Building a CoCoRaHS Presence in Colorado Forests

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ATMOSPHERIC SCIENCE
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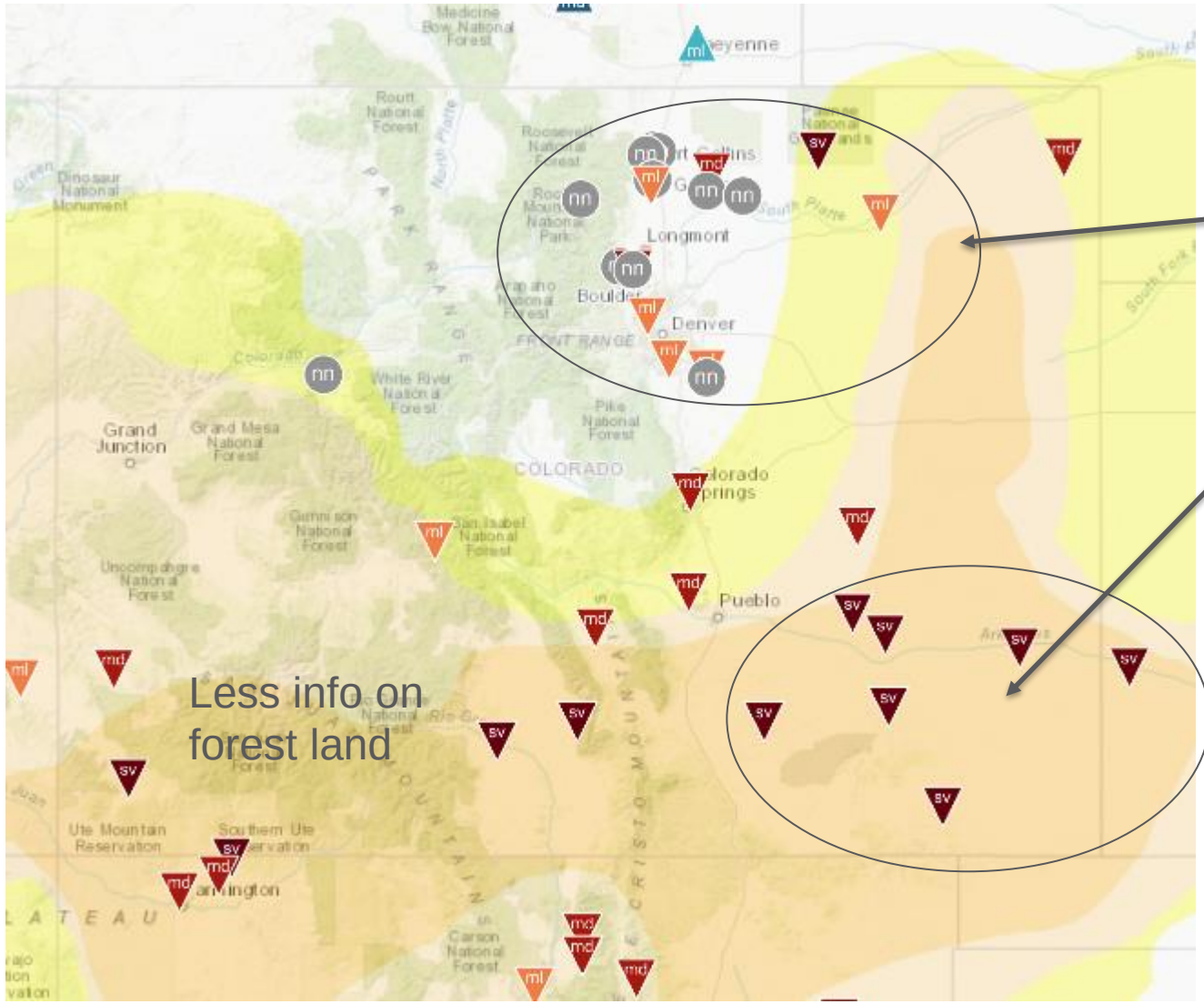
Motivation

- Conditions on Forests are underrepresented by CoCoRaHS Condition Monitoring, but we care a great deal about how forests are changing on short and long timescales
- A database of forest condition impacts would be of value to management communities monitoring climate change, drought, floods, phenology, and other natural hazards impacting forests
- Additional monitoring reports can help Forest managers with their monitoring goals



We receive great information from agricultural areas and suburban areas during dry times

Syracuse 7.2 WSW

Station Number	KS-HM-5
Report	Another week and no moisture. It is getting worse by the day now with the warmer temperatures. Cattle sales are picking up do to drought. Spring crops aren't being planted and the winter wheat is going backward. Pastures tried to green 3 to 4 weeks ago but look like winter now. This is another 2012-2013 type drought. It's getting ugly now. More hot, dry, windy and dusty conditions in the forecast this week.
Condition	Severely Dry
Date	Mon May 04 2020
Summary Data	CoCoRaHS summary data by week for this station.

Forest Needs

- Our team conducted a survey of Federal and State Forest Service personnel
- This survey was used to determine what data collection needs Forests specialists had, and if CoCoRaHS could help
- Let’s review some results:

Forest Needs

Q: What are your biggest management challenges related to drought, climate change, or changing environmental conditions?

Answers	Count	Percentage
Increased forest/vegetation drought stress	29	80.56%
Reduced forest regeneration	10	27.78%
Increasing tree mortality	28	77.78%
Increasing fire	22	61.11%
Increasing invasive species	24	66.67%
Changes in plant growth or phenology	12	33.33%
Increased flooding	6	16.67%
Extreme weather events	11	30.56%
Changing patterns of seasonal human use	23	63.89%
Damaged or lost infrastructure	6	16.67%
Other	8	22.22%

Which Data Are Used?

Seeing that the US Drought Monitor is widely-used was an interesting finding. CoCoRaHS Condition Monitoring and this project were born out of our efforts to make the Drought Monitor better

Answers	Count	Percentage
National Drought Monitor	26	72.22%
meteorological stations	23	63.89%
remotely-sensed data	13	36.11%
local weather reports	19	52.78%
stream gauges	21	58.33%
personal observations	22	61.11%
Other	7	19.44%

Forests Are Not Consistently Storing Data Like this

- We asked how survey respondents were storing data relating to shifts in environmental conditions
- Responses:

Don't know.	3
We store data locally, in Dropbox and a large part of our data will become publicly available once the EPA decides to release it	1
We keep the raw data, but no one is tracking extreme evens or shifts.	1
We don't have a data manager. Can you help us with that?	1
we do not store this data	1

Where We're Headed

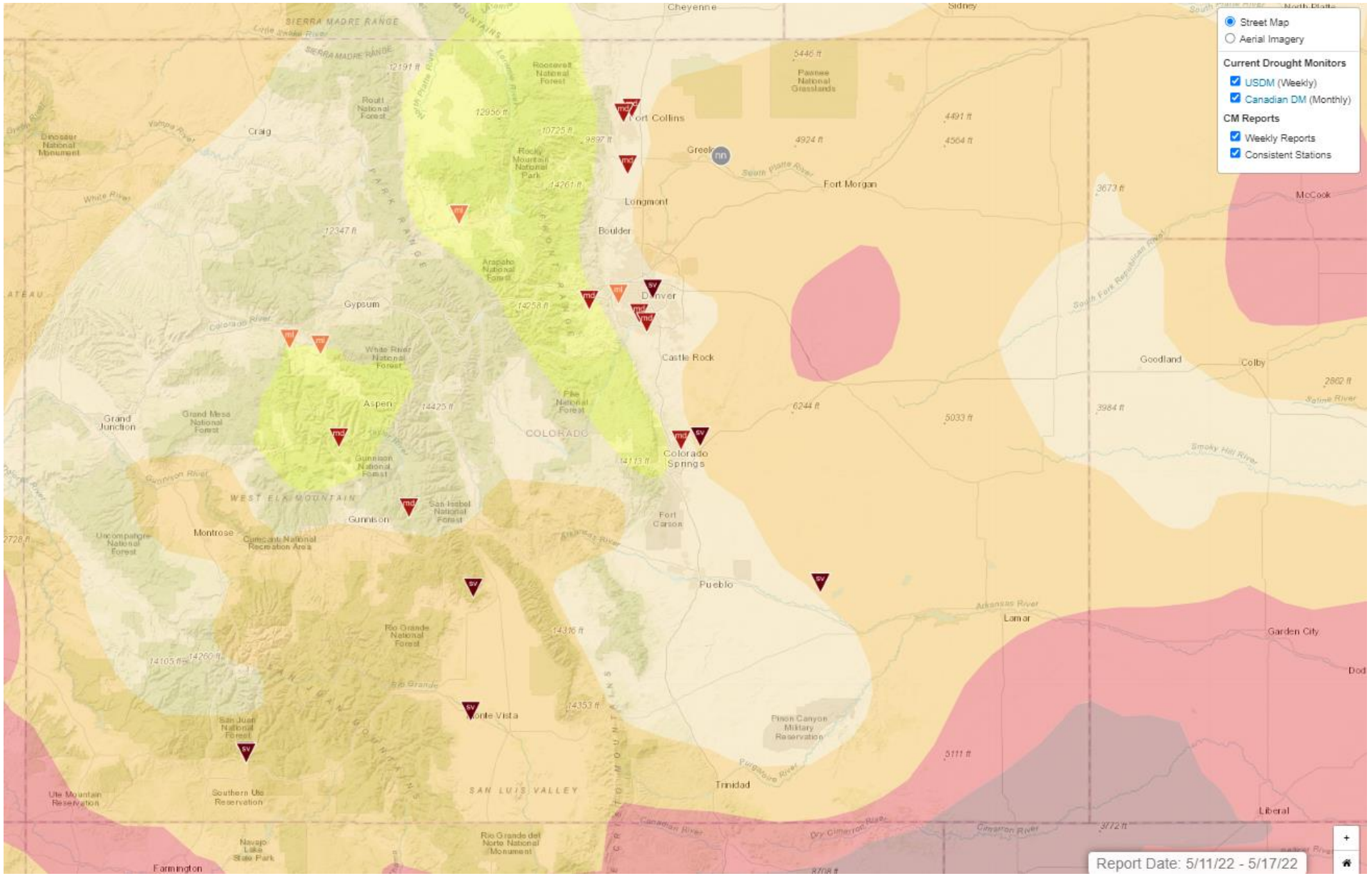
- Design CoCoRaHS Condition Monitoring guidelines specifically for those in forests using our survey results (Fall 2021) <-instructions available
- Recruiting drive (Spring 2022) <- We are here
- Data Collection (Summer/Fall 2022)
- Evaluate and summarize results (Spring 2023)

Some Progress

So far this spring I have sent out our recommended forest monitoring instructions to observers in western Colorado

I've been encouraging observers to file Condition Monitoring reports and thanking them when they do

Larger Condition Monitoring Campaign to come



Thanks for your time!

Questions, comments?

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