

# FLN Networker No. 284: July 17, 2019

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*The FLN Networker is a publication of the Fire Learning Network—a partnership of the USDA Forest Service, agencies of the Department of the Interior and The Nature Conservancy—intended to foster communication within the network and among its friends. Submit comments, information to share, and subscription requests to Liz Rank.*

For more about the FLN, visit [www.conservationgateway.org/fln](http://www.conservationgateway.org/fln) or contact Marek Smith.

## News from the Field

**New Mexico:** The **Forest Stewards Guild**—in partnership with the **New Mexico State Land Office**, **New Mexico Game and Fish**, **South Central Mountain RC&D Council** and the **New Mexico Prescribed Fire Council**, and with operational support from **The Nature Conservancy's** Arizona and Colorado chapters-- conducted a **25,000-acre prescribed burn** in the **Luera Mountains** this spring. The burn—believed to be the **largest in state history**—took place over 14 days, using hand ignitions. (Fuel types included grass, pinon/juniper, ponderosa pine and mixed conifer, at elevations from 7,000 to 9,500 feet). Careful planning and a small burn organization of 15-20 fire practitioners allowed the work to be done for about \$6 per acre. For more information, contact **Dave Lasky** ([dave@forestguild.org](mailto:dave@forestguild.org)).

**Oregon:** Last fall a **prescribed burn** on the **Sycan Marsh Preserve** hosted a research team that used **unmanned aerial systems**—UAS, or drones—to **study fire behavior**. A brief overview is in the attached *Notes from the Field*; for more about this research, see the article “Deriving Fire Behavior Metrics from UAS Imagery” recently published in *Fire*. For more about the work at Sycan Marsh, contact **Craig Bienz** ([cbienz@tnc.org](mailto:cbienz@tnc.org)).

**Washington:** “Safe Flames Roll Through Central Washington During Prescribed Fire Training Program,” a short Ellensburg *Daily Record* [article](#) about the **Cascadia TREX**, managed to capture a bit of **fire history**, the **purpose of TREX** and the **good that prescribed fire is doing** for Washington.

**Networks:** On **The Nature Conservancy's** nature.org website, the work of the **FLN**, **TREX**, **FAC Net** and **IPBN** is woven throughout the [new page](#) on “**Why We Work With Fire**.”

## Funding: CFLRP

**CFLRP:** The **Collaborative Forest Landscape Restoration Program** is soliciting project proposals. Congress reauthorized CFLRP in the 2018 Farm Bill, and doubled the authorized funding level, thus creating the **opportunity for new projects**. (The Farm Bill also provides an opportunity for current CFLRP projects funded for ten years to apply for an extension waiver to complete proposal implementation.) Details—including eligibility requirements, instructions and resources—are on the [CFLRP website](#). There will be a **webinar on Friday**, June 19 for those interested in applying; see the attached flyer for details.

## Resources: Rx Planning Explained / Emergency Communications / Fuel Loading / Mastication

**Rx Planning Explained:** The **Ecological Restoration Institute** [white paper](#) “Planning for and Implementing Prescribed Fire in Fire-Dependent Forests” gives a good **overview of the rationale**, **policy context** and **planning and implementation processes** for prescribed fire; at 16 pages, it is suitable for engaged **general readers**. The accompanying two-page [fact sheet](#) “Planning for and Implementing Prescribed Fire in Fire-Dependent Forests” concisely highlights the planning and implementing parts.

**Emergency Communications:** In the [FEMA PrepTalk](#) “Visual + Effective Communication for Emergency Information” information designer Claudine Jaenichen talks about the **relationship between design and cognition**, using tsunami **evacuation planning** as her example—and extending it cautiously to fire evacuation planning. Parts of her talk would also be useful for other purposes—for example, most communications planning could benefit from her **suggestions about thinking about the “general public”** as a set of specific profiles or personas (starting about a minute in), And (starting about 3:30 in) her overview of **cognition under stress** and the differences in how spoken, written and graphic information is grasped and retained over time might be useful to consider during, for example, **fireline safety briefings**, especially when crews are inexperienced or new to an area.

**Fuel Loading:** “[Introduction to Fuel Loading](#),” from Northern Arizona University, the Wildland Fire Education and Training Collaborative and the Southwest Fire Science Consortium, is a good introduction to basic concepts. The **video** includes **definitions** of various terms, and gives an overview of some **general fuel types** and the uses of fuel loading estimates in **fire behavior prediction**.

**Mastication:** The [latest issue](#) of *Science You Can Use* from the **Rocky Mountain Research Station** is “A **Go-To Guide** for Your Mastication Questions.” It captures highlights from a 2018 general technical report, including a **decision tree** for whether mastication is a suitable fuel treatment option.

## Articles & Reports: Smoke / Carbon / Ticks / Collaborative Adaptive Management / Wildfire Transmission / Changing Practices

**Smoke:** The [article](#) “Assessing Relative **Differences in Smoke Exposure** from Prescribed, Managed, and Full Suppression Wildland Fire” is based on wildland fires in the Sierra Nevada from 2010 to 2016. “**Suppressing fire** not only appears to **shift the health burden** of the emissions to a **future date** but also **increases the intensity** and number of people exposed in a single exposure.”

**Carbon:** Using the **LANDIS-II model**, the authors of the [article](#) “Quantifying Carbon and Species Dynamics Under Different Fire Regimes in a Southeastern U.S. Pineland” found that total fire exclusion was the only scenario that resulted in a longleaf pine site becoming a carbon sink over the long term (a century or more). A **frequent prescribed fire** scenario best **maintained carbon stocks** through time while **sustaining ecosystem composition**.

**Ticks:** At the fall 2017 Central Appalachians FLN workshop, **Elizabeth Gleim** ([egleim@hollins.edu](mailto:egleim@hollins.edu)) gave a well-received talk on the impacts of prescribed fire on ticks and tick-borne disease risk. Her team’s recent work, reported in the [article](#) “**Frequent Prescribed Fires Can Reduce Risk of Tick-borne Diseases**,” provides an even stronger case for using prescribed fire. (“Of note, small-scale, singular burns would not achieve these results and in fact could cause an increased number of ticks in an area due to influx of hosts using the early successional habitat”—the reductions were the result of regular burning.)

**Changing Practices:** The [article](#) “**Forest Service Fire Management** and the **Elusiveness of Change**” ([Fire Ecology](#)) looks at how **competing problem definitions** and the presence of **goal ambiguity** have made change in fire management difficult to accomplish, in spite of widespread recognition of the need for change, and policies meant to support change.

**Wildfire Transmission:** The (rather technical) [general technical report](#) “Cross-Boundary Wildfire and **Community Exposure**: A Framework and Application in the Western U.S.,” published by the Rocky Mountain Research Station in May, now has a [webpage](#) (“Wildfires Know No Boundaries”) that includes an **interactive map**. Using models of wildfire transmission, the report is intended to **assess wildfire risk** to structures, and to help **prioritize fuels management** on Forest Service lands to reduce that risk.

**Collaborative Adaptive Management:** The [article](#) “**Improving Problem Definition and Project Planning** in Complex Natural Resource Management Problem Situations Using **Knowledge Brokers** and **Visual Design Principles**” appears in the [latest issue](#) of *Ecology and Society*. In broad terms, it explores the use of “outside eyes” to help guide the early steps of a new (or changing) collaborative adaptive management process. One of the two examples discussed involves a project engaging landowners in controlled burning for longleaf pine.

## In the News: Prescribed Fire / Climate & Wildfire

**Prescribed Fire:** **Jeremy Bailey** ([jeremy\\_bailey@tnc.org](mailto:jeremy_bailey@tnc.org)) is among those quoted in the [article](#) “With the Drought Over, **Will Prescribed Fire Be a Priority?**” in *5280*, which looks at some of the challenges in the **Southwest**.

**Climate & Wildfire:** The [blog post](#) “The Vicious **Climate-Wildfire Cycle**,” on the Union of Concerned Scientists website, gives a good **layperson’s overview** of the main connections between fire and climate, and some of the ways we can break the cycle. “Despite the bleakness of our current situation and the dangers that wildfires pose, **we have the knowledge and skills** to break this vicious cycle. 2019 seems as good a time as any to start.”

## Jobs: Forester / Longleaf / Executive Director

**Forester:** **The Nature Conservancy** is seeking a **conservation forester** to help build a rapidly emerging forest conservation program in **Tennessee**. Details are on the TNC careers page ([job ID 47743](#)); applications are due by **July 21**. (Current employees should apply through [PeopleSoft](#)).

**Longleaf I, II:** **The Nature Conservancy** is filling two positions in its **Chattahoochee Fall Line (CFL)** program area in west-central **Georgia**. Details for the **CFL Program Director** position are on the TNC careers page under [job ID 47808](#); applications are due by **July 29**. For details on the **CFL Land Steward** position, see [job ID 47814](#) on the careers page; applications are due by **July 30**. For both positions, current employees should apply through PeopleSoft ([47808](#), [47814](#)).

**Longleaf III:** **The Longleaf Alliance** ([longleafalliance.org](http://longleafalliance.org)) is seeking a **president** to lead the organization in its work across nine states. Details are on their [jobs page](#).

**Executive Director:** **The Chama Peak Land Alliance** is seeking an executive director to guide the work of its “diverse group of **conservation-minded landowners** committed to embracing, practicing, and sharing responsible land, water and wildlife stewardship in **southern Colorado and northern New Mexico** for the benefit of our tri-cultural heritage and for generations to come.” Details are in the [position announcement](#); applications are due by **August 9**.

## Webinar

**August 1**

**Influences of Prescribed Fire on the Ecology of Wild Turkeys**

10:00 Pacific / 11:00 Mountain / noon Central / 1:00 Eastern

From the University of Georgia, Southern Fire Exchange and University of Florida.

Register: [https://ufl.zoom.us/webinar/register/WN\\_jANemOEeR7GkqF\\_KcwmG7g](https://ufl.zoom.us/webinar/register/WN_jANemOEeR7GkqF_KcwmG7g)

## Network Workshops & Field Tours

**September 11-12**

**Central Appalachians & Potomac Headwaters Workshop / McHenry, MD**

Save the date for the joint workshop of the Central Apps regional FLN and Potomac Headwaters landscape; they will meet at Garrett College.

**November 4-8**      **Annual FLN Leaders-TREX Coaches-IPBN Workshop / Mountain View, AR**  
FLN leads, TREX coaches and IPBN leads will meet in a joint national workshop.

## FLN Prescribed Fire Training Exchanges (TREX)

- September 10-24 deadline**      **San Juan Prescribed Fire Training Exchange / southwestern CO**  
See the [flyer](#) for details about this TREX; apply by **August 1**.
- Sept. 24-October 5 new listing**      **Yurok Prescribed Fire Training Exchange / Weitchpec, CA**  
See the [flyer](#) for details about this TREX; submit an [application](#) by September 10.
- Sept. 24-October 11 new listing**      **Cascadia Prescribed Fire Training Exchange / Cle Elum, WA**  
See the [flyer](#) for details about this TREX; apply by August 12.
- October 7-18**      **Klamath River Prescribed Fire Training Exchange / Orleans, CA**  
The deadline for this TREX has passed.
- October 14-27**      **Intercambio y Entrenamiento en Quemadas Prescritas en Español / Santa Fe, NM**  
The deadline for this TREX has passed.

## Conferences, Workshops, Training, Etc.

- July 23-25**      **Fire in Eastern Oak Forests Conference / State College, PA**  
"Laying out a Restoration Road Map" is the theme of this conference organized by the Oak Woodlands & Forests Fire Consortium and Consortium of Appalachian Fire Managers and Scientists, in partnership with the Pennsylvania Prescribed Fire Council.  
Information: <https://web.cvent.com/event/657273e9-143b-48ba-bcaf-0f04177312d5/summary>
- August 21-23**      **Transforming Approaches to Forests and Forestry through Traditional and Local Knowledges Conference / Vancouver, BC, Canada**  
Information: <http://tek.forestry.ubc.ca/>
- October 1-3**      **5<sup>th</sup> Biennial Shortleaf Pine Conference / Van Buren, MO**  
Information: <http://www.shortleafpine.net/shortleaf-pine-initiative/conferences>
- October 21-24**      **3rd Annual Cohesive Strategy Workshop / Plymouth, MA**  
Information: [https://www.iawfonline.org/event/2019\\_cohesive\\_strategy\\_workshop/](https://www.iawfonline.org/event/2019_cohesive_strategy_workshop/)
- October 21-Nov. 4**      **Hart Prairie Preserve Workshop on Ecological Burning / Flagstaff, AZ**  
Participants will gain knowledge and training required to develop and implement prescribed burn plans with a focus on setting ecological objectives, and enhance the knowledge, skills and abilities needed to use fire in wildland ecosystems in a safe, professional and responsible manner. Applications are due by August 30.  
Information: <http://www.conservationgateway.org/ConservationPractices/FireLandscapes/HabitatProtectionandRestoration/Training/TrainingExchanges/Documents/WEB-2019-HartPrairie-Announce.pdf>
- November 18-22 deadline**      **Cultivating Pyrodiversity: The 8th International Fire Ecology and Management Congress / Tucson, AZ**  
An overview of the schedule is available, and plenary speakers (including Maria Estrada and Frank Lake) have been announced. Early registration closes August 1.  
Information: <http://afefirecongress.org/>

## Send News, Links & Comments

**Heather Montanye** – [hmontanye@tnc.org](mailto:hmontanye@tnc.org) – Heather is out July 12-21; July 26.

**Jeremy Bailey** – [jeremy\\_bailey@tnc.org](mailto:jeremy_bailey@tnc.org) – Jeremy is in Sacramento, CA July 29-August 2.

**Marek Smith** – [marek\\_smith@tnc.org](mailto:marek_smith@tnc.org) – Marek is in Asheville, NC July 17; out July 19; in DC July 25-26; out July 29-August 5.

**Mary Huffman** – [mhuffman@tnc.org](mailto:mhuffman@tnc.org) – Mary is in the office.

**Wendy Fulks** – [wfulks@tnc.org](mailto:wfulks@tnc.org) – Wendy is out July 15-22.

**Liz Rank** (editor) – [lrank@tnc.org](mailto:lrank@tnc.org) – Liz is in the office.

### Full Links

News from the Field—WA: [https://www.dailyrecordnews.com/news/safe-flames-roll-through-central-washington-during-prescribed-fire-training/article\\_514dd45a-e3fb-5f6d-8b12-f7b1b0a8d1b7.html](https://www.dailyrecordnews.com/news/safe-flames-roll-through-central-washington-during-prescribed-fire-training/article_514dd45a-e3fb-5f6d-8b12-f7b1b0a8d1b7.html)

News from the Field—Networks: <https://www.nature.org/en-us/what-we-do/our-priorities/protect-water-and-land/land-and-water-stories/why-we-work-with-fire/>

Funding—CFLRP—Website: <https://www.fs.fed.us/restoration/CFLRP/overview.shtml>

Resources—Rx planning explained—White paper:

<https://cdm17192.contentdm.oclc.org/digital/collection/p17192coll1/id/917/rec/1>

Fact sheet: [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd624550.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd624550.pdf)

Resources—Emergency communications: <https://www.fema.gov/preptalks/jaenichen>

Resources—Fuel loading: <https://www.youtube.com/watch?v=1QQIDNA04Jo&feature=youtu.be>

Resources—Mastication: [https://www.fs.fed.us/rmrs/sites/default/files/documents/in5min\\_mastication\\_web.pdf](https://www.fs.fed.us/rmrs/sites/default/files/documents/in5min_mastication_web.pdf)

Articles & Reports—Smoke: [https://www.fs.fed.us/psw/publications/preisler/psw\\_2019\\_preisler001\\_schweizer.pdf](https://www.fs.fed.us/psw/publications/preisler/psw_2019_preisler001_schweizer.pdf)

Articles & Reports—Carbon: <https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.2772>

Articles & Reports—Ticks: <https://www.nature.com/articles/s41598-019-46377-4>

Articles & Reports—Collaborative adaptive management: <https://www.ecologyandsociety.org/vol24/iss2/>

Articles & Reports—Wildfire transmission--Report: [https://www.fs.fed.us/rm/pubs\\_series/rmrs/gtr/rmrs\\_gtr392.pdf](https://www.fs.fed.us/rm/pubs_series/rmrs/gtr/rmrs_gtr392.pdf)

Webpage: [https://www.fs.fed.us/rm/pubs\\_series/rmrs/gtr/rmrs\\_gtr392.pdf](https://www.fs.fed.us/rm/pubs_series/rmrs/gtr/rmrs_gtr392.pdf)

Articles & Reports—Changing practices: <https://fireecology.springeropen.com/articles/10.1186/s42408-019-0028-x>

In the News—Prescribed fire: <https://www.5280.com/2019/06/with-the-drought-over-will-prescribed-fire-be-a-priority/>

In the News—Climate & wildfire: <https://blog.ucsusa.org/carly-phillips/the-vicious-climate-wildfire-cycle>

TREX—The latest application information for upcoming TREX is always listed at:

<http://www.conservationgateway.org/ConservationPractices/FireLandscapes/HabitatProtectionandRestoration/Training/TrainingExchanges/Pages/Upcoming-Training-Exchanges.aspx>

The Fire Learning Network is supported by *Promoting Ecosystem Resilience and Fire Adapted Communities Together: Collaborative Engagement, Collective Action and Co-ownership of Fire*, a cooperative agreement between The Nature Conservancy, USDA Forest Service and agencies of the Department of the Interior.

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# Using Drones to Improve Our Understanding of Fire Behavior

Sycan Marsh Preserve ~ Oregon FLN

The emergence of affordable unmanned aerial systems (UAS) has created new opportunities to study fire behavior and ecosystem pattern-process relationships. At Sycan Marsh Preserve, the Big Coyote Fuels Reduction Project provided a project team from the U.S. Forest Service Fire Research Lab, University of Montana and The Nature Conservancy with an opportunity to expand upon existing efforts to quantify fire intensity, behavior and effects.

Field observations made using UAS in prescribed fire experiments allow researchers to quantify actual fire behavior, providing validation of numerical experiments and corroboration of modeling research. Deploying UAS in prescribed fire settings, rather than wildfire situations, simplifies operations somewhat; this enhances research efficacy, while exposing scientists and fire managers to the strengths and weaknesses associated with the use of UAS more broadly. Fire behavior is important to a range of scientific inquiries, including fire spread dynamics and fire behavior process-vegetation pattern relationships, as

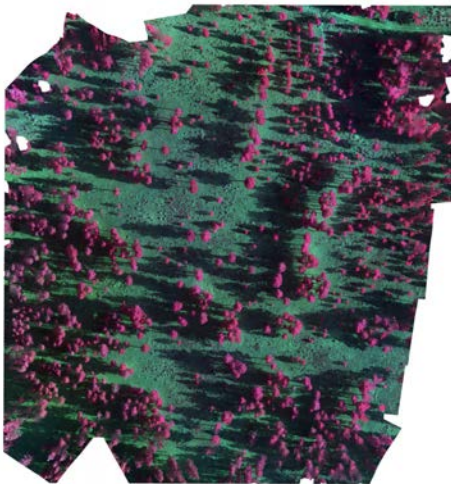


Image of Plot D on Brattain Ridge at Sycan Marsh Preserve, Oregon. Plots are 100 x 100 meters (2.47 acres), with the center plot being 10 x 10 meters. In examining the relationship between fire severity and structure we found mean canopy height to be a powerful explanatory variable.

Forest stand structural characteristics in this plot: 56 trees per acre; 30.4 percent openings; stand density index (SDI) 76; quadratic mean diameter (QMD) 12 in; basal area (BA) 48.1±8.3 ft<sup>2</sup>/acre.

well as to assessments of fire and other disturbance interactions, fuel treatment design and effectiveness, and evaluation and validation of mathematical fire models. The ability to successfully collect precise field data requires extensive coordination to achieve desired experimental results while operating within the context of prescribed burn operations.

Remote sensing—from handheld or tripod-mounted devices, manned aircraft, satellites and, increasingly, UAS—is fundamental to the systematic measurement of fire behavior in the field. UAS are also proving useful for collecting vegetation data, resulting in opportunities for acquiring coincident fuels-fire behavior datasets with increasingly finer grains and larger spatial extents.

Results from seven study plots at the Sycan Marsh Preserve and Lubrecht Experimental Forest in Montana appear in



Lloyd Queen, Matt Cunningham and Carl Seielstad from the University of Montana review data being collected by drones (UAS) during prescribed fire operations at Sycan Marsh Preserve, October 2018. © Craig Bienz/TNC

the article “Deriving Fire Behavior Metrics from UAS Imagery” (*Fire* 2(2):36). Methods are discussed for collecting consistent time-series data for fire rate of spread and direction during complex fire behavior using UAS-borne near-infrared (NIR) and thermal IR cameras. In addition, the paper provides techniques to determine appropriate analytical units to improve statistical analysis of fire-environment interactions.

**“UAS can give an unprecedented perspective for data collection in active fire environments at favorable spatial and temporal scales if the software, hardware, and fire operations conflicts are resolved or minimized.”**

## Learn More

Moran, Christopher J., Carl A. Seielstad, Matthew R. Cunningham, Valentijn Hoff, Russell A. Parsons, Lloyd Queen, Katie Sauerbrey and Tim Wallace. “Deriving Fire Behavior Metrics from UAS Imagery.” *Fire* 2 no. 2 (2019). <https://www.mdpi.com/2571-6255/2/2/36>

For more about the Big Coyote project at Sycan Marsh Preserve, contact:  
**Craig Bienz**      [cbienz@tnc.org](mailto:cbienz@tnc.org)

The Fire Learning Network is part of *Promoting Ecosystem Resilience and Fire Adapted Communities Together*, a cooperative agreement between The Nature Conservancy, USDA Forest Service and agencies of the Department of the Interior. For more about PERFAC, contact Marek Smith at [marek\\_smith@tnc.org](mailto:marek_smith@tnc.org).

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## [Upcoming Webinar: CFLRP Request for Proposals](#)

**July 19, 2019 ~ 12:30-2:00 pm Eastern/9:30-11:00am Pacific**

<https://usfs.adobeconnect.com/nfs-500/>

Audio: 888-844-9904 (9404768#)

Join us for our upcoming webinar to share and discuss the Collaborative Forest Landscape Restoration Program (CFLRP) Request for Proposals in 2019!



The Amador-Calaveras Consensus Group Cornerstone Project in the Eldorado and Stanislaus National Forests, California. Photo of Indian Valley in 2016.

(Photo by Eldorado National Forest)

**The USDA Forest Service is pleased to announce a call for CFLRP proposals under the reauthorized program.** CFLRP has proven to be an effective tool for improving forest conditions, growing rural economies, and leveraging partner investments to improve the quality and scale of our work. Congress reauthorized CFLRP in the 2018 Farm Bill, doubling the authorized funding level to \$80 million per year and creating the opportunity for new CFLRP projects. The Farm Bill also provides an opportunity for current CFLRP projects funded for ten years to apply for an extension waiver to complete current proposal implementation. A [Federal Advisory Panel](#) (FACA) is required to evaluate and recommend proposals to the Secretary of Agriculture to be funded.

### **To this end, the objectives of this webinar are to:**

- Provide basic information about CFLRP to help Forest Service units and partners assess whether it's a good fit for their needs
- Provide an overview of the CFLRP proposal process, including timelines and key documents, references, and resources so interested applicants are aware of what's needed when, and why
- Answer questions about the programs and the request for proposals process

### **Speakers**

- John Crockett, Deputy Director, Forest Management, Range Management, and Vegetation Ecology, USDA Forest Service
- Cecilia Clavet, Senior Policy Advisor, Forest Restoration & Fire, The Nature Conservancy, CFLRP Coalition
- Jessica Robertson, Integrated Restoration Coordinator, Forest Management, Range Management, and Vegetation Ecology, USDA Forest Service
- Lindsay Buchanan, CFLRP Coordinator, Forest Management, Range Management, and Vegetation Ecology, USDA Forest Service
- Clint Cross, Joint Chiefs Landscape Restoration Program Coordinator, Fire and Aviation Management, USDA Forest Service
- Robert Vaughan, RedCastle Resources, Inc. Contractor for The Geospatial Technology and Applications Center

### **Upcoming Webinars for Applicants:**

All webinars will be recorded and posted to the [CFLRP website](#).

- **Thursday, August 1**, 10-11:30am ET/1-2:30pm PT
  - <https://usfs.adobeconnect.com/nfs-500/>
  - 888-844-9904 (9404768#)
- **Thursday, September 5**, 11am-12:30pm ET/2-3:30pm ET
  - <https://usfs.adobeconnect.com/nfs-500/>
  - 888-844-9904 (9404768#)

Further information on CFLRP is available at: <https://www.fs.fed.us/restoration/CFLRP/index.shtml>. The request for new project proposals will be posted to this site.

If you have additional questions please contact Lindsay Buchanan, CFLR Program Coordinator at [lindsay.buchanan@usda.gov](mailto:lindsay.buchanan@usda.gov) or 503-808-2810 or Jessica Robertson, Integrated Restoration Coordinator, at [jessica.robertson@usda.gov](mailto:jessica.robertson@usda.gov) or 202-205-0847.