

Forest Under Stress | Respiration & Filtered Sunlight- Rachel Lee Hall

-
- This photo review of a thinned mixed conifer-deciduous forest includes prescribed burning after treatment. All photos with one exception were taken by Rachel Lee Hall in the Rogue River-Siskiyou National Forest of Southern Oregon. Animation by Forest Under Stress (FUS).
 - Crown fires in the pipeline are waiting for ignition. Upon ignition a complete loss of DNA legacy stored in the elder, mother, old growth and secondary growth trees would be lost when crown fires occur. These forest wildfires are not the forest fires of the historical past. They climb scaffolding quickly to the crown racing across the forest canopy at extreme temperatures with far reaching advancing embers destroying forest landscapes and all that exists therein including communities.
 - There is a national disaster occurring in our NF.



Filtered sunlight
is critical for a
healthy forest
floor and
maximum
respiration--the
forest's breathing
apparatus in the
terrestrial story.





Filtered sunlight and an open canopy allow respiration and air flow while reducing the likelihood of high intensity wildfires and the retention of annual snow budget. Trametes versicolor or turkey tail mushroom.



Notice, no scaffolding to canopy that facilitates crown fires.

Science-based thinning, prescribed fire, and timber harvesting are essential to restoring forest resiliency. These practices reintroduce filtered sunlight, open the canopy, and restore respiration to the forest floor and the broader terrestrial story. Thinning would reverse diminishing soil dehydration and disruption of the hydrological cycle while retaining annual snow budget for forest health.

Treatment to reduce crowding and scaffolding to the canopy will also mitigate high intensity destructive wildfire, including crown fires, which were once rare thirteen years ago.

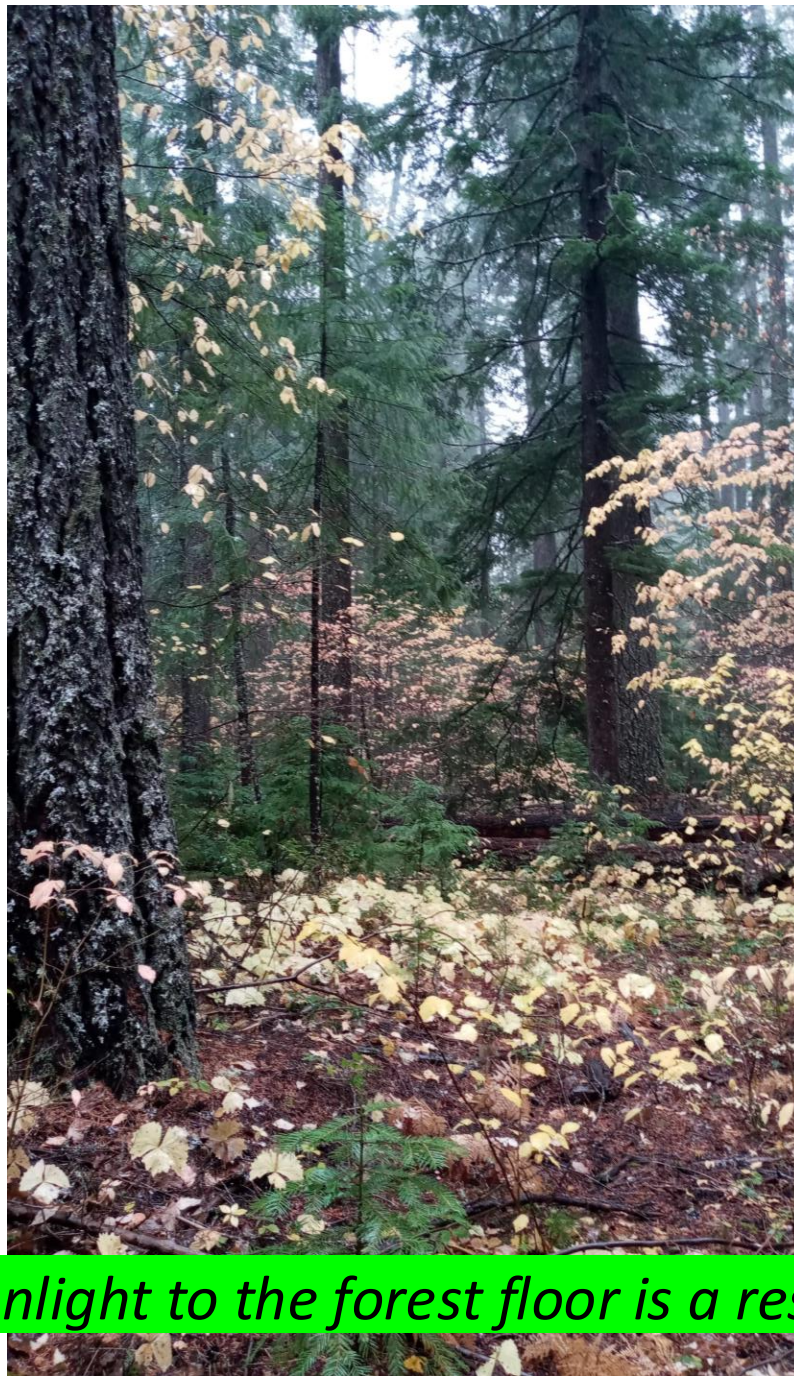




*A thinned forest reflects
an open canopy that
allows filtered sunlight to
reach the forest floor,
restoring respiration and
resiliency.*

*A treated forest is a beautiful
sight. The forest thanks you for
letting it breathe again. FUS*





Filtered sunlight to the forest floor is a resilient forest

A FUS memory —

Rachel recalls a field trip seven summers ago in the Fremont–Winema National Forest with a tribal leader from the Confederated Tribes of the Klamath. He shared memories of hunting elk with his father and driving a jeep through open, dry forest—land. Today, within a single generation, that untreated forest has become tangled and unrecognizable.

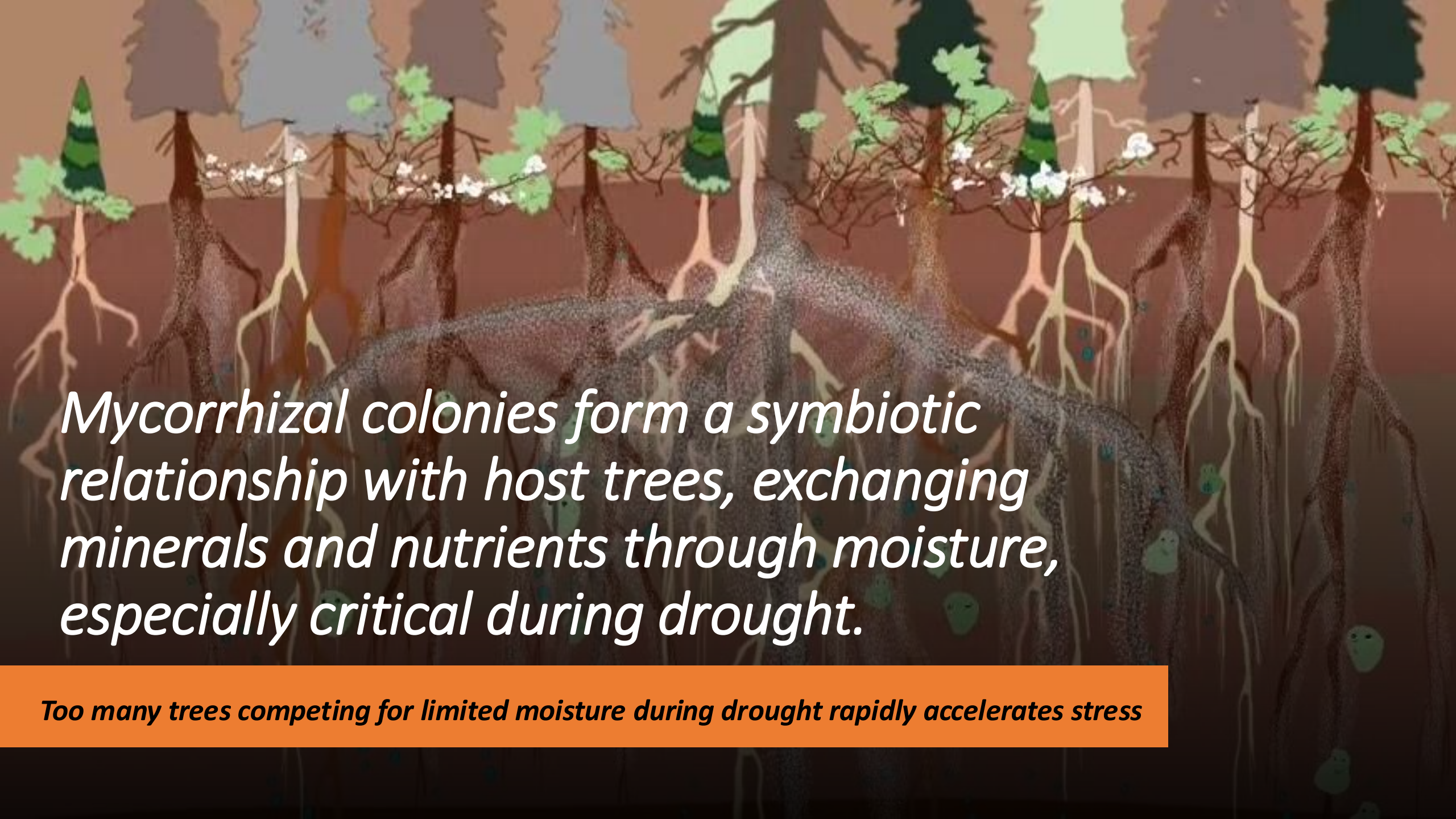
Below is a treated resilient forest in the Rogue River National Forest..





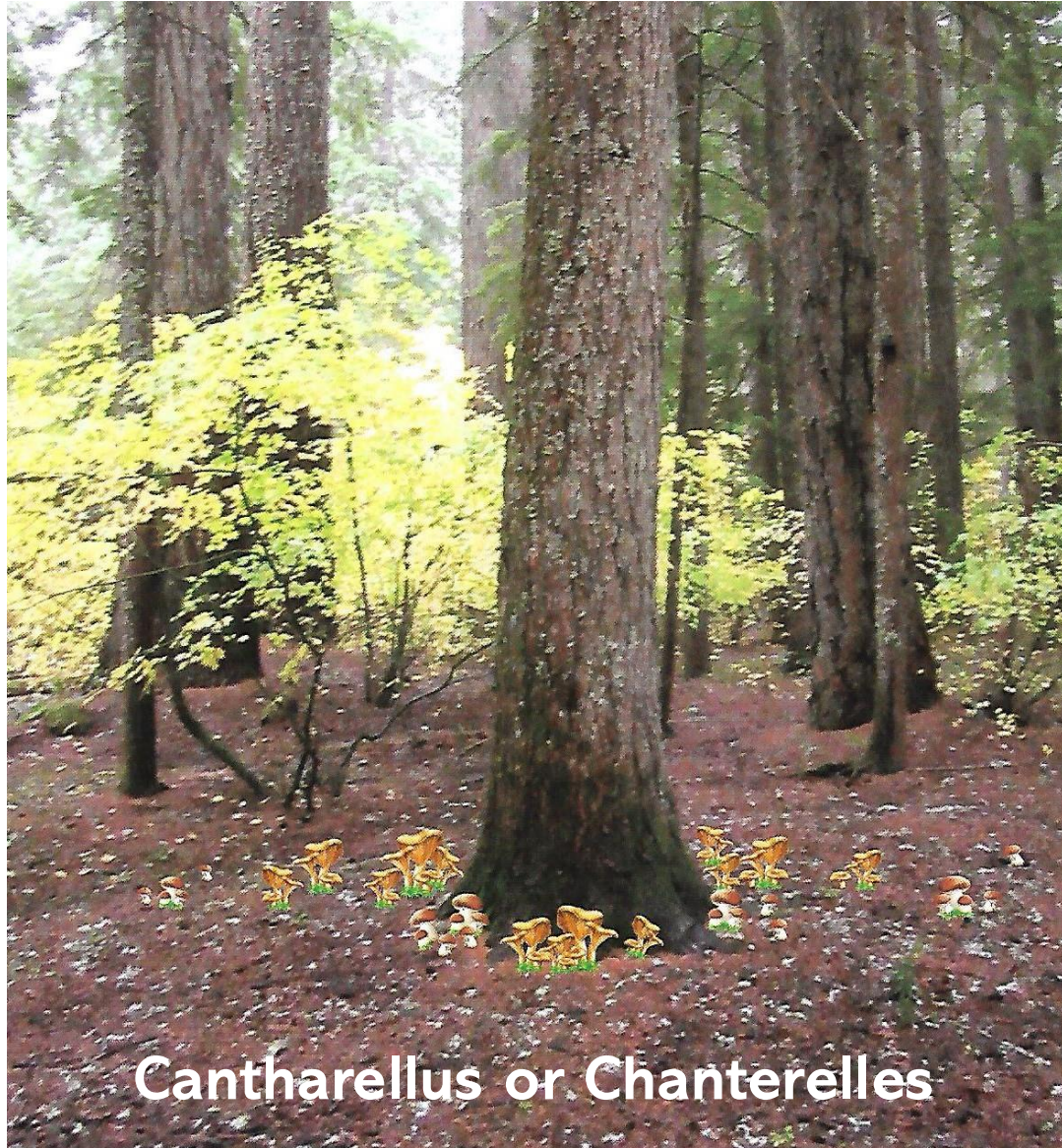
It's fall in the RR-SNF. Is this a wounded deer dripping blood or a Devils Tooth mushroom?

Devils Tooth Fungus: *Hydnellum peckii* thrives under conifers. This mushroom has a symbiotic relationship with the conifer trees and in the autumn transpiration (moving of water) occurs when the soil profiles are saturated. Root pressure forces water through fungi glands extruding red that resembles blood. This occurs when the forest floor is thoroughly saturated with moisture indicating forest health. Its absence to FUS, in some fall seasons, indicates probable dehydration in soil profiles for proper fall dormancy of the forest landscape. Photo taken fall 2023.

An artistic illustration of a forest floor. Several tree trunks of varying heights and colors (brown, grey, green) are visible. The ground is a mix of brown and green, with many roots extending from the trees into the soil. Some roots are highlighted in a lighter, yellowish-brown color, suggesting mycorrhizal colonies. The background is a solid brown color.

Mycorrhizal colonies form a symbiotic relationship with host trees, exchanging minerals and nutrients through moisture, especially critical during drought.

Too many trees competing for limited moisture during drought rapidly accelerates stress



Cantharellus or Chanterelles

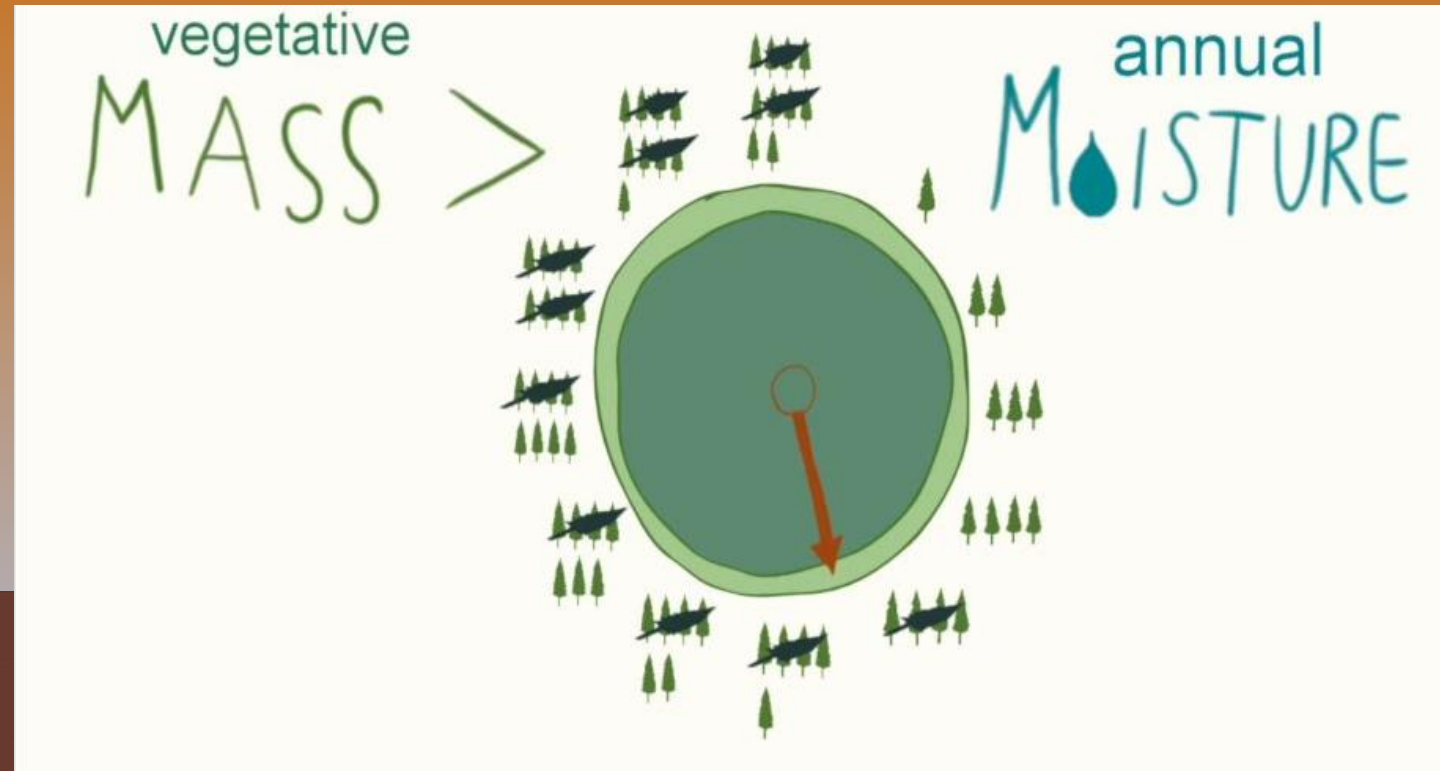
A symbiotic relationship in a healthy forest with fall emergence of Chantarelles. The fruit of the fungi from the mycorrhizal colony below ground has a mutual relationship for known, and yet unknown reasons, in the host tree's root system.



-
- Crowding of the forest floor significantly hinders filtered sun light. In less than a few decades, if not thinned and prescribe fire reintroduced after thinning the disturbance in the natural wildfire cycle results in competition for sunlight and moisture. This set the forest stage for annual loss of resiliency and a crowded forest floor condition competing for limited moisture and sunlight. This condition was manmade by lack of Active Forest Management.



Over the past thirty years, the lack of Active Forest Management has not only disrupted the natural wildfire cycle but also broke the forest's hydrological balance. Moisture is the conduit for life-sustaining carbohydrates, nutrients, and minerals. However, when excessive vegetation competes beyond the forest's annual moisture capacity, the system begins to fail. The result is cumulative: diminished resilience, increased vulnerability to insects and disease, and a heightened risk of catastrophic wildfire. Simply put, there are too many trees.



Forest Under Stress

Forest Under Stress the Movie is an international award-winning short documentary by Forest Under Stress. View below.

<https://healthyforests.org/2022/03/short-film-forest-under-stress/>

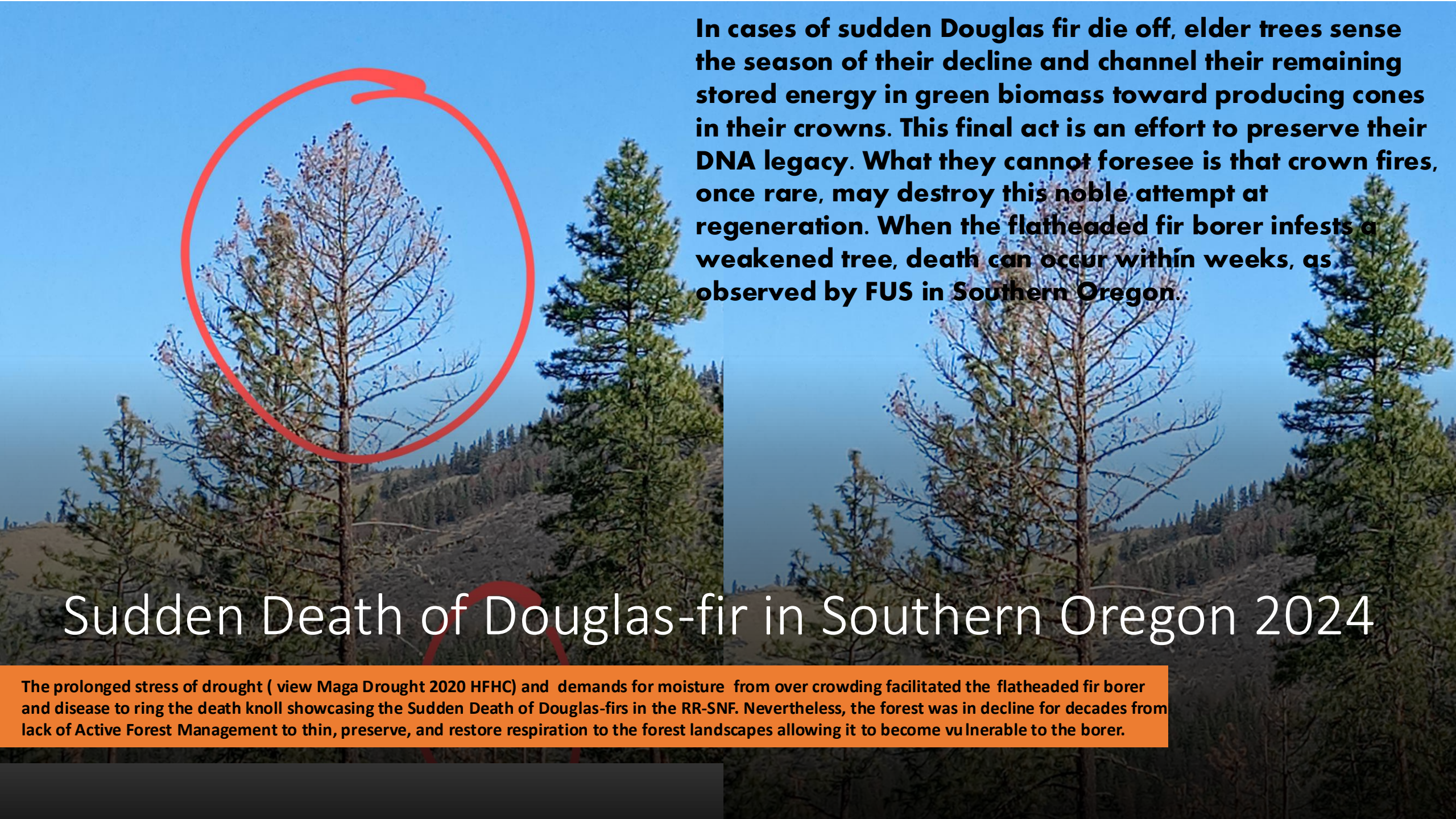
A photograph of a forest floor. In the foreground, a large, thick, fallen log lies horizontally across the frame. The log has a rough, textured bark. Behind the log, several thin, vertical tree trunks stand close together, creating a dense appearance. The ground is covered with dry leaves, twigs, and some green moss. The background shows more trees and a hint of green foliage, suggesting a forest setting. The image is split into two panels by a white curved line. The left panel shows the log and the dense trees, while the right panel shows a different part of the forest with more vertical tree trunks and less ground detail.

Thinning the clogged forest restores natural avian flight and mammal movement, eliminating unnatural magnified hindrances in the terrestrial story. A cluttered forest floor allows detection of movement for predators, which is also detrimental for non-predatory animal's survival.

The cluttered forest floor produces sound upon movement, alerting predators and pray alike. This cluttered forest significantly hinders natural movement in the terrestrial story, a losing scenario for wildlife.

- Loss of respiration and filtered sunlight created a closed canopy, a reduction of airflow and dehydration of upper soil profiles siphoning-off critical moisture (annual seasonal snow retention is inadequate) for the excessive competitive vegetative demands, which increased stress.
- The forest darkened as canopies closed from the massive buildup of vegetation.
- This stress occurred from lack of Active Forest Management



A photograph of a forest landscape. In the foreground, a dead Douglas fir tree stands with its bare branches, circled in a red hand-drawn line. To its right, a healthy green Douglas fir tree is visible. The background shows a forested hillside under a clear blue sky.

In cases of sudden Douglas fir die off, elder trees sense the season of their decline and channel their remaining stored energy in green biomass toward producing cones in their crowns. This final act is an effort to preserve their DNA legacy. What they cannot foresee is that crown fires, once rare, may destroy this noble attempt at regeneration. When the flatheaded fir borer infests a weakened tree, death can occur within weeks, as observed by FUS in Southern Oregon.

Sudden Death of Douglas-fir in Southern Oregon 2024

The prolonged stress of drought (view Maga Drought 2020 HFHC) and demands for moisture from over crowding facilitated the flatheaded fir borer and disease to ring the death knoll showcasing the Sudden Death of Douglas-firs in the RR-SNF. Nevertheless, the forest was in decline for decades from lack of Active Forest Management to thin, preserve, and restore respiration to the forest landscapes allowing it to become vulnerable to the borer.

*Eagle Point,
Oregon Salt Creek
Wildfire July 2024
Photo: Angie
Andrews backyard*

*Wildfires do not need to just happen.
Only you can prevent crown fires once
rare, but now all too common- FUS.*

*First, Put out the FIRE!
Jim Peterson-Evergreen*

