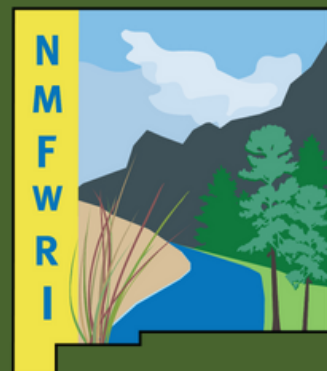


# NMFWRI's Geospatial Tools in Service of New Mexico: 20 Years of Supporting Healthy Forests and Informed Land Management



**New Mexico  
Forest and Watershed  
Restoration Institute**

*New Mexico Highlands University*

**H** NEW MEXICO  
**HIGHLANDS**  
UNIVERSITY

# Agenda

- **Introduction to SWERI**
- **Introduction to NMFWR**
  - Staffing and Functional Areas
- **Science & Technology Projects**
  - GIS at NMFWR
  - Wildfire Support
  - Land Management Support
- **Conclusion**
  - Funding & Challenges
  - Contact Information



# Southwest Ecological Restoration Institutes

## WHO ARE WE?

A COLLABORATION BETWEEN

**3** UNIVERSITY-BASED  
RESTORATION INSTITUTES



## OCTOBER 2004

Established by Congress via the Southwest Forest Health and Wildfire Prevention Act (SWERI Act)

## FEBRUARY 2005

Designated by US Forest Service

## JUNE 2005

NM Governor and NMHU President solidified support through a Charter that established the SWERIs as a federal-state partnership

# Southwest Ecological Restoration Institutes



Research, develop, and monitor treatments to accelerate forest restoration and reduce wildfire risks

Translate and adapt conventional research findings for practical, real-world applications

Transfer knowledge about restoration-based hazardous fuel reduction treatments to key audiences

Assist with the design and implementation of monitoring and adaptive management

# NM Forest & Watershed Restoration Institute

22-26 Fulltime Staff, 1-2 Seasonal Staff, 2-4 Students/Interns



## Administration

Director/Deputy Directors, Budget & Finance Manager, Admin Coordinator, Public Information



## Civic & Community Action

Collaboration, Conservation & Restoration Education, Research



## Technical & Applied Science

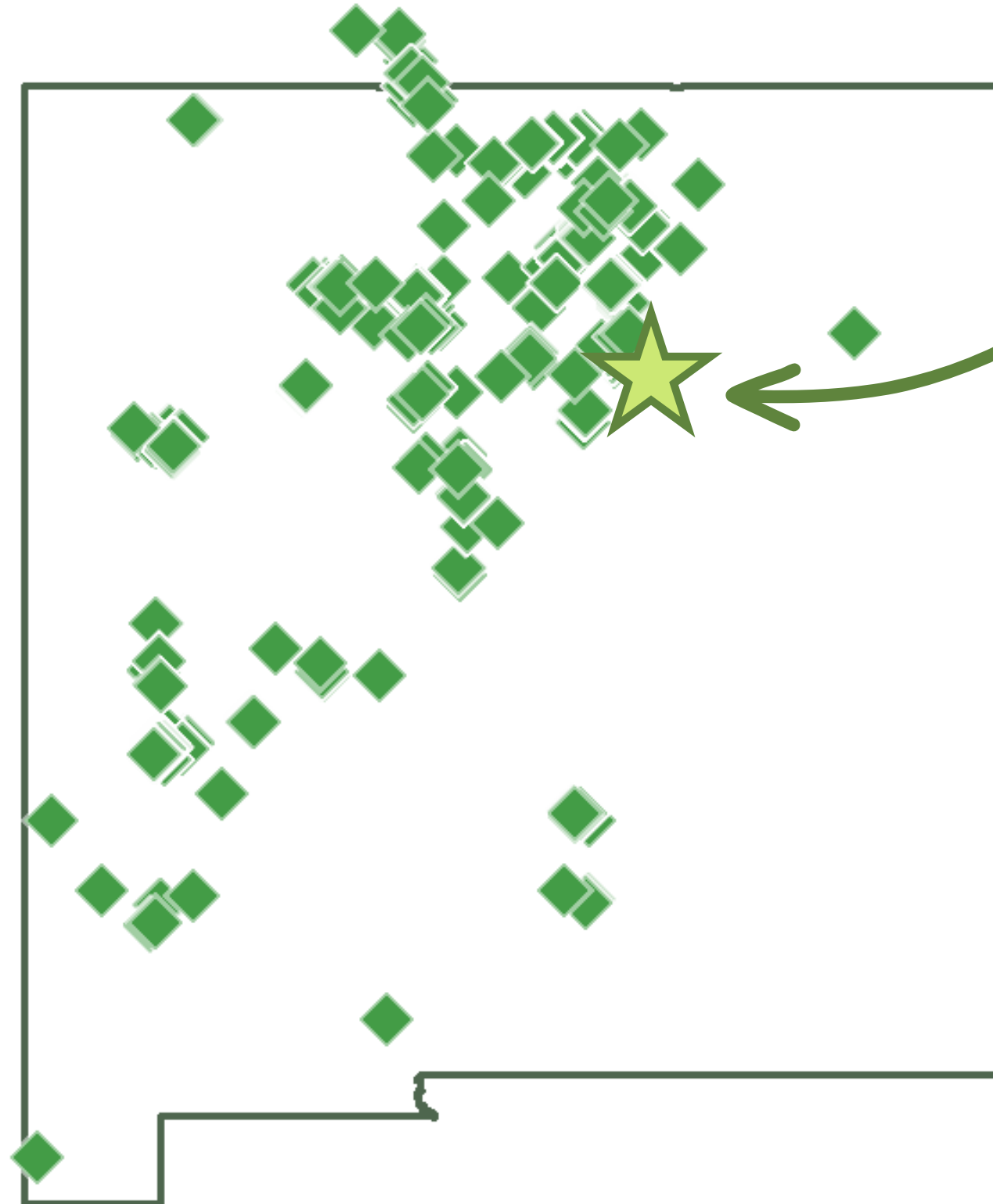
Ecological Monitoring, Geospatial Information Systems, Research

# Where NMFWRI Works

Collaborative  
Groups &  
Meetings

GIS Mapping  
and Drone  
Projects

K-12 and College  
Mentoring and  
Workshops



*Based at New Mexico  
Highlands University  
in Las Vegas, NM*

Ecological Monitoring  
Plots and Projects

Research Projects and  
Professional Groups

# NMFWRI Functional Areas

**CONSERVATION &  
RESTORATION EDUCATION**

**COLLABORATION**

**GEOSPATIAL INFORMATION  
SYSTEMS (GIS)**

**ECOLOGICAL MONITORING**

**RESEARCH**



## Conservation & Restoration Education

Community Engagement with the purposes of increasing awareness and understanding of ecological processes within forested ecosystems and watersheds, and the related impacts of wildfire.

- Community Workshops
- K-12 events
- HU Student events



## Collaboration

Seeks to serve place- and project-based collaborative groups and watershed associations in New Mexico as a resource to build and expand collaborative and organizational capacity.

- Promote and Coordinate Partnerships
- Support collaborative and volunteer groups in rural Communities

# NMFWRI Functional Areas



## Geographic Information Systems (GIS)

Fosters connections with partners and communities and provides innovative technological solutions to restoration challenges. NMFWRI serves as a hub for restoration-focused GIS, remote sensing, and GPS expertise across New Mexico.



## Ecological Monitoring

Maintains a professionally-managed field crew to collect data on short- and long-term ecosystem response to restoration treatments and disturbances. In turn, these data provide the scientific basis for restoration treatments and is critical for adaptive management.



## Research

Synthesizes and shares NMFWRI data and information. Primary and secondary research to further understanding of the fire-vulnerable human and ecological systems of the Southwest. Develops collaborative relationships with land managers and landowners, NGOs, and academic communities.

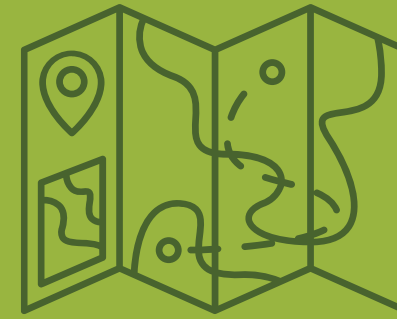


# GIS at NMFWR

**Geographic Information Systems (GIS)** capture, manage, analyze, and display data related to positions on Earth's surface.

**NMFWR** uses GIS to support reducing the risk of wildfire and encourage effective land and forest management in New Mexico.

We participate in **New Mexico's GIS community**, including monthly and biannual meetings across the state.



Mapping



Post-fire support



Making data accessible



Field Work Apps



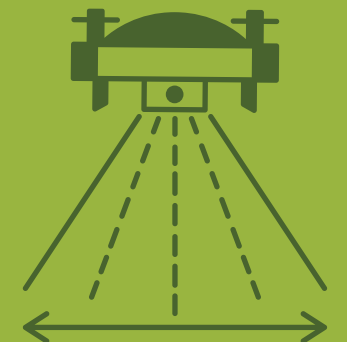
Vegetation Monitoring



Data Analysis



Training and Education



Drones

# New Mexico Fire Viewer

## Bringing critical fire information to New Mexicans

- Developed during the Hermit's Peak/ Calf Canyon (HP/CC) Fire
- Combines information from several separate sources into one website and map
- Includes fire boundaries, satellite imagery hot spot detections, smoke forecasts, building footprints, post-fire burn severity, and more



# New Mexico Fire Viewer

## Keeping New Mexico informed

- Accessible and free since 2022
- Critical to community impacted by the HP/CC fire
- Shared on the City of Ruidoso's website during the South Fork and Salt fires
- Layers are updated and map is refocused based on current fires
  - Goose, Trout, and Turkey Feather fires in the Gila

## *Website views*

**HERMIT'S PEAK/CALF CANYON**

**300,000+**

**SOUTH FORK/SALT**

**175,000+**

**GILA FOREST (CURRENT)**

**10,000**

# Hermit's Peak/Calf Canyon Fire Hub Site

## Supporting and empowering those impacted by the HP/CC Fire

- Hubs serve as geo-enabled websites to engage with communities
- Started shortly after the HP/CC fire began to provide secure space to share data between local, state, and federal agencies
- Public side hosts maps, information, and links to critical resources



Community  
Support



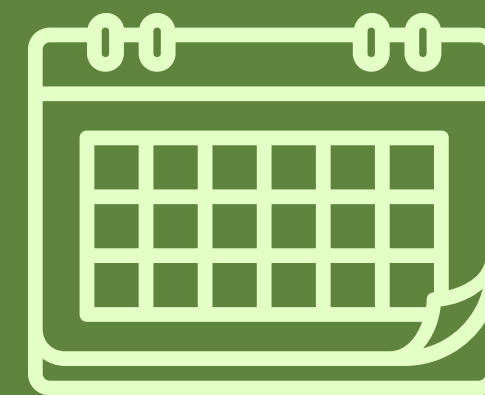
Recovery  
Resources



Live Weather  
Warnings



Mitigation  
Information



Community  
Calendar

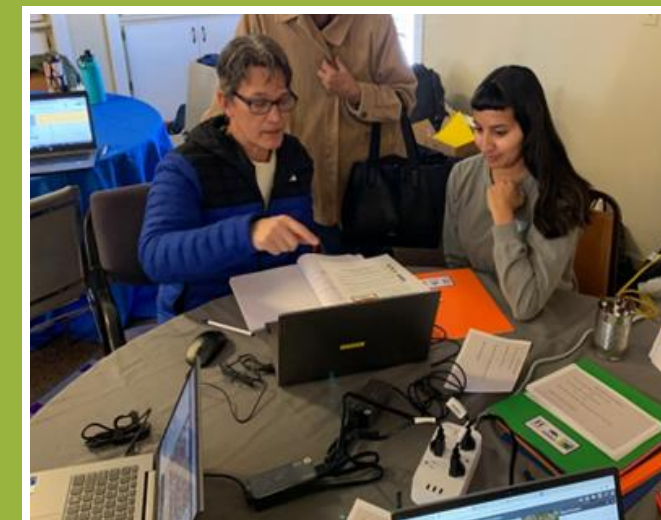
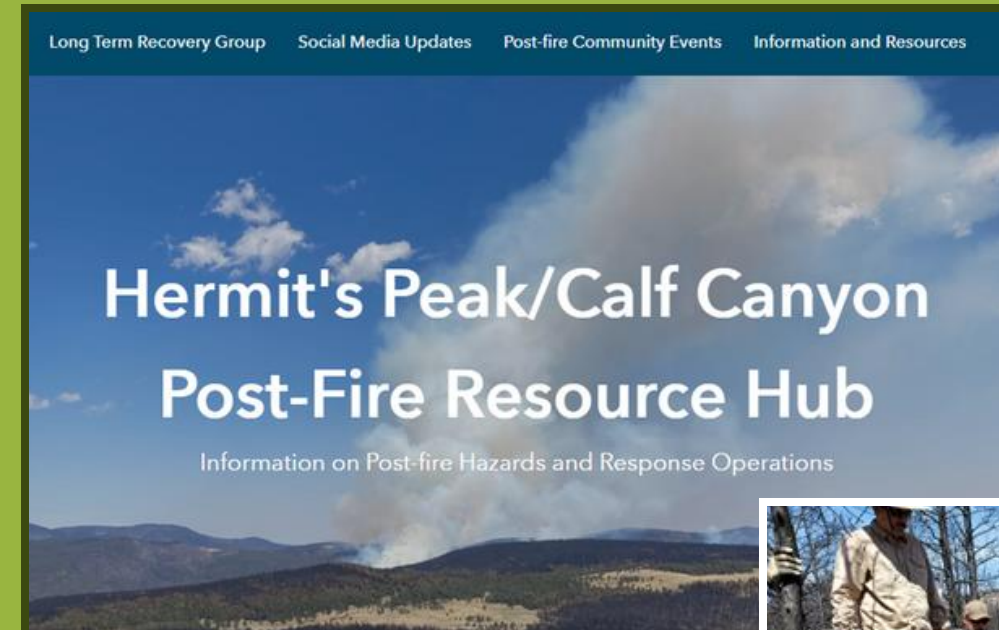


Restricted  
Content

# Hermit's Peak/Calf Canyon Fire Hub Site

## Continued support to our San Miguel and Mora County communities

- Hub site still serves as main website for information and resources for those impacted by the HP/CC fire, such as the long-term recovery support groups
- Planning revamp in 2025 to address current needs and new wildfire risks
- Main lesson learned was that it always helps to plan ahead



# Wildfires in New Mexico

IN THE PAST 10 YEARS...



**500+ FIRES IN  
NM FORESTS**



**2 MILLION+  
ACRES BURNED**



**23 MEGAFIRES  
IN THE REGION**



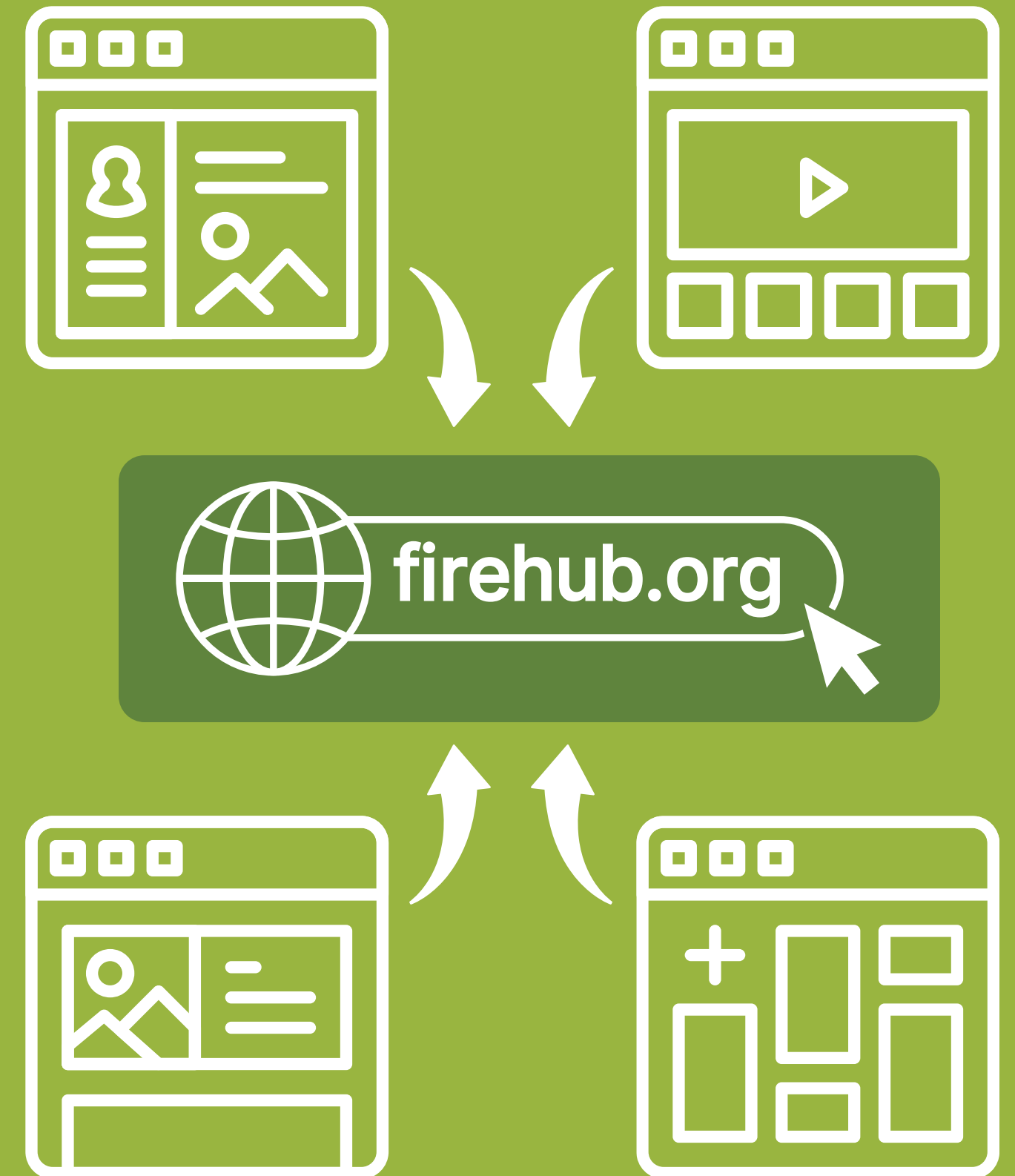
**DEVASTATING  
POST-FIRE  
FLOODS**

**...WILDFIRE IS PART OF OUR LANDSCAPE**

# NM Post-fire Hub Template

## Enabling NM to provide GIS post-fire support to their communities

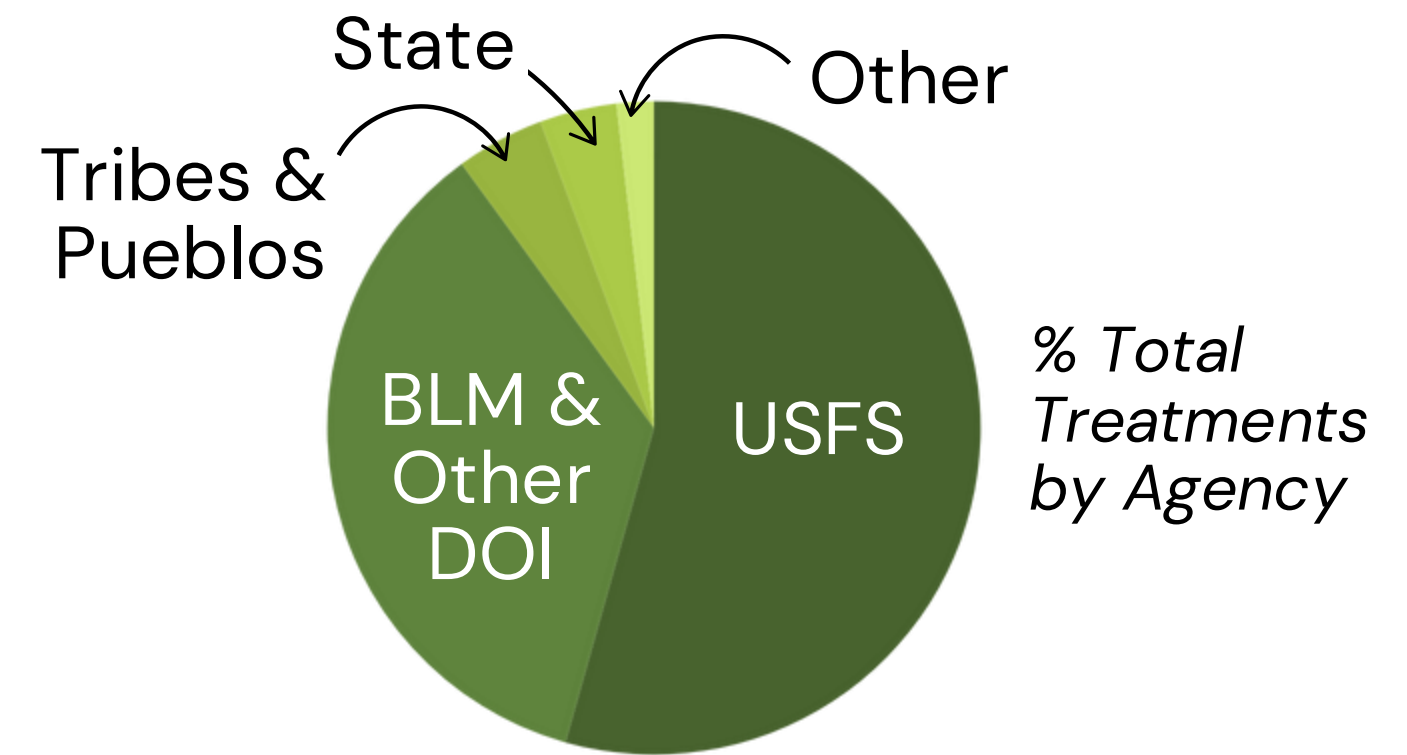
- Preloaded pages for community support, media links, fire resources and information, emergency alerts, videos, calendar to add community events, NM Fire Viewer as a default map, and an optional restricted page
- Site is free and hosted by NMFWR and NMHU
- Instruction manual and tutorials



# NM Vegetation Treatments Geodatabase

## Empowering effective land management across New Mexico

- Free and accessible geospatial tool for understanding the larger landscape to prioritize funding of treatments
- Developed in 2014 by NMFWRI
- Maintained with quarterly updates
- Contains completed, in progress and historical vegetation treatments
- Includes projects for forest, rangeland, riparian and noxious weed management



**53,000 TREATMENTS**

**10 Million ACRES**

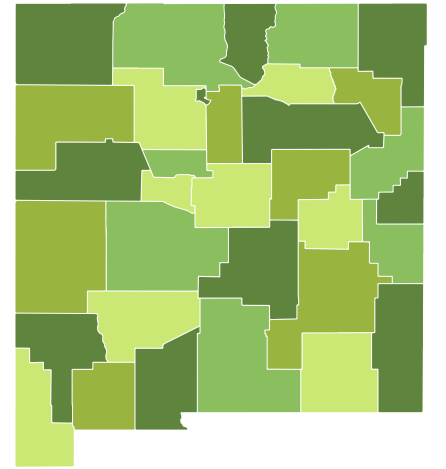
**21 AGENCIES**



# NM Vegetation Treatments Geodatabase

## Helping New Mexican Land Managers

- Agency staff (USFS, NM State Forestry, etc)
- Community Wildfire Protection Plans (CWPP)
- Collaborative Forest Restoration Program (CFRP) planning
- USGS – treatment planning and tracking for Bandelier Nat'l Monument
- Santa Clara Pueblo – post fire restoration planning
- Greater Santa Fe Fireshed Coalition – project planning and tracking
- New Mexico Shared Stewardship Portal



**Success of the NM Vegetation Treatment Geodatabase led to BIL Congressional funding to provide a similar product at national scale**

# ReSHAPE Program

ReSHAPE is a program to compile **national fuel treatment and wildfire data** in a centralized place in order to:

- Better understand the impacts fuel treatments have on wildfire behavior
- Support the planning and implementation of future treatments
- Encourage the collaborative, landscape-scale approach to manage our forests and protect communities

The resulting product, the **Treatment & Wildfire Interagency Geodatabase (TWIG)**, is currently in Beta with the Production version coming late 2025



**ReSHAPE**  
Reshaping Wildfire & Fuels Reduction Information

# What makes TWIG Different

Federal data, wildfire data, and burn severity all in one place



Open access and open source

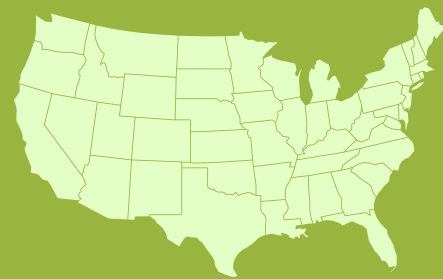


Daily fire perimeters and visualizations.



# ReSHAPE in New Mexico

## Using TWIG to understand the impacts of fuel treatments on wildfire behavior in New Mexico



State Data (coming early 2026)



NM Vegetation Treatment Geodatabase can fill in gaps



NMFWRI research on effects of treatments on HP/CC wildfire

# GIS Tools Summary

✦ NEW MEXICO FIRE VIEWER: [nmfireviewer.org](https://nmfireviewer.org)

✦ HP/CC POST-FIRE HUB: [hpcchub.org](https://hpcchub.org)

✦ NM POST-FIRE TEMPLATE: [nmfirehubs.org](https://nmfirehubs.org)

✦ NM VEGETATION TREATMENTS: [vegetationtreatments.org](https://vegetationtreatments.org)

✦ RESHAPE & TWIG: [reshapewildfire.org](https://reshapewildfire.org)

# NMFWRI Funding

## Typical Funding (Annual) – FY24

- Federal Appropriation: \$2.2M
- State (RPSP, Contracts): \$386k
- Other Sources: \$1.61M

**Total: ~\$4.2M/year**

Annual federal appropriations

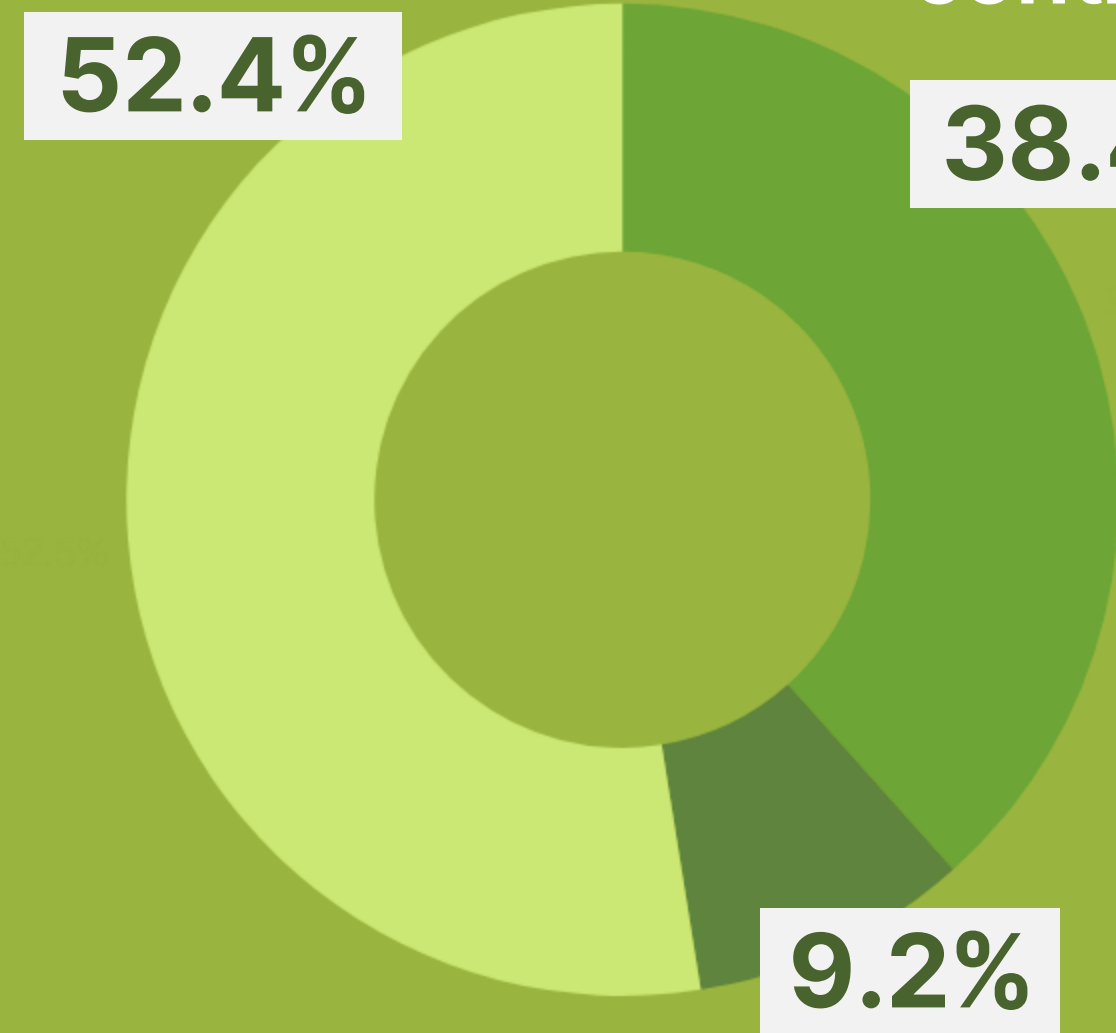
**52.4%**

Other sponsored contracts

**38.4%**

**9.2%**

Annual state appropriations



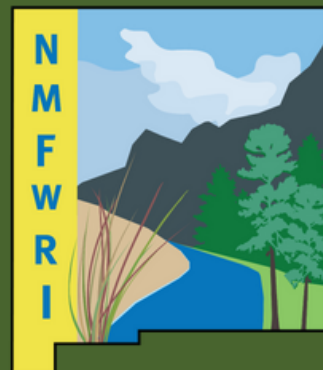
# NMFWRI Challenges

## FY25 Changes

- Continuing Resolution vs Budget
- 55% reduction of federal appropriation
- USDA, USFS reduction in force
- USFS restructuring
- Proposed elimination of USFS State, Private and Tribal portfolio
- Proposed elimination of USFS research



# THANK YOU!



**New Mexico  
Forest and Watershed  
Restoration Institute**

*New Mexico Highlands University*





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**NM Highlands University**

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**[nmfwri.org](http://nmfwri.org)**