response categories	Score	All RAs in study area (N=614)
No combustible attachments	0	6%
Combustible attachments present*	100	94%
a. Out of all RAs in study area, 296 were missing/unobserved (48%) and included in the highest risk category.		

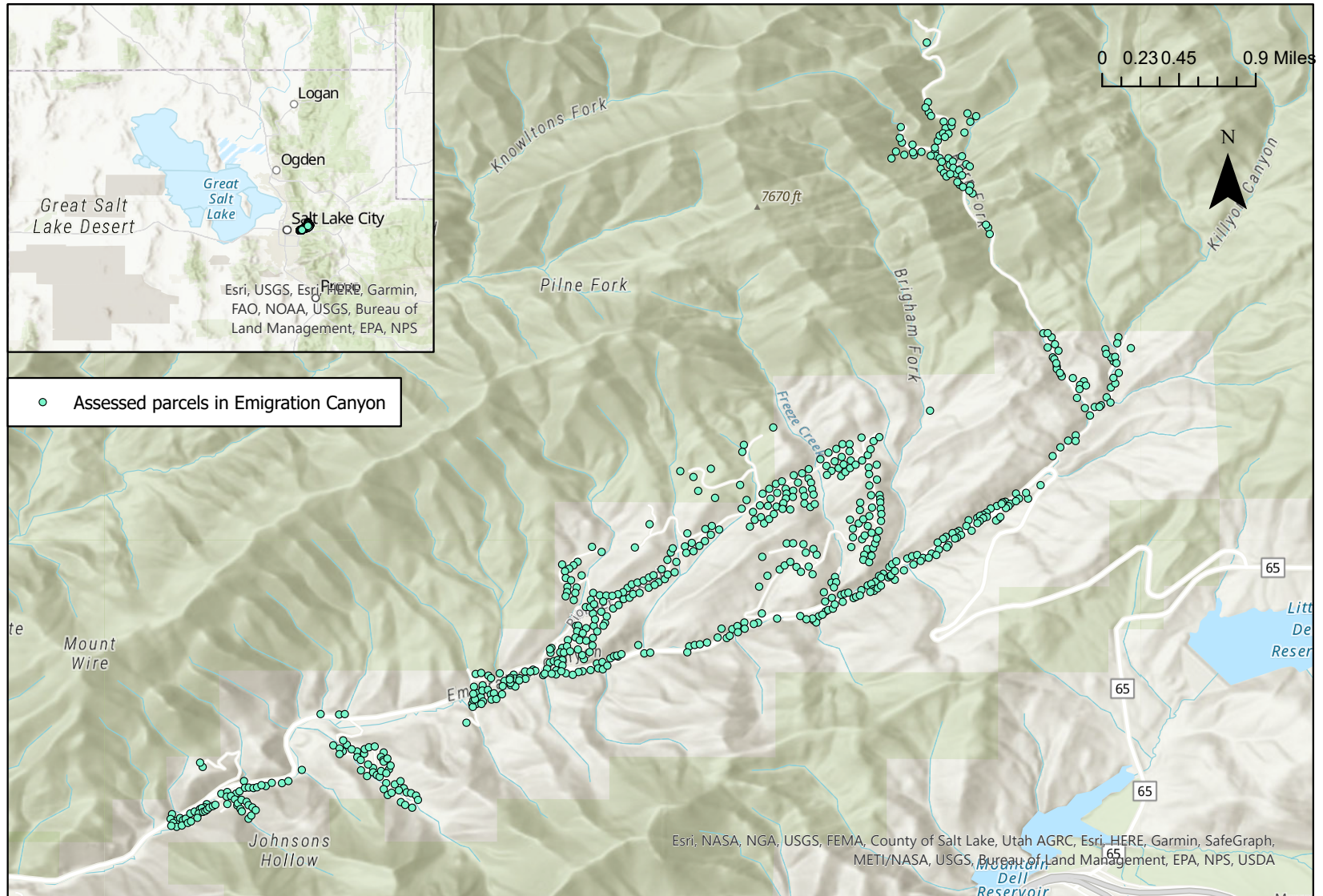
Risk attribute: Proximity to adjacent homes (20% of total RA score)

What is the closest distance to a neighboring home?

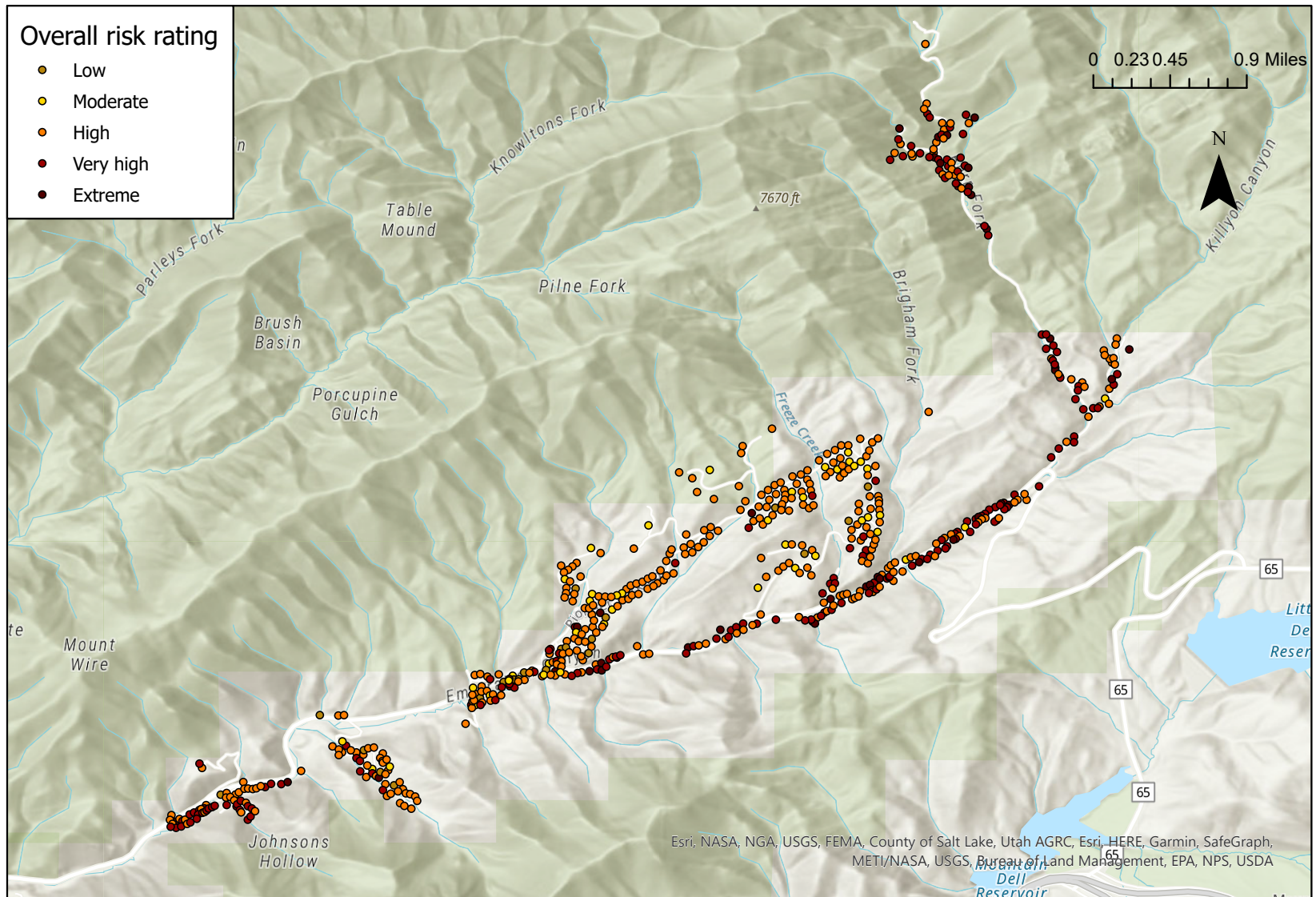
Response categories	Score	All RAs in study area (N=614)
More than 100'	0	50%
30' – 100'	50	49%
10' – 29'	100	1%
Less than 10'	200	1%
a. Out of all RAs in study area, 3 were missing/unobserved (<1%) and included in the highest risk category.		

Appendix F: Parcel Maps of Rapid Assessment Data

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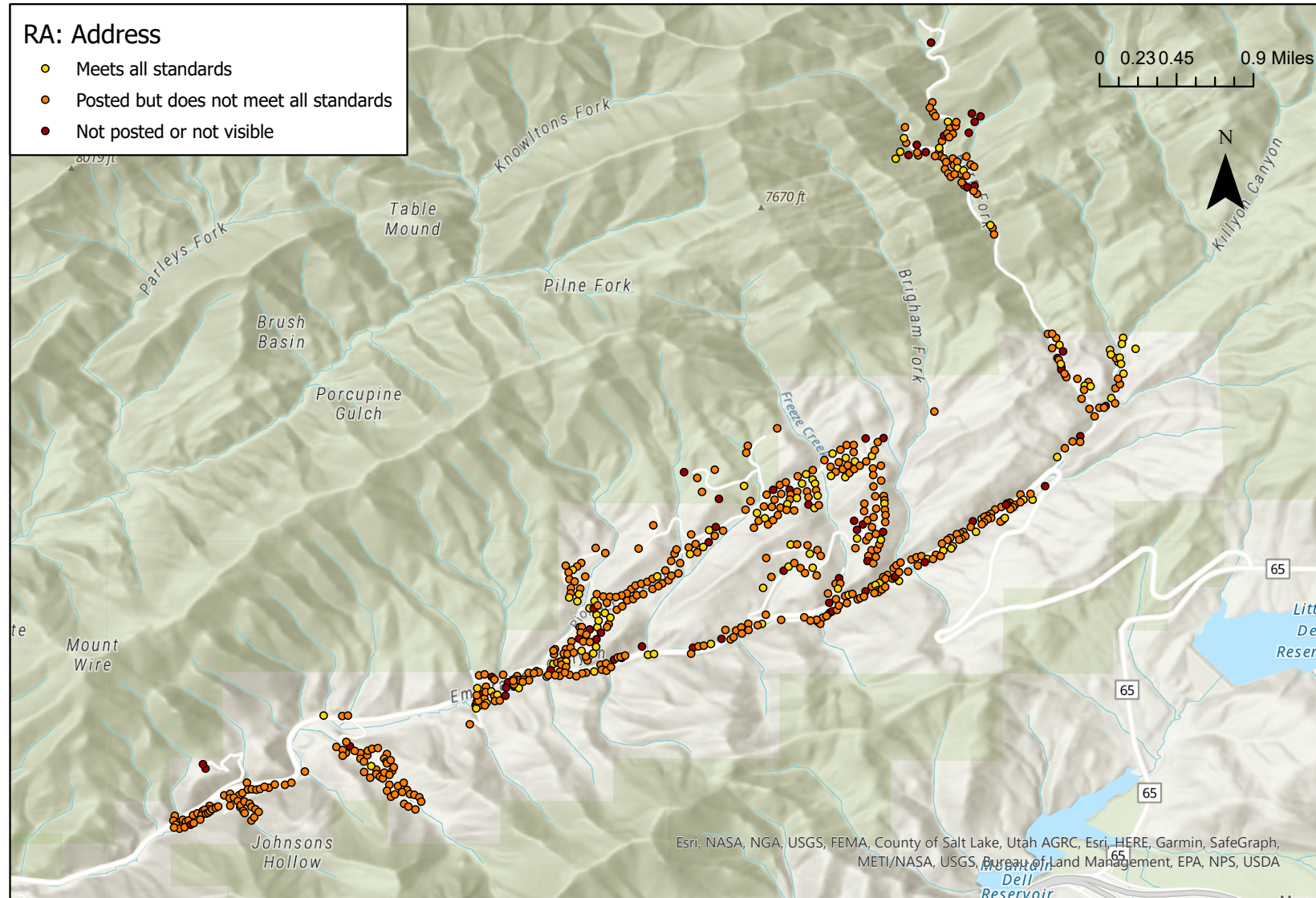
WiRē + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRē)



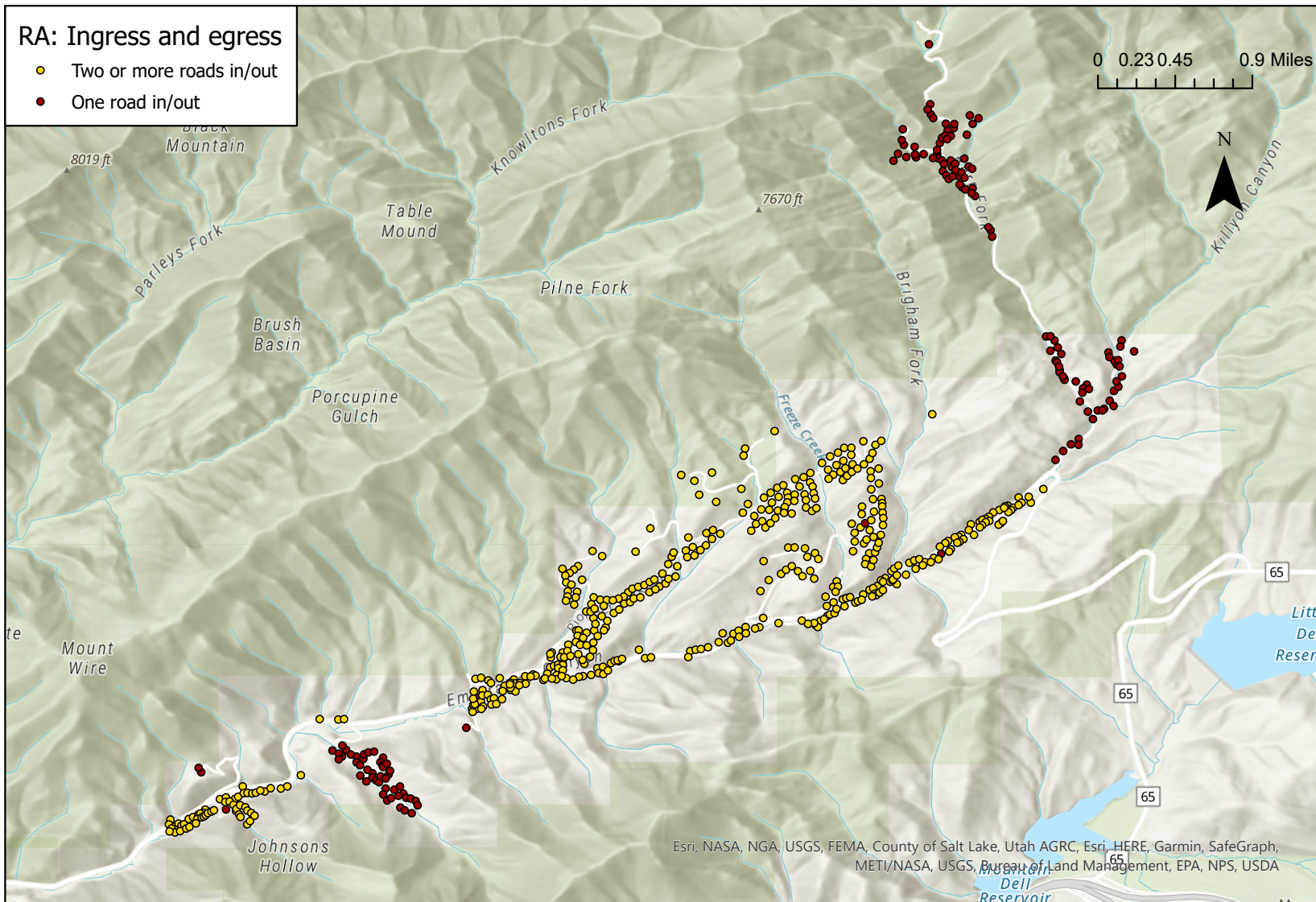
WiRē + Utah Forestry, Fire and State Lands
Data collected in 2020
Map produced by The Wildfire Research Center (WiRē)

RA: Address

- Meets all standards
- Posted but does not meet all standards
- Not posted or not visible



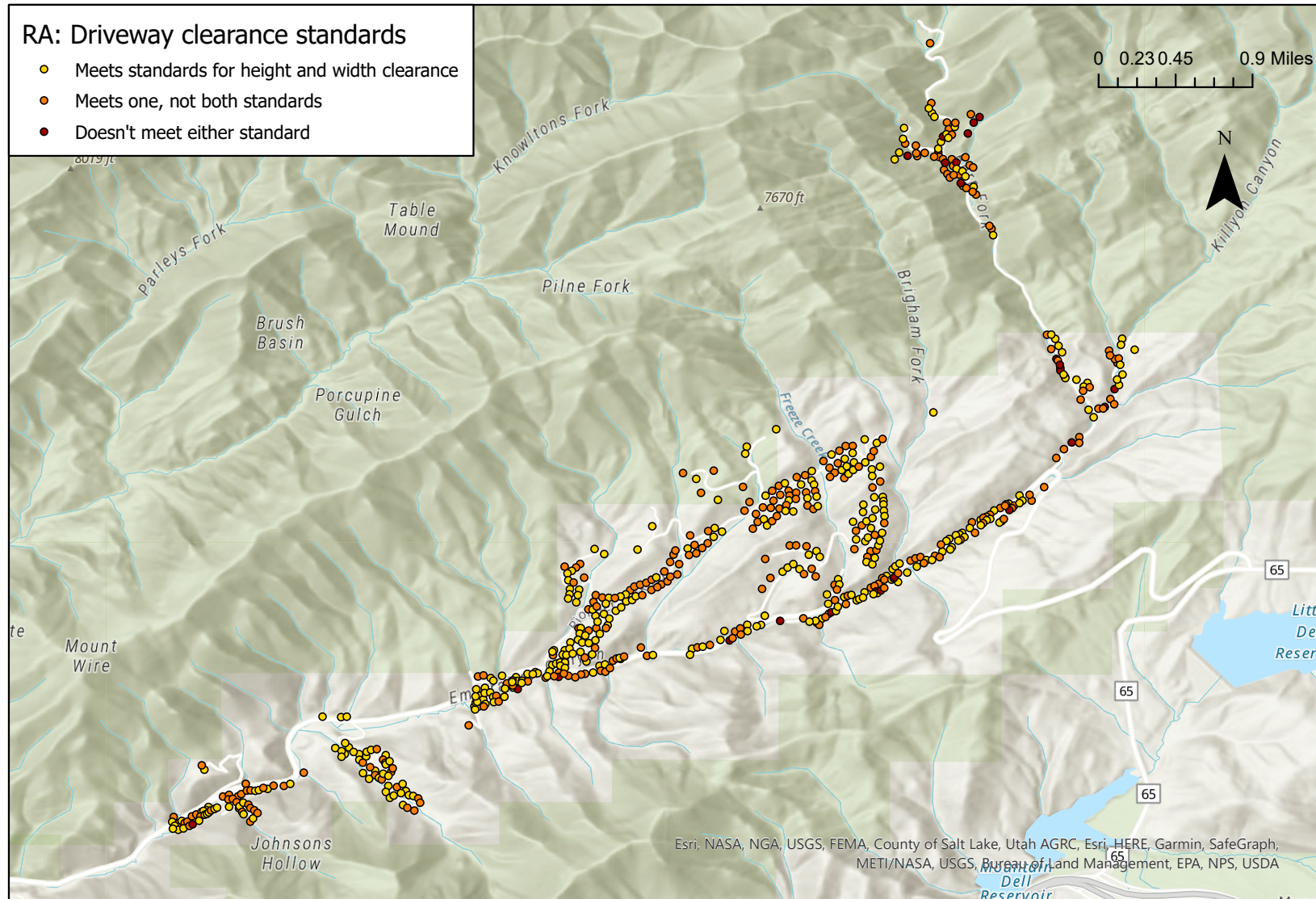
WiRē + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRē)



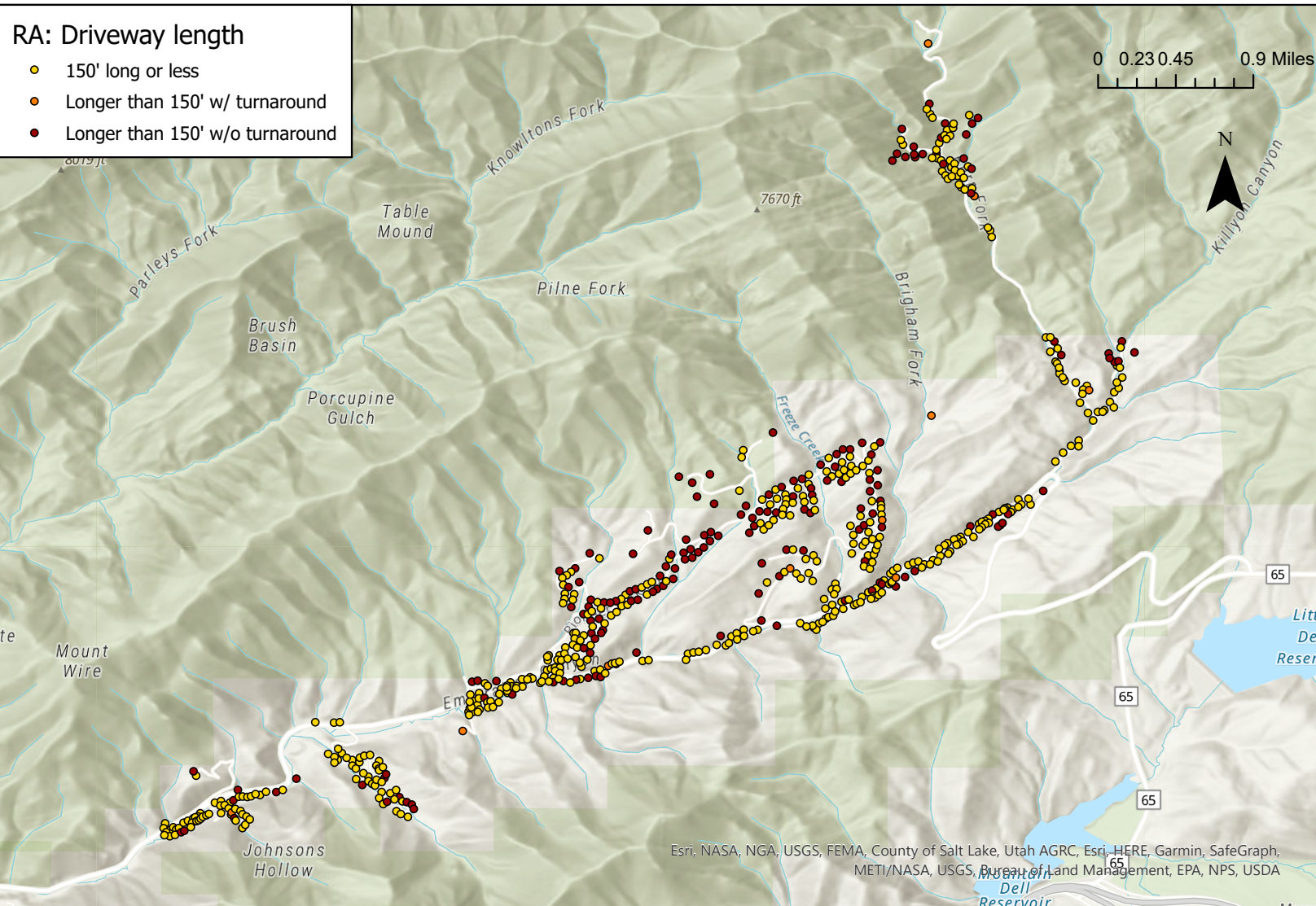
WiRē + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRē)

RA: Driveway clearance standards

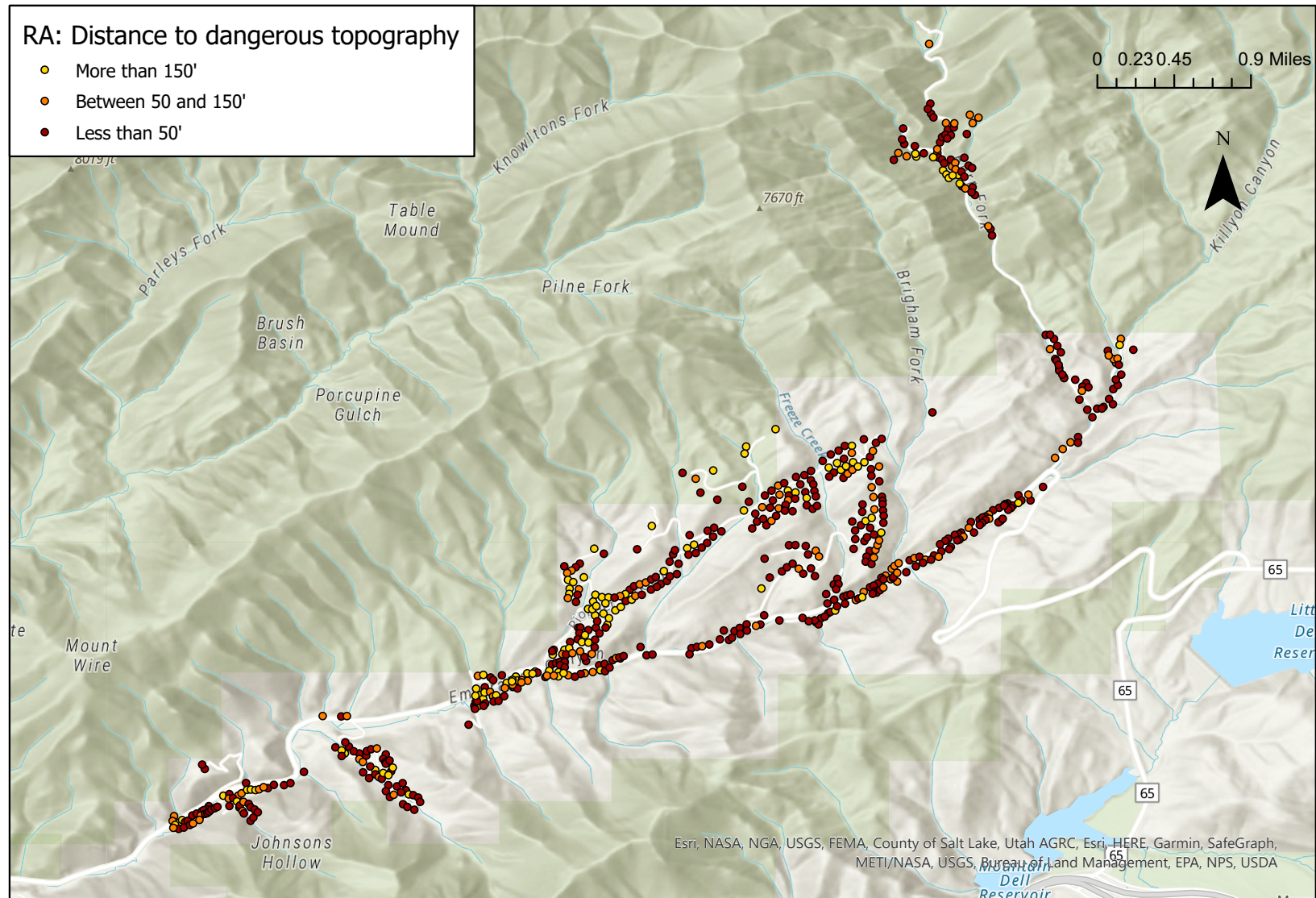
- Meets standards for height and width clearance
- Meets one, not both standards
- Doesn't meet either standard



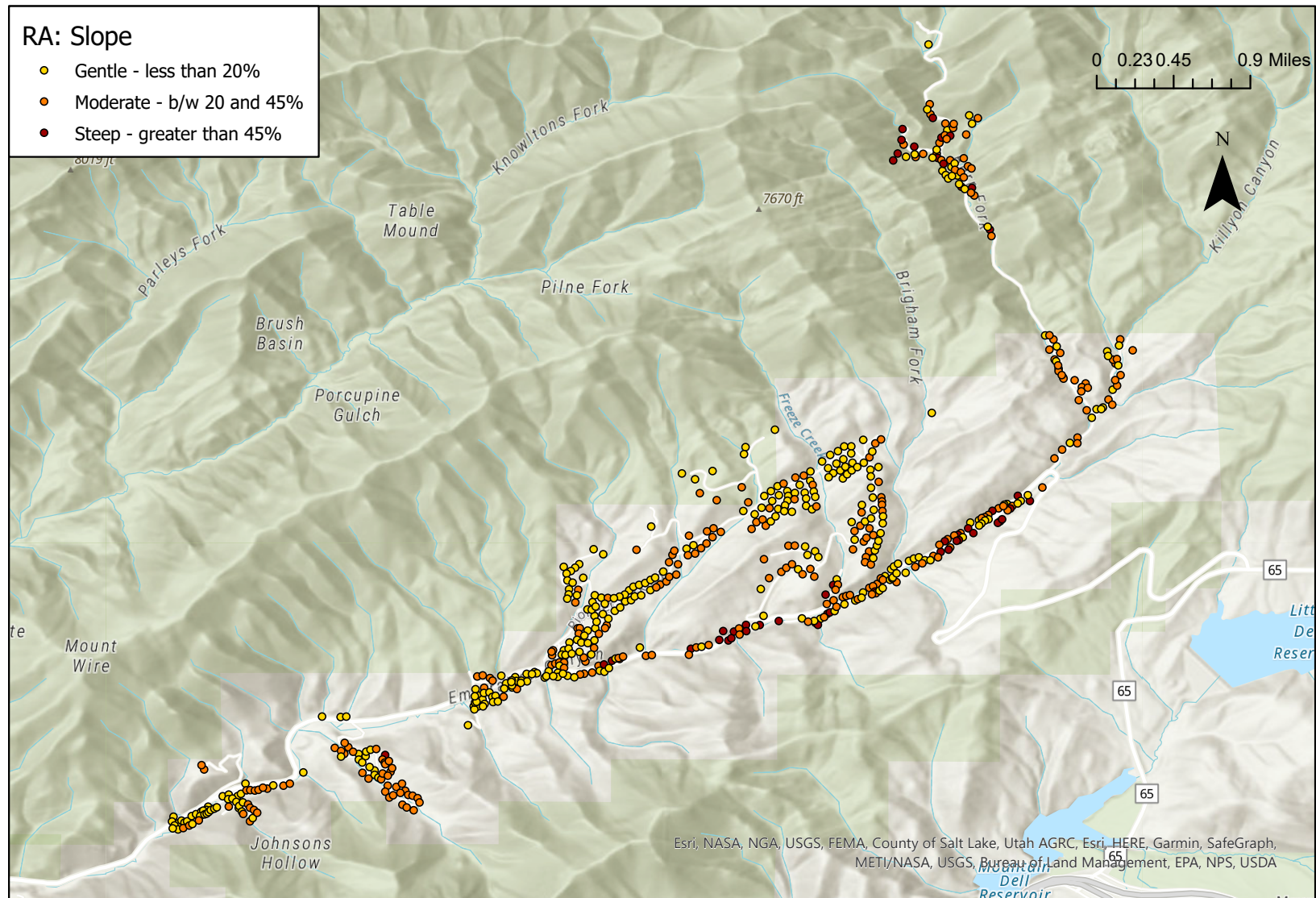
WiRe + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRe)



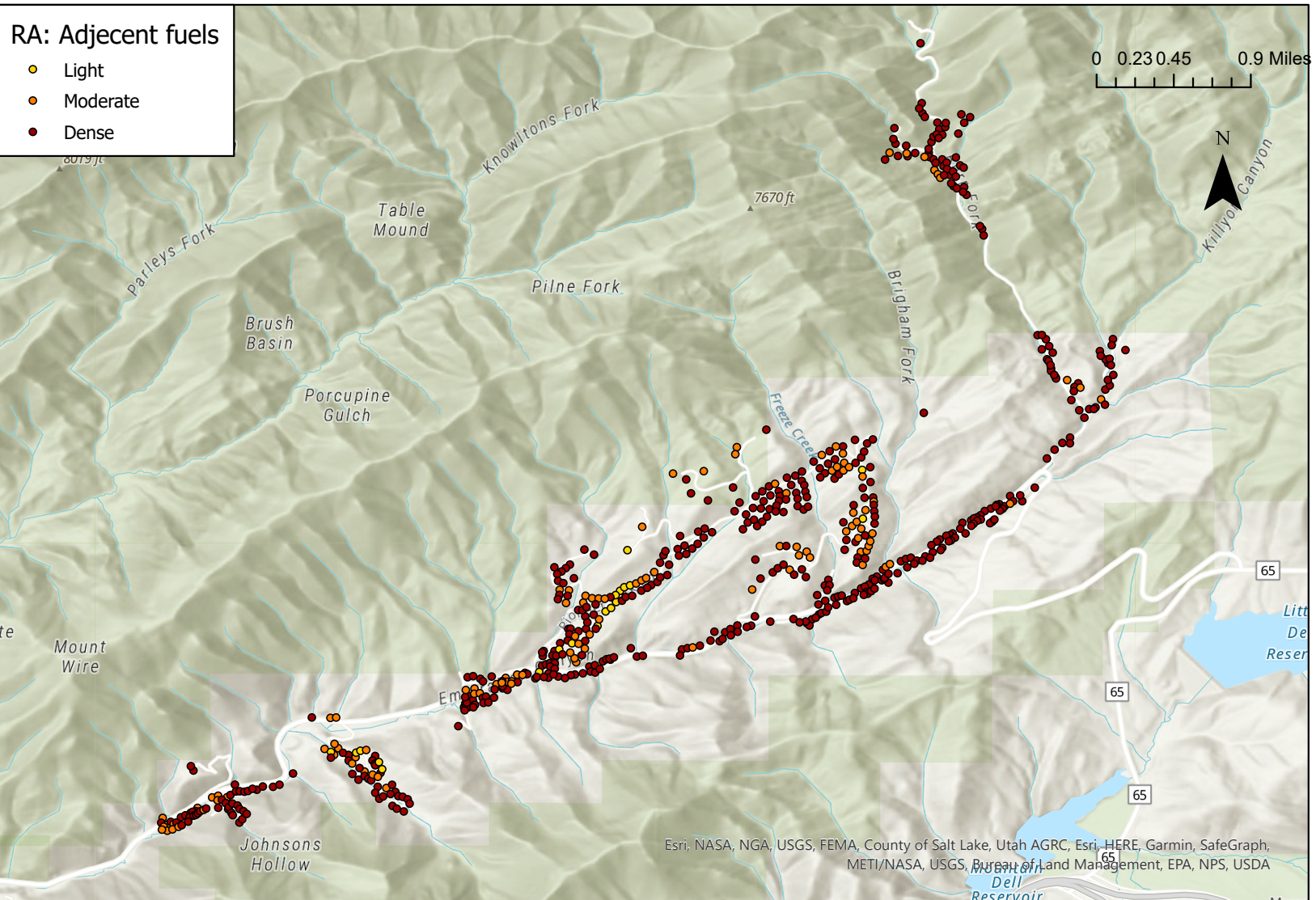
WiRe + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRe)



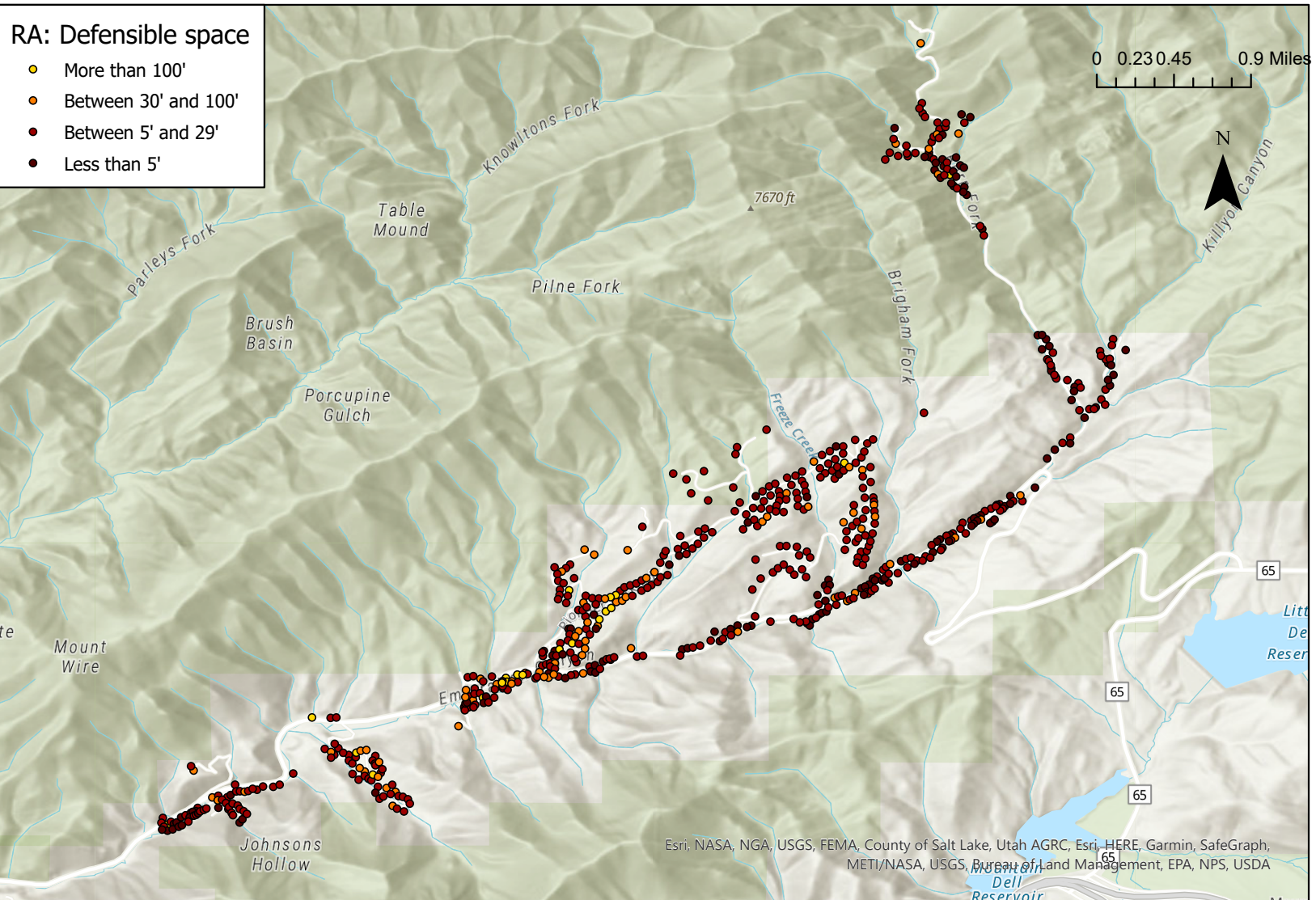
WiRe + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRe)



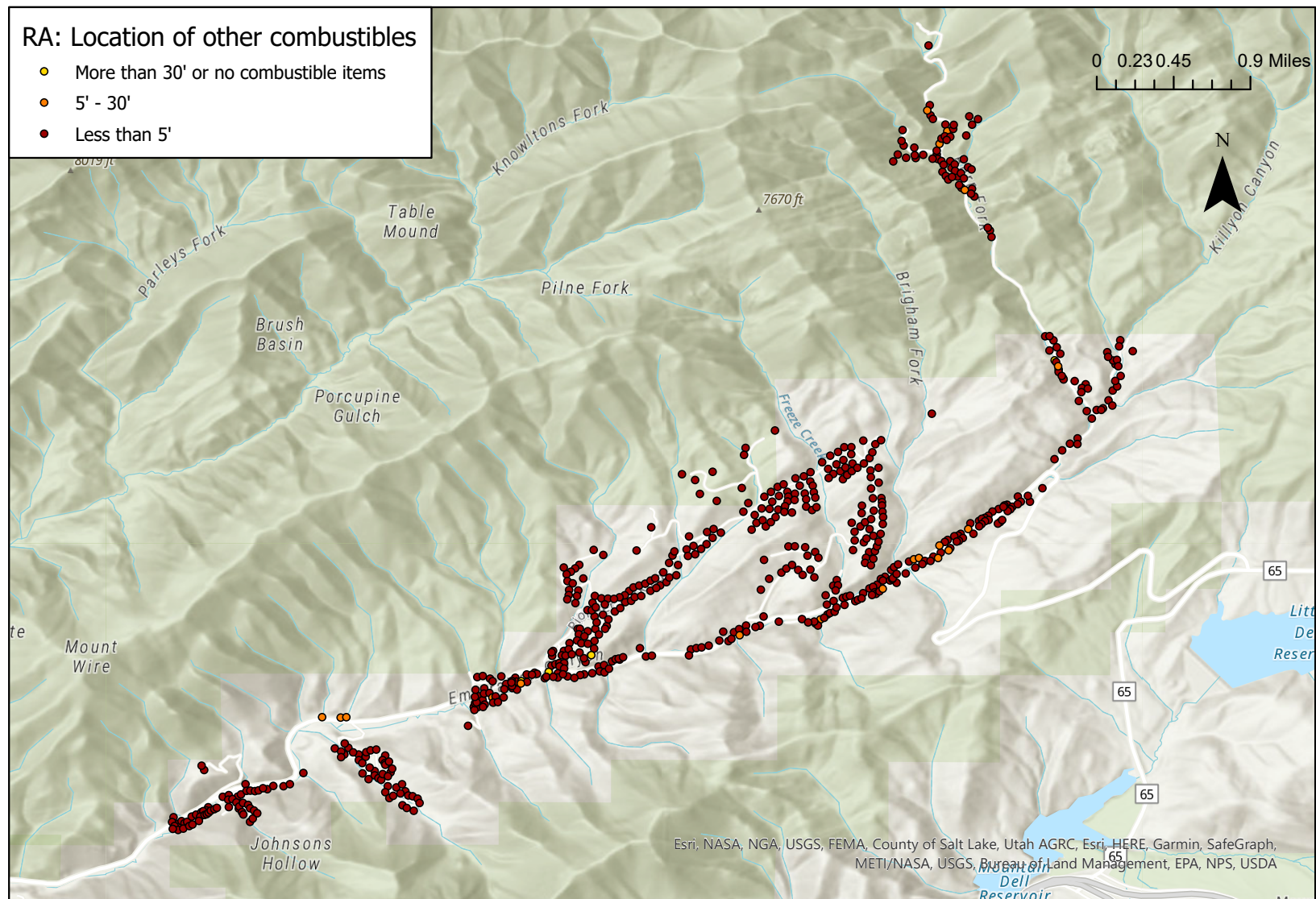
WiRe + Utah Forestry, Fire and State Lands
Data collected in 2020
Map produced by The Wildfire Research Center (WiRe)



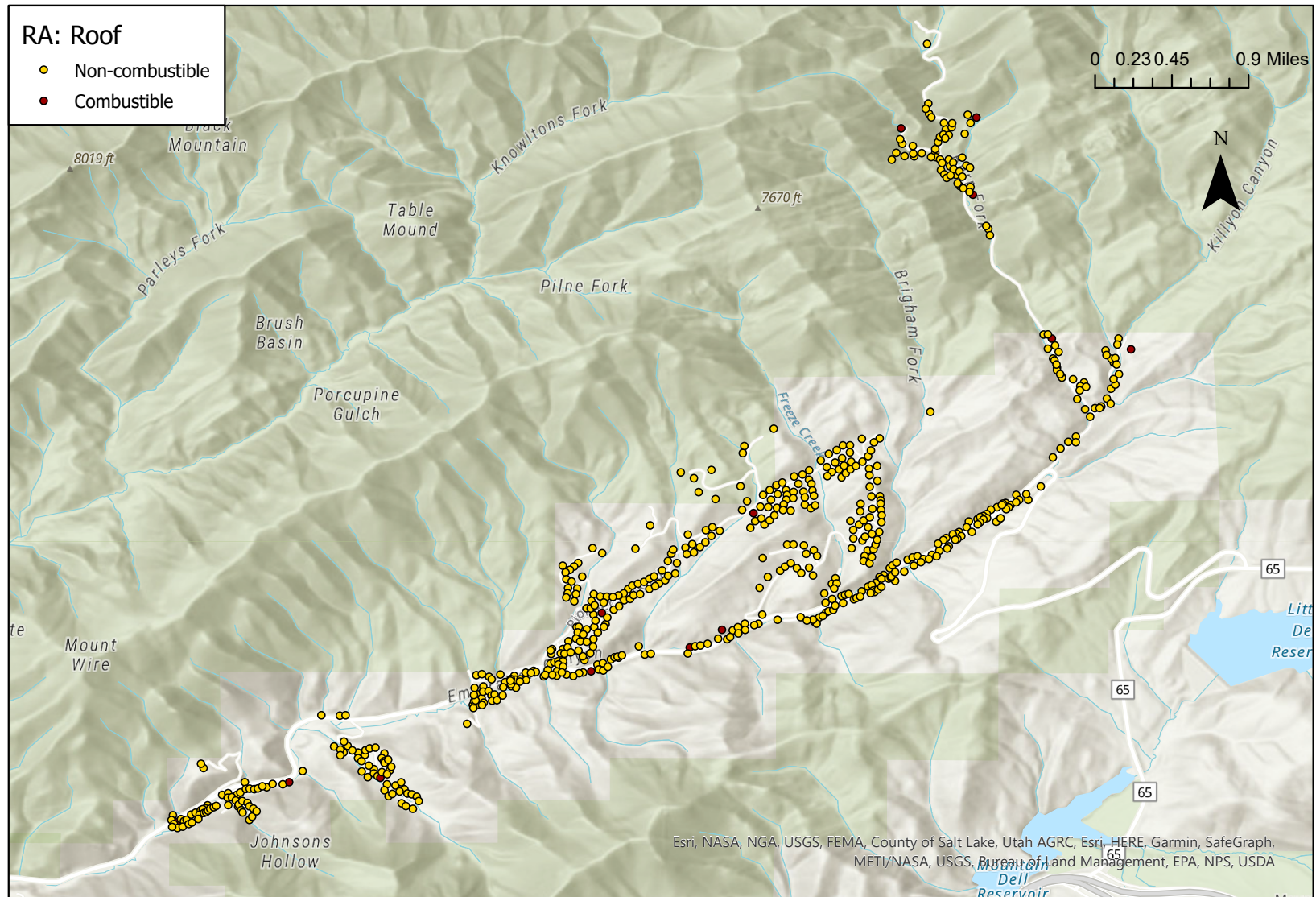
WiRē + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRē)



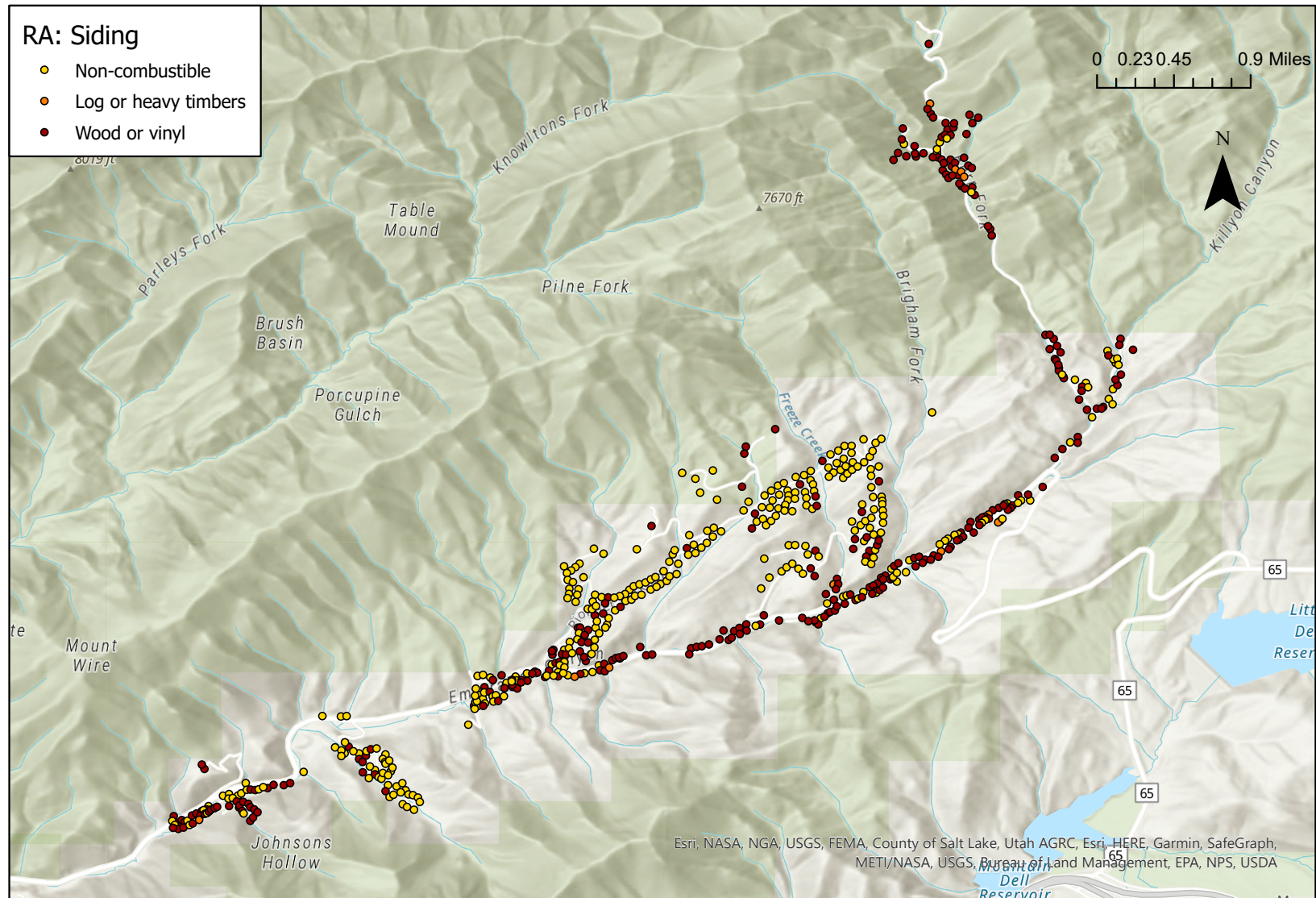
WiRē + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRē)



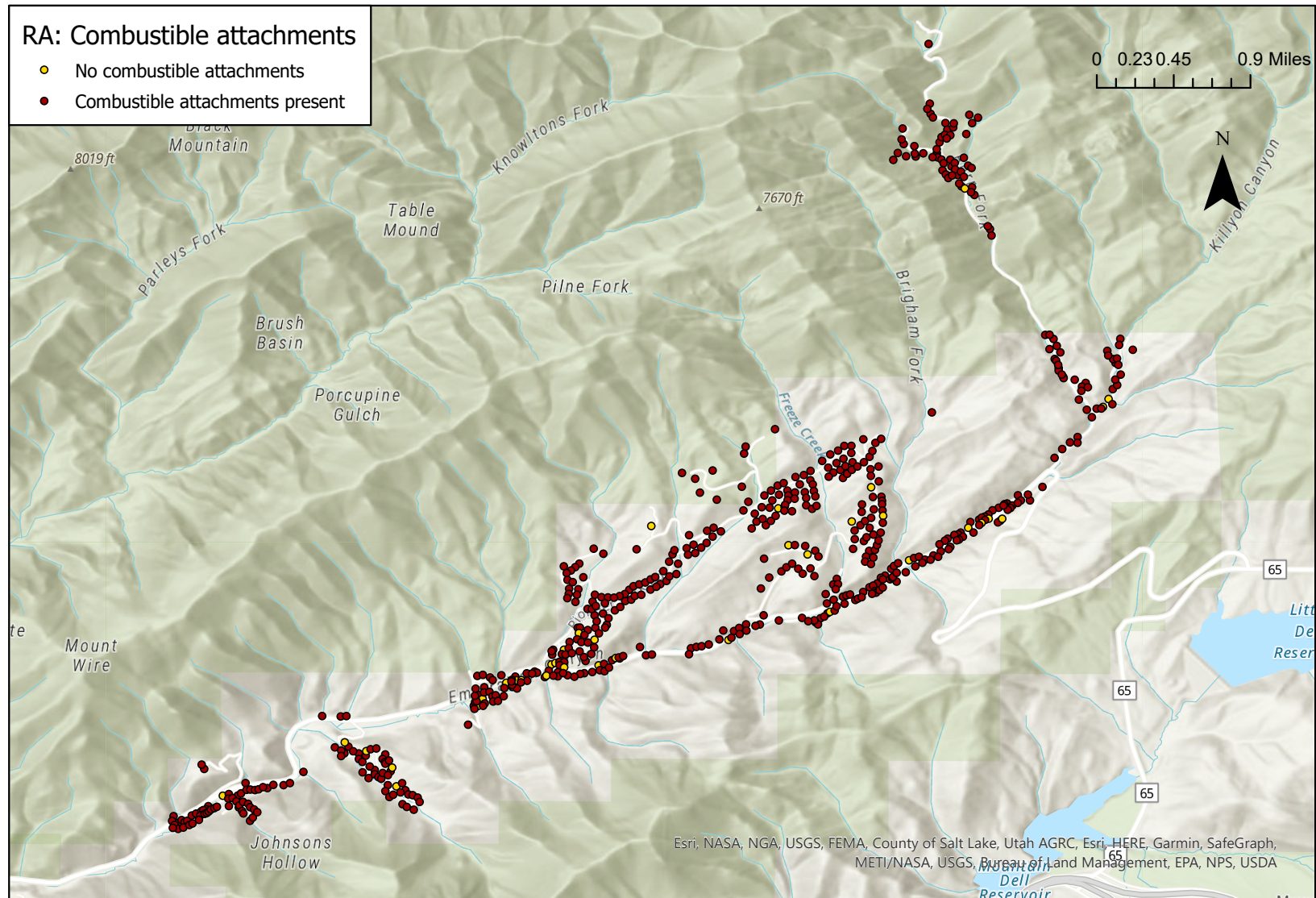
WiRe + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRe)



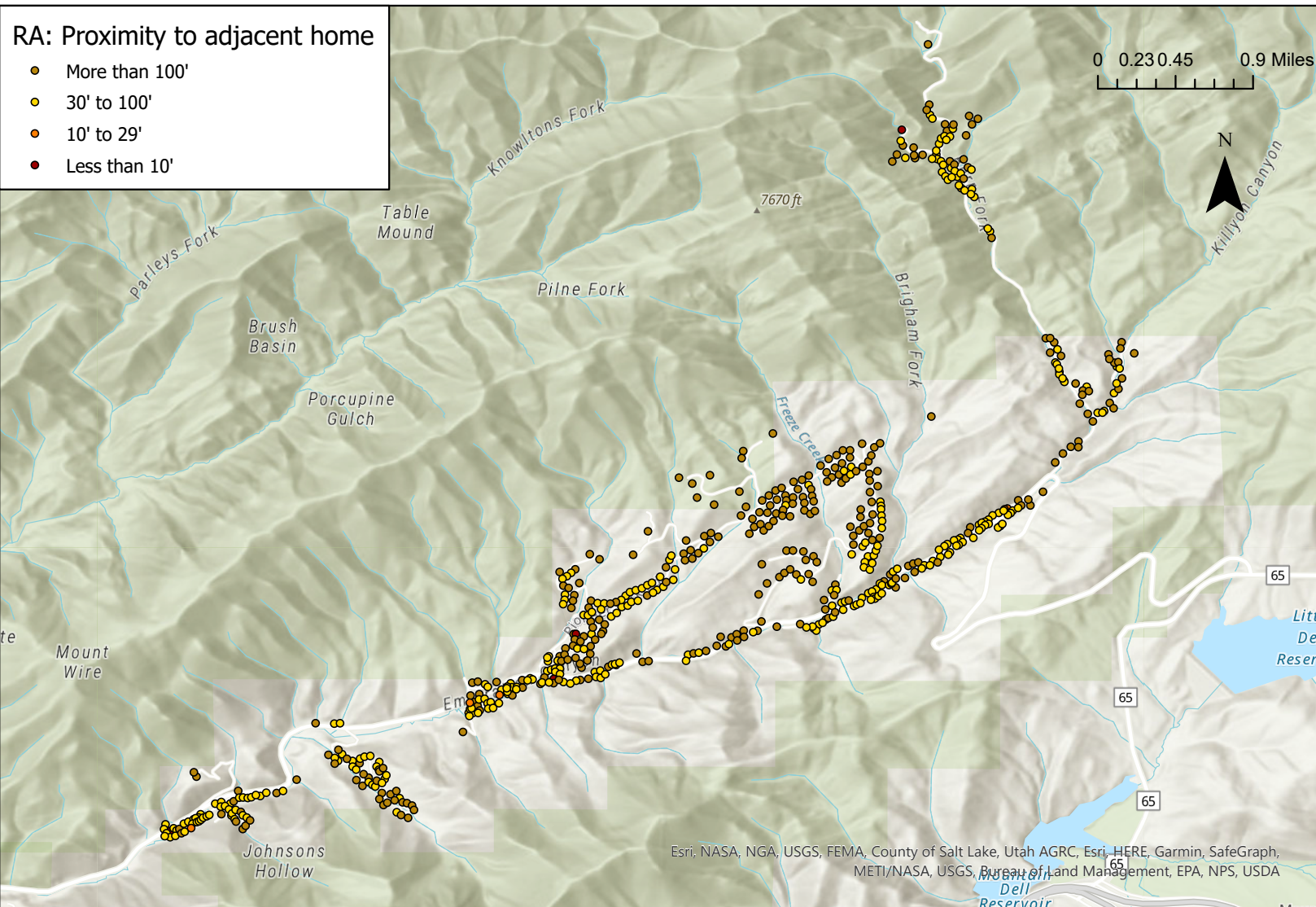
WiRē + Utah Forestry, Fire and State Lands
Data collected in 2020
Map produced by The Wildfire Research Center (WiRē)



WiRe + Utah Forestry, Fire and State Lands
Data collected in 2020
Map produced by The Wildfire Research Center (WiRe)



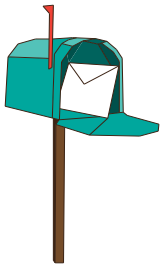
WiRe + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRe)



WiRē + Utah Forestry, Fire and State Lands
 Data collected in 2020
 Map produced by The Wildfire Research Center (WiRē)

Appendix G: Infographic-Style Outreach Pamphlet

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In 2021, we sent you a survey on wildfire risk.

Who responded?

Over **249** households in Emigration Canyon! The response rate was **45%**, which is very high for this type of survey.

Who are we?

Emigration Canyon Metro Township, Emigration Canyon Community Council, Unified Fire Authority, and the Utah Division of Forestry, Fire & State Lands are four organizations partnering with residents and other agencies to reduce local wildfire risk. We collaborated with the Wildfire Research Center to collect & analyze the data in this mailer.

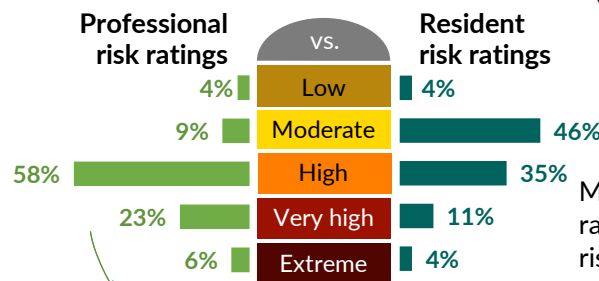


We also sent professionals to assess your wildfire risk.

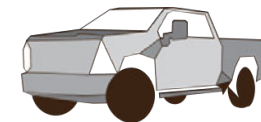
Your home's wildfire risk may be higher than you think.

Our data suggest that residents view wildfire risk differently than wildfire professionals.

By this professional assessment, relatively few canyon homes are adequately prepared to survive a wildfire event.



Professionals most commonly rated homes' risk as **High** or **Very High**.

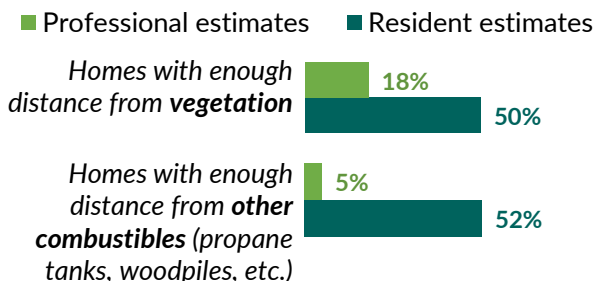


Most residents rated their home's risk as **Moderate** or **High**.

(Each risk rating is relative to the rest of the community, not to the rest of the county or the US overall.)

Is your defensible space big enough? Take another look at the vegetation and other combustibles within 30 feet of your home.

Many survey respondents overestimated the size of their defensible space.



To maintain defensible space, within 30 ft of the main walls of the home, you should **remove**:

- ☐ Leaves, dead limbs, twigs
- ☐ Tree branches (live & dead) overhanging the home
- ☐ Tree limbs such that the lowest limbs are 6-8ft from the ground and there is 18ft between treetop branches
- ☐ Keep weeds/grasses under 4 inches
- ☐ Move firewood and other combustibles away from the home

Questions? Please contact us!
 firewise84108@gmail.com
 Emigration Canyon Community Council



We've made a lot of progress, but there's more work to be done.

What you can do:

Here are some resources and actions to take, based on what respondents requested on the survey:



Sign up for our CodeRed emergency communication system

Sign up for CodeRed and choose phone, text, and/or email evacuation notifications.



www.ecmetro.org/communication



Make an evacuation plan

Visit this website* for tips on planning, emergency supplies, what to bring, and family communication:
www.wildlandfirersg.org/s/?language=en_US



Read our starter guide to Living with Wildfire in Emigration Canyon

Read our wildfire preparedness starter guide to learn about wildfire concerns for Emigration Canyon, read a list of wildfire risk mitigation actions to take, and access links to more resources.



www.emigrationcanyon.org/wildfire/



Schedule a home wildfire risk assessment

Email Unified Fire Authority for a detailed, on-site wildfire risk assessment of your property, free of charge.

WildfireRiskAssessment@unifiedfire.org



Attend the Emigration Canyon Firewise open house

Join our meeting on **Saturday, May 7** at the canyon fire station. More information coming soon. We hope to see you there!



Participate in Emigration Canyon chipper week

Stay tuned for this season's chipper week, when we provide wood chipping services for community members who have removed vegetation from around the home.

What we are doing:



Detailed rapid risk assessment data

We're working to make all the professional risk assessment data from this study available to every household. Watch for additional information.



Household wildfire preparation information

We're working to make more information and resources available to aid in household wildfire preparation.

* To scan the QR codes, hold up your smartphone's camera and tap the screen to focus. A link to the website will appear at the top of your screen. Click the link to open the webpage.

Appendix H: Memorandum: Summary of Household Survey Results Regarding Acceptability of Codes

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The Wildfire Research Center

WiRē

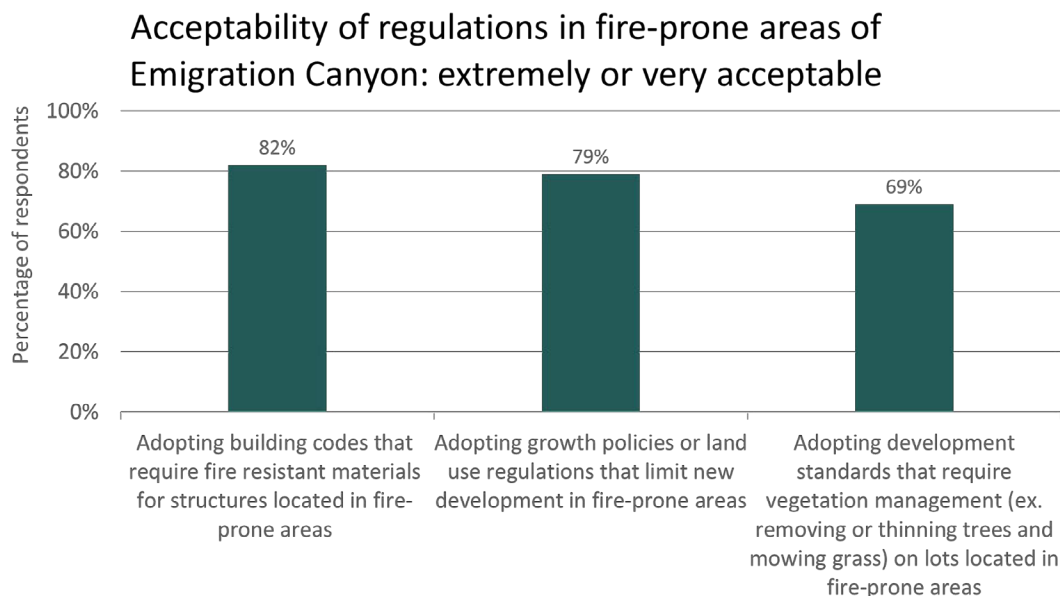


Memorandum

Date: February 2, 2022
To: Emigration Canyon Metro Township Council, Rinn Harris
From: Hannah Brenkert-Smith, Colleen Donovan, Carolyn Wagner, WiRē
Subject: Summary of household survey results regarding acceptability of codes

1 Summary of household survey results regarding acceptability of codes

- Household survey was administered to 553 households In Emigration Canyon, Wasatch County, Utah.
 - Approach: Census of all households in Emigration Canyon
 - Timing: April - May 2021
 - Response rate: 45%



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