Jackson Demonstration State Forest

JAG Meeting
August 3, 2021

Evening Set-up

There is a moderator who will be keeping everyone accountable for time

JDSF staff will present on the topics listed on the agenda

JAG will have first chance to comment and ask questions

Floor will be opened to the public to ask questions

Each person will have 3 minutes for their public comment

Comments/Questions box available




Jackson Demonstration State Forest Advisory Group

JAG MEETING AND AGENDA

August 3, 2021

Mendocino County, CA- The Jackson Demonstration State Forest Advisory Group (JAG) will be holding a meeting:

Meeting:	**Location:**
Date: August 3, 2021	**Fort Bragg Town Hall**
Start Time: 6:00 pm	**363 North Main Street**
End Time: 9:00 pm	**Fort Bragg, CA 95437**

Item #	Time	Subject
1.	6:00 pm	Call to Order and Introductions
2.	6:10 pm	Review/Approve Previous Meeting Minutes *Ex Parte Communication Disclosure*
3.	6:15 pm	JDSF Operational Updates
4.	6:30 pm	Government to Government Consultation Update
5.	6:45 pm	Review of Public Comments and Responses from Community Outreach Sustainable Forestry Fire Hazard Mitigation Demonstration and Research Mission
6.	9:00 pm	Adjourn

Please note that times for agenda items are approximate. Items may take more or less time or be taken in a different order. Meeting may end early if all agenda items are completed before scheduled. This meeting may utilize more formal public comment periods, focused on agenda items.

Administration

- Mike Powers retired from CAL FIRE to pursue other opportunities
  Employment announcement is out now

- Mike Anderson resigned from the JAG
  We thank him for his many years of dedicated service

- Chris Blencowe has been appointed by the Director and is awaiting confirmation from the Board of Forestry at their September Meeting (9/21 & 22)

Administration

JAG Membership Roster (Updated July 2021)

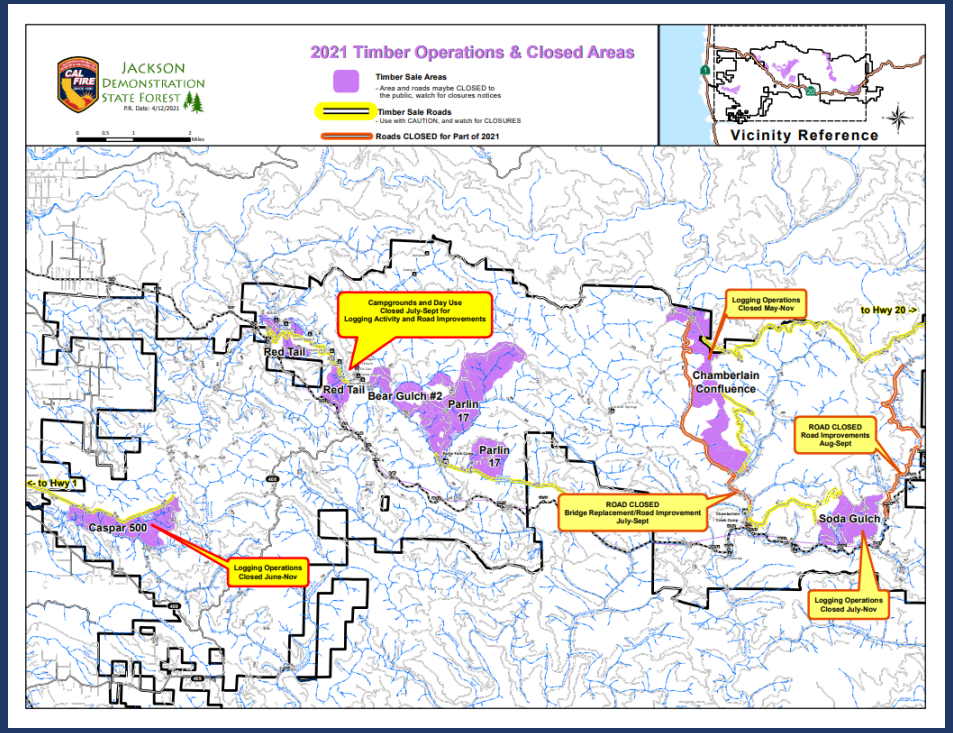
Current Incumbent	Category Represented	Perspective	Initial Appointment Year	Next Expiration
Doug Albin	Biologist/CDFG	Regional	2011	2022
George Hollister (Chairman)	Small Private Forestland Owner	Regional	2011	2023
John Anderson (Vice Chairman)	Industrial Forestland Owner/RPF	Statewide	2011	2023
Amy Wynn	Land Use Consultant and Outdoor Recreation Advocate	Regional	2012	2024
Charlie Schneider	Conservationist/Recreation Advocate	Regional	2017	2024
Michael Jones	Forest Researcher/UC Cooperative Extension	Statewide	2019	2022
Chris Blencowe	Registered Professional Forester	Regional	Appointed by Director, Pending Confirmation by Board (7/30/21)	

JDSF Operational Updates

Bear Gulch #2
- Logging completed in 2020
- Lopping/clean up work remains

South
- Logging completed in 2020
- Road work will be done this week

Parlin
- 4.8 MMBF removed
- $1.9 million in revenue
- Road decommission/fuel break remain
- Prescribed fire in early 2021
- Another burn planned for late 2021

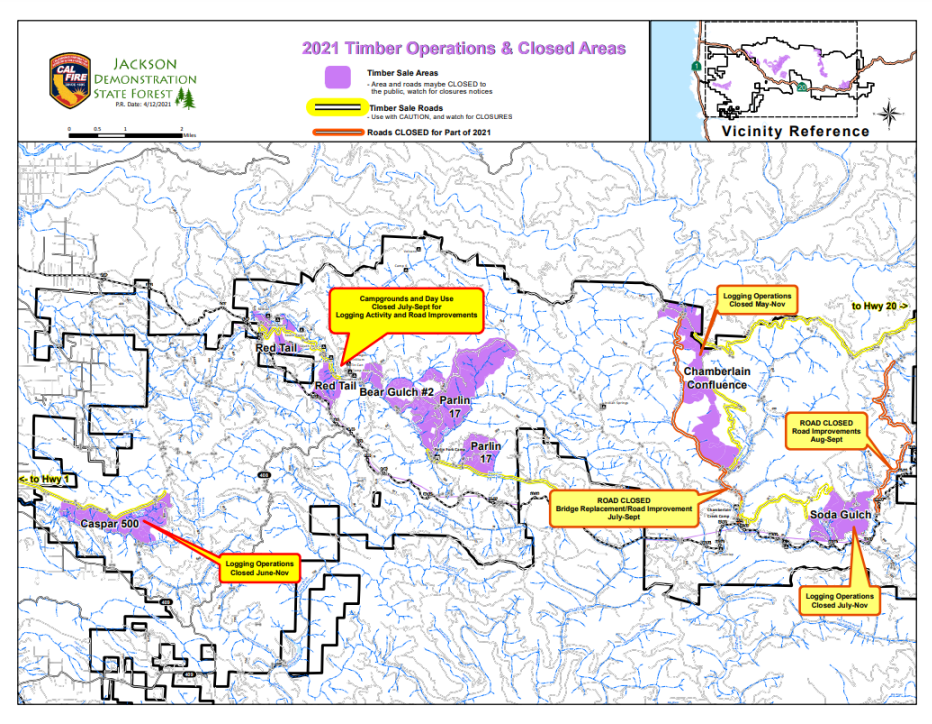


JDSF Operational Updates

Camp 17
- 1.9 MMBF removed
- $747,118 in revenue

Moe
- Falling/yarding/hauling continue
- Completion expected in 4 weeks

Red Tail
- ~ 700 MBF removed
- ~ 700 MBF on the ground
- Trespassers have affected timing of operations
- Work on Road 350 delayed til 2022

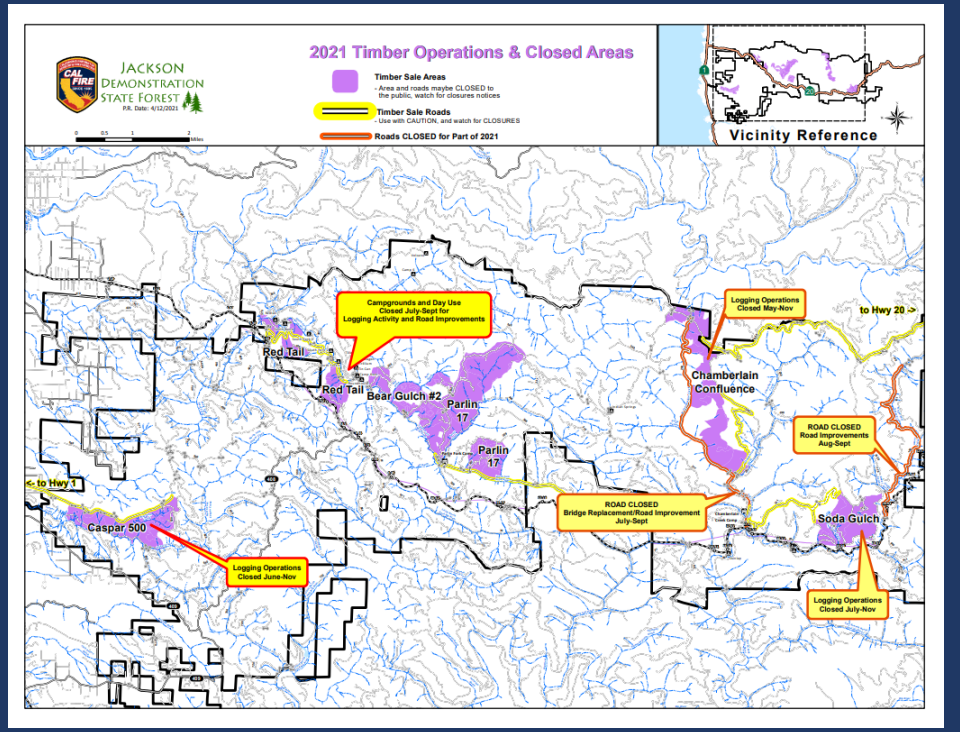


JDSF Operational Updates

Caspar 500
- Operational pause due to trespassers
- Start of Blue Gum Trail upgrade delayed to 2022
- Cost of upgrade is ~ $70,000

Chamberlain TW
- Tractor operations nearly done in Units A, B, C & D
- Cable yarding should start within the month
- Trespassers are a problem, but not affecting timing of operations.

Soda Gulch
- Start Date - TBD



JDSF Operational Updates

Roads – 2020-2021 Operating Year

New roads built: 5 miles of seasonal and temporary roads

Abandoned and closed: 4 miles

Improved: 12+ miles of road

Bridge replacements: 3, with 1 in contract development

Large crossings: 2 in design stage

JDSF Operational Updates

Restoration

CDFW Fisheries Restoration Grant Program:

- Hare Creek habitat improvement
- Bear Gulch

Recreation

Campground use: low to moderate use during the week and moderate to high use on weekends. Holidays are full

Recreation issues: JDSF needs seasonal and full-time maintenance staff

- Two positions:
  - one is in the hiring process
  - one is still open

JDSF Operational Updates

Research and Demonstration

- Expanded Outreach Efforts…….
- Published initial Caspar Third Experiment Methods Paper
- Bioassessment SF Caspar - low water
- Annual Caspar Meeting – exciting initial results
- Three Green House Gas (GHG) proposals for future
- Takachar Site Visit - logistics
- University of Montana – RMS Wood utilization
- Bobcat Study
- Caspar infrastructure improvement – replace bridge
- Sonoma State GHG sampling with drone and terrestrial LiDAR
- Mushroom Corners Study
- Amphibian E-DNA work complete
- Remeasure SF Caspar PCT - density management
- Barred Owl Study
- Redwood sprout completion study initial measurements

Government to Government Consultation Update

The State of California recognizes the right of Native American tribes to self-govern and exercise inherent sovereign powers over their members and territory. The principles of government to government engagement were established by Executive Order B-10-11: “It is the policy of the administration that every state agency and department subject to executive control is to encourage communication and consultation with California Native American tribes.”

~ CA Office of the Tribal Advisor

Government to Government Consultation Update

CAL FIRE Native American Advisory Council

To advise the CAL FIRE Director on Native American issues. Its mission is to assist the Department in establishing a cooperative and meaningful relationship with California tribes

CEQA Consultation

Required during planning phase of any project which has the potential to cause significant impacts to cultural resources. Provides project description, maps, any known cultural resources, and solicits information from tribes

Government to Government Consultation Update

CAL FIRE is now in Government to Government consultations with:

- Coyote Valley Band of Pomo Indians
  Forest-wide interest in cultural and biological resources

- Sherwood Valley Band of the Pomo Indians
  Consultation request focused on Mitchell Creek and Little North Fork THPs

Government to Government Consultation Update

Coyote Valley Band of the Pomo Indians

April 20, 2021 – Consultation Agenda and Protocol agreed upon
April 22, 2021 – First consultation: Covered intent for consultation and initial steps for fact finding
May 5, 2021 – Working Group office meeting providing a JDSF overview
June 25, 2021 – Working Group field visit of Soda Gulch, Chamberlain, and spiritual site
July 13, 2021 – Working Group field visit to Caspar 500 and Parlin 17 interrupted by protest activities

Government to Government Consultation Update

Coyote Valley Band of the Pomo Indians

Current Focus On:

1. Providing information about all cultural sites known on JDSF
2. Scoping, surveying and mitigation measures provided for cultural sites
3. Consultation protocol during project development

Planned Discussion Items:

1. Gathering of basket weaving materials, traditional native plants, medicines, and foods
2. Ceremonial activities
3. Cultural resource identification and monitoring

Review of Public Comments and Responses from Community Outreach

Formal Public Comment Periods in last five months:

1. Town Hall Meeting (virtual) – April 8, 2021
2. April JAG Meeting – April 28-29, 2021

Community Expression Events:

1. Camp 20 – June 26, 2021
2. Woodlands Fire Station – June 28, 2021
3. Willits High School – June 29, 2021

Some Common Themes from all these:

Sustainable Forestry
Fire Hazard Mitigation
Demonstration and Research Mission

Sustainable Forestry

Public Comment Topics:

JDSF is not being sustainable/cutting too much

JDSF is ignoring carbon sequestration

Big trees being cut/why must you cut here

JDSF does not consider wildlife habitat

Sustainable Forestry

Discussed in terms of:

Growth and Yield:

- *Is forest density increasing or declining because of ongoing harvests?*

Carbon:

- *Growing inventory speaks to static or standing wood, what about the rate of CO2 uptake now and in the future?*

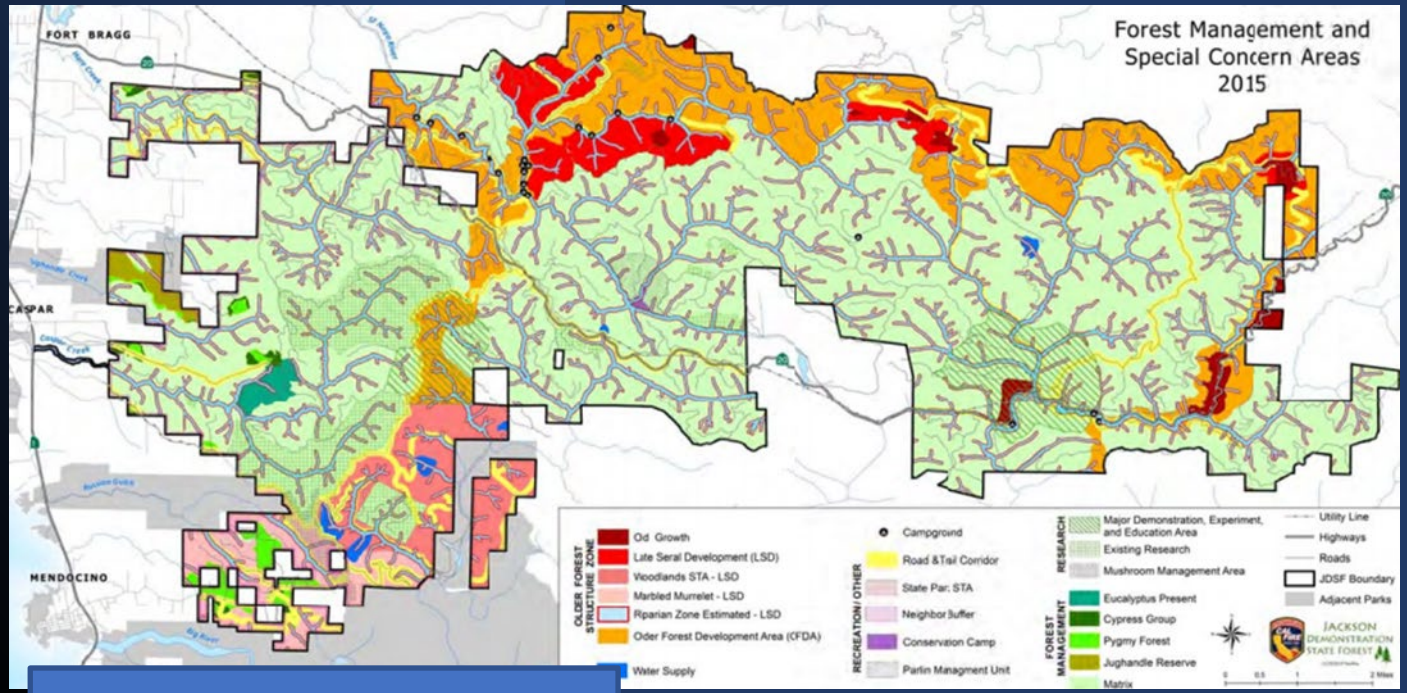
Habitat Improvements:

- *Sustainably extends to aquatic resources*

These text boxes are used in the following slides to convey, in general terms, what was presented orally to complement slide content. Not verbatim oral presentation.

Sustainable Forestry

Foundation is Management Plan



Can't optimize every value on every acre, zoning is the solution

- **Matrix** - Most flexible range of options

OLDER FOREST STRUCTURE ZONE

Old Growth Groves linked by:

- **OFDA** - Harvest trees of all sizes in perpetuity, increase older forest attributes
- **LSD** - Accelerate late seral characteristics with no long-term harvest plans

Sustainable Forestry

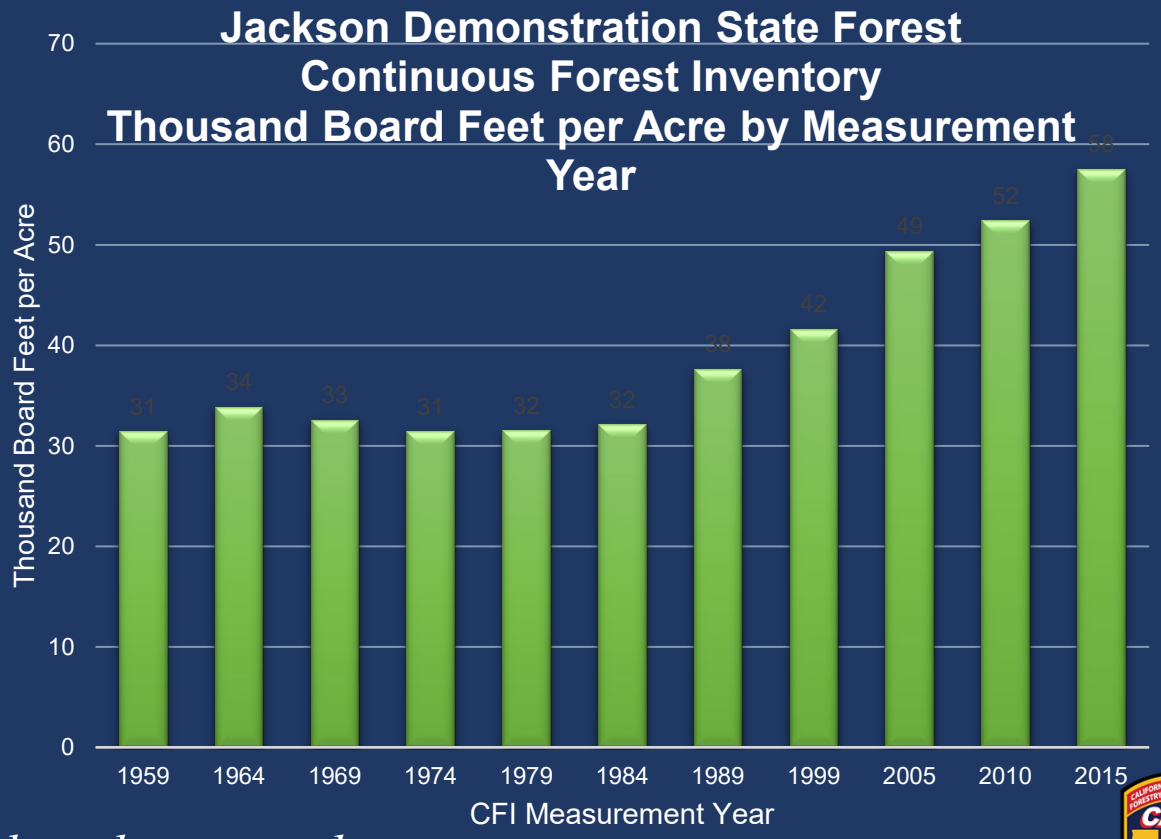
Growth and Yield

Traditional Metrics

Continuous Forest Inventory (CFI):

- Older of two inventory systems, going back to 1959

141 permanent plots
Note: 1959 to 1984 met the objectives of cutting equal to growth; by 1984 meeting expectation to grow more than cut



Cutting less than growth

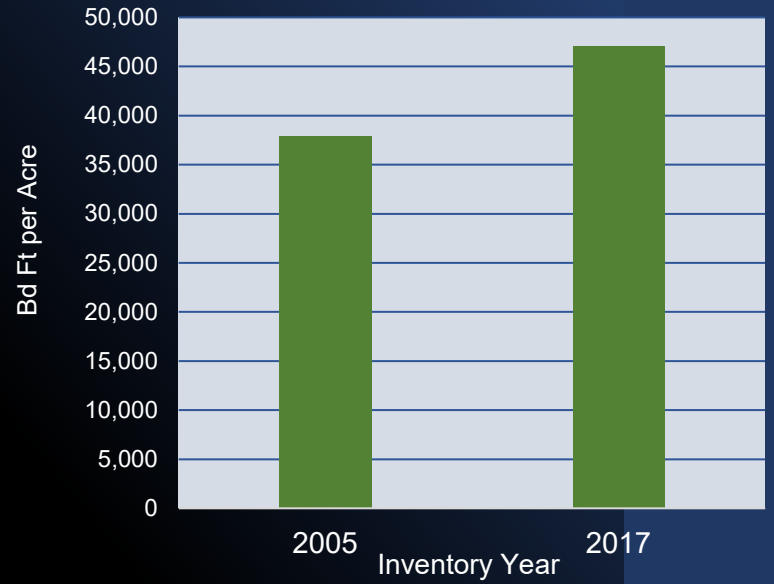
Sustainable Forestry

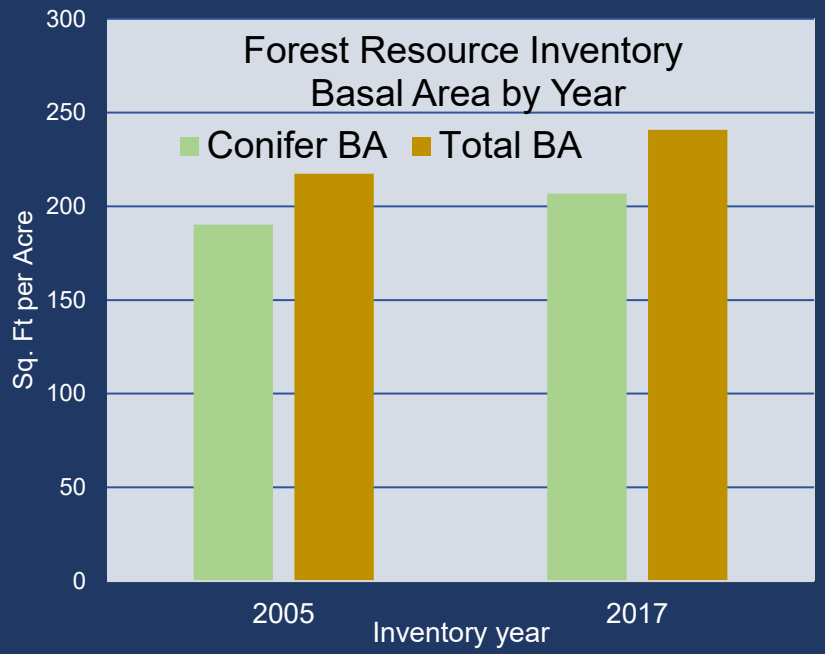
Growth and Yield

Traditional Metrics

2005-2017 more robust data set with over 4,900 plots; net growth of about 2% per year

Forest Resource Inventory
Conifer Volume by Year





What does combining inventory and harvest data show?

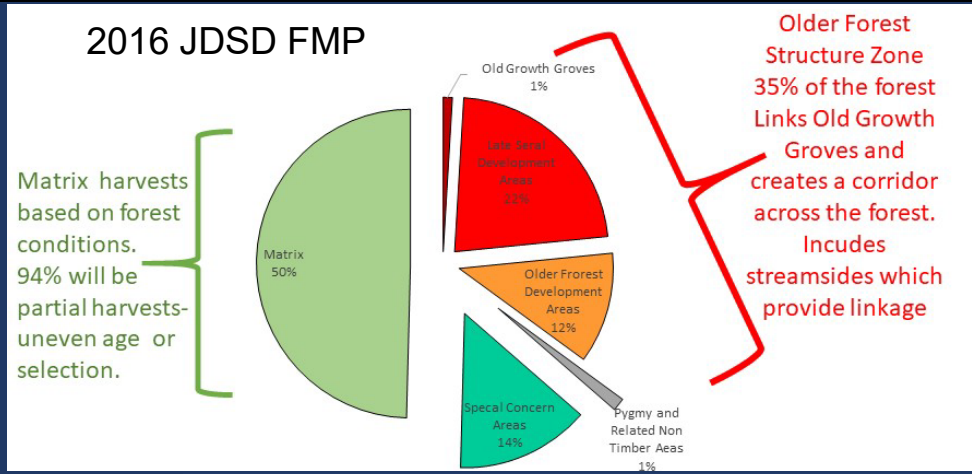
Harvest a fraction of growth: about 40%

Sustainable Forestry

Summary Growth and Yield

The Management Plan –

- Harvests have occurred across the forest, avoiding local effects.
- Has areas to emphasize restoration including retaining older second growth, large tees
- Matrix flexible can address emerging concerns



Growth and Yield-

- Inventory is growing, both conifers & hardwoods
- Cutting less than growth

Needs

- *More Incorporating carbon and fire concerns*
- *Late seral structure, going beyond big trees*

- Management plan in place since 2008, updated periodically
- Harvest across the forest implementing landscape plan
- Recently vetted more plans on the western boundary;

did not exceed environmental limitations (CEQA) but perhaps social ones?

- Plans once approved can be implemented over 7 year span, so do they need refocusing
  - * Is it possible to refocus or refine those plans?
- 2026 FMP revision will come up quickly
  - *Is it possible to overlay additional guidance now? *Yes*

Examples: Mushroom Corners changes to better address the educational and research value.
Address the changed recreation use.
Fortunately Matrix is flexible

Sustainable Forestry

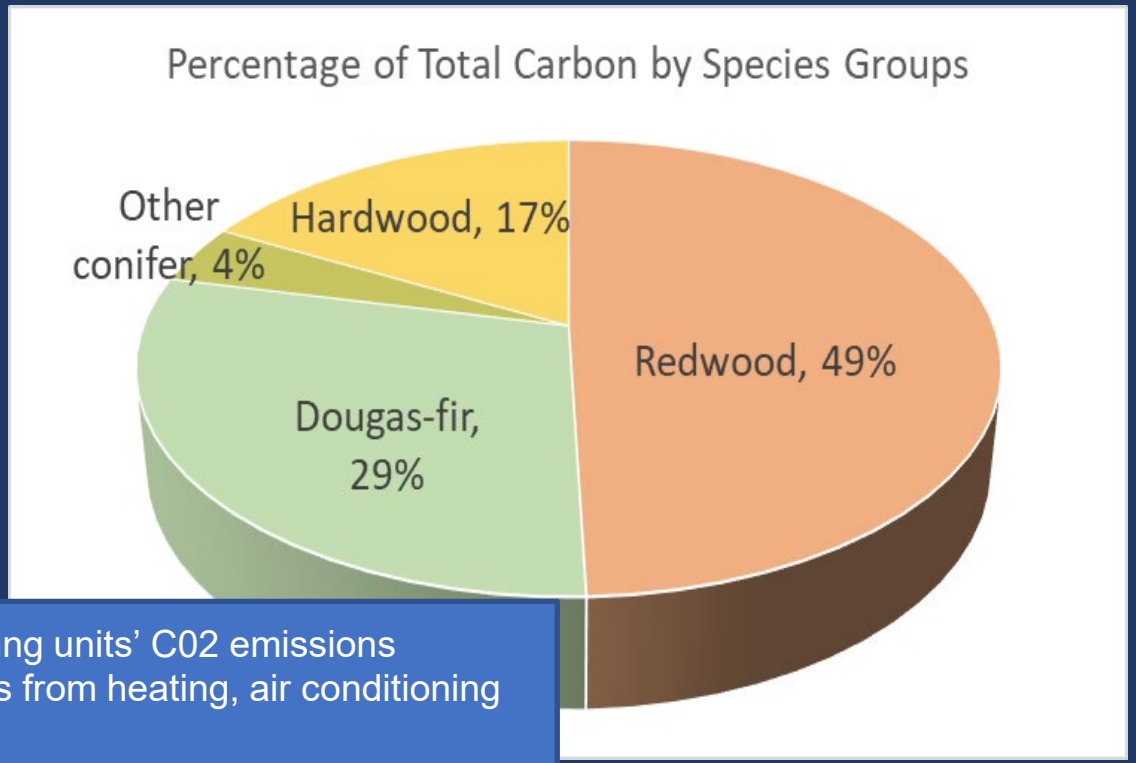
JDSF 2017 and 2005 cubic foot evaluated by FRI Inventory using PNW FIA Equations

Carbon

Static or Existing

- 398 metric tonnes per acre CO2 equivalent present in 2017

- Total forest wide total of 19,000,000 metric tonnes CO2



Each acre represents 211 single housing units' C02 emissions equivalent production for a year - that's from heating, air conditioning and electricity use.

Redwood comprises most of the carbon, but forest wide, other species are an important part of the mix.

Sustainable Forestry

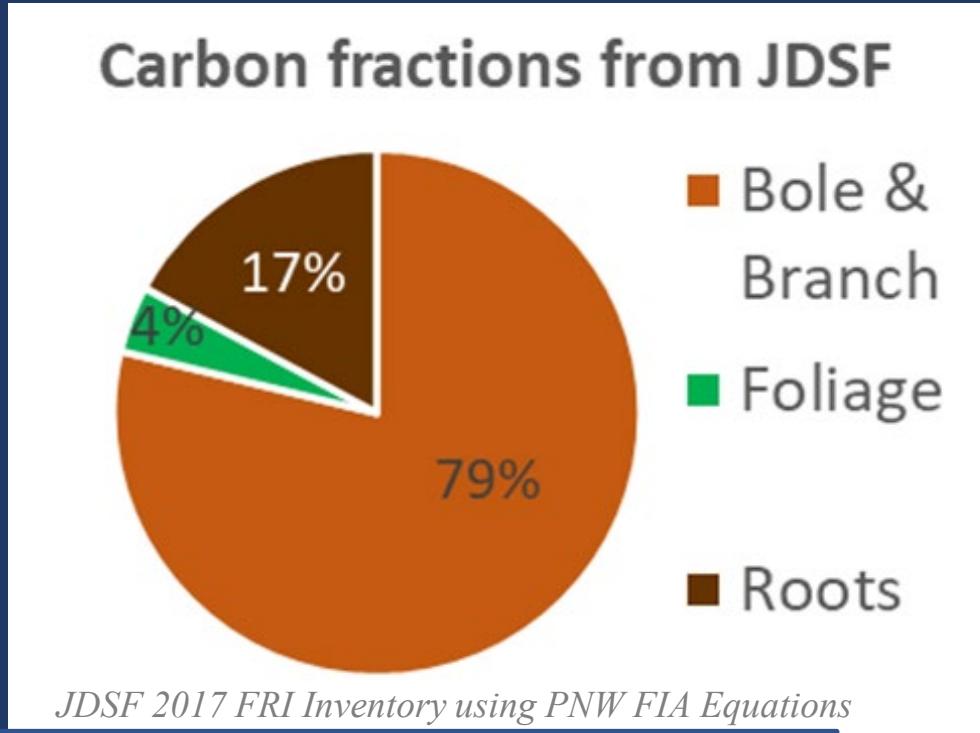
Carbon

Static or Existing

- Manage carefully
- Bole is related to Growth and Yield

Growing or Rate

- Forward looking
- Guide future management



JDSF 2017 FRI Inventory using PNW FIA Equations

"Manage Carefully" means 1) cut less than is growing, 2) keep it from burning up and 3) regenerate young trees
Growth Rate is the important component for the future, what do we leave for next generation
Missing from knowledge base is snags, soil, litter, woody debris, sapling and shrubs
The bole and branch are the easiest to measure and account for the majority of the carbon, we know a lot about boles through inventory, research on growth/yield

Sustainable Forestry

Carbon : *Growing or Rate of Sequestration*

JDSF forest wide average

Carbon Uptake Rate for Redwood Forest in Relation to JDSF

Metric tonnes CO2 equivalent per acre per year	Stand age, years	Location and site notes	Carbon Calculation Limitations	Reference
3.6	100	Railroad Gulch No cut	RW bole only	Jones, D., O'Hara, K.
4.1	all	JDSDF Wide mix Inc. non RW areas	tree only	JDSF FRI with PNW FIA equations
4.4	mixed, oldest 100	Railroad Gulch~ 38% cut in 1982	RW bole only	Jones, D., O'Hara, K.
6.9	159	Fitz Plot Big River very high site	tree only	Iberlea, B, Van Pelt,R.,Sillett,S.
13.9	75	Fitz Plot Big River very high site	tree only	Iberlea,B, Van Pelt,R.,Sillett,S.
23.9	25	Scotia Plantation very high site	RW bole only	Jones, D., O'Hara, K.

- Not a carbon expert, but some interesting trends (chart above); Metric tonnes/acre is an unusual mix of measurement units. These ## should be considered tentative as they have not been review by carbon experts at CALFIRE yet
- Reviewed standing vs rate of carbon capture. Annual rate is 4.1 metric tonnes of CO2 equivalent/per acre/year, which is equivalent to 29 trips by automobile from Bay Area and back. JDSF only 0.3% very high site class (~soil fertility). JDSF forest wide average, which will include pygmy forest, Bishop pine, road, highway and powerline right of way, which is unlike other research's redwood forest only plot data.

Sustainable Forestry

Carbon

Rate of Sequestration compared to other redwood forests?

Fritz Wonder plot Big River

Carbon Uptake Rate for Redwood Forest in Relation to JDSF

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- Looked at the chart above (blue arrows) for the dataset Fritz Wonder plot in nearby Big River - an alluvial flat, very productive, nearly pure redwood natural regeneration. Represents the extreme of biomass accumulation in unmanaged second growth redwood forests.
- Interesting how age effected rate. The 65-75 year old stand sequestered carbon at twice the rate of the 159 year old one. Note that each study may have different portions of the tree included in carbon calculations (bole vs. tree)

Sustainable Forestry

Railroad Gulch Study on JDSF & Scotia Plantation

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Jones and O'Hara compared multiage moderate site JDSF Railroad Gulch (in Big River watershed) to very heavily stocked Scotia plantation (Humboldt County) with very high site quality. The 25-year-old plantation had the highest rate @**23.9** tonnes CO2/acre /year. Railroad Gulch ranged from **3.6** for the unmanaged second growth to **4.4** for the harvested portion. Why is the cut area higher? Could be accumulation of 18 years of growth in a thinned stand. On a forest wide basis, JDSF lacks some of the attributes that suggest the highest carbon capture rates: young uniform stands, high site fertility, and high percentage of redwoods. Need more research!

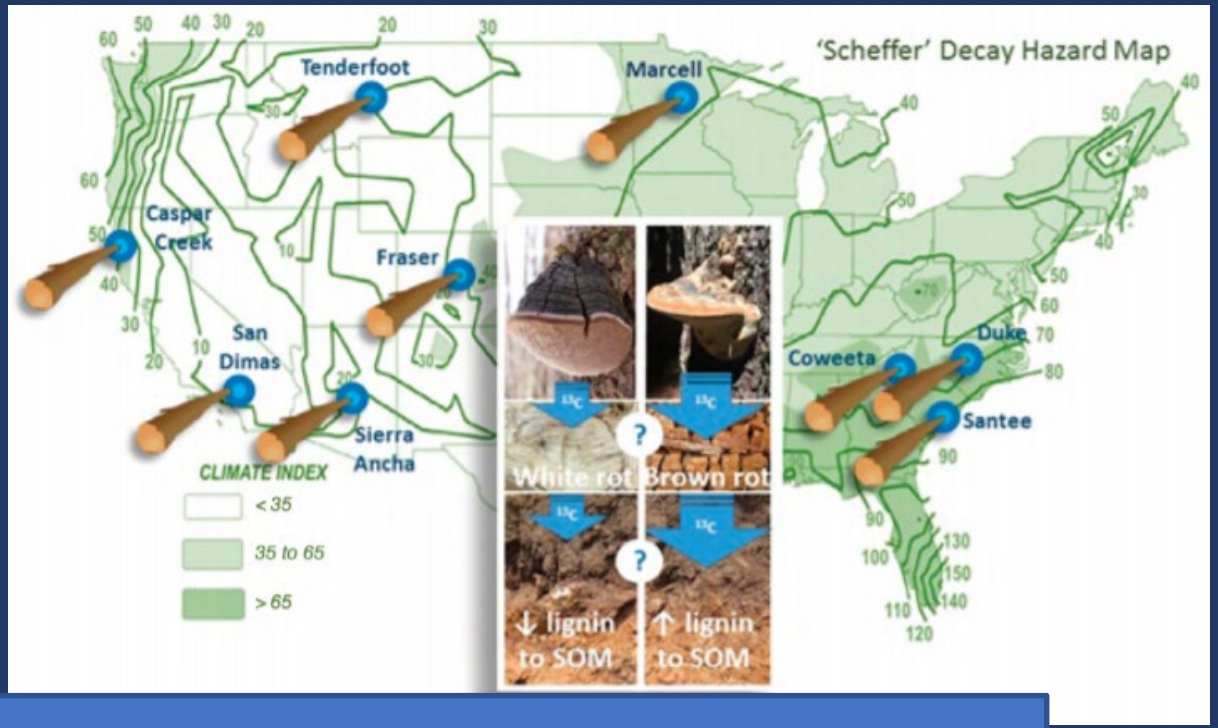
Sustainable Forestry

Carbon

Beyond living trees

The FACE
Wood Decomposition
Experiment

JDSF one of nine
replicates for long term
study of wood decay



JDSF has carbon studies on the Forest that focus on other aspects of carbon Example: Carbon in forest floor and soil: Caspar site closed canopy second growth

Trettin, Carl C., Andrew Burton, Martin F. Jurgensen, Deborah S. Page-Dumroese, Zhaohua Dai,Ram Oren, Brian Forschler, Jonathan Schilling, and Daniel Lindner, 2021, Wood Decomposition and its Role in the Forest Carbon Cycle: The FACE Wood Decomposition Experiment. General Technical Report SRS–262

Sustainable Forestry

Carbon: *Beyond living trees*

The FACE
Wood Decomposition
Experiment

JDSF represents redwood forests to contrast with other forest types.

Table 7—Carbon, $\delta^{13}C$, and nitrogen concentration in the forest floor, and carbon and nitrogen in the mineral soil (0–5 cm) sampled beneath control and FACE logs on each of the FWDE sites at T0

	Forest floor			Mineral soil	
Site	C (%)	$\delta^{13}C$ (‰)	N (%)	C (%)	N (%)
Caspar Creek	35.40	-28.00	0.73	4.85	0.20
Coweeta	44.74	-29.22	1.08	10.33	0.54
Duke	44.74	-29.39	0.67	2.03	0.10
Fraser	37.60	-27.83	1.20	3.67	0.16
Marcell	40.11	-27.99	1.01	2.70	0.13
San Dimas	–	–	–	1.84	0.11
Santee	43.65	-29.98	0.99	4.63	0.19
Sierra Ancha	34.66	-27.02	0.82	3.92	0.17
Tenderfoot Creek	44.39	-27.23	1.10	1.87	0.08

– = no forest floor present.

FACE = Free Air Carbon Dioxide Enrichment; C = Carbon; N = Nitrogen.

Carbon fraction in JDSF forest floor is almost as low as the Arizona forest site, southern forests much higher

Carbon in mineral soil is intermediate, less than southern oak-hickory, more than pine forests

Sustainable Forestry

Summary Carbon

- Rate of carbon capture is the key to the future
- Rate of growth seems to be related to fertility, age, and composition of stand as well as harvest history

Current knowledge:

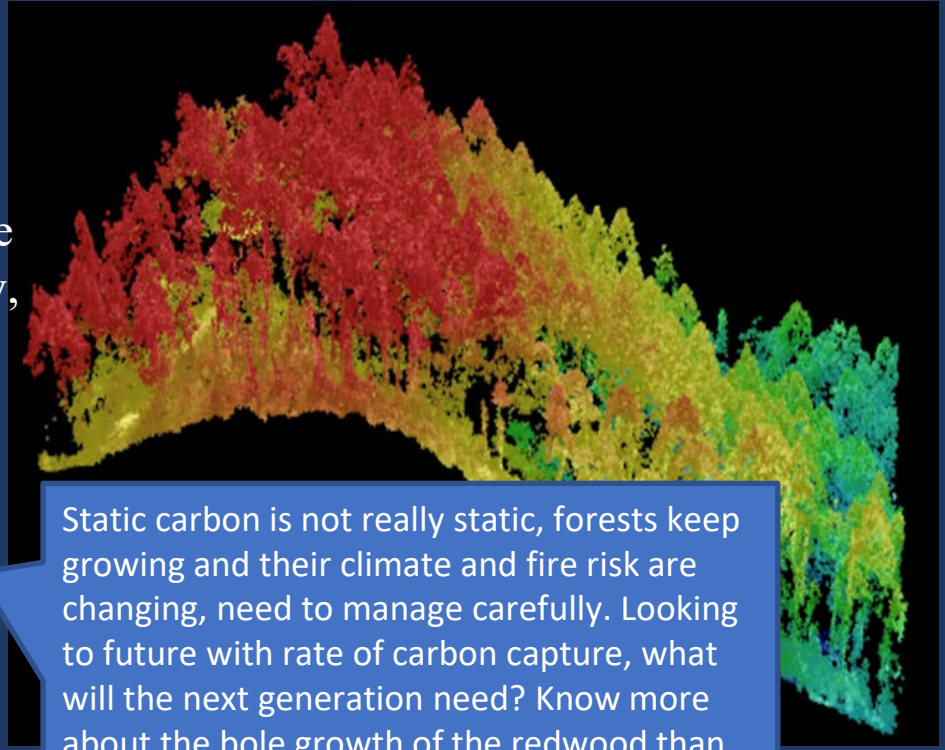
- Sequestration: RW & DF bole

Building Needed Knowledge:

- Better quantify other trees and vegetation as well as activity fuels
- Biomass utilization

Potential Plans

- Accounting for Carbon above and below ground-protocol, focus, regional relevance.
- Integrate with Fire to apply across the region

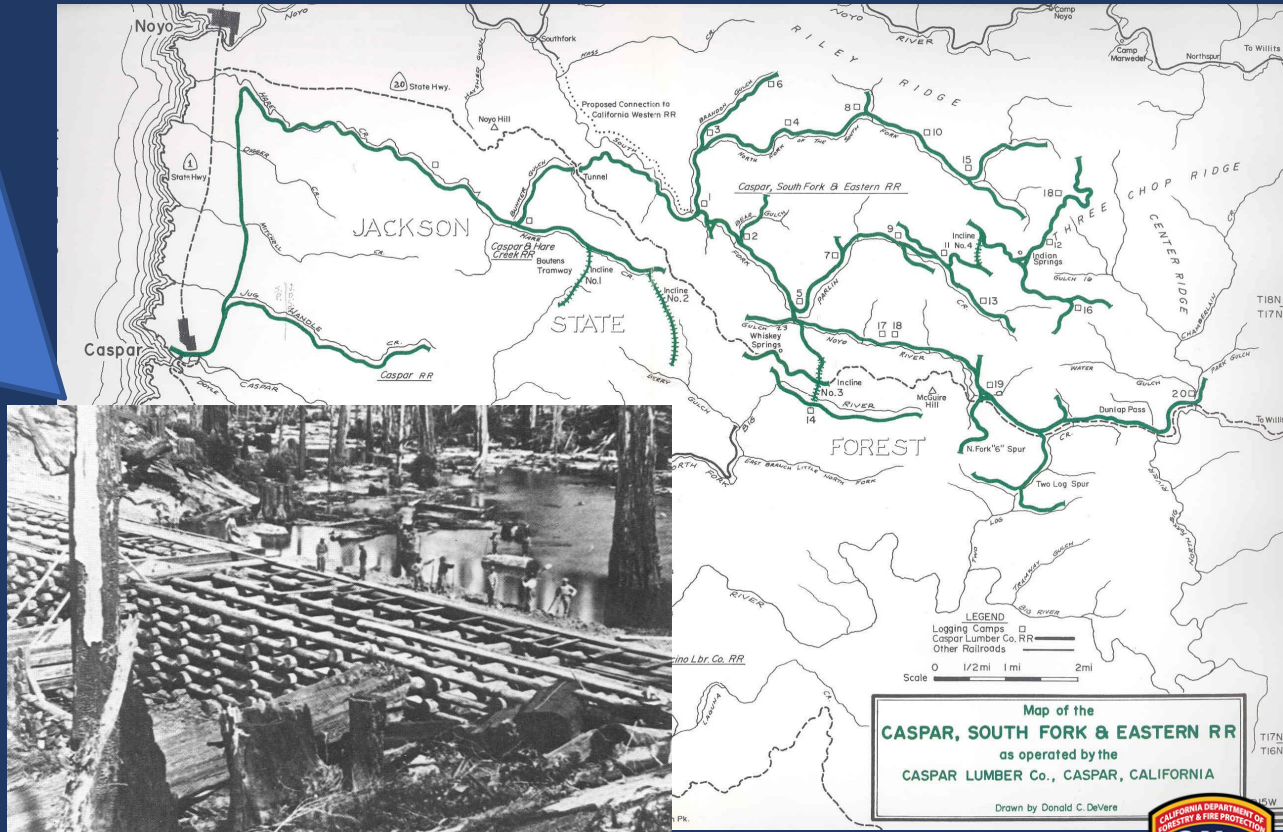


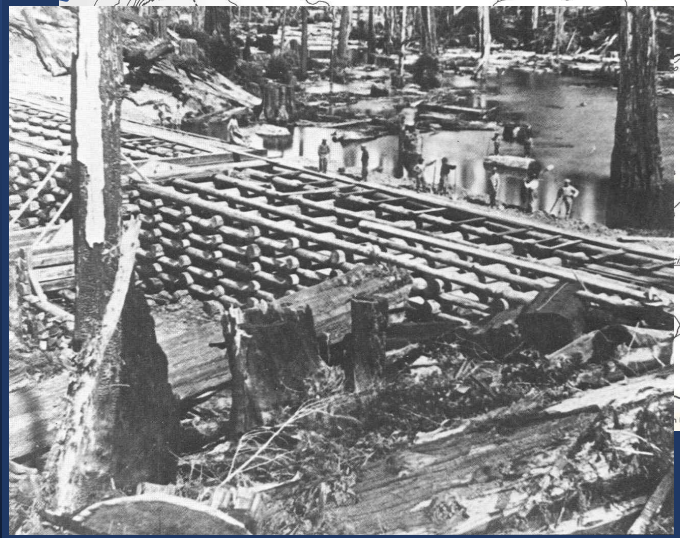
Static carbon is not really static, forests keep growing and their climate and fire risk are changing, need to manage carefully. Looking to future with rate of carbon capture, what will the next generation need? Know more about the bole growth of the redwood than other parts. Need more information on stand basis to inform management. How is carbon accounting different than traditional Growth & Yield?

Sustainable Forestry

Habitat Improvements - Aquatic

- Using aquatic habitat as example of how complex resource interactions are
- Streams impacted because they were used to transport logs in early days. Railroads were built up streams and rivers (see right).
- Unregulated early tractor era same story.
- Restoration projects need to balance rehabilitating waterways to support endangered salmonids but also can benefit other species.
- Big Picture: Landscape approaches needed because both roads and streams are complex linear features



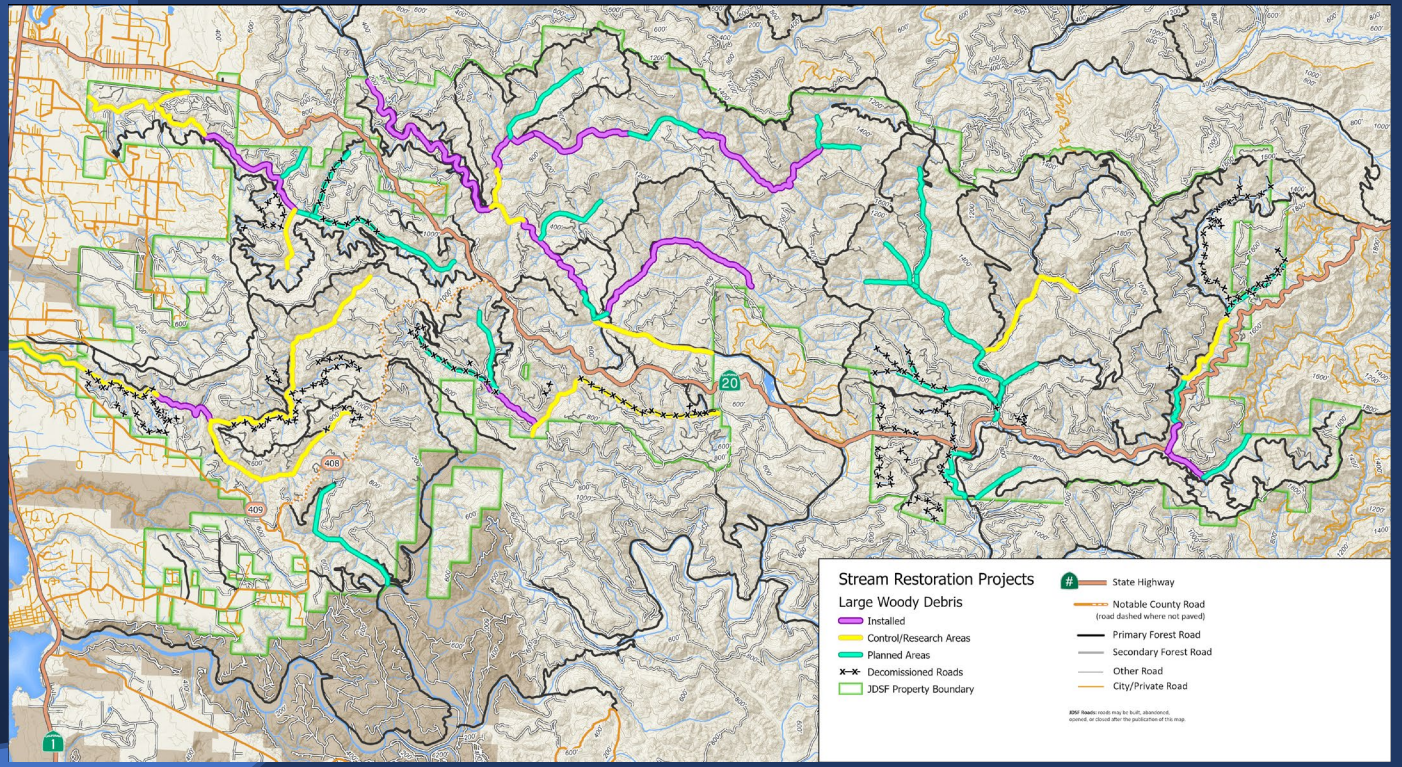


Sustainable Forestry

Habitat Improvements

Stream Projects

- Large wood augmentation
- No treatment control reaches
- Decommissioning riparian roads



Stream wood (large woody debris LWD) is a good example because our perspectives have shifted. Early logging left jams of wood, removal was too extensive some places. Now adding back to restore fish habitat and improve stream complexity. Lesson in humility and to use experimental approach with controls

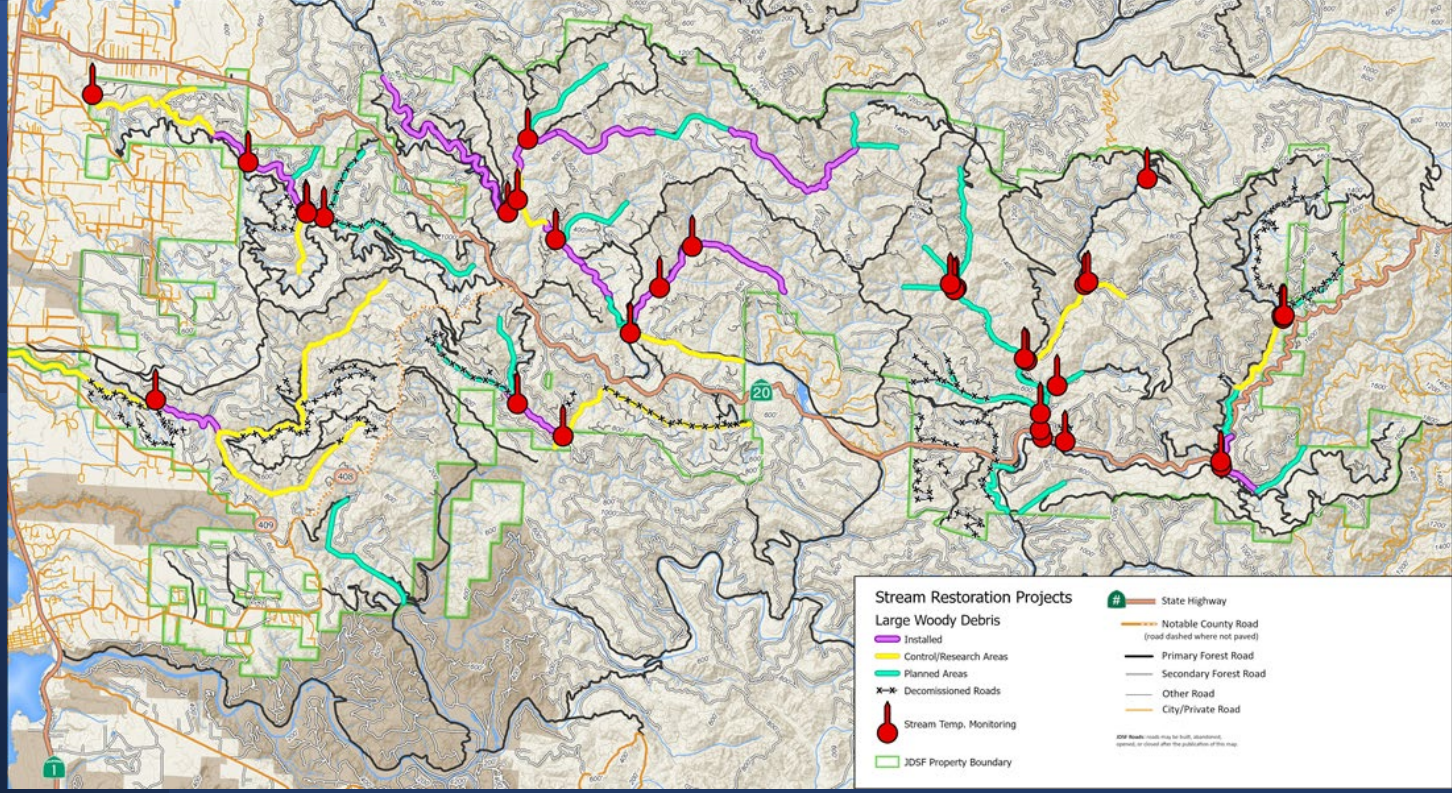
Riparian roads have greater effect on streams than those on ridges. The XXX (see map) are decommissioned roads. Need to plan alternate access and address recreation use. FMP has a priority to decommission/remove riparian roads

Sustainable Forestry

Habitat Improvements

Stream Temperature

- Coastal and inland reaches
- Trends suggest increasing temperatures
- Evaluate for fish habitat quality

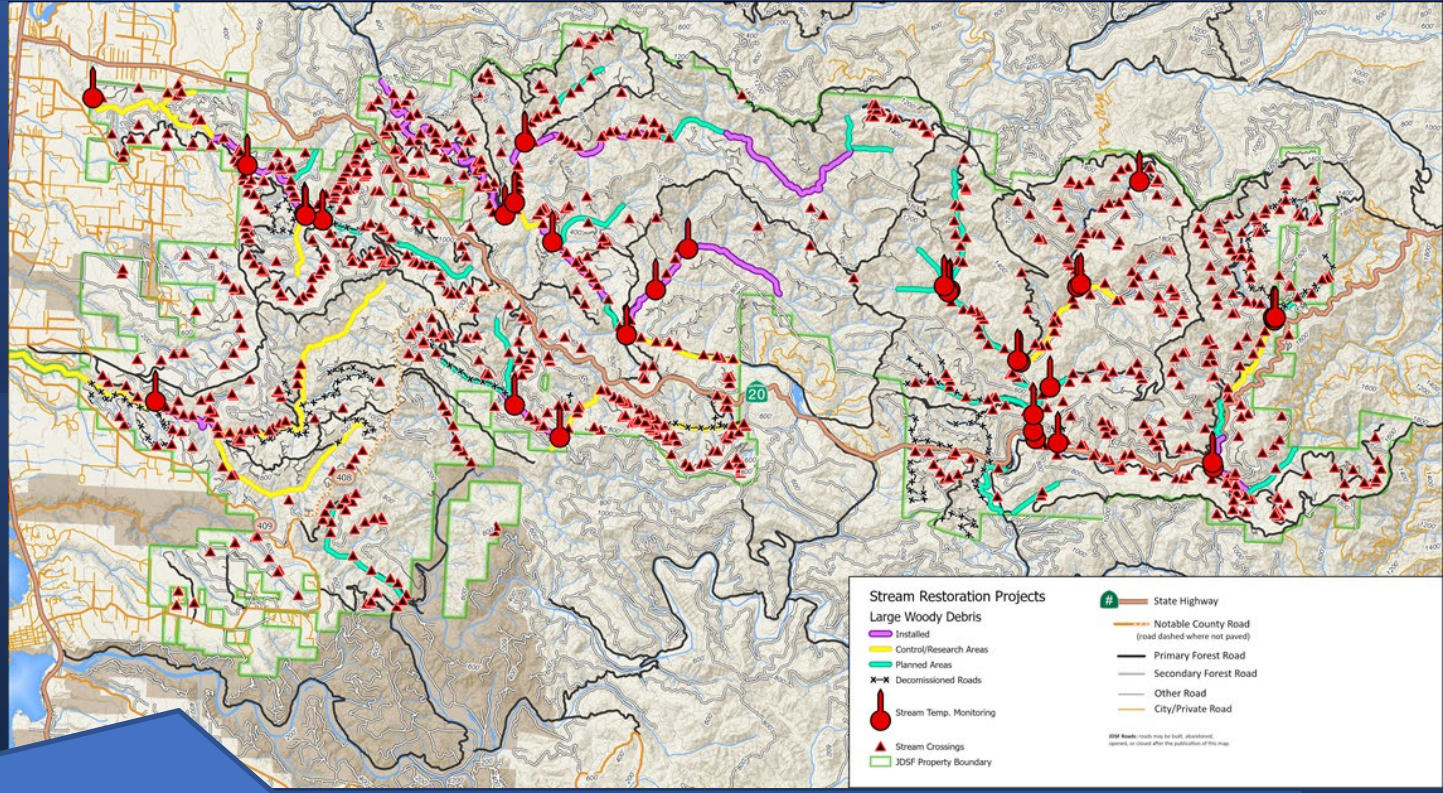


Monitoring data includes over 20 years at some locations. We (JDSF and partners) have noted a trend in temperature increase even in watersheds with no harvests.

Sustainable Forestry

Road Watercourse Crossings

- Improve access to fish bearing streams
- Reduce erosion
- Maintain access



How to evaluate and improve the huge number of watercourse crossings that could fail and result in sediment delivery. Look for opportunities to increase salmonid spawning habitat: Road Inventory data, THP analysis for CEQA, and funds/ partner cooperative grants (massive project with high costs). If no harvests took place ever again, the need to improve or remove these roads would remain.

Sustainable Forestry

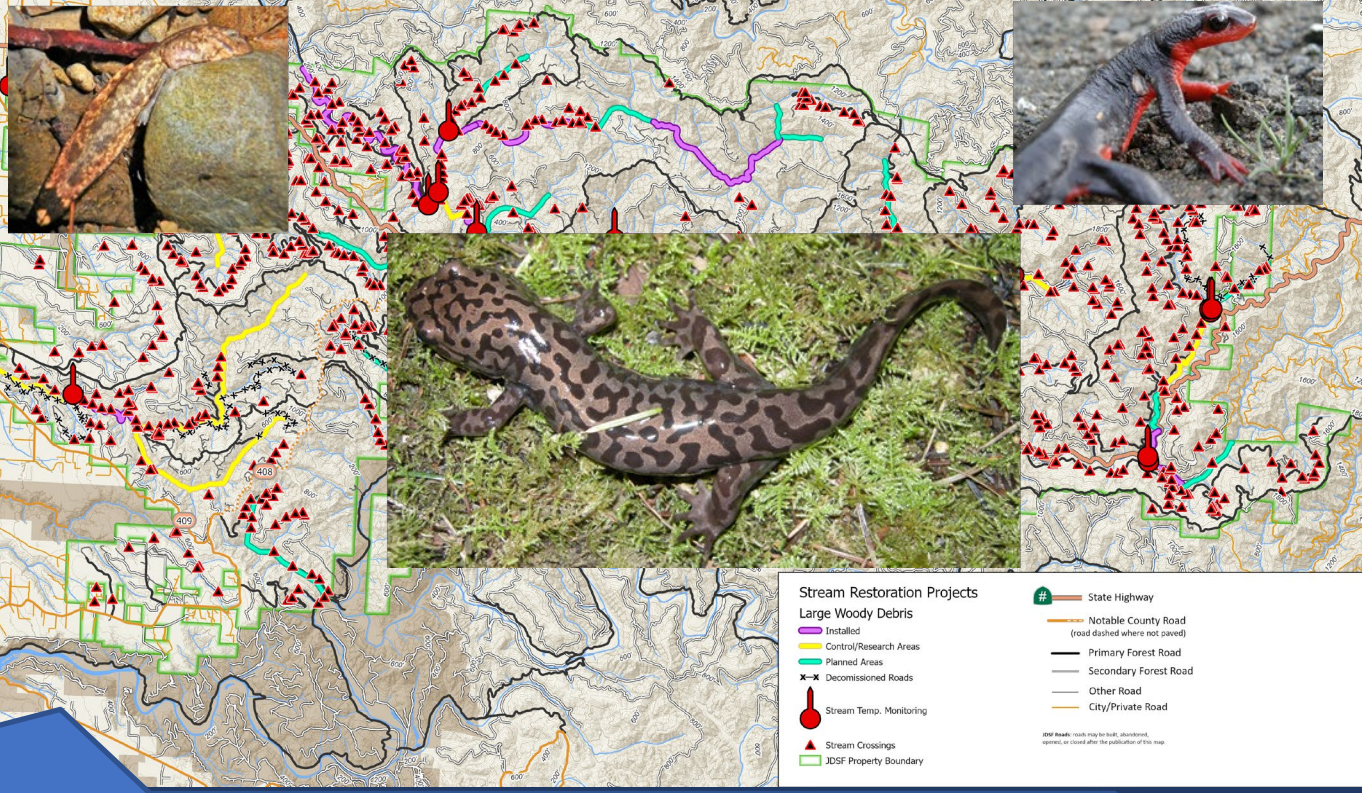
Habitat Improvements

Amphibian Distribution

Just received results

Basis for monitoring

Tailed Frog distribution unexpected

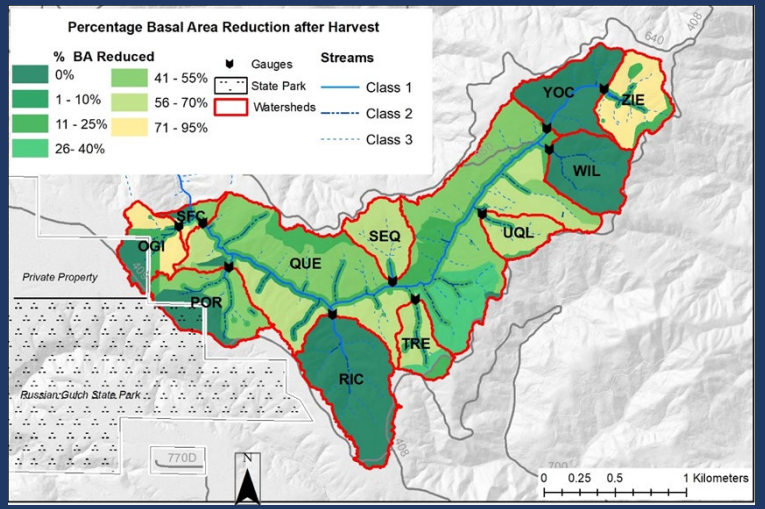


- Using emerging technology to sample environmental DNA: amphibians shed DNA in streams, so once calibration has been done, occupancy can be determined without a disruptive search
- Initial context Tailed Frogs found further east than some other sites in the county (top left photo)
- And of course Pacific Giants (center) are found everywhere

Sustainable Forestry

Summary Aquatic Habitat

- Roads and streams are landscape issues.
- Fish passage, stream temperature & wood all needed.
- Additive improvements from treating legacy roads reduce sediment and improve fish passage.
- Mix of THP funded, FRIF roads and grant with partners



Projects Underway

- Caspar Experiment III exciting with new technology
- Restoration of large wood with partners
- Amphibian Distribution on JDSF

Plans

- Case studies for validating stream restoration
- Aquatic species

Step by step improvements are taking place, but interactions of road and stream are complex. We work with partners (CDFW, NOAA Research, and others) for restoration

Sustainable Forestry

Questions

Note: Remaining program unable to be presented on August 3, 2021 at Town Hall. Rest of the planned presentations hopefully to be presented at a later date.