

2022

# Annual Report



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*Rapid assessment training with CSFS, Leadville Fire, and the Arkansas River Watershed Collaborative in September 2022*

## Our Mission

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.

## Our Vision

Communities can live with wildfire.



# WiRē's Philosophy



*Rapid assessment training with Estes Valley Fire and partners in June 2022*

The WiRē approach is premised on the underlying philosophy that wildfire practitioners can develop better programs if they participate in the data collection process and share the results with their partners and communities. Local practitioners collect the data and use the results to tailor their wildfire risk education programs.

WiRē provides support and tools to streamline and assure the data collection efforts conform to best scientific practices, as well as expertise to summarize and analyze the social data.

# The WiRē Approach

Our approach (the WiRē Approach) is a systematic process that includes two data collection efforts. Together, these data help us provide evidence-based strategies to help make our communities more resilient to wildfire.



A rapid wildfire risk assessment based on attributes related to building materials, vegetation near the home, background fuels and topography, as well as access for the fire department to the parcel.



Social surveys of the residents of the assessed parcels to investigate homeowners' perceptions of wildfire risk, risk mitigation behaviors, and responses to incentives to mitigate risk.

# Distinguishing Characteristics of the WiRē Approach

Several characteristics of the WiRē approach distinguish it from other community wildfire adaptation efforts:

Long-term



Collaborative



Actionable



Our work is based on a long-term, research-practitioner collaboration where researchers and practitioners contribute equally to the research agenda, methods, and questions. Through this iterative process the approach continues to evolve and adapt while maintaining a central focus on creating tools and information for effective science-based wildfire education programs.

Holistic



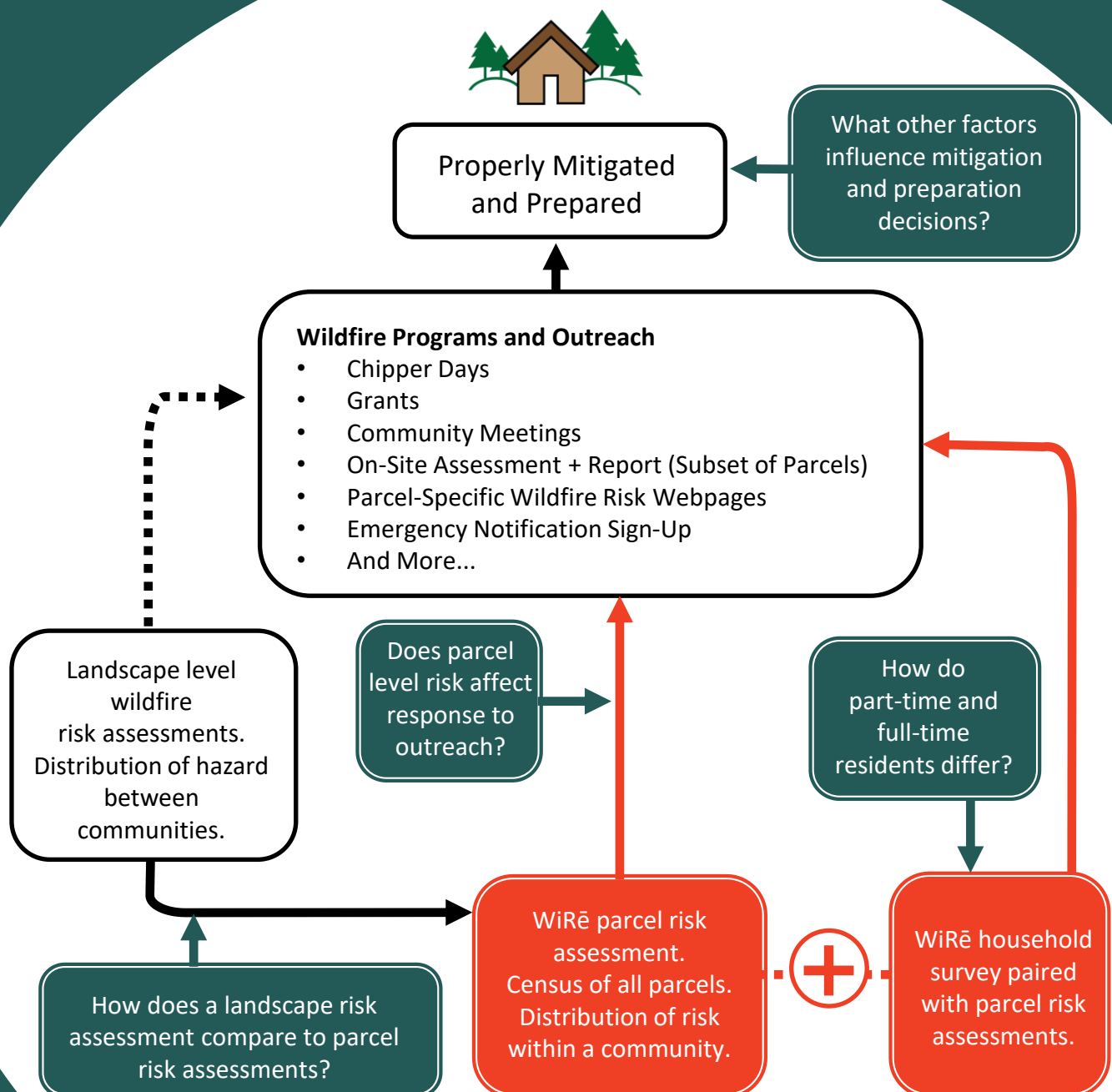
Individuals & Communities



The systematic WiRē approach focuses on all private land parcels with a primary residential structure within a community. The holistic community approach is a notable departure from opportunistic wildfire education programs that focus substantial effort on a few community residents.

# Research Embedded in Practice

WiRē data support efforts to increase homeowner wildfire mitigation and preparedness and to address critical research questions about wildfire risk. The red boxes show WiRē data, and the blue boxes show research questions WiRē can explore with collected data.





# Stages of a WiRē Project



We select a study area with our partner



Partner does rapid wildfire risk assessments of each parcel in the study area



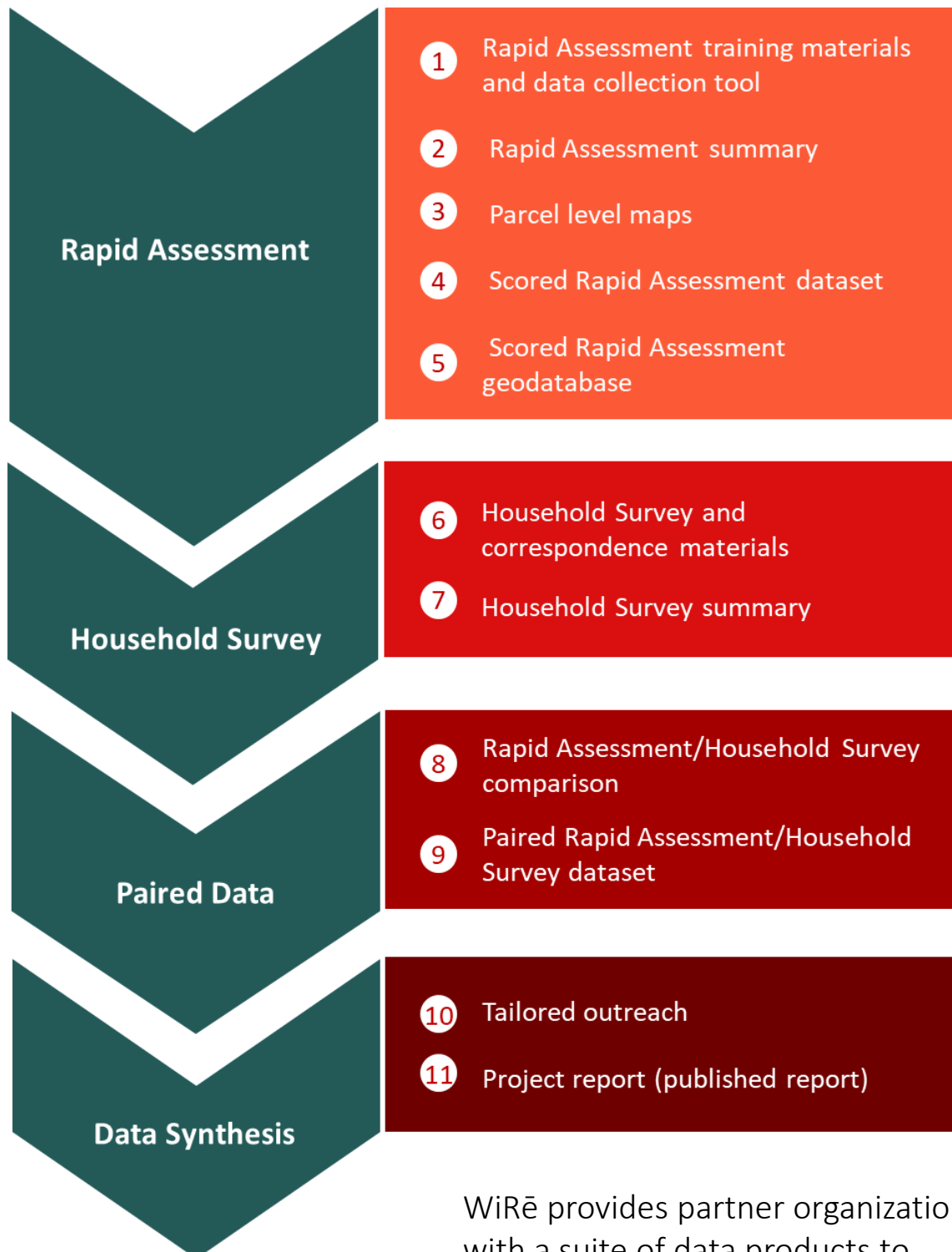
A survey is mailed to all households in the study area



Partner adapts approach and programs

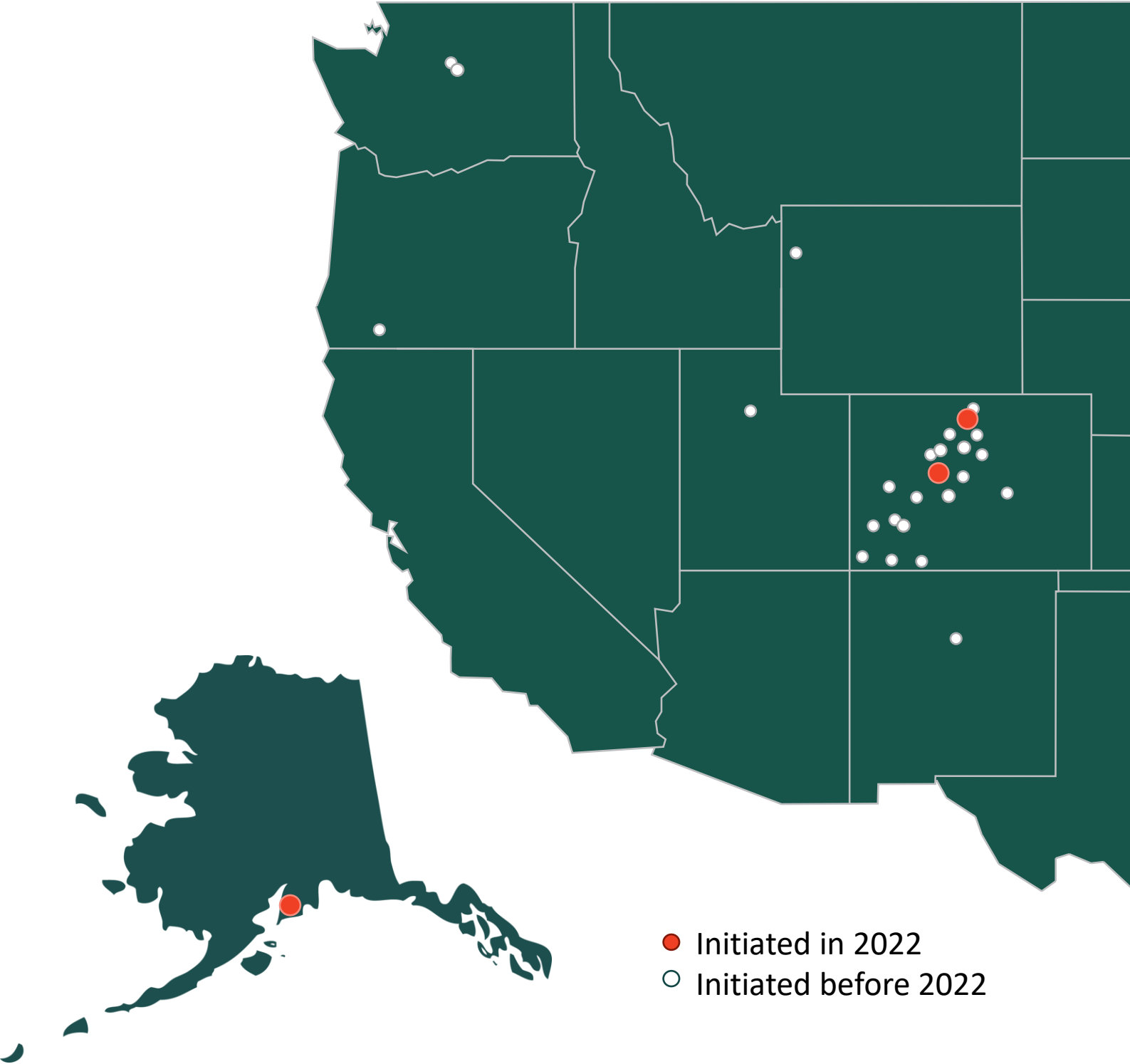


# Data Products



WiRē provides partner organizations with a suite of data products to access and understand their data.

# WiRē Project Locations



# WiRē Partners & Projects

Year Started	Location	Main Partner(s)	Affiliated Partners
2022	Estes Valley, Larimer County, CO	Estes Valley Fire Protection District	
2022	Kenai Peninsula, AK	Nikiski Fire Service Area, Cooper Landing Emergency Services, Central Emergency Services	Kenai Peninsula Borough Office of Emergency Management
2022	Shavano Front, Chaffee and Lake Counties, CO	Colorado State Forest Service, Salida Field Office	Leadville Fire Department, Arkansas River Watershed Coalition (ARWC)
2021	Ouray and Montrose Counties, CO	West Region Wildfire Council	Montrose Fire Protection District
2021	Town of Vail, Eagle County, CO	Vail Fire & Emergency Services	
2021	Genesee Fire Protection District, Jefferson County, CO	Genesee Fire Rescue	
2021	Chelan County, WA	Lake Wenatchee Fire & Rescue	Cascadia Conservation District
2021	Chelan County, WA	Chelan County Fire District #3	Cascadia Conservation District
2021	Chelan County, WA	Chelan County Fire District #1	Cascadia Conservation District
2020	Santa Fe County, NM	City of Santa Fe Fire Department	

# WiRē Partners & Projects

Year Started	Location	Main Partner(s)	Affiliated Partners
2020	Emigration Canyon Metro Township, Salt Lake County, UT	Utah's Forestry, Fire and State Lands	Emigration Canyon Metro Township; Unified Fire Authority
2020	Teton County, WY	Teton Area Wildfire Protection Coalition	
2019	Grand County, CO	Grand County Wildfire Council	Hot Sulphur Springs, Grand Lake, Grand, Kremmling, and East Grand Fire Protection Districts
2019	Chalk Creek Canyon, Chaffee County, CO	Colorado State Forest Service, Salida Field Office	Chaffee County Fire Protection District
2019	Park County, CO	Platte Canyon Fire Protection District	Fire Adapted Bailey; Burland Ranchettes HOA
2019	Ashland, Jackson County, OR	Ashland Fire & Rescue	
2018	Squilchuck Drainage, Chelan County, WA	Chelan County Fire District #1	
2017	Log Hill Mesa, Ouray County, CO	West Region Wildfire Council	Log Hill Mesa Fire Protection District
2015*	Norwood, San Miguel County, CO	West Region Wildfire Council	
2015	Montezuma County, CO	Wildfire Adapted Partnership**	Cortez, Dolores, Lewis-Arriola, and Mancos Fire Protection Districts

\* These projects did not have the full WiRē paired data collection approach

\*\* Formerly FireWise of Southwest Colorado



# WiRē Partners & Projects

Year Started	Location	Main Partner(s)	Affiliated Partners
2015	La Plata County, CO	Wildfire Adapted Partnership**	Durango, Upper Pine, and Fort Lewis Mesa Fire Protection Districts
2015	Archuleta County, CO	Wildfire Adapted Partnership**	Pagosa FPD; Los Pinos Fire Protection Districts
2015	Telluride, San Miguel County, CO	West Region Wildfire Council	Telluride Fire Protection District
2013	Rainbow Estates, Gunnison County, CO	West Region Wildfire Council	
2013	Delta County, CO	West Region Wildfire Council	Cedaredge, Crawford, Hotchkiss, and Paonia Fire Protection Districts
2011	Log Hill Mesa, Ouray County, CO	West Region Wildfire Council	Log Hill Mesa Fire Protection District
2007/ 2010*	Larimer County, CO	Larimer County	Colorado State Forest Service, National Center for Atmospheric Research
2007/ 2010*	Boulder County, CO	Boulder County	Colorado State Forest Service, National Center for Atmospheric Research
2004*	Colorado Springs, El Paso County, CO	Colorado Springs Fire Department	

\* These projects did not have the full WiRē paired data collection approach

\*\* Formerly FireWise of Southwest Colorado

## 2022 in Review

# Practitioner of the Year



WiRē's "Practitioner of the Year" award recognizes the outstanding efforts of our practitioner partners.



## Dorie Dalton

This year, WiRē Center recognizes Dorie Dalton as the Practitioner of the Year. We are deeply appreciative of, and inspired by, Dorie's dedication to helping communities live with wildfire both within her jurisdiction and beyond.

Dorie serves as the Wildland Specialist for Genesee Fire Rescue where she was previously a volunteer firefighter for three years. A former kindergarten teacher, Dorie's passion for education now extends to all ages as she helps homeowners in Genesee understand wildfire risk to their

properties and how they can prepare themselves and their homes for wildfire.

Dorie has also helped other WiRē partners learn how to collect rapid assessment data. The WiRē partners Dorie has directly helped include Leadville Fire Department, Colorado State Forest Service, Arkansas River Watershed Collaborative, Estes Valley Fire Protection District, and Estes Valley Watershed Coalition. She has also been an active participant in the WiRē Community of Practice.

We are thankful to Genesee Fire Rescue for supporting Dorie's efforts assisting other partners.



*Dorie discussing wildfire risk during a Rapid Assessment training in Estes Valley.*

*2022 in Review*

# Wildfire Mitigation Awards



Three of WiRē's practitioner partners received the 2022 Wildfire Mitigation Award, a national award presented by the National Association of State Foresters, the International Association of Fire Chiefs, the National Fire Protection Agency, and the USDA Forest Service.



**Jon Riley**

Jon is the former Community Wildfire Liaison and currently a firefighter for Wenatchee Valley Fire Department in Washington. Jon has worked to implement fuels reduction projects, secure grant funding for mitigation, and increase wildfire risk awareness among residents, including those whose primary language is Spanish. WiRē began working with Jon in 2018.



**Paul Cada**

Paul is the Wildland Program Manager for the Town of Vail's Fire and Emergency Services in Colorado. In addition to leading fuels reduction projects, Paul has implemented many strategies to increase both wildfire mitigation and preparedness among Vail residents, secondary homeowners, and visitors. WiRē began working with Paul in 2021.



**Schelly Olson**

Schelly founded the Grand County Wildfire Council to unite wildfire organizations in Grand County, Colorado. When working for the Grand Fire Protection District, Schelly fostered wildfire mitigation via chipper days and a cost-share program, among other efforts. WiRē began working with Schelly in 2019, and she was the 2021 WiRē Practitioner of the Year.

# Community of Practice

In 2022, we convened four Community of Practice meetings.

Our Community of Practice (CoP) meetings are a space for WiRē partners across the country to share technical information and personal perspectives on wildfire mitigation and preparedness, particularly as related to WiRē projects. These discussions range from data presentations to personal reflections on events, but always provide an opportunity for us all to learn from one another.

Our March CoP exemplified the unique outcomes of this opportunity when we discussed the catastrophic Marshall Fire in Boulder County, CO. Chief Jason Puffet from Genesee Fire Rescue was a responder and shared his experiences, which ranged from how the fire behaved to the after-effects on firefighter mental health. Carolyn Wagner, WiRē's Data Manager, evacuated from the fire and shared invaluable insights from the perspective of a community member. This holistic discussion generated reflection and discussion of what we can do to better prepare for and respond to wildfires.

2022 CoP attendees came from these organizations:





*2022 in Review*

# Partnerships

We formed new partnerships.

## Estes Valley Fire Protection District

WiRē kicked off a new project with Estes Valley Fire Protection District (EVFPD) and the Estes Valley Watershed Coalition. EVFPD serves residents in approximately 66 square miles in southwest Larimer County, Colorado. The district encompasses the Town of Estes Park and rural mountain communities and is bordered by Rocky Mountain National Park to the west, the Arapaho-Roosevelt National Forest to the north, east, and south.

Working with EVFPD and Estes Valley Watershed Coalition, we selected three communities to comprise the study area: Carriage Hills, Raven Avenue, and East Prospect Estates. EVFPD hopes to learn about these residents' key priorities between increasing their safety and the barriers to conducting the necessary mitigation work.

WiRē developed the Rapid Wildfire Risk Assessment tool using ArcGIS FieldMaps, a new ArcGIS tool, similar to Collector. WiRē provided trainings for EVFPD staff, Estes Valley Watershed Coalition, and community volunteers.



*June 2022 – WiRē Rapid Assessment training with Estes Valley Fire Protection District*



## 2022 in Review

# Partnerships

We formed new partnerships.



### Alaska Partners

*June 2022 – Field tour of recent and planned fuel treatments near the WiRē study communities, Kenai Peninsula, Alaska.*

In 2021, the National Science Foundation awarded funding to a large collaborative research project: *Socio-ecological considerations for sustainAble Fuel treatments to Reduce wildfire Risk* (SAFRR). This multi-institution, interdisciplinary project includes support for a WiRē project as a part of the larger effort that integrates social, economic, and ecological considerations.

Our team will implement the WiRē Approach with an added focus on acceptability of fuel treatments. The work will occur in three Kenai Peninsula communities: Nikiski, Funny River, and Cooper Landing in collaboration with the Kenai Peninsula Borough Office of Emergency Management, Nikiski Fire Service Area, Central Emergency Services, and Cooper Landing Emergency Services.

More info here: <https://ibs.colorado.edu/ibs-researcher-brenkert-smith-to-collaborate-on-2-3-million-nsf-grant-aimed-at-wildfire-risk-reduction/> [NSF Award: 2127285]

*2022 in Review*

# Partnerships

We also started new projects with old partners.

WiRē received Outreach Grants from the University of Colorado in 2021 and 2022. We have used this opportunity to strengthen pre-existing partnerships with the West Region Wildfire Council and Colorado State Forest Service.



## West Region Wildfire Council - 2021

WiRē has partnered with the West Region Wildfire Council (WRWC) to do a WiRē project in Montrose County, Colorado. Driven by WRWC's goal to improve participation in their cost-share program for homeowner mitigation, the household survey in this round includes questions about willingness to participate in a cost-share program, as well as barriers and incentives to participation.



## Colorado State Forest Service - 2022

WiRē has partnered with state (Colorado State Forest Service (CSFS) Salida Field Office), regional (Arkansas River Watershed Collaborative), and local partners (Leadville Fire Department) to do work in two high-risk, rapidly developing areas in Chaffee and Lake County, CO. Efforts in Chaffee County will help CSFS engage with residents along the Shavano Front/Mesa Antero study area. Doing a project in the Greater Leadville study area will allow CSFS to expand its service area while also supporting ongoing Community Wildfire Protection Plan activities. The Greater Leadville area is home to a large low-income, Hispanic population that is historically underserved by wildfire mitigation efforts.





## 2022 in Review

# Partnerships

We shared project results with study area communities.

### Teton Area Wildfire Protection Coalition

WiRē wrapped up a project with the Teton Area Wildfire Protection Council and Jackson Hole Fire Rescue with a visit to Jackson, WY this summer. We helped table a booth at the local farmers market, and we gave four tailored presentations: to our partners, to community wildfire ambassadors, to the local rotary club, and to the Teton Conservation District.



“That one piece of data changed the tone of the conversation, so thank you.”

"Last night TAWPC helped organize a neighborhood meeting in ... one of the regions that was a part of the WiRē study ... about their limited egress. The meeting was well attended and overall, very positive. At one point there was some 'the County does not do anything to help us with our secondary (private land) roads' and other finger pointing. Being able to share with them that 95% of the WiRē survey respondents also live on roads with one means of egress helped refocus the conversation. I believe it helped them recognize that they are not an underserved community, that this is an attribute of many neighborhoods, and we need to work collectively to find solutions for all our friends and neighbors in Jackson Hole. That one piece of data changed the tone of the conversation, so thank you."

- Bobbi Clauson, Jackson Hole Fire Rescue



*2022 in Review*

## Outcomes

We expanded the existing dataset that compiles the paired rapid risk and social data across all partner projects.

**21,769**

**Risk  
Assessments**

**6,639**

**Paired Social  
Surveys**

**18**

**Partner Projects**

# 2022 in Review

## Outcomes

We helped partners incorporate social science into their decision making through our publications.

### Data Reports

#### Grand County, Colorado

Brenkert-Smith, Hannah; McConnell, Abby E.; Olson, Schelly; Gosey, Adam; Meldrum, James R.; Champ, Patricia A.; Gomez, Jamie; Barth, Christopher M.; Donovan, Colleen; Wagner, Carolyn; Goolsby, Julia. 2022. Living with Wildfire in Grand County, Colorado: 2021 Data Report. Res. Note RMRS-RN-94. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 178 p.  
<https://doi.org/10.2737/RMRS-RN-94>.

#### Log Hill Mesa, Ouray County, Colorado

Donovan, C., J.P. Gomez, L. Falk, C.M. Barth, P.A. Champ, H. Brenkert-Smith, J.R. Meldrum, C. Wagner. 2022. Living with Wildfire in Log Hill Mesa, Ouray County, Colorado: 2017 Data Report and a Comparison to 2011 and 2012 Data. Res. Note RMRS-RN-91. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 45 p.  
<https://doi.org/10.2737/RMRS-RN-91>.

#### Teton County, Wyoming

Goolsby, Julia B.; Champ, Patricia A.; Brenkert-Smith, Hannah; Clauson, Bobbi J.; Sgroi, Robert M.; Williams, Lesley; Barth, Christopher M.; Meldrum, James R.; Donovan, Colleen; Wagner, Carolyn. 2022. Living with Wildfire in Teton County, Wyoming: 2021 Data Report. Res. Note RMRS-RN-93. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 92 p.  
<https://doi.org/10.2737/RMRS-RN-93>.

### Peer-Reviewed Publications

Byerly Flint, H., Cada, P., Champ, P.A., Gomez, J., Margoles, D., Meldrum, J.R., Brenkert-Smith, H. (2022). You vs. Us: Framing Adaptation Behavior in Terms of Private or Social Benefits. *Climatic Change* 174: 11.  
<https://doi.org/10.1007/s10584-022-03400-4>

Byerly Flint, H., Champ, P.A., Meldrum, J.R., Brenkert-Smith, H. (2022). Wildfire Imagery Reduces Risk Information-seeking Among Homeowners as Property Wildfire Risk Increases. *Commun Earth Environ* 3: 229.  
<https://doi.org/10.1038/s43247-022-00505-7>

Champ, P.A., Brenkert-Smith, H., Riley, J.P., Meldrum, J.R., Barth, C.M., Donovan, C., Wagner, C.J. (2022). Actionable Social Science Can Guide Community Level Wildfire Solutions. An Illustration from North Central Washington, US. *Int Journ of Disaster Risk Reduction* 82: 103388.  
<https://doi.org/10.1016/j.ijdrr.2022.103388>

Meldrum, J.R., Barth, C., Goolsby, J.B., Olson, S.K., Gosey, A., White, J., Brenkert-Smith, H., Champ, P.A., Gomez, J. (2022). Parcel-Level Risk Affects Wildfire Outcomes: Insights from Pre-Fire Rapid Assessment Data for Homes Destroyed in 2020 East Troublesome Fire. *Fire* 5(1): 24. <https://doi.org/10.3390/fire5010024>

## 2022 in Review

# Outcomes

We raised wildfire risk awareness through webinars and presentations for diverse audiences.

Meldrum, J.R. (Feb 2022) **“Assessing parcel-level wildfire risk to support mitigation: could Lidar help us do more?”** Department of the Interior (DOI) USGS Lidar Science Collaboration Group.

Meldrum, J.R. & Barth, C.M. (May 2022) **“Community-based Wildfire Risk Reduction.”** Fire Adapted New Mexico. Webinar. <https://facnm.org/new-events/2022/5/4/webinar-community-based-wildfire-risk-reduction>

Meldrum, J.R. (May 2022) **“Using parcel-level rapid wildfire risk assessments to work toward fire adapted communities.”** Upper South Platte Partnership Jam Session.

Meldrum, J.R. (Jun 2022) **“Rapid assessment of parcel-level wildfire risk.”** U.S. Geological Survey Town Hall.

Barth, C. (Jun 2022) **“Teton Area Wildfire Protection Coalition + WiRē Community Ambassador Presentation.”** TAWPC. Jackson, WY.

Barth, C. (Jun 2022) **“Teton Area Wildfire Protection Coalition + WiRe Rotary Presentation.”** Rotary Club of Jackson Hole. Jackson, WY.

Champ, Patricia. (Jun 2022) **“Teton Area Wildfire Protection Coalition + WiRe Results Presentation.”** TAWPC. Jackson, WY.

Champ, Patricia. (Jun 2022) **“Teton Conservation District + WiRe Results Presentation.”** Teton Conservation District. Jackson, WY.

Champ, Patricia. (Jun 2022) **“The Wildfire Research (WiRe) Team: An unconventional approach to wildfire risk mitigation research and practice.”** University of New Mexico, Department of Economics Seminar.

Champ, Patricia. (Jul 2022) **“My Favorite Wildfire Research Adventure.”** CASC Network Climate Adaptation Postdoctoral Fellows Program.

Champ, Patricia. (Oct 2022) **“Humans and Wildfire.”** John Freemuth Student Congress. Boise State University. Boise, ID.

Brenkert-Smith, H., and Barth, C. (Nov 2022) **“Living with Wildfire in Kenai Peninsula Borough.”** Kenai Peninsula Borough All Hands All Lands. Kenai, AK.

Brenkert-Smith, H., Goolsby, J.B., Champ, P.A., Meldrum, J.R., Barth, C.M., Donovan, C., Wagner, C., Forrester, C. (Dec 2022) **“How can communities best prepare for wildfire? An evidence-based approach for community wildfire mitigation and preparedness.”** Right Here Right Now UN Climate Summit. Boulder, CO. Poster Presentation.

*2022 in Review*

## **Financials**

*Net income*

**\$196,874**

*Net expenses*

**\$189,594**





# People

## WiRē Center

**Colleen Donovan**, Project Manager  
**Chiara Forrester**, Wildfire Mitigation Specialist  
**Carolyn Wagner**, Data Manager

## WiRē Center Board of Directors

**Hannah Brenkert-Smith**, University of Colorado Boulder  
**Dana Coelho**, Urban & Community Forestry Program Manager, Colorado State Forest Service  
**Jamie Gomez**, West Region Wildfire Council  
**Lilia Falk**, West Region Wildfire Council  
**Hollis Hope**, Leadership and organizational mentor and coach

## Advisory Committee

**Patricia Champ**, USDA Forest Service  
**Christopher Barth**, U.S. Bureau of Land Management  
**James Meldrum**, U.S. Geological Survey

## Affiliate Contributors

**Cody Evers**, Portland State University  
**Katlyn Blacksten**, University of Colorado Boulder  
**Christine Dimke**, Colorado State University  
**Julia Goolsby**, University of Colorado Boulder  
**Abby McConnell**, U.S. Geological Survey

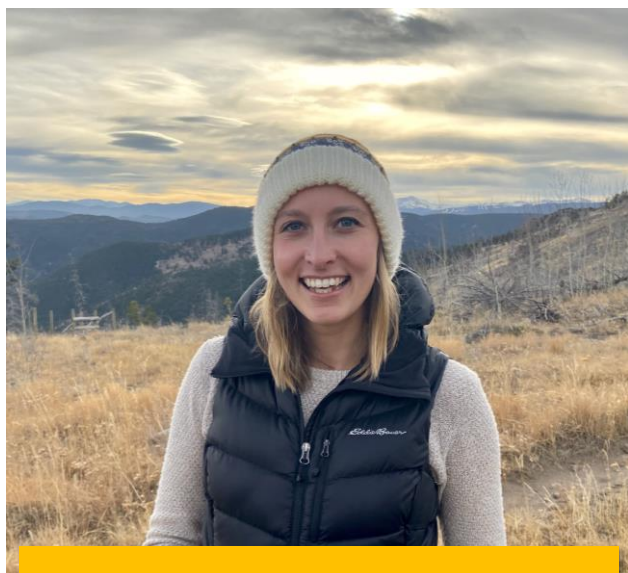
## Postdoc

**Hilary Byerly**, University of Colorado Boulder



# Meet Our New Wildfire Mitigation Specialist

We welcomed Chiara Forrester to our team as Wildfire Mitigation Specialist.



**Chiara Forrester**

Chiara is passionate about conducting fire mitigation efforts with diverse stakeholders to support resilient communities and ecosystems. At WiRē, Chiara works with fire districts, community members, and stakeholders to conduct, understand, and design actions based on wildfire risk assessments. She has experience designing and overseeing forest

restoration projects inside and outside of defensible space, developing data-driven adaptive management plans that consider many values, and facilitating partnerships between practitioners, scientists, and community members. Chiara also has a wide range of research experience, from studying the impacts of climate change on plant ecology in alpine and agricultural systems to conducting survey research on the use of climate change research in land management decisions. She holds a PhD in Ecology and Evolutionary Biology from the University of Colorado Boulder and a Bachelor's degree in Plant Ecology and Environmental Education from Hampshire College. In her free time, Chiara loves failing to tire her pup out, mountain biking, backcountry skiing, tending to her 27 houseplants, and making dinner with friends.

# Affiliate Organizations



**University of Colorado**



**USDA Forest Service**



**U.S. Geological Survey**



**U.S. Bureau of Land Management**

# Funding Sources

None of our projects would be possible without the engagement and support of our partners. These organizations that range from fire protection districts, to wildfire councils, to state agencies bring their earnest passion and commitment to wildfire risk reduction to the table for each project. They also bring critical support by covering personnel for field data collection and costs of survey administration.

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 Center relies on the continued technical and research support from individual Team members, as well as in-kind support (salary and travel) from their respective employers – USDA Forest Service (FS), U.S. Geological Survey (USGS), Bureau of Land Management (BLM), West Region Wildfire Council, and the University of Colorado at Boulder.

## ***FY 2022 Funding Sources***



*USDA Forest Service*

State and Private Forestry Fire and Aviation Management

## ***Leveraged Funding***



*National Science Foundation*

Grant SES-1823509



*University of Colorado*

Outreach Grant Program

Additional support from the University of Colorado *Natural Hazards Center* Mitigation Matters Research Program Grant and *Institute of Behavioral Science* Small Grants Program, which funded the Jackson and Ashland interviews and the online study to support the Ashland field experiment.





