Annual Report









Our Mission

The mission of the Wildfire Research (WiRē) Center is to support community tailor their wildfire efforts to education programs to the local context allocate and scarce resources effectively. Specifically, the WiRē Center provides hands-on, personalized expertise support to wildfire practitioners and community organizations, and other local leaders living and working in wildland-urban interface (WUI) to collect and analyze locally relevant wildfire risk and social science data to enhance the effectiveness of local wildfire risk mitigation efforts.



Our approach (the WiRē approach) is a systematic process that links professionally assessed wildfire risk information with social data to help find opportunities to increase interest and enthusiasm for mitigation in WUI communities. To our knowledge, the WiRē Center is the only organization working with wildfire practitioner partners to pair wildfire risk and social data.

Two key elements of the WiRē approach distinguish it from other community wildfire adaptation efforts:



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.



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.

The WiRe Approach

The WiRē approach is premised on the underlying philosophy that wildfire practitioners are able to 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, map results, and 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.















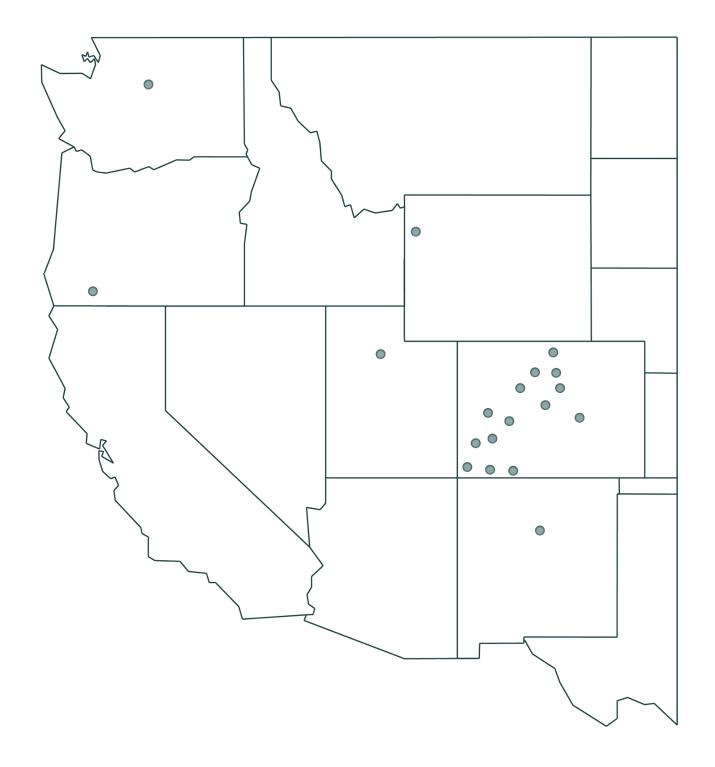




Household Survey

Images from video by Karina Branson (www.ConverSketch.com) View the full series at https://wildfireresearchcenter.org/approach/

WiRē Project Locations



WiRē Partners & Projects

Year Started	Location	Main Partner	Affiliated Partners
2004*	Colorado Springs, El Paso County	Colorado Springs Fire Department	
2007/ 2010*	Boulder County	Boulder County	Colorado State Forest Service, National Center for Atmospheric Research
2007/ 2010*	Larimer County	Larimer County	Colorado State Forest Service, National Center for Atmospheric Research
2011	Log Hill Mesa, Ouray County	West Region Wildfire Council	Log Hill Mesa FPD
2013	Delta County	West Region Wildfire Council	Cedaredge, Crawford, Hotchkiss, and Paonia FPD
2013	Rainbow Estates, Gunnison County	West Region Wildfire Council	
2015	Telluride, San Miguel County, CO	West Region Wildfire Council	Telluride FPD
2015	Archuleta County	Wildfire Adapted Partnership**	Pagosa FPD; Los Pinos FPD
2015	La Plata County	Wildfire Adapted Partnership*	Durango FPD; Upper Pine FPD; Fort Lewis Mesa FPD
2015	Montezuma County	Wildfire Adapted Partnership**	Cortez FPD; Dolores FPD; Lewis- Arriola FPD; Mancos FPD
2015*	Norwood, San Miguel County	West Region Wildfire Council	
2017	Log Hill Mesa, Ouray County	West Region Wildfire Council	Log Hill Mesa FPD

^{*} These projects did not have the full WiRē paired data collection approach ** FireWise of Southwest Colorado

WiRē Partners & Projects

Year Started	Location	Main Partner	Affiliated Partners
2018	Squilchuck Drainage, Chelan County	Chelan County Fire District #1	
2019	Ashland, Jackson County	Ashland Fire & Rescue	
2019	Park County	Platte Canyon Fire Protection District	Fire Adapted Bailey; Burland Ranchettes HOA
2019	Chalk Creek Canyon, Chaffee County	Colorado State Forest Service, Salida Field Office	Chaffee County FPD
2019	Grand County	Grand County Wildfire Council	Hot Sulphur Springs, Grand Lake, Grand, Kremmling, and East Grand FPD
2020	Teton County	Teton Area Wildfire Protection Coalition	
2020	Emigration Canyon Metro Township, Salt Lake County	Utah's Forestry, Fire and State Lands	Emigration Canyon Metro Township; Unified Fire Authority
2020	Santa Fe County	City of Santa Fe Fire Department	

^{*} These projects did not have the full WiRē paired data collection approach

2020 Financials

\$111,525

Net income

\$97,059

Net expenses

In 2020, WiRē Center worked on three Colorado partnerships. Each had its own set of challenges, partners, and landscapes.

Colorado State Forest Service

The WiRē Center partnered with the Colorado State Forest Service for a project in Chalk Creek Canyon, in Chaffee County.

The response to the WiRē household survey in this community was a remarkable 50%.

WiRē leveraged relationships with USGS student contractor, Julia Goolsby, to produce a two-page mailer for study participants (next page), sharing aggregate results and actionable measures. This is one example of how WiRē Center works to get findings into the hands of community members.

Grand County Wildfire Council

The WiRē Center partnered with the Grand County Wildfire Council to conduct the WiRē Approach in partnership with five Fire Protection Districts (East Grand FD4, Grand County FPD1, Grand Lake FPD, Hot Sulphur Springs/Parshall FPD, and Kremmling FPD).

We also saw a 50% response rate for the household survey in Grand County.

This work came just months ahead of the devastating East Troublesome Fire that had direct impacts on one of the study communities: Columbine Lake.

Platte Canyon

Fire Protection District

The WiRē Center leveraged an Outreach Grant from University of Colorado to launch a project with the Platte Canyon Fire Protection District, Fire Adapted Bailey, and the Burland Ranchettes Homeowners Association.

The study area is noteworthy for significant evacuation challenges.

As of this report, the household surveys are still being returned to the Center.

Chalk Creek Canyon mailer



Who are we?

- Colorado State Forest Service (CSFS) Salida Field Office
 Your source for forestry and wildfire education

wildfire education

80% of survey respondents got
wildfire risk information from CSFS

54% found CSFS information very
or extremely useful (on average
20% for other organizations)



contact us! 719-539-2579 CSFS Salida

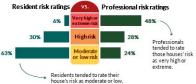
auestions. please

We also sent professionals to assess your wildfire risk.



We found

may be higher than you think.





rate wildfire risk lower than wildfire professionals (right side), for the same set of houses.

the community, not to the rest of Colorado or the US overall.)

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

Here are some solutions to the survey's top six barriers to mitigation:

1 It's physically difficult

<u>Chaffee Chips</u> cuts the work in half. You cut the limbs & trees, we haul it off & chip it.

2 It takes time

Chaffee Chips can save time. CSFS can also make you a personalized to-do list so that you can plan it all out

It will change the way my property looks

We can help you find a compromise between wildfire safety and visual impact. You may find you like the changes!

Unaware of vegetation removal options

Chaffee County Fire has several <u>large</u>, <u>low-cost dump</u> trailers available for hauling off slash that results from mitigation efforts. Or, take slash directly to the landfill.

5 It's expensive

Check out our 50/50 cost share for vegetation removal, as

Don't know how to reduce wildfire risk Call CSFS for a <u>free site visit to your house</u>. We can go indepth, marking specific trees for removal, recommending actions for the home itself, etc.

Chaffee Chips: https://envisionchaffeecounty.org/chaffee-chips Dump trailers: https://www.chaffeecountyfire.org/mitigation-trailer Cost share info or site visit: Call CSFS at 719-539-2579 More info on CSFS: https://csfs.colostate.edu/salida/sa-wildfire-mitigation-education/

Do you have an evacuation plan?

> Seasonal residents are less likely than full-time residents to have an evacuation plan, according to the survey. If you know a seasonal resident, consider asking them if they have an evacuation plan.

Here are some answers to your top questions about evacuation:

How I will be notified about evacuation?

The Sheriff's office will contact you.
 Sign up for Everbridge to get emergency

http://chaffeesheriff.org/communication/

verbridge/
Note: the Chaffee County emergency notification
system occasionally changes. It used to be called "Code Red." Please make sure you're still signed up!

This depends on the wildfire. Please contact Richard Atkins, Chaffee County Emergency Manager, with questions: 719-207-2730

When a wildfire happens, Cty Rd 162, leading to US Hwy 285, will likely be the only safe evacuation route. Make sure you're ready to evacuate quickly, just in case Cty Rd 162 is threatened by wildfire.

What do I bring and what do Heave behind?

Visit the Ready, Set, Go! website for tips on planning, emergency supplies, and family communication: https://www.wildlandfirersg.org/ s/are-you-wildfireready?language=en_US

Have you talked to your neighbors about wildfire mitigation yet?

Folks who talk to their neighbors about wildfire are more likely to take mitigation action, according to the survey. That means your voice matters!

Your risk is connected to your neighbor's-if their house catches on fire, it's more likely yours will. Work with your neighbors to reduce risk!

How safe is your house?

82% of respondents said they want information on how to reduce wildfire risk on their property.

Check off the mitigation actions you've accomplished this month:

Moved	wood	niles	30 feet	from	the home	

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- less, in a 30-foot radius around all structures Created a fuel-free boundary immediately surrounding the home and any other structures (about 5 feet). Often this simply means pulling weeds or raking pine needles away, to get down to bare
- Cleaned gutters of flammable debris
- Removed debris from under decks
- Removed miscellaneous combustibles from around the home (e.g., leftover construction materials)
- Maintained paint/stain on wood decks and wood sided homes
- Made a schedule for when to repeat these tasks
- Set up a CSFS home site visit (call us at 719-539-2579) for a personalized to-do list
- Talked with my neighbor about wildfire mitigation activities



WiRē Center formed two new partnerships outside Colorado.

City of Santa Fe Fire Protection District

Our most recent project, with the City of Santa Fe Fire Protection District, focuses on sections of the Greater Santa Fe Fireshed Area (Fireshed). The Fireshed is approximately 175 square miles, with the City of Santa Fe serving as a "hub" where urban and rural communities mingle and share jobs, recreation, commerce, resources, and many other services.

After years of informal conversations, we were elated to have the opportunity to formalize our agreement and start on this project.

It has been through our collaboration on this project that the WiRē Center made great strides in expanding our GIS capacity.

Forestry Fire and State Lands, United Fire Authority, Emigration Canyon Metro Township

On the Wasatch Front of Utah, WiRē Center forged new collaborations with a group of state entities, local government, and fire personnel (Utah Division of Forestry, Fire and State Lands (FFSL), Unified Fire Authority, Emigration Canyon Metro Township) to implement the WiRē approach in Emigration Canyon Metro Township.

The Utah Wildfire Risk Assessment Portal (UWRAP) rates the fire danger as "Extreme" in the Emigration Canyon Metro Township, and this wildland urban interface (WUI) zone has been identified by FFSL adjacent land management agencies as high priority because of the risk potential of a catastrophic wildfire.

WiRe Center continued with existing partnerships.

Ashland Fire & Rescue

WiRē Center's original partnership with Ashland Fire and Rescue extended in 2020.

University of Colorado postdoc Hilary Byerly used previously gathered risk assessment data to administer a study testing risk communication strategies.

Hilary's research is part of a project funded by the National Science Foundation and USDA Forest Service Fire and Aviation.

Chelan County Fire District 1

WiRē Center also continued our ongoing partnership with Chelan County Fire District 1.



In 2018 we conducted a curbaide assessment of the wildfire risk to your Ashland property.

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VID
YOUR PROPERTY RISK IS
YOUR SCORE: <</p>
YOUR SCORE: <</p>
YOUR SCORE: <</p>
YOUR SCORE: <</p>
Your property, visit: www.fireadaptedashland.org/myhome
Your personal access code: <</p>
Your personal access code: <</p>
This website also provides specific information on how to reduce wildfire risk on your property. You will be asked to enter the personal access code shown above to view your risk information.

If you have trouble accessing your webpo email: wildfire@ashland.or.us



In 2018 we conducted a curboide assessment of the wildfire risk to your Ashland property.

YOUR PROPERTY
RISK IS <<ri>S</ri>

YOUR SCORE:
<13>
<14><15>

LOW
EXTREME

YOUR SCORE: <<ra>
YOUR SCORE:
YOUR SCORE:
YOUR SCORE:
YOUR DEPOPETY, visit: www.fireadaptedashland.org/myhome
Your personal access code: <
CODE>>>

This website also provides specific information on how to reduce wildfire risk on your property. You will be asked to enter the personal access code shown above to view your risk information.

If you have trouble accessing your webpage email: wildfire@ashland.or.us

Hilary measured whether property owners were more or less likely to visit a personalized wildfire risk website after receiving one of two postcards: either one showing a landscape view of Ashland (top picture) or one showing a burning home (bottom picture).

WiRē contributed to the state of wildfire risk knowledge.

We helped partners incorporate social science into their decision making.

2020 Data Reports:

Brenkert-Smith, H., Chambers, C., Gibble, K., Barth, C.M., Donovan, C., Wagner, C., Lerch. Meldrum, J.R., and Champ, P.A. 2021. Living with wildfire 2020 Ashland, Oregon: data report. Res. Note RMRS-RN-88. Fort Collins, CO: U.S. Department of Agriculture, Rocky Mountain Research Station. https://www.fs.usda.gov/treesearc h/pubs/61748

Brenkert-Smith, H., Champ, P.A., Riley, J.; Barth, C.M., Donovan, C.; Meldrum, J.R., Wagner, C. 2020. Living with wildfire Squilchuck Drainage—Chelan County, Washington: 2020 data report. Research Note RMRS-RN-87. Fort Collins, CO: Department of Agriculture, Rocky Mountain Research Station. 125 p. https://www.fs.usda.gov/treesearc h/pubs/60840

"I look forward to consistently referring back to this report when developing our mitigation, education and outreach programs to guide us toward the best solutions for the Ashland community."

Katie Gibble
Ashland Fire & Rescue

To see the Ashland Research Note, visit: https://www.fs.fed.us/rm/pubs_series/rmrs/rn/rmrs_rn088.pdf

"[Since working with WiRē,] the response from private landowners has been outstanding."

J.T. Shaver Colorado State Forest Service

WiRē contributed to the state of wildfire risk knowledge.

We expanded the existing dataset that pairs partners' rapid risk and social data, including data from:

11 study areas

15,600 risk assessments

4,200 paired social surveys

collaborators, and they used it in the following ways:

We shared this dataset with several

Byerly, H., **Meldrum, J., Brenkert-Smith, H., Champ, P.,** Gomez, J., Falk, L., and **Barth, C.** 2020. Developing behavioral and evidence-based programs for wildfire risk mitigation. Fire 3(4): 66.

https://doi.org/10.3390/fire3040066

Champ, P., Meldrum, J., Brenkert-Smith, H., Warziniack, T., Barth, C., Falk, L., and Gomez, J. 2020. Do actions speak louder than words? Comparing the effect of risk aversion on objective and self-reported mitigation measures. Journal of Economic Behavior and Organization 169:301-313.

https://doi.org/10.1016/j.jebo.2019.11.019

Meldrum, J.R., Brenkert-Smith, H., Champ, P., Gomez, J., Byerly, H., Falk, L., Barth, C. 2021. Would you like to know more? The effect of personalized wildfire risk information and social comparisons on information-seeking behavior in the wildland-urban interface. Natural Hazards 106(3): 2139-2161. https://doi.org/10.1007/s11069-021-04534-x

WiRē contributed to the state of wildfire risk knowledge.

We raised wildfire risk awareness through various press and media opportunities.

Podcasts & radio



Interview with **James Meldrum** for *Hot & Dry*, **"Let's Talk WUI"** https://hotdry.org/episodes/wui



Patty Champ interviewed and quoted for All Things Considered, "Millions Of Homes Are At Risk Of Wildfires, But It's Rarely Disclosed"

https://www.npr.org/2020/10/21/924507691/millions-of-homes-are-at-risk-of-wildfires-but-its-rarely-disclosed

Blogs



Blogpost written by **Jon Riley**, Chelan County Fire District 1, for *Chelan County Fire*, "Living with Wildfire in the 'Squeal Truck'" https://www.chelancountyfire.com/single-post/living-with-wildfire-in-the-squeal-truck



WiRē research highlighted in Public Policy blogpost for *Knowledge@ Wharton*, "What Are the Most Effective Ways to Insure and Mitigate Wildfire Risks?"

https://knowledge.wharton.upenn.edu/article/effective-ways-insure-mitigate-wildfire-risks/

WiRē contributed to the state of wildfire risk knowledge.

We raised wildfire risk awareness through webinars and virtual presentations.

Webinars





Brenkert-Smith, H. and Barth, C. 2020. **The Quiet Majority: Understanding Communities to Make Mitigation Work.** CU Boulder Natural Hazards Center and the Federal Emergency Management Agency webinar series: Making Mitigation Work. https://hazards.colorado.edu/training/webinars/the-quiet-majority-understanding-communities-to-make-mitigation-work

Select Presentations



Meldrum, J.R. 2020. Influences on decisions about wildfire risk mitigation on private property: Insights from simultaneous equations modeling. Western Economic Association International (WEAI) Virtual 95th Annual Conference.



Franco, F., Simon, B., Miller, A., Crowley, C., **Meldrum, J.R.**, Fallon, J. 2020. **Wildland fire: current status and policy considerations.**

Panel presentation at the 2020 Association for Public Policy Analysis & Management (APPAM) Fall Research Conference, virtual.



Franco, F., Simon, B., Miller, A., Crowley, C., **Meldrum, J.R.**, Fallon, J. 2020. **Promoting cooperation on wildland fire: Relationships matter.**Panel presentation to U.S. Department of the Interior Office of Wildland Fire (DOI-OWF) and U.S. Department of the Interior Office of Policy Analysis (DOI-PPA), virtual.



Geringer-Frazier, B., Bruno, J., Degroot, W., Gabklis, M., Leschak, P., **Meldrum, J.R.** 2020. **Mitigation vs. Response.** Panel presentation to the Australasian Forest Fire Management Group: International Study Tour, hosted by the Fire Management Working Group (a component of the North American Forestry Commission), virtual.



People

WiRē Center

Colleen Donovan, MA, Project Manager Carolyn Wagner, MA, Data Manager Alison Lerch, Wildfire Mitigation Specialist

WiRē Center Board Members

Hannah Brenkert-Smith, PhD, University of Colorado Boulder Jamie Gomez, West Region Wildfire Council Lilia Falk, West Region Wildfire Council

Advisory Committee

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

Affiliate Contributors

Julia Goolsby, MA, U.S. Geological Survey Abby McConnell, U.S. Geological Survey Zoe Boiarsky, University of Colorado Boulder

Postdoc

Hilary Byerly, PhD, University of Colorado Boulder

Affiliate Organizations



University of Colorado



USDA Forest Service



U.S. Geological Survey



West Region Wildfire Council



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 2020 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.



