RIO GRANDE WATER FUND

A Wildfire and Water Source Protection Project

Signatories
Meeting
October 15, 2020





Thursday, October 15, 2020 9:00 AM – 11:45 AM

Rio Grande Water Fund Signatories Event via ZOOM

9:00 – 9:30 AM	Welcome, 2020 Updates
3.30 AIVI	Susan Millsap, The Nature Conservancy, Conservation
	Director
	U.S. Senator Tom Udall
	Sandy Watts, United States Forest Service, Acting Deputy
	Regional Forester, Southwestern Region
9:30 – 10:20 AM	Keynote Presentations
	Louise Stafford, The Nature Conservancy, The Greater Cape
	Town Water Fund
	Stefanie Woodward, Facebook, Sustainability Program
	Manager, Water and Climate
10:20 – 10:30 AM	Break
10:30 – 11:15 AM	2020 Stories from the Field
	1. State of the Rio Grande Watershed – Steve Bassett, The
	Nature Conservancy
	2. Upland Stream Restoration: Streams & Alluvial Fans – Reid
	Whittlesey, Rio Grande Return
	3. New Frontiers in Spotted Owl Science – Gavin M. Jones,
	Ph.D., U.S. Forest Service
	4. Expanding the Use of Prescribed Fire – Laura McCarthy, New
	Mexico State Forestry
11:15	Thank you
11:20-11:45	Optional Breakout Sessions (*TNC Staff)
	1. <u>Upland Stream Restoration</u> – Reid Whittlesey, *Melissa
	McLamb
	2. <u>New Frontiers in Spotted Owl Science</u> – Gavin Jones, *Susan
	Millsap
	3. Expanding the Use of Prescribed Fire Across New Mexico –
	Laura McCarthy, *Anne Bradley, *Nina Carranco
	4. Water Fund Corporate Engagement: An Investor's
	Perspective – Stefanie Woodward, *Jacquelyn Hall
	5. State of the Watershed & General Discussion – *Collin
	Haffey, *Aaron Jones
	6. <u>RGWF Benefit to Wildlife</u> – *Sarah Hurteau, *Sallie Hoefer

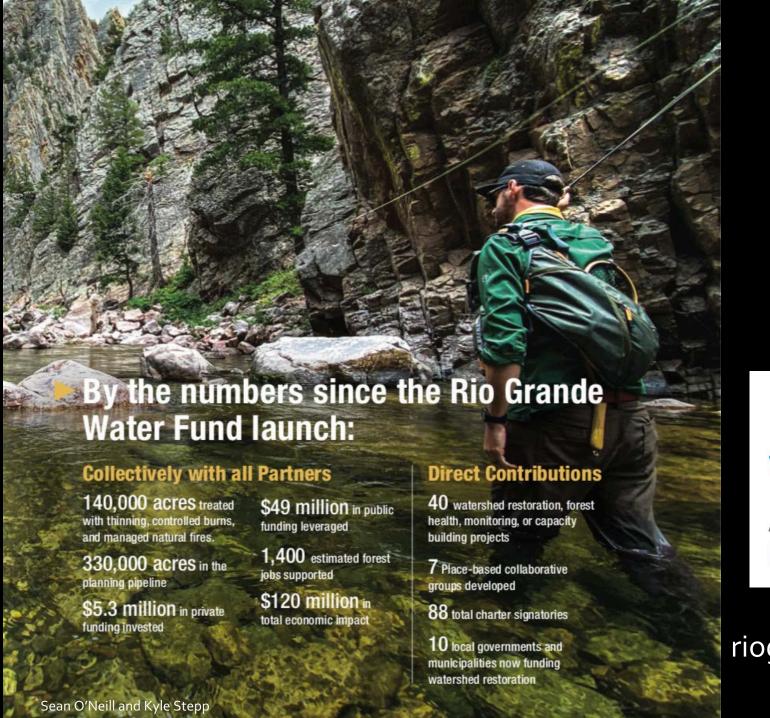
2020 Highlights

- DemonstratedSuccess
- Increased Partnerships
- Science leads to Solutions









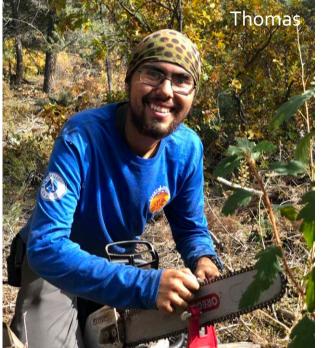
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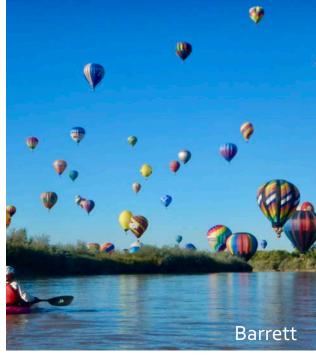
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riograndewaterfund.org/resources/

2021 Vision

- Continue to Learning
- Creativity will be key
- Lean on Partnerships









90 Charter Signatories







Restoration 8





















RioGrande

















































TETRA TECH



SOURCE VERIFIED









































































RIO GRANDE WATER FUND

A Wildfire and Water Source Protection Project

Greater Cape Town Water Fund

Louise Stafford, The Nature Conservancy



Cape Town

Second largest city in South Africa

Rapidly growing population

Increased demand for water

Prediction demand to exceed supply





Surface Water

87%



Drought 2015 – 2018

Theewaterskloof dam

2018

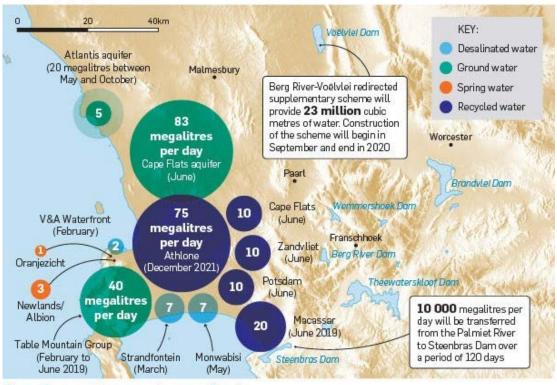


Day Zero



Cape Town's long-term water plans

Several emergency projects to supply more water to Cape Town will be put into place by May. In addition, spring water and water from farm dams will be redirected into the water network



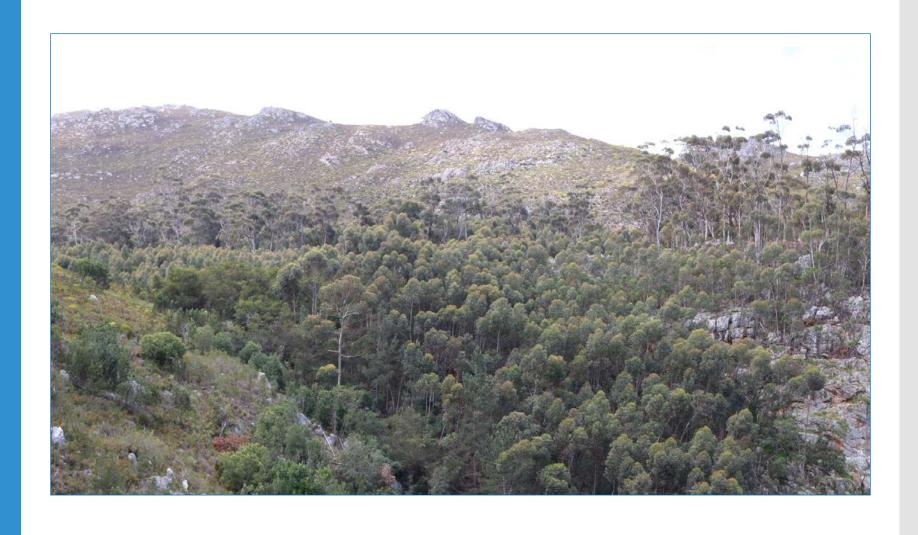
Supplementary water projects



Dec 17 Mar 18 Jun 18 Sep 18 Dec 18 Mar 19 Jun 19 Sep 19 Dec 19 Mar 20 Jun 20 Sep 20 Dec 20 Mar 21 Jun 21 Sep 1 Dec 21 Mar 22 Jun 22 Source: City of Cape Town



Two-Thirds of the watersheds invaded by alien plants



Fire in Pine invaded areas burn up to 10x hotter than fynbos



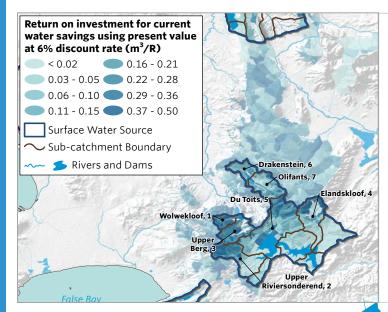
GREATER CAPE TOWN WATER FUND

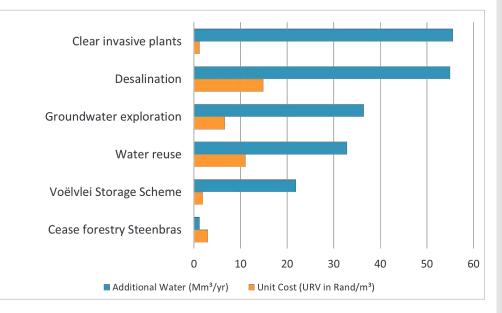
BUSINESS CASE | ASSESSING THE RETURN ON INVESTMENT For ecological infrastructure restoration | April 2019





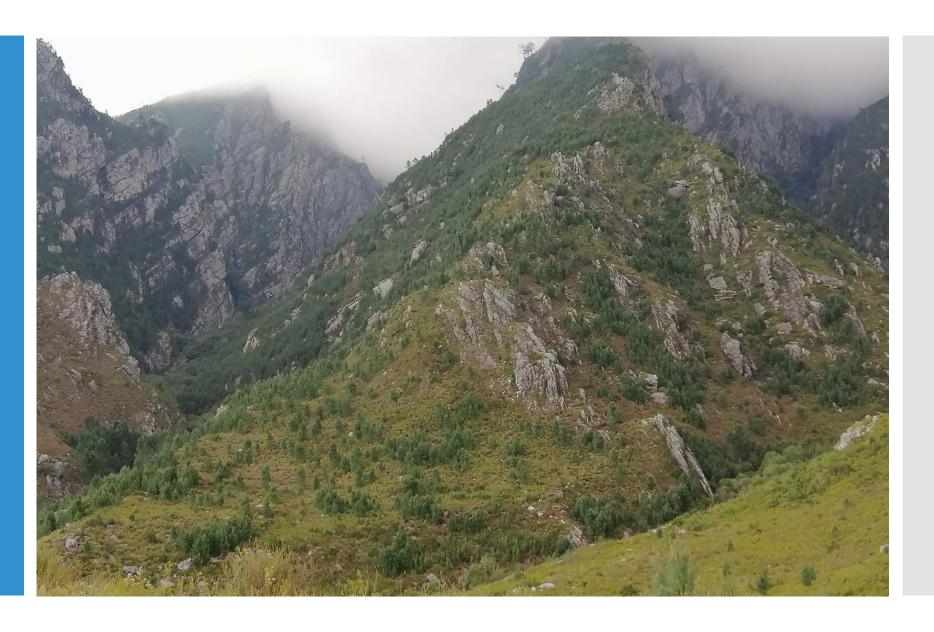
Investing in Nature Based Solutions is the most cost effective and sustainable option for long-term water security



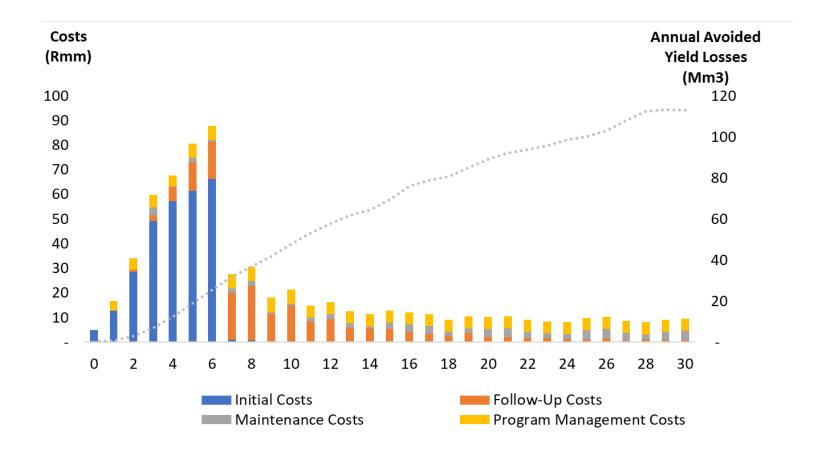




- Protecting water at the source
- Reducing fire fuel load
- Restoring biodiversity



30-Year cost & yield benefits schedule



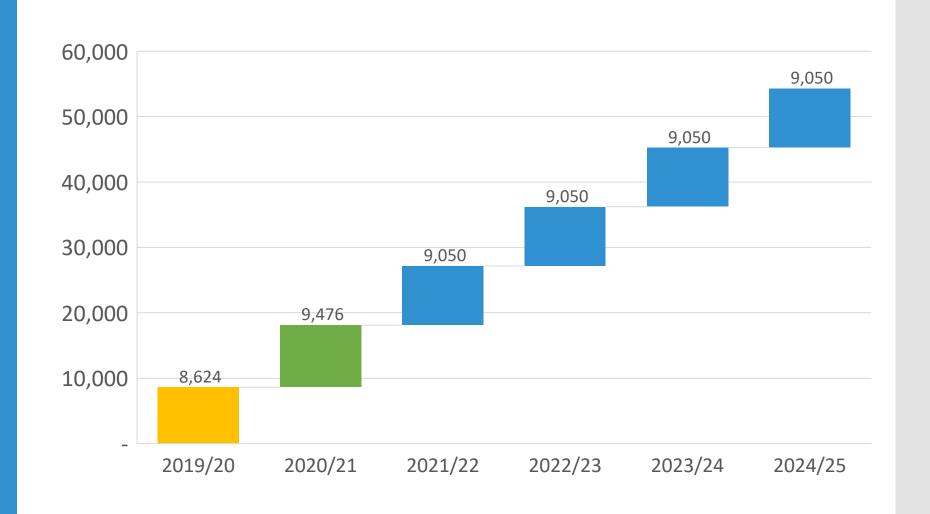
Job Creation opportunities

Women & Young adults



Six- Year Target 2019 - 2025

Annual target Clear 22,363 additional acres



While following up and maintaining cleared areas

Interim governance

Steering committee

TNC Secretariat



The Nature Conservancy

Remgro

Data & Ops Working Group

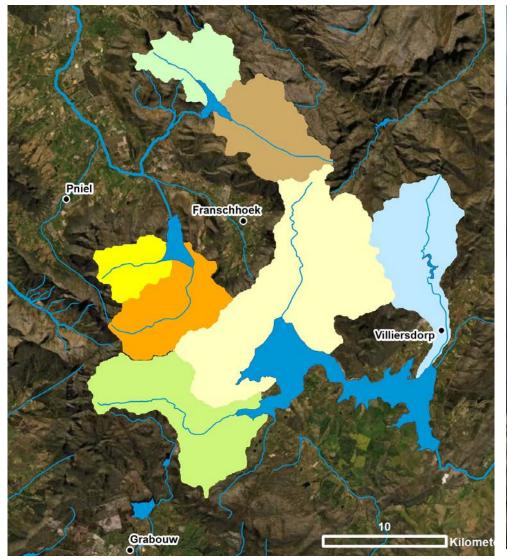
M&E Working Group

Funding Working Group

Plan to Action

- TNC and CCT
- TNC and CCT
- WoF-HAT
- WWF and WoF-HAT
 - TNC and CapeNature
- TNC and CapeNature
 - TNC and CapeNature
- Dams

Rivers





Monitoring & Evaluation

Five themes





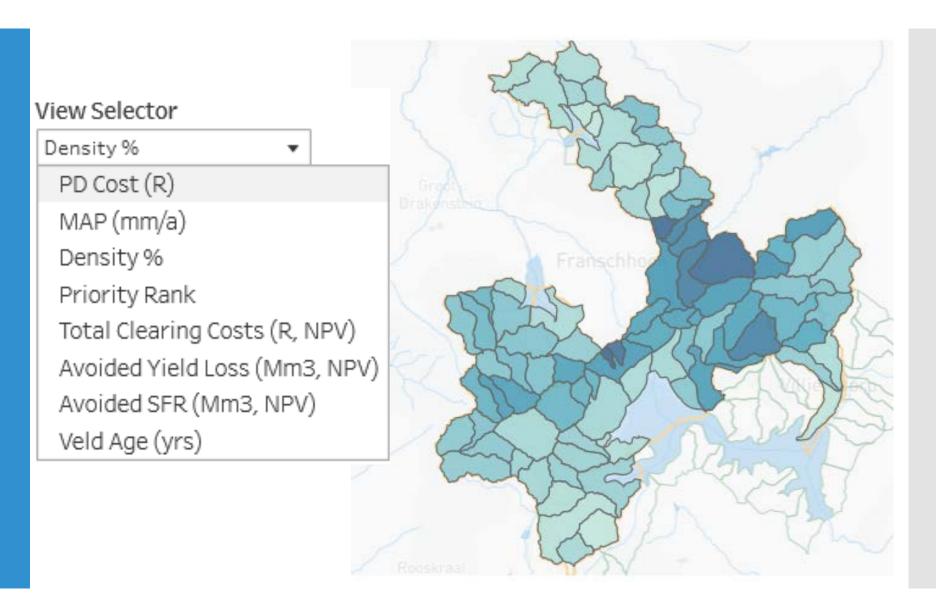






Mapping

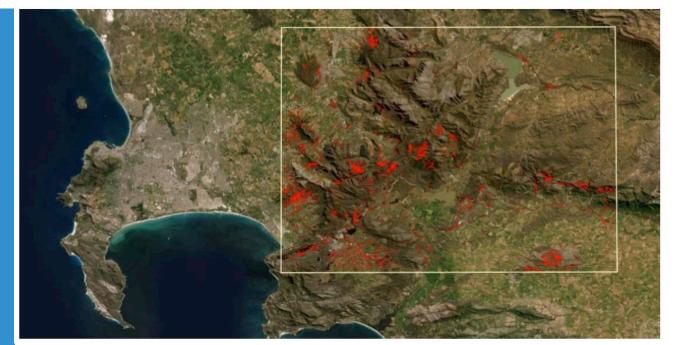
Decision Support System



https://public.tableau.com/profile/waterfunds#!/

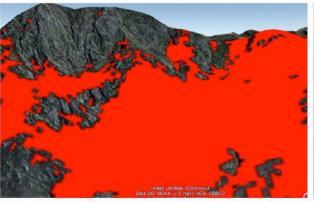
Mapping

Remote sensing











Mapping

Fine Scale



Summary

- Nature Based
 Solutions most
 cost effective,
 sustainable
 solution
- Foundation –
 Baseline data & mapping
- Collective action







Water Stewardship @ Facebook

FACEBOOK

Water Stewardship (a) Facebook



Conserve water in our operations



Transparency with our water data



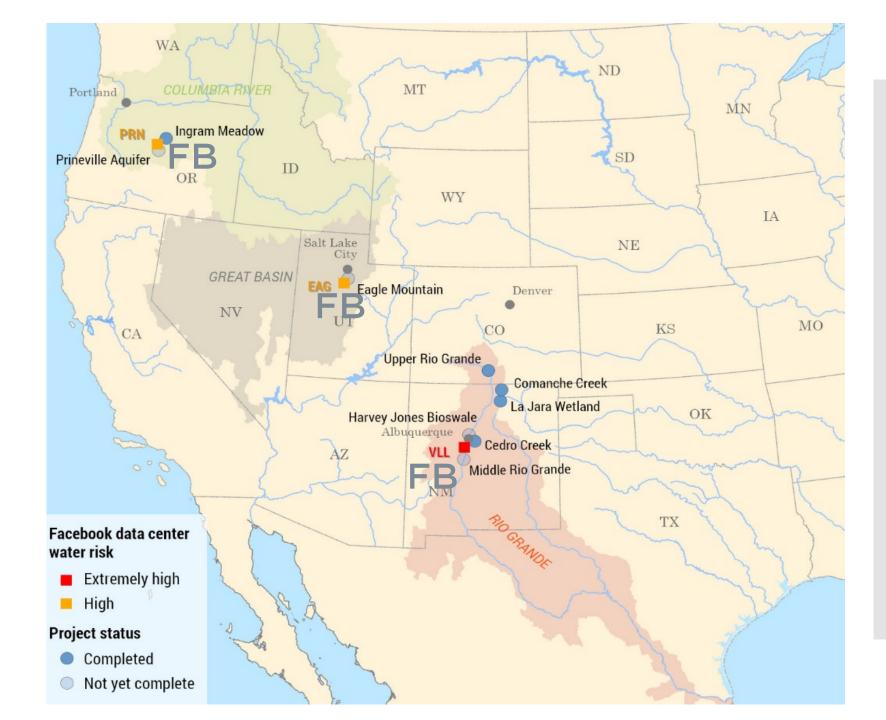
Drive
Industry
standards for
water stewardship



Restore
Our Remaining
Water Impact

Water restoration program overview

- Focus on highrisk watersheds
- Project criteria



Progress to date



WATER STEWARDSHIP

206,000 cubic meters of water per year contracted

In 2019, we contracted four new water restoration projects that will restore 206,000 cubic meters of water per year in our data center communities.

New Mexico

Cedro Creek Restoration: Rio Grande Water Fund

The Nature Conservancy NM Rocky Mountain Youth Corp
Stream Dynamics





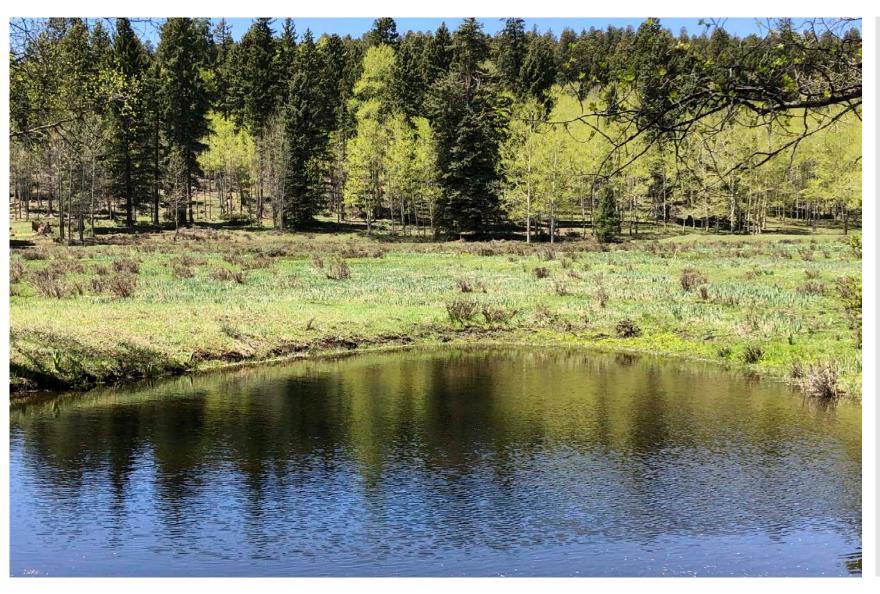
Photo credit: Stream Dynamics/RMYC

La Jara Wetland Restoration: Rio Grande Water Fund

The Nature Conservancy NM

Amigos Bravos

Watershed Artisans



Comanche Creek Restoration

National Forest Foundation

Trout Unlimited

US Forest Service



Middle Rio Grande Flow Restoration

Audubon Society NM

Middle Rio Grande Conservancy District

Bureau of Reclamation



Q&A

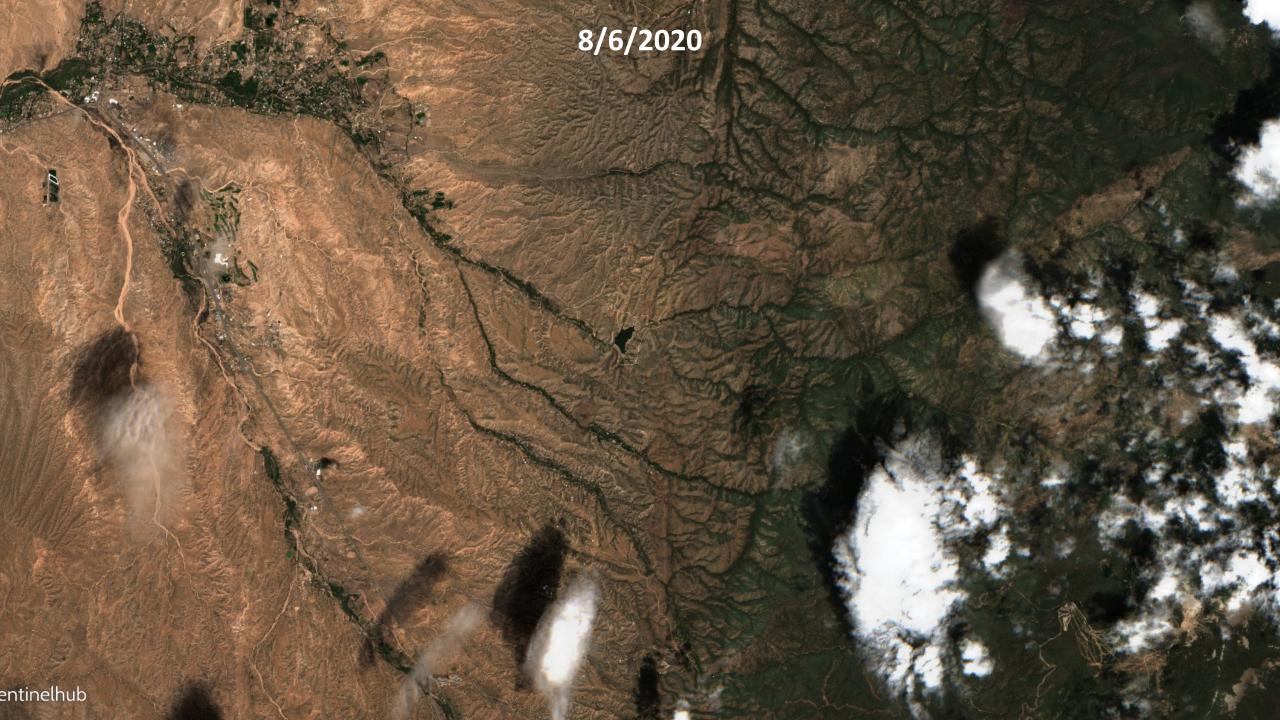
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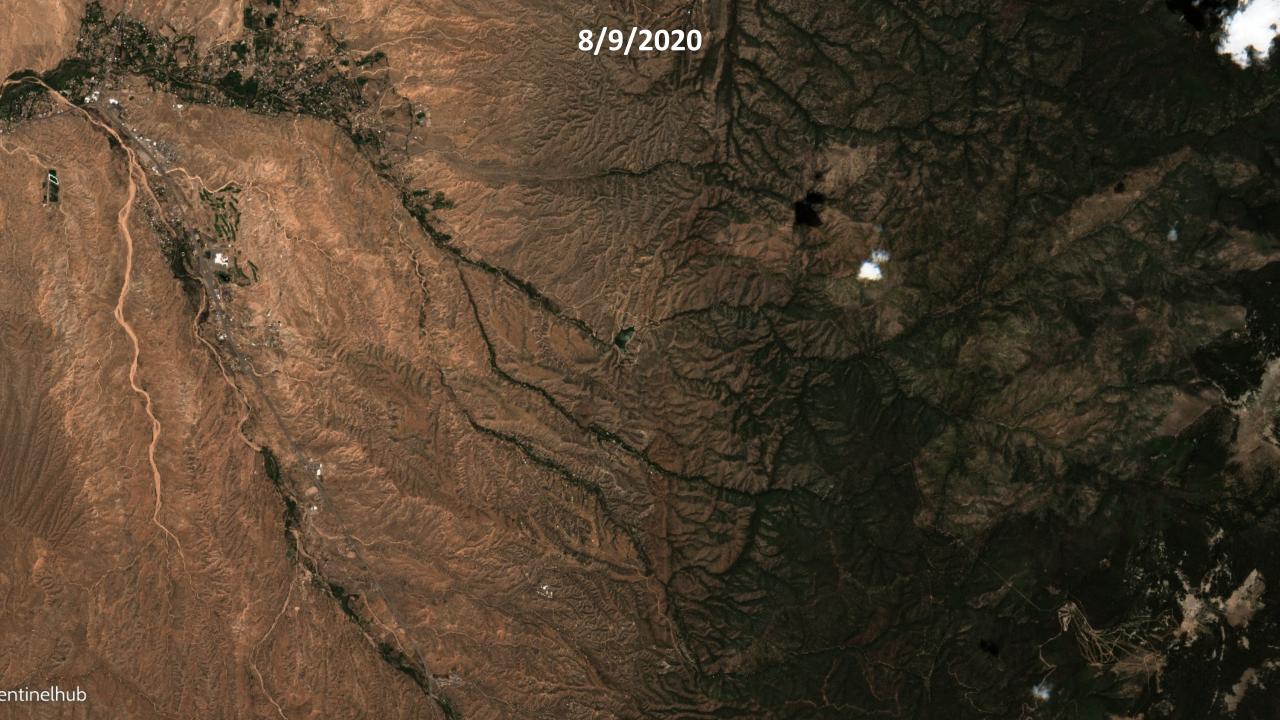




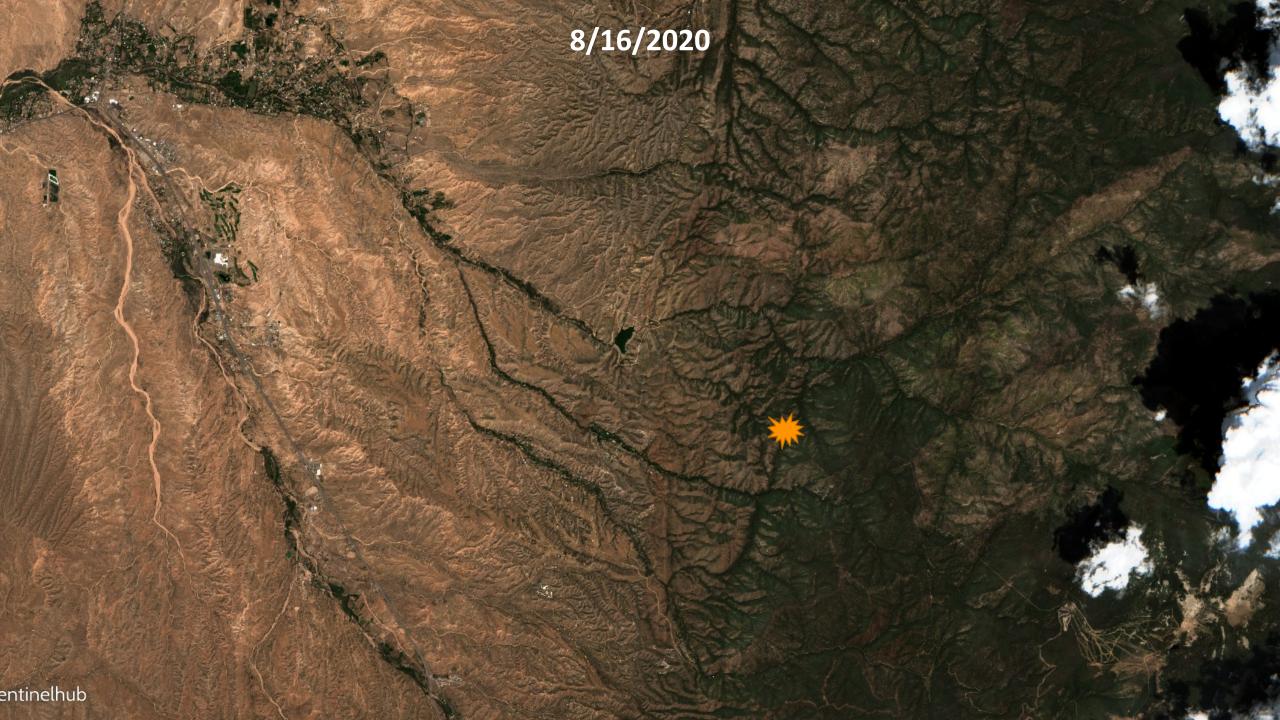










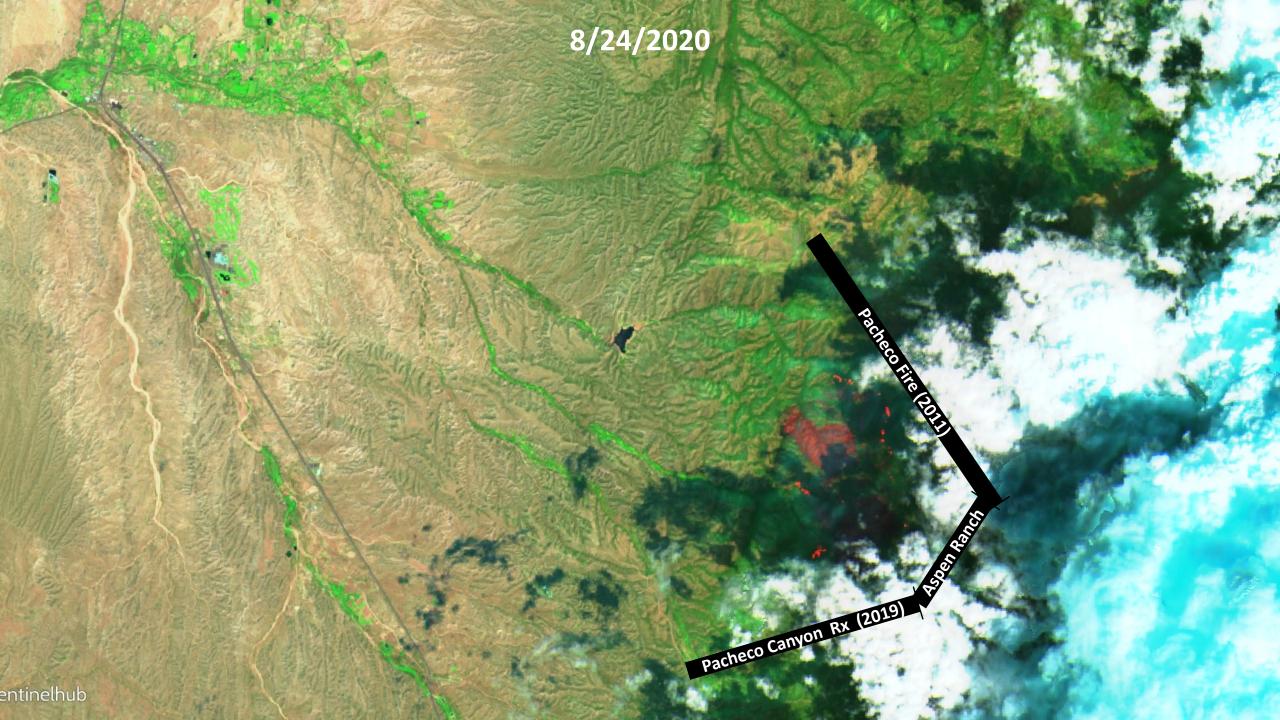


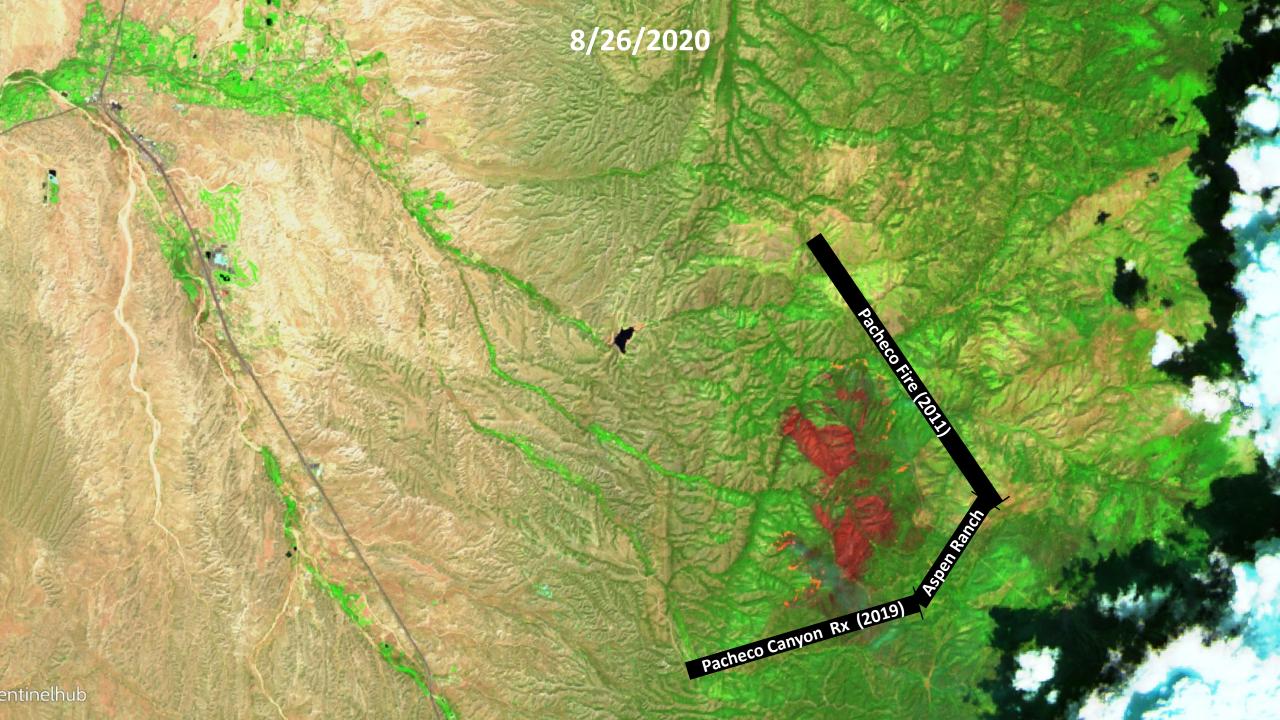






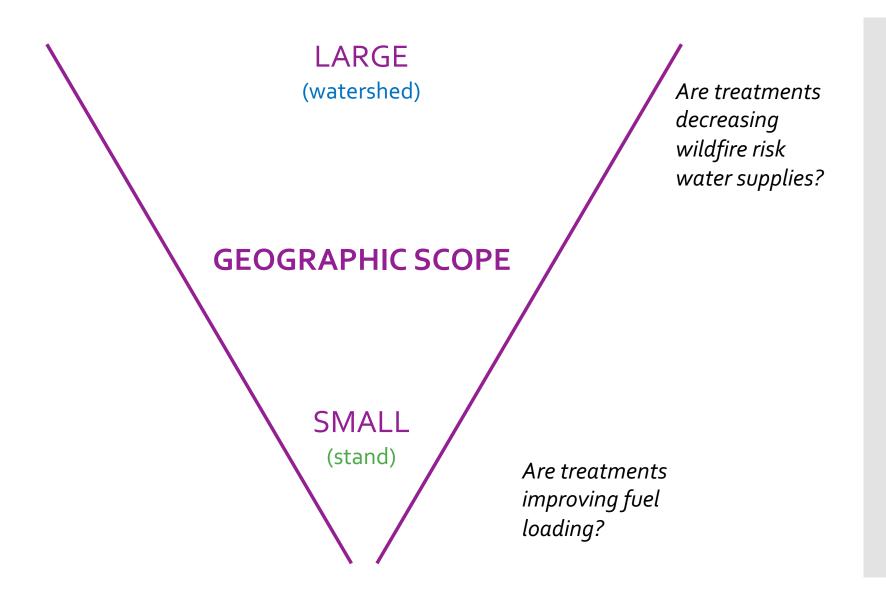








Data Depends on Scale



Data Collection Approaches by Geography

Small

Fuel Loading, Stand Composition and Structure, Wetland Structure

- Inventory Plots w/ Field Data Collection
- Medium

Stand Composition and Structure, Wildfire Hazard, Stream Function

- UAVs/Drones and Satellite Imagery
- Models of Phenomena
- Large

Watershed Function, Resource & Asset Value, Wildfire Risk

- Models of Complex Systems
- Spatial Action Mapping

Check out the new NM Forest Action Plan! nmfap.org

Current Projects

- Evaluating RGWF Impact in a "State of the Watershed" report.
- Real-time adaptive management with UAVs.
- Update treatment priority/optimization map.

- Data governance improvements.
- · Refresh monitoring and adaptive management plan.

Pending Projects

- Database and web portal
- Plot data collection
- Treatment effectiveness study
 - Wildfire simulation and risk analysis
 - Optimizing future treatments
- Machine learning for fuel loading quantification

We are hoping to collaborate or contract for help on these projects!

Credits

- Satellite imagery from ESA's SENTINEL2
- Image processing via sentinel-hub.com
- "Fire of chance" from Buck Wickham (ops. Section chief on Medio Fire)



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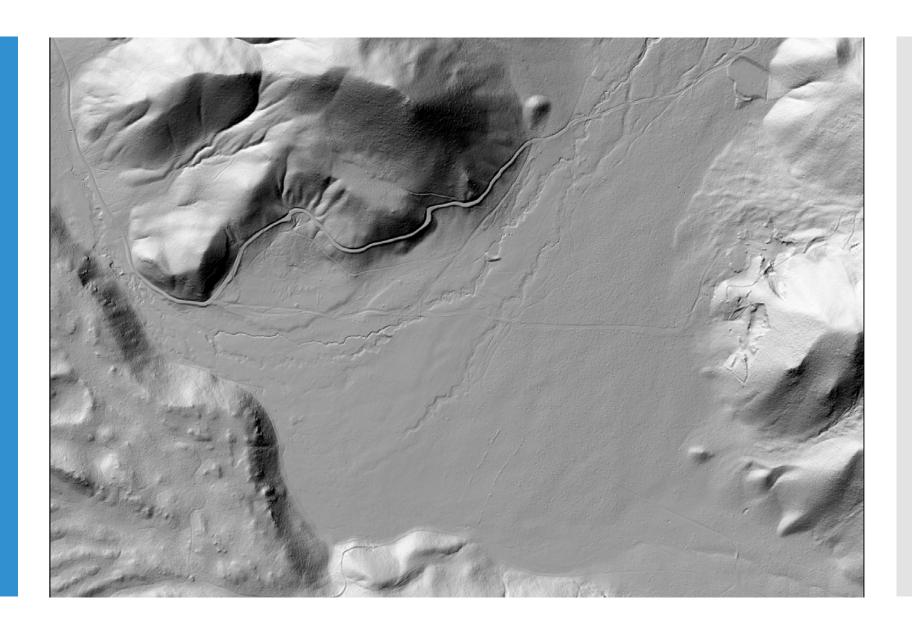
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Redondo Creek Restoration: Wetlands, Streams and Alluvial Fans

Reid Whittlesey, Restoration Director, Rio Grande Return



The Landscape Position: An Alluvial Fan



The Pre-Construction State: Constrained, Dry, and Incising





Current and
Legacy
channels:
incised and
reducing
wetland capacity





The Restoration Rx:
Moving Earth and Rocks











Historic
Irrigation Ditch
Rx:
Plug and
Spread









Immediate
Wetland
Replenishment:

Through Lateral Subsurface Flow





Reid Whittlesey
reid@riograndereturn.com
530.370.6955



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A Wildfire and Water Source Protection Project

New frontiers in spotted owl science

Gavin M. Jones, PhD

USDA Forest Service

Rocky Mountain Research Station



Spotted owls and wildfire: "a burning issue"



A century of change in the Sierra Nevada, CA



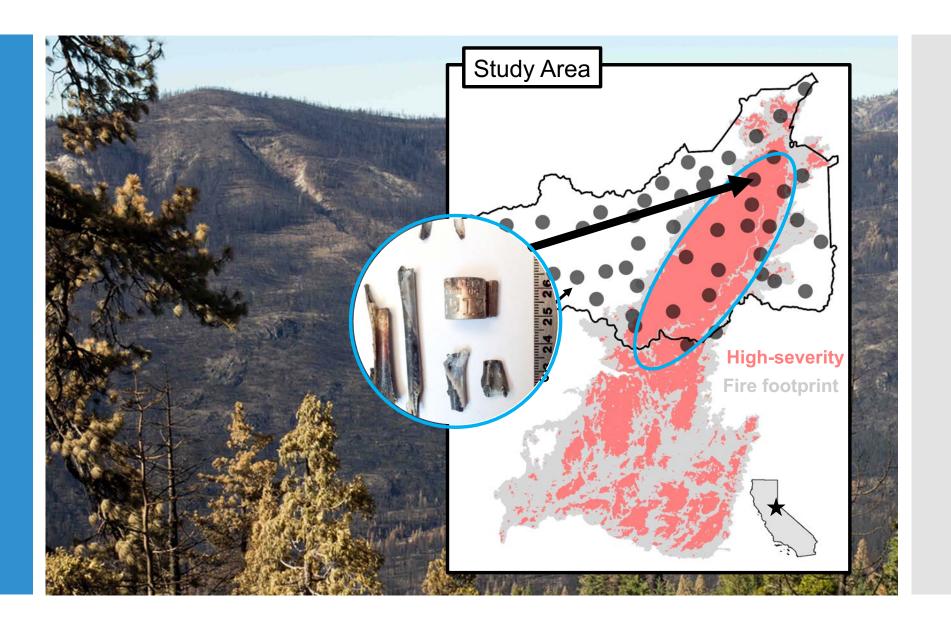


Ecological type conversion



Lessons from the field: 2014 King Fire

 A 'natural experiment'

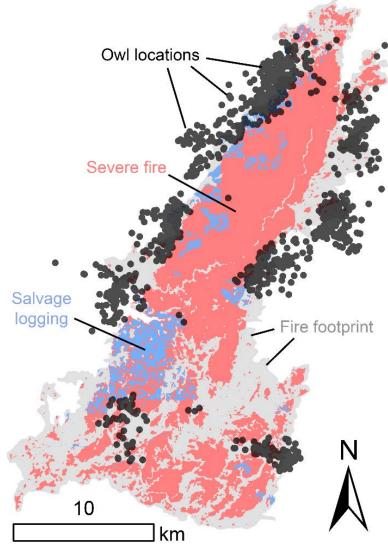


Next-generation GPS technology

 Lightweight, inexpensive, and highly accurate!

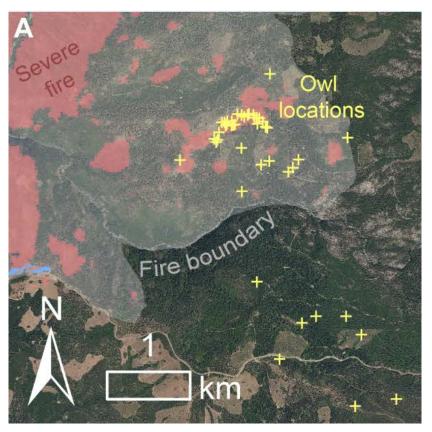


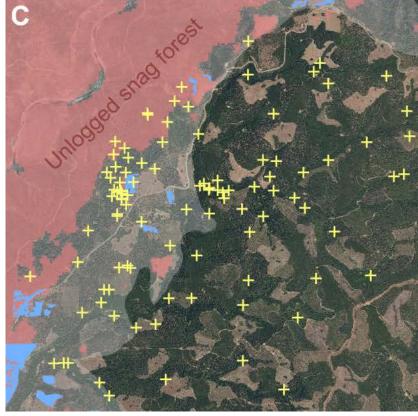




Next-generation GPS technology

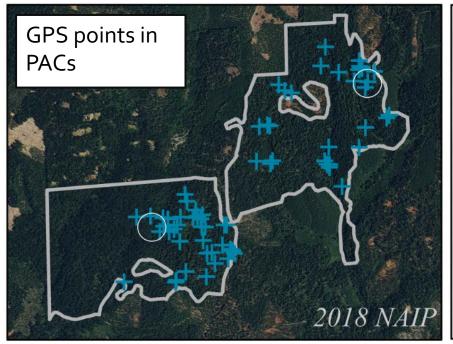
Owls prefer smaller patches and avoid larger ones

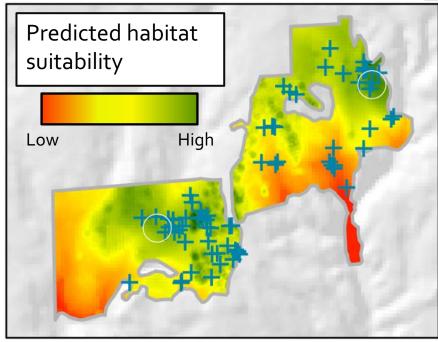




Next-generation GPS technology

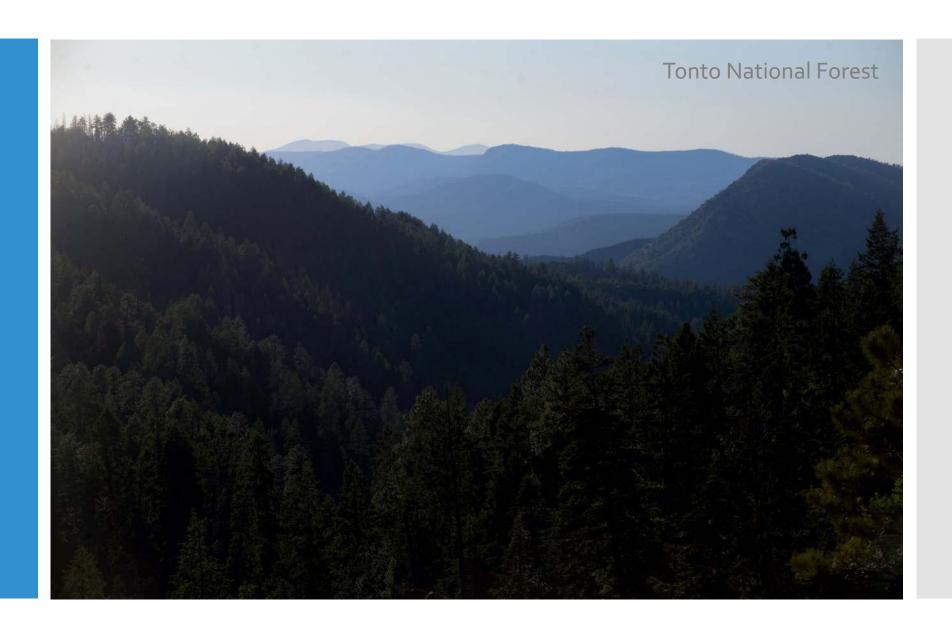
- Identifying areas in PACs for restoration
- Huge potential to replicate in Southwest!!





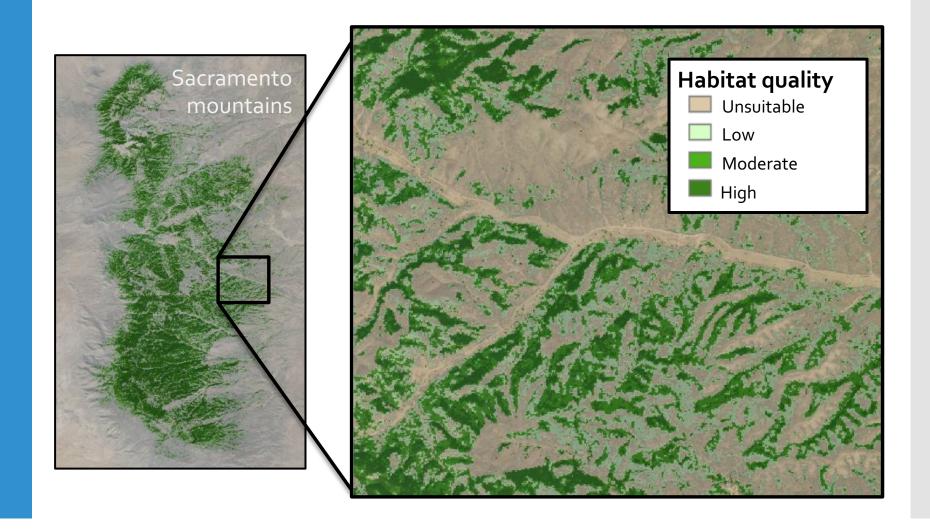
A "living map" of Mexican spotted owl habitat

We know very little about MSO habitat!



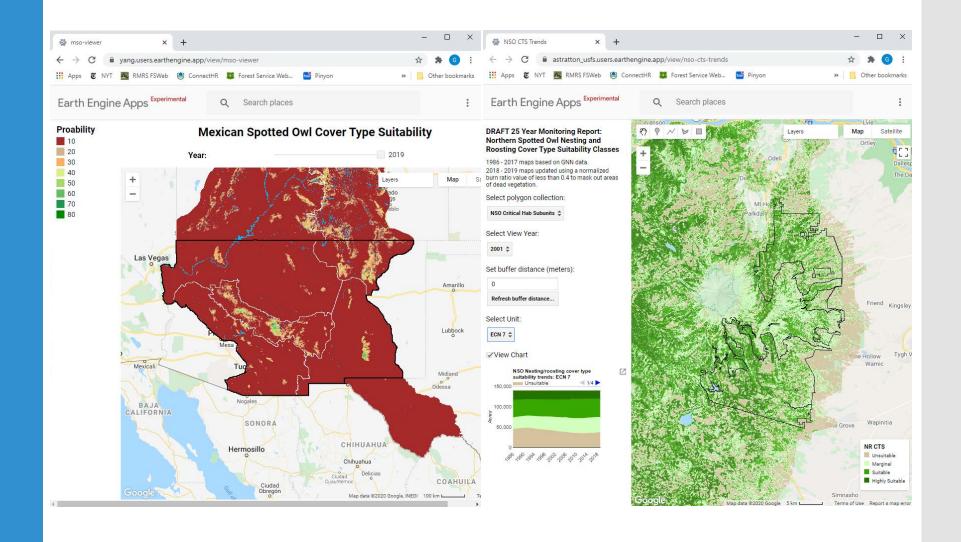
A "living map" of Mexican spotted owl habitat

- Landsat and Google Earth Engine
- Annual, regional maps from 1986present (and future!!)



A "living map" of Mexican spotted owl habitat

 Web-tools for planning and public engagement



Thank you!

- Let's talk more!
 - gavin.jones@usda.gov
 - Twitter: @ecologyofgavin
- Funding sources:
 - US Forest Service
 - California Department of Fish and Wildlife
 - US Fish and Wildlife Service
 - The Nature Conservancy
 - Sierra Nevada Conservancy
 - CALFIRE

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House Memorial 42: Expanding the Use of Prescribed Fire in NM

Laura McCarthy, New Mexico State Forester



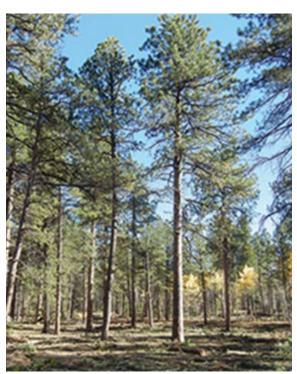




Thinning <u>and</u> Burning Changes Fire Behavior



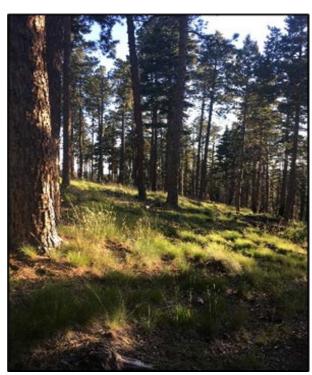
Untreated



Thinned



Rx Burn



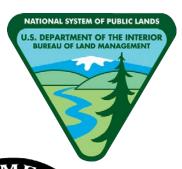
Thinned and Burned

HM42 Working Group Participants





















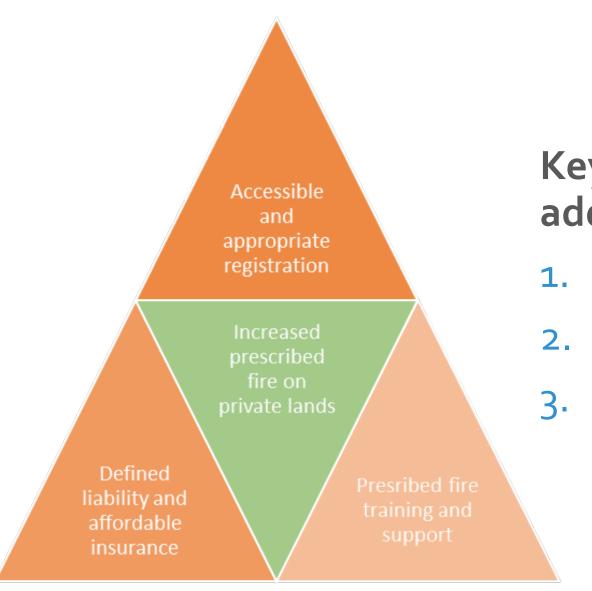


POWERS' AS

United States Department of Agriculture

Natural Resources Conservation Service

How to
Expand the
Use of
Prescribed Fire



Key issues addressed:

- Liability
- 2. Training
- 3. Permitting





Liability





Training

Critical Issues

- Limited access for private practitioners
 - Creates implementation knowledge gap
 - National Wildfire Coordinating Group (NWCG) not designed for private user
 - No training/certification and uncertain liability = limited insurance
 - Not NWCG ≠ Not Rigorous





Key Concepts

- Voluntary/Optional Participation
- Incentives:
 - Liability protection
 - Reduction in civil damages
 - Lower cost insurance



Working Group Considered

- Curriculum Options
 - Full-NWCG,
 Partial-NWCG,
 Minimum-NWCG
 or State specific
- Program Delivery & Administration Options



Curriculum Recommendations





State-specific (NM topography, vegetation, weather, fuels, etc.)



Collaborative development



Delivered by NMSU Cooperative Extension and administered by the Forestry Division

Curriculum Administration

Training and Oversight Board:

- 1. Energy, Minerals, and Natural Resources, State Forestry Division
- 2. NM Prescribed Fire Council
- 3. NMSU Cooperative Extension











Permitting





Recommendations

Near Term Recommendations

- adopt "right-to-burn" legislation establishing prescribed fire as a beneficial and accepted landowner right
- 2. establish negligence liability standard for all private prescribed fire practitioners
- create enabling conditions for development of a voluntary state-specific training and certification program
- 4. reduce civil damage liability from double costs to actual costs as an incentive to complete training and certification
- 5. establish requirements and criteria for local governments to follow when creating or revising prescribed fire ordinances and ignition permits





Laura McCarthy laura.mccarthy@state.nm.us





Thank You!

