

SEPTEMBER 30, 2026

Recognizing National Preparedness Month - Build Back Better: How to Rebuild Trail Infrastructure for Resilience after Disaster



LAUREL CREEK TRAIL | PHOTO COURTESY ERIC OBERG



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<https://www.railstotrails.org/collabsignup>

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**Recognizing National Preparedness Month – Build Back Better: How to
Rebuild Trail Infrastructure for Resilience after Disaster**

Event # 9336145

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Panelists

Drew Perkins

Trails Planning Director, Santa Cruz Mountains Trail Stewardship

Edward Wright

Area Ranger, George Washington and Jefferson National Forest, Mount Rogers
National Recreation Area

Dennis Sanders

Assistant Division Manager, Environmental at Virginia Department of
Transportation (VDOT)
Forest Service Technical Representative



Resources

Trail-Building Toolbox: TRAILS AND CLIMATE RESILIENCE



PREVIOUS WEBINARS:

- **When Disaster Strikes: The Role of Trails in Planning and Recovery (2025)**
- **Trails in the Age of Climate Change: Disaster Recovery (2024)**

OTHER HELPFUL RESOURCES

- **Trails As Resilient Infrastructure (Fhwa, 2023)**
- **Trails And Resilience:**
 - **Review Of The Role Of Trails In Climate Resilience And Emergency Response (Fhwa, 2023)**





Building Back Better

How to Rebuild Trail Infrastructure for Resilience after Disaster



Building Back Better after the CZU Fire Restoring Trails at Big Basin State Park

The plan:

- Introduction
- About SCMTS
- Big Basin State Park
- The CZU Lightning Complex Fire
- Building back better - lessons learned and what we are thinking about going forward



Drew Perkins
Trails Planning Director, SCMTS



SANTA CRUZ MOUNTAINS

TRAIL STEWARDSHIP



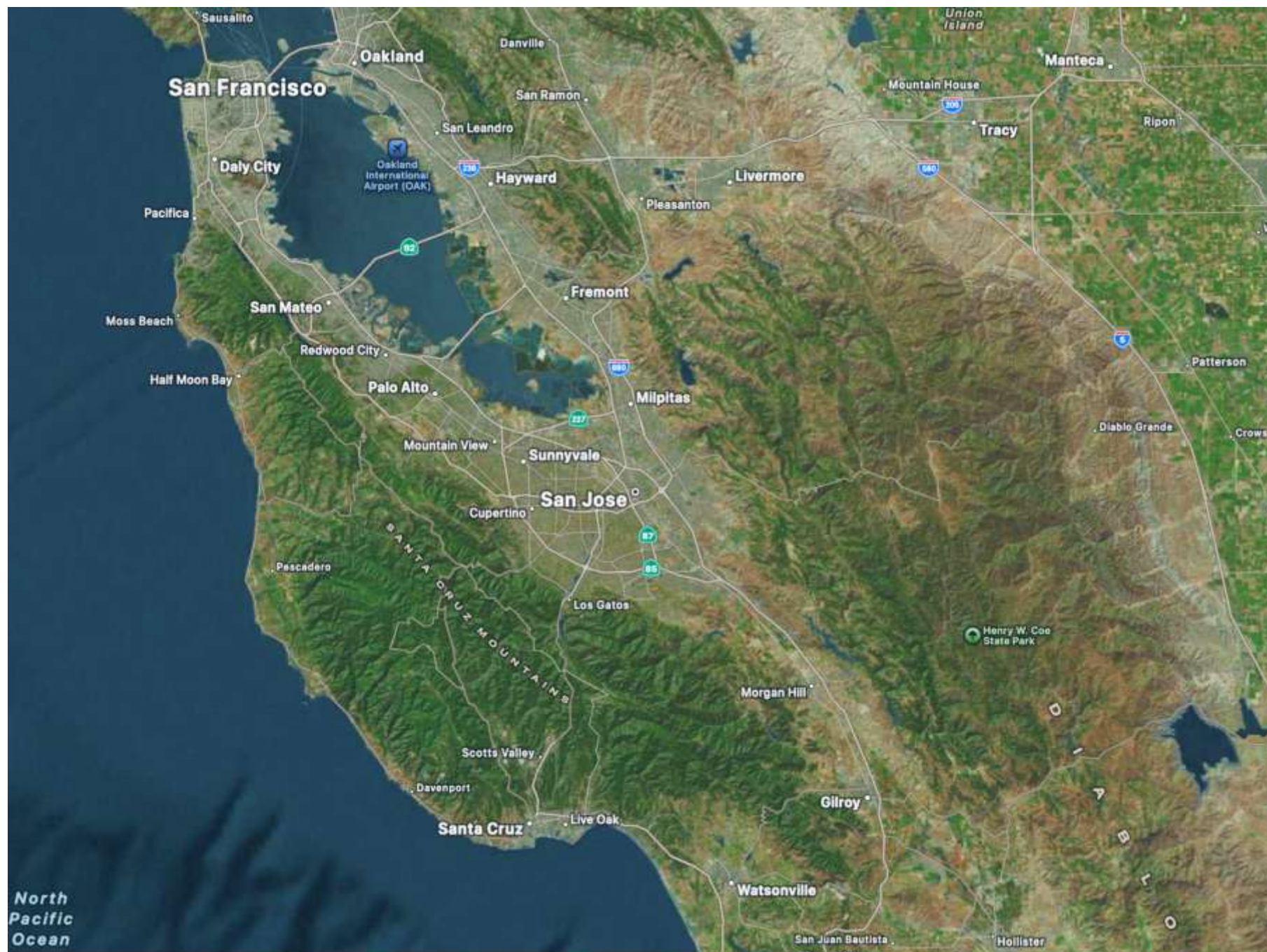
**Create and
Maintain
High-Quality
Trails**



**Foster
Community
Stewardship**



**Improve Outdoor
Access and
Neighborhood
Connections**



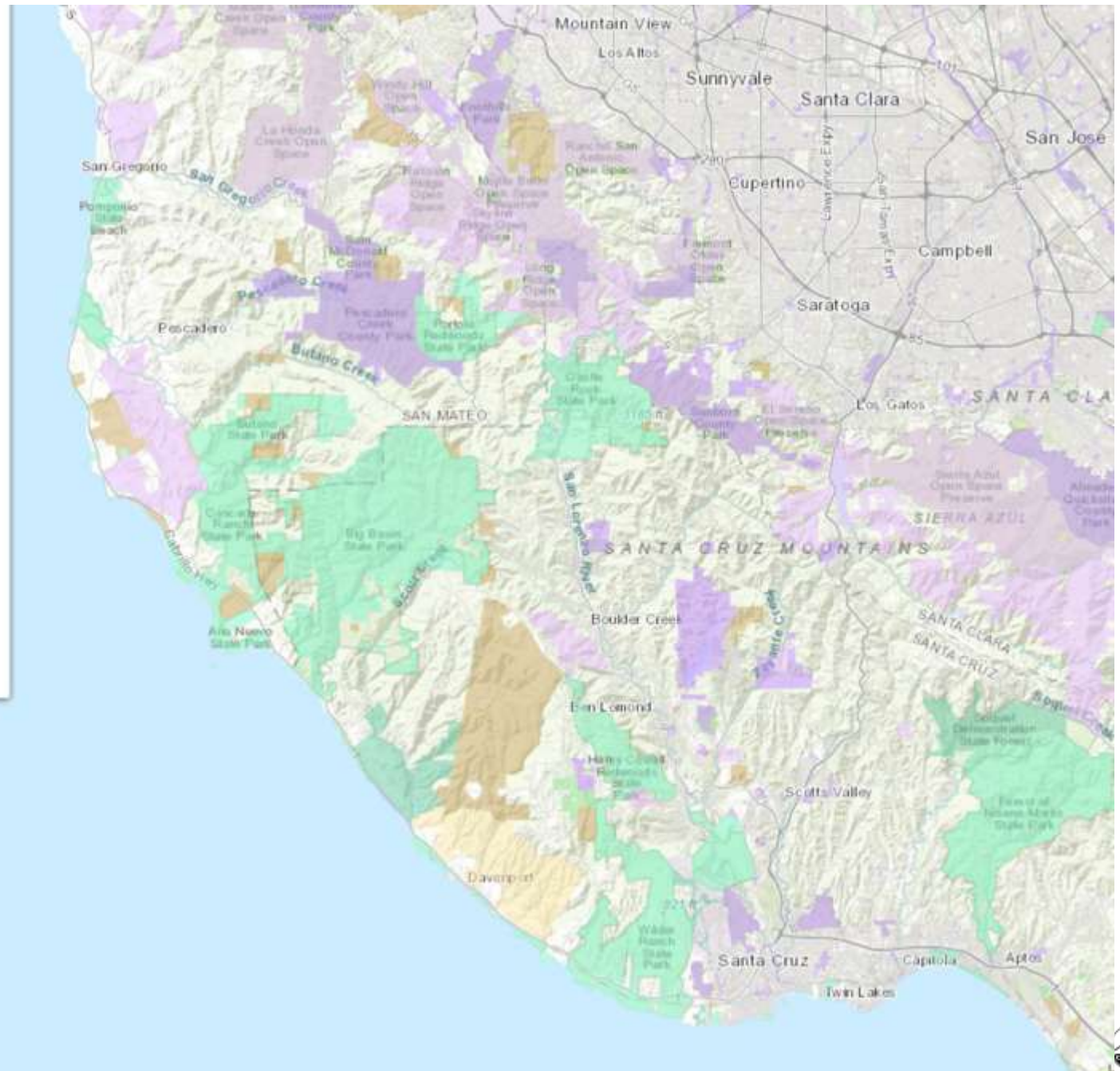
CPAD version 2026a

- ☐ CPAD By Access
- ☐ CPAD By Owner Level
- ☒ CPAD By Ownership



- ☒ US Forest Service
- ☒ US Bureau of Land Management
- ☒ National Park Service
- ☒ US Fish and Wildlife Service
- ☒ Other Federal
- ☒ California Department of Parks and Recreation
- ☒ California Department of Fish and Wildlife
- ☒ Other State
- ☒ City
- ☒ County
- ☒ Non Governmental Organization
- ☒ Special District

- ☐ Military Land
- ☐ CPAD Note
- ☐ Proposed Edit to CPAD
- ☐ File Upload
- ☐ Conservation Easement (CCED 2026a)
- ☐ City Boundary
- ☐ County Boundary
- ☐ School (CSCD 2021)
- ☐ LSPT Boundary
- ☐ Watershed Boundary, HU6
- ☐ Watershed Boundary, HU8



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About Big Basin Redwoods State Park

Oldest California State Park - Established in 1902 to protect old growth redwood groves from logging during peak of clearcutting of the Santa Cruz Mountains.

Largest contiguous old growth forest left in Santa Cruz Mountains (approx. 4,200 acres).

Grown from original 3,800 acres to over 18,000 acres including approx 6,000 acre State Wilderness Area.



About Big Basin Redwoods State Park

Before the fire the park averaged over 20,000 visitors a month.

Popular camping location with 236 campsites, 600 seat amphitheatre, day use picnic areas, and a nature museum.

The park has 30 miles of unpaved roads and 85 miles of trails, many built by the CCC in the 1930s. Also home to much of the Skyline to Sea Trail - an approximately 25 mile route from the SF Bay Ridgeline (Skyline Blvd) to the ocean that was a very popular multi-day hike with 5 trail camps.

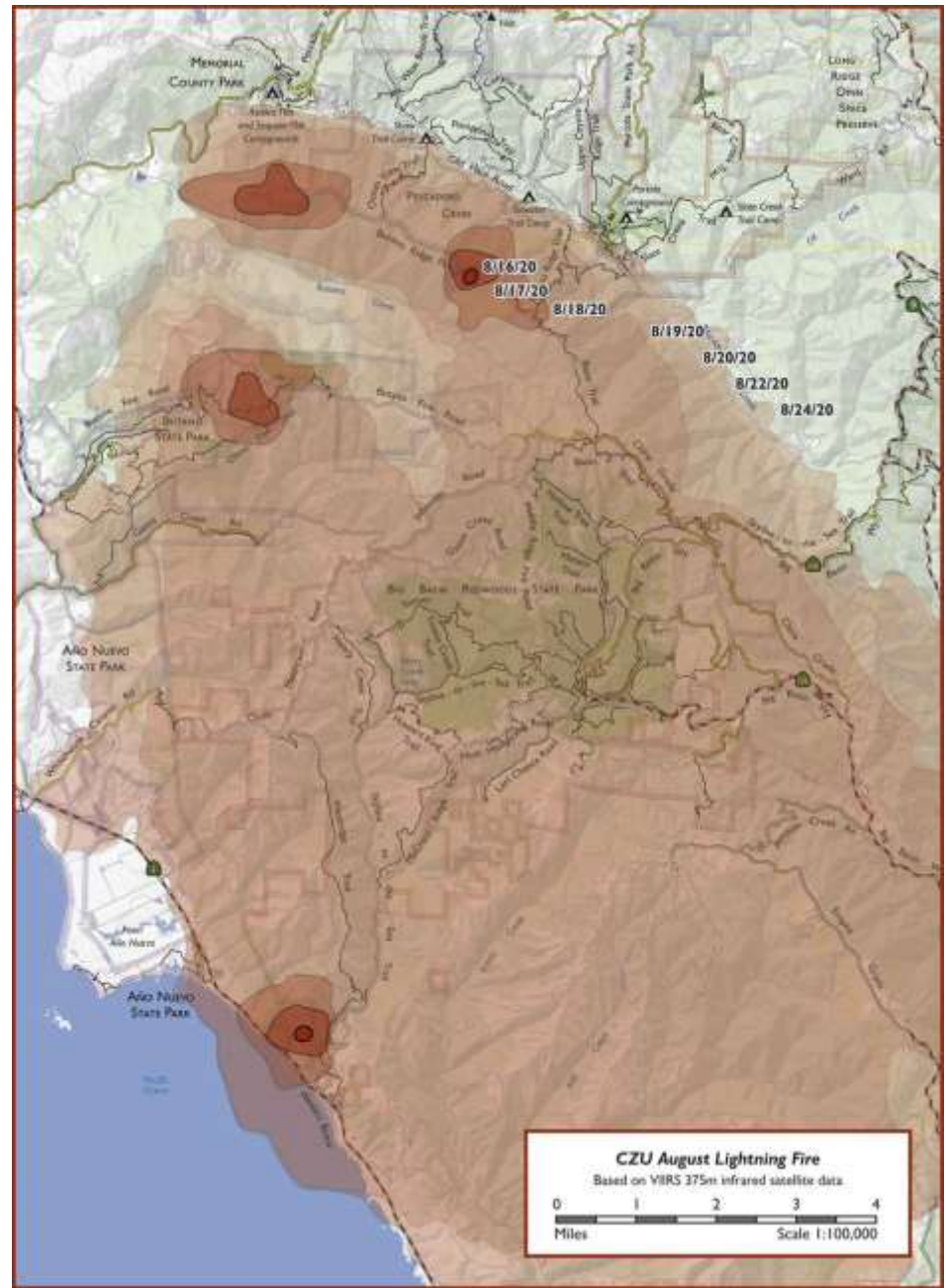


CZU Lightning Complex Fire

August 16th 2020

Jaden Schaul





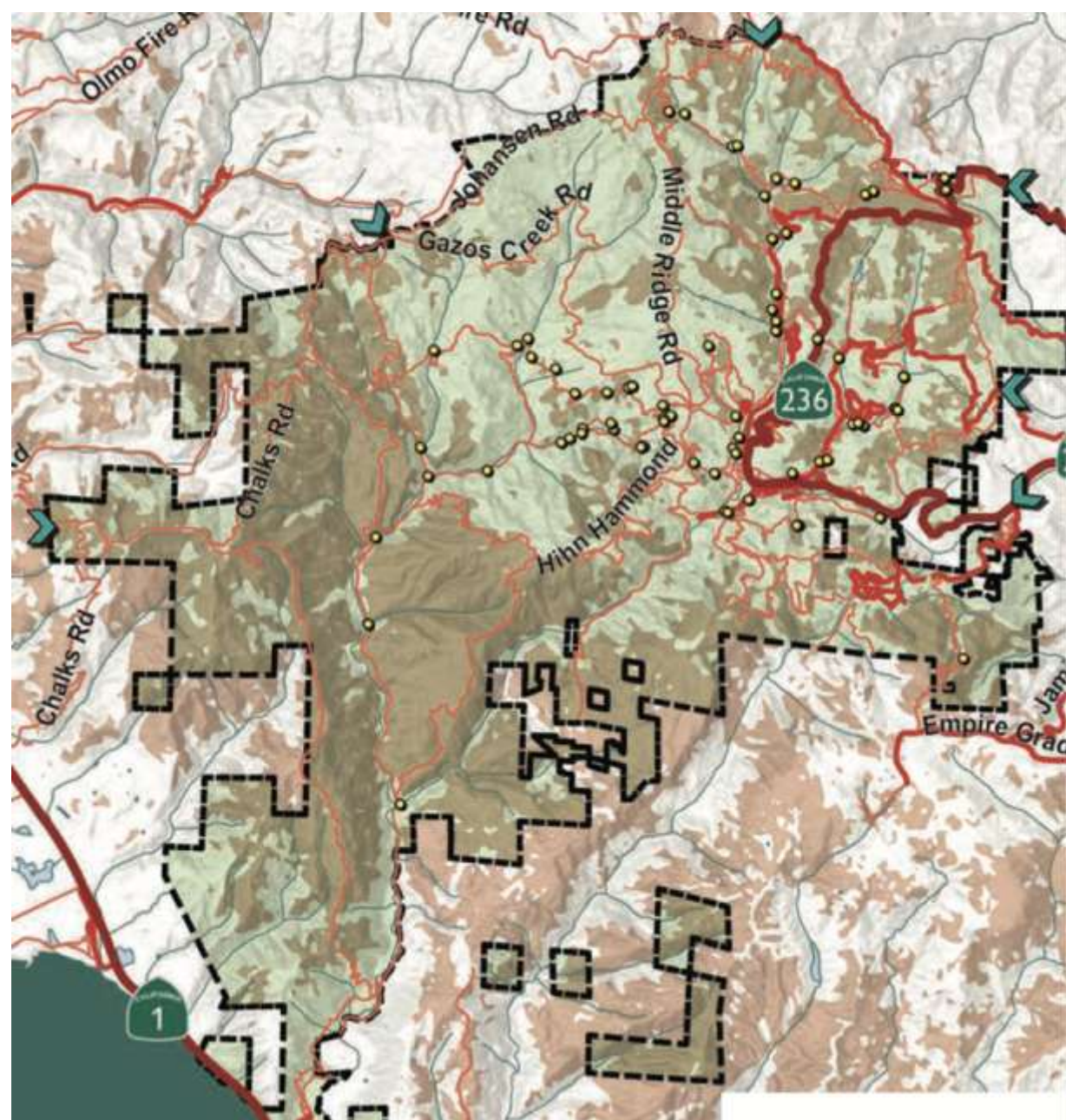
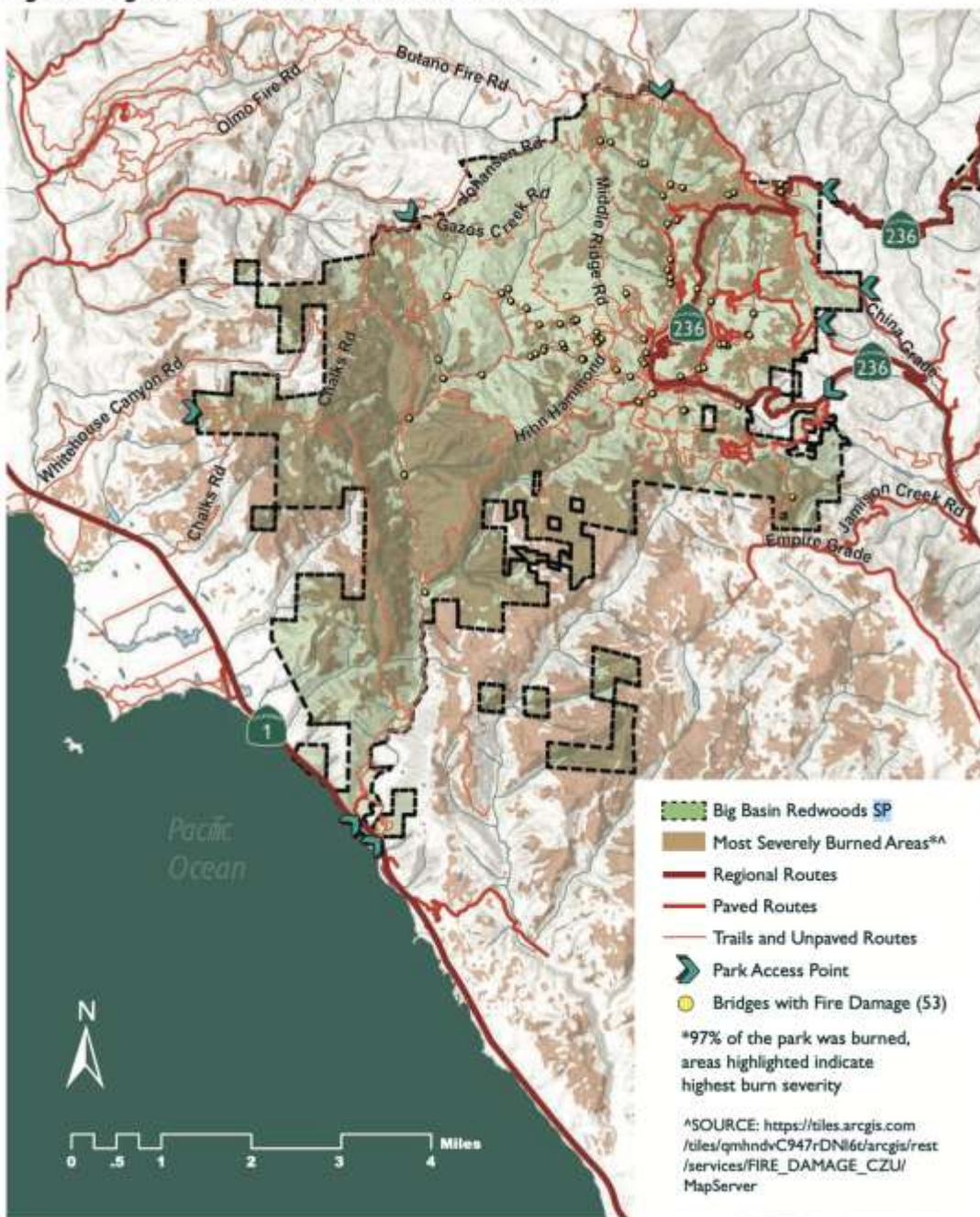




Big Basin Park Headquarters Building



Figure 1. Big Basin Redwoods SP Post-Fire Conditions



Dark red areas: highest burn intensity



Inside Big Basin State Park on Tuesday, August 10. Approximately 97% of the park was damaged in the CZU Fire last year. Crews are working on removing compromised trees inside the park and planning for a partial reopening near the redwood loop in spring 2022. Credit: Kevin Painchaud / Lookout Santa Cruz

Big Basin Road and Trails Damage

49 trail bridges

7 vehicular bridges

75 plastic culverts burned/melted

Countless wooden retaining walls and steps

Stump/root holes

50,000-100,000 snags along trails

Very rapid brush regrowth

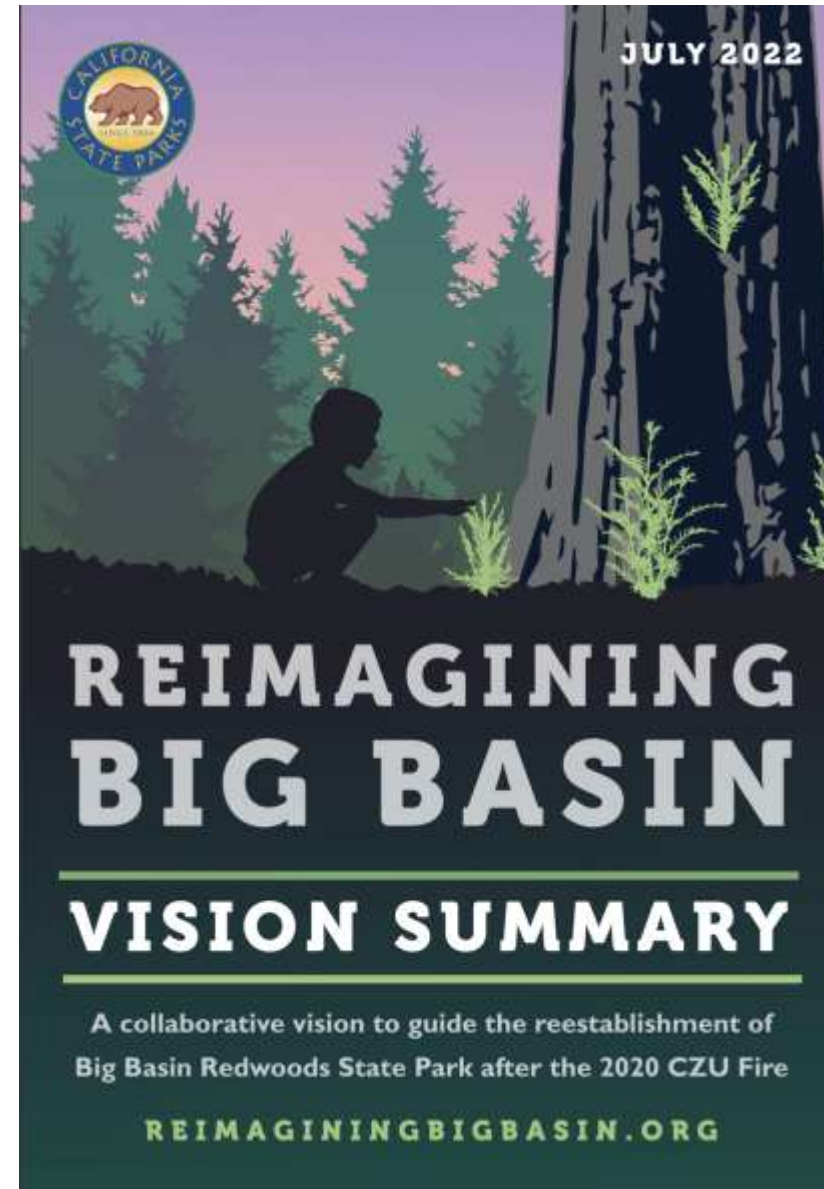




Building back better

Reimagining Big Basin

- Moving main park facilities (visitor center, larger parking area, camping) out of old growth core
- Fire resistant materials and construction for buildings
- Undergrounding utilities



Trail rebuilding

Approx 14 miles of trails have reopened, fanning outward from the park core. Most of the unpaved roads have reopened.

State Parks has had their own crew and two full time California Conservation Corp crews working since the fire in the park.

SCMTS was hired to by State Parks to clear and reopen the Hollow Tree Trail (approx 2 miles). This included fuels reduction work preparing for State Parks controlled burn, hazard tree removal, reconstructing the tread, and rebuilding 6 trail bridges.

Approx \$6.8M spent on trail reopening so far, \$1.5-\$2M on roads.

Also making minor reroutes and other improvements as part of the trail re-establishment.



Lessons learned and changes made

Using rock for trail structures whenever possible. In our geology, native rock is not often available nearby and often requires transport which can be cost prohibitive away from road infrastructure.



Lessons learned and changes made

For many years, State Parks had been replacing rusted steel culvert pipes with plastic. Now using heavy gauge steel oversized culverts on roads, with better installation (at stream grade instead of flat).



Rebuilding Bridges

Using fiberglass or concrete abutments, steel or fiberglass stringers

No decking gaps to collect leaves/duff and easily catch fire from embers

Regular cleaning and clearing around bridges

Aggressively removing likely hazard trees near structures









This new redwood bridge was finished a week before the fire. It survived, likely due to some luck, clearance of flammable material nearby, and the newer/ potentially higher moisture content wood likely didn't hurt.

Brush and trees



3 years after fire





Thinking about future projects

Wilder Ranch Project, another park where we are partnering to replace 6 bridges and reroute/improve about 3 miles of trail. State Parks has an established program of frequent controlled burns in meadow areas.

Planning steel stringers and concrete abutments on all new bridges.
Rock for all trail structures.

Rerouting trail from edge of meadow into forest provides control line for prescribed fire into forest edge and can expand footprint that is burned regularly. Thinking about how we can strategically manage fuels along trail corridors.



Conclusion

Thinking of fire as “when” not “if”

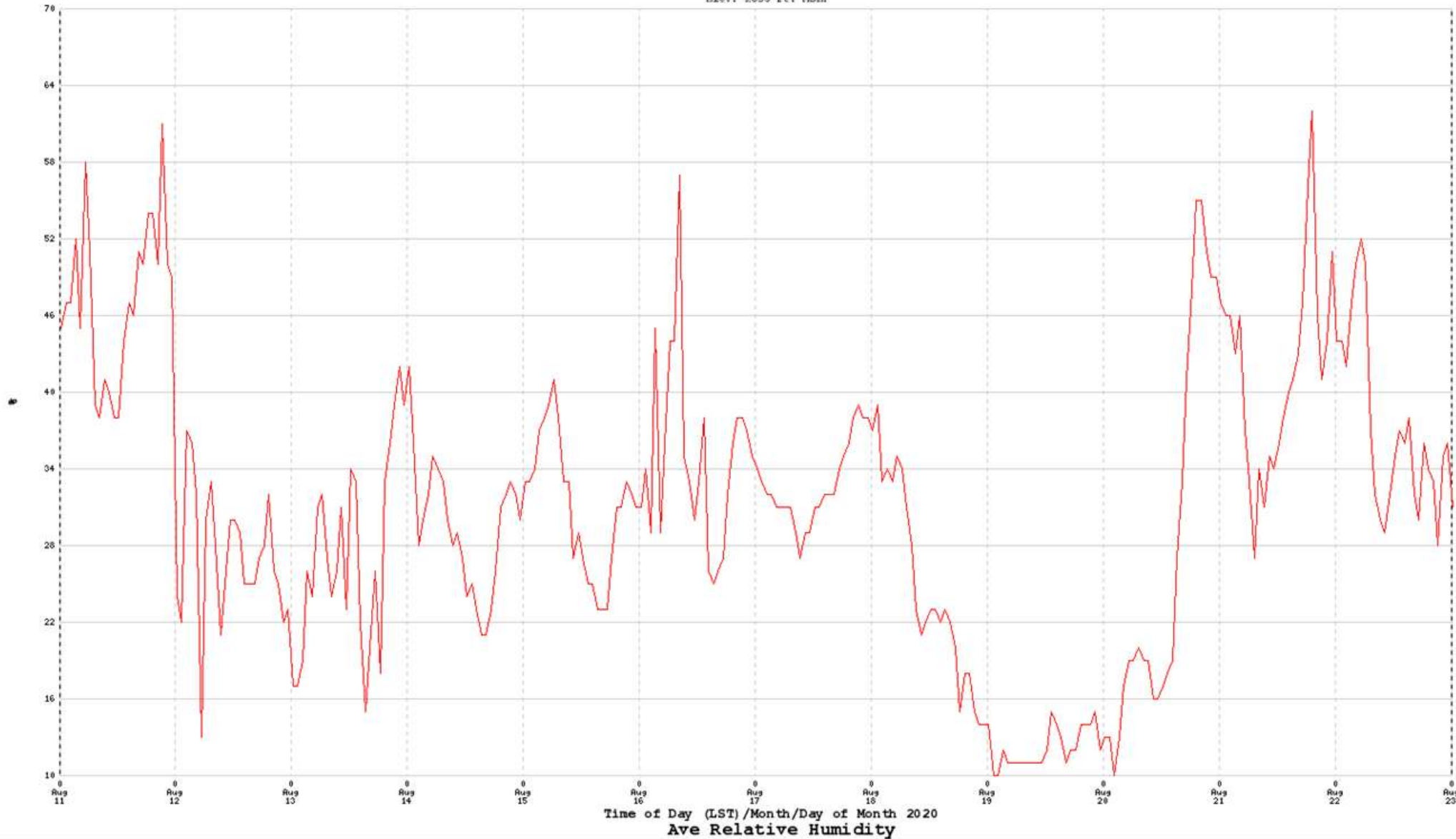
Making investment into fire resistant materials and construction

Incorporating fuels management into thinking about trails

Prioritize quickly reopening trails and addressing hazard trees after a fire, as the work becomes increasingly difficult and more expensive



Ben Lomond California
Elev: 2630 ft. MSL.



Statistics
Begin Date/Time
Aug. 11, 2020
:00 LST
End Date/Time
Aug. 23, 2020
:00 LST
Ave Relative Humidity
%
Average
31
Max. | Min.
62 | 10

Western
Regional
Climate
Center



Mount Rogers National Recreation Area

*Rooted in
Community*

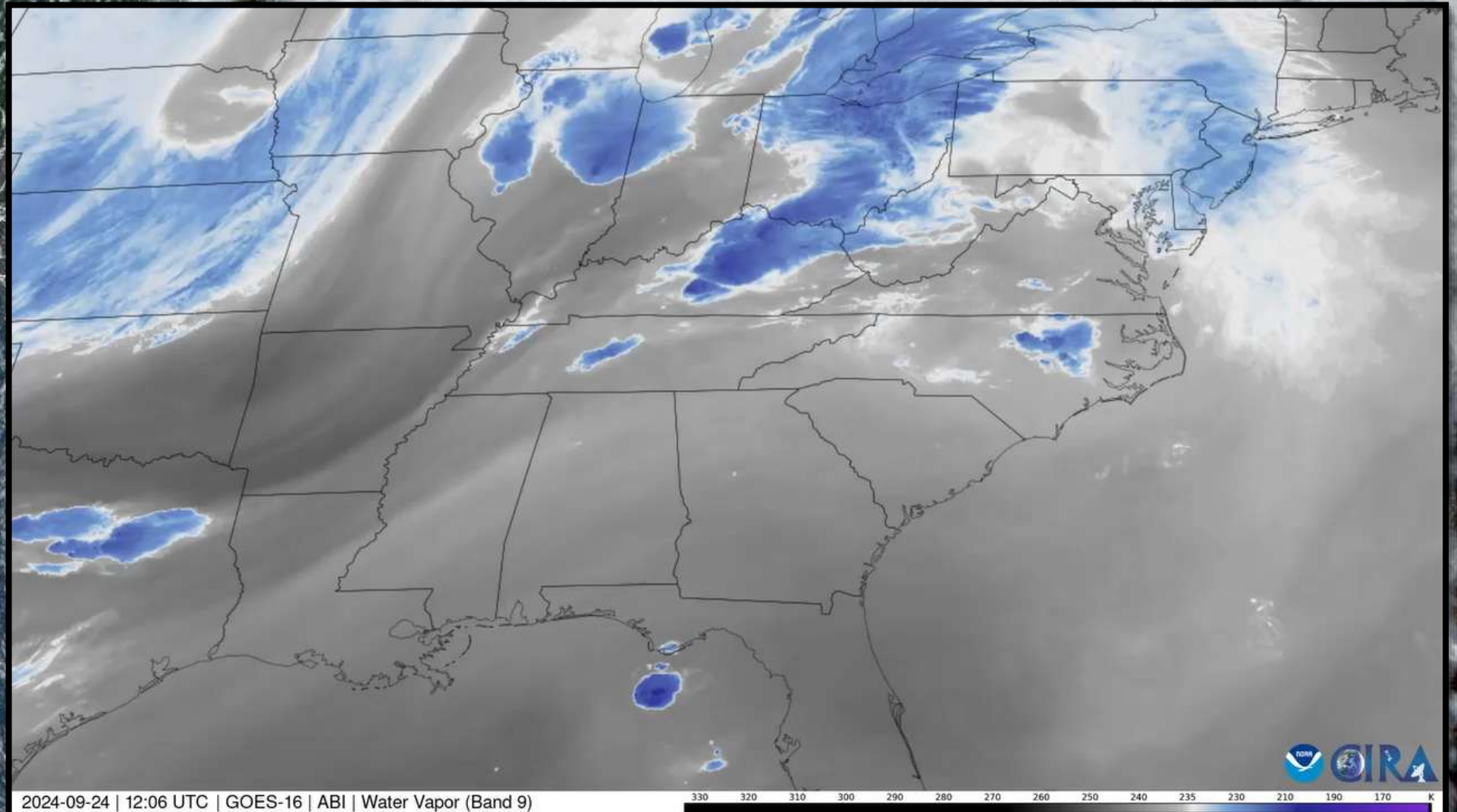
Hurricane Helene
Response 2024

The Perfect Storm

Our region received
5-7 inches of rain
before Helene made
landfall.

We received 12+ by
the time Helene
passed through.

This video shows a
timelapse of water
vapor from Tuesday
9/24/2024 - Friday
9/28/2024



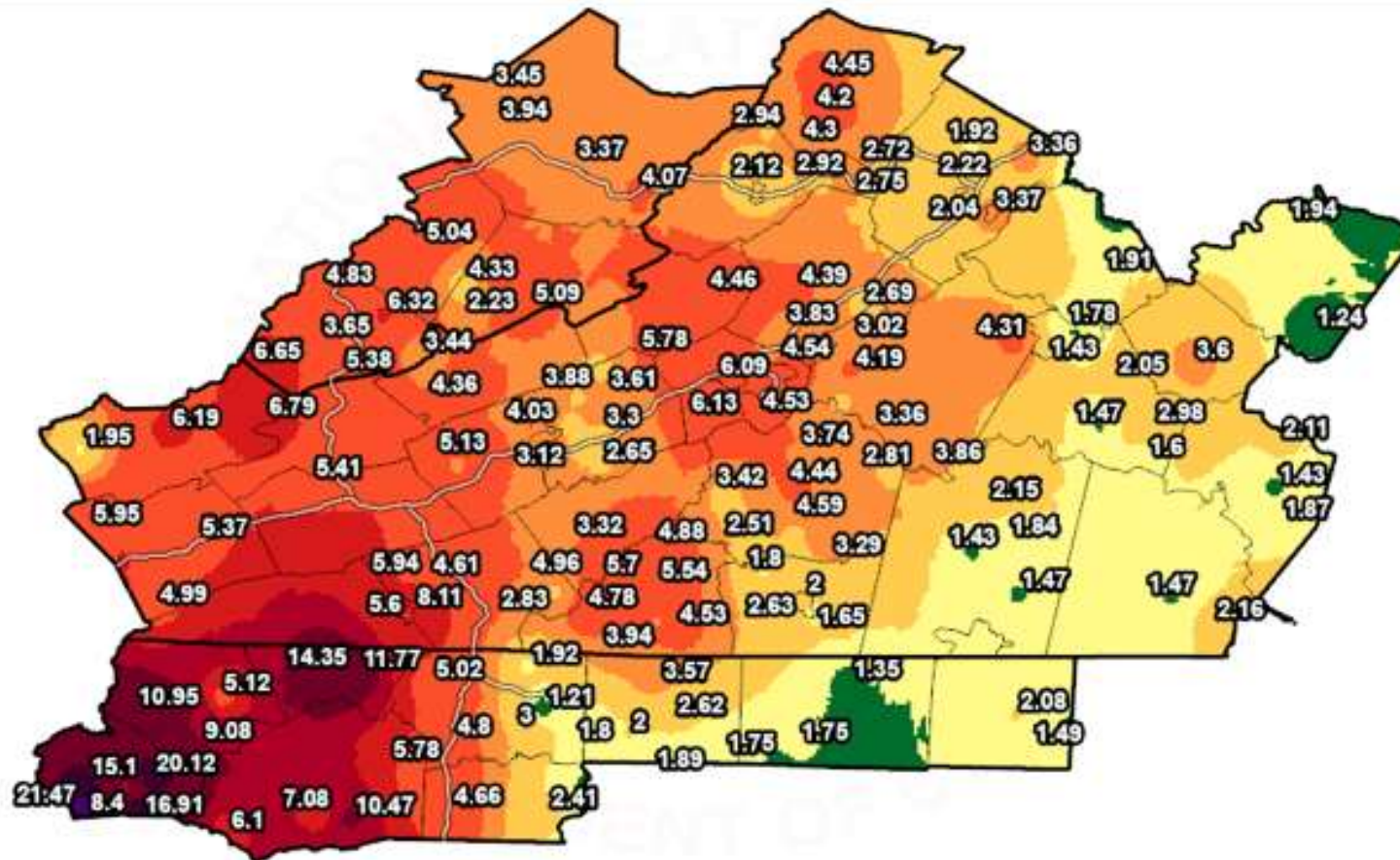
The Perfect Storm



National Weather Service Blacksburg Virginia

Storm Total Rainfall - Helene

Analysis Data Source: Regional Observations



Preparation & Quick Response is Key to Recovery

- There are timelines in place for access to recovery funding- Be prepared.
- Have a comprehensive Hazardous Weather Plan.
- Assign tasks ahead of time.
- Identify partners & outline how you can work together.
- Boundary lines and jurisdiction is secondary during response time.



VA State Highway 58

This road is a major connector for the mountain communities. The highway also provides access to the Creeper Trail. It was imperative to get it open to assess damage as quickly as possible.

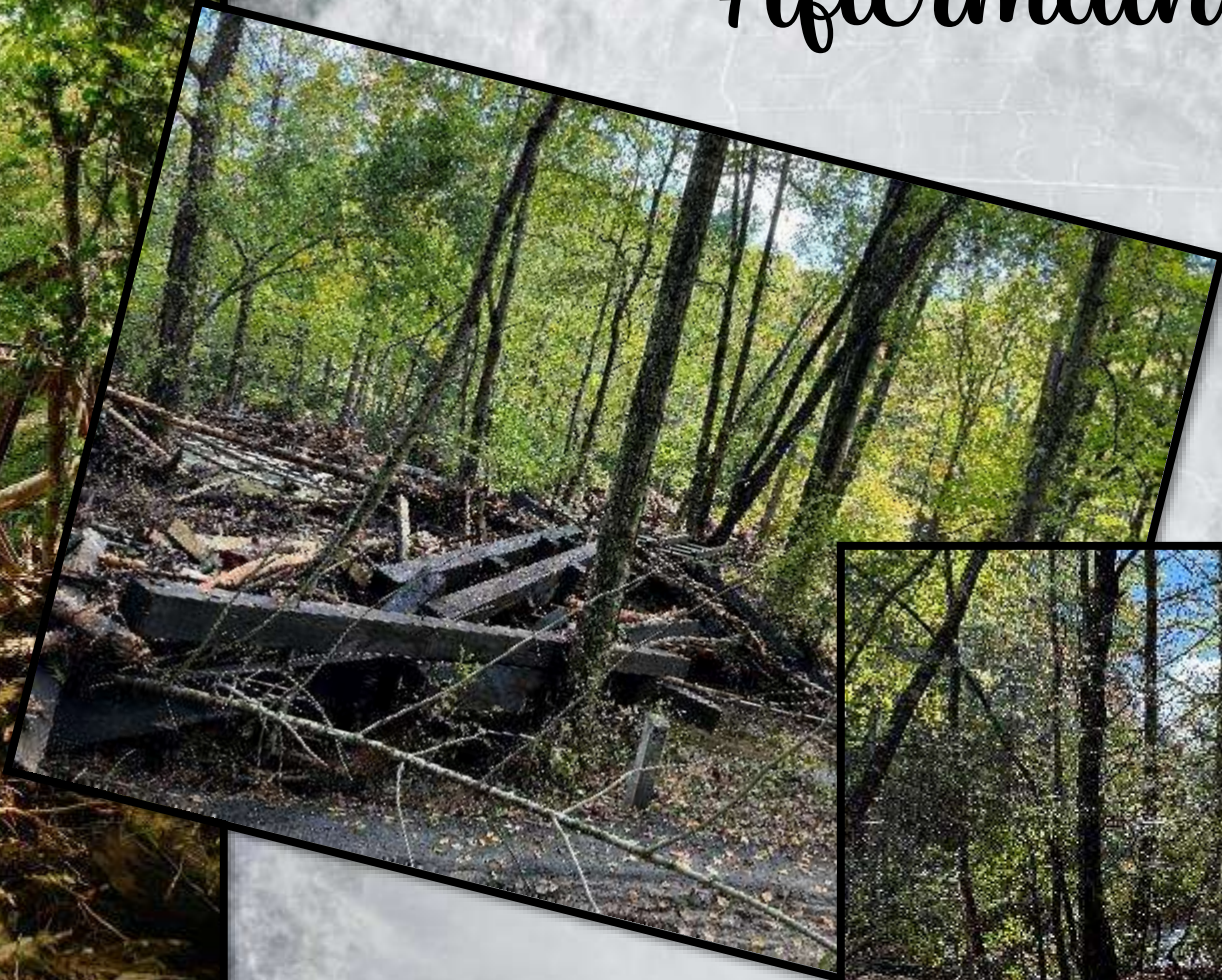




Virginia Creeper Trail Before the Storm



Aftermath of Helene



Trestles Before & After



Trail Bed Damage



The Trail to Recovery



The Trail to Recovery





VIRGINIA IS FOR CREEPER TRAIL LO♥ERS™

*Grand Reopening
March 2027*

Q&A