

2024 EL DORADO FORESTRY CHALLENGE

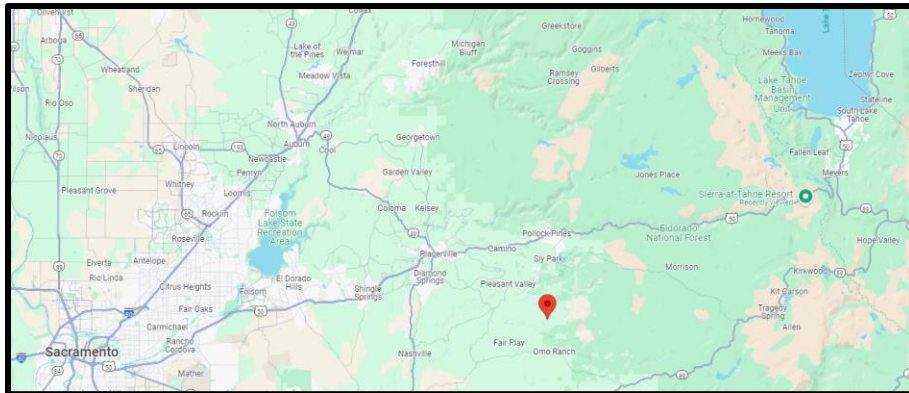
FOCUS TOPIC QUESTION

Introduction:

The focus topic is ***Wells Preserve Restoration Project***. Students will collect data at the American River Conservancy's Wells Preserve near Somerset to assess its health and recommend actions to restore its ecological function to contribute to the health of the Cosumnes River watershed.

Location:

Wells Preserve is a 150 acre parcel in El Dorado County, about halfway between Sacramento and Lake Tahoe and directly south of Pollock Pines. The elevation ranges from 2,400 feet at the North Fork of the Cosumnes River up to 3,120 at its entrance.



Background Information:

American River Conservancy

Since 1989 when it was formed, the American River Conservancy (ARC) has been preserving rivers and land. As a non-profit community organization in the central Sierra Nevada foothills, ARC works to preserve natural areas and cultural resources and build an enduring ethic of care, building a sustainable future for humans in harmony with nature. ARC's three primary areas of focus are land conservation, stewardship, and education.

The 150-acre Wells Preserve Property is bordered by a combination of BLM, National Forest, and privately-owned land. This property is valued for its riparian corridor, pine-dominant forest, and the wildlife corridor associated with the North Fork Cosumnes River watershed. Wells Preserve

was donated to ARC in September of 2020 by a private donor. In combination with the properties owned by BLM and National Forest, this property links over 700 acres of contiguous protected land.

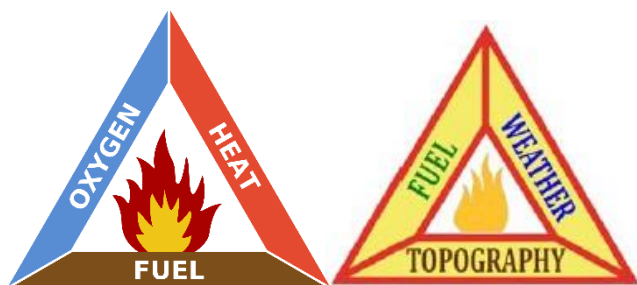
Watershed Restoration Using Ecological Forestry

The ARC describes their management strategy for the Wells Preserve as “Ecological Forestry”. ARC’s management objectives are to promote healthy forests and watersheds, increase carbon sequestration, and reduce catastrophic wildfire risk on the landscape. The primary mechanism used in this strategy is “Ecological Thinning”, which is intended to reduce fuel load, improve fire behavior and increase fire resiliency on the landscape. ARC intends that thinning will:

- restore/achieve a desired understory plant community
- improve aesthetics and open space values
- protect biodiversity
- improve wildlife habitat/forage
- protect soil health
- reduce sedimentation
- protect water and air quality
- increase carbon storage capabilities; and
- protect recreation opportunities.

Wildfire resiliency will ensure ecosystem services remain functional. Reducing fuel loading will protect adjacent communities from the risks of wildfire by reducing the severity and rate of spread of wildfire and breaking up the continuity of fuels, therefore reducing the risk of ground-to-canopy fire and giving fire suppression activities a better chance at creating or holding control lines. Management objectives also target diversity of flora and fauna.

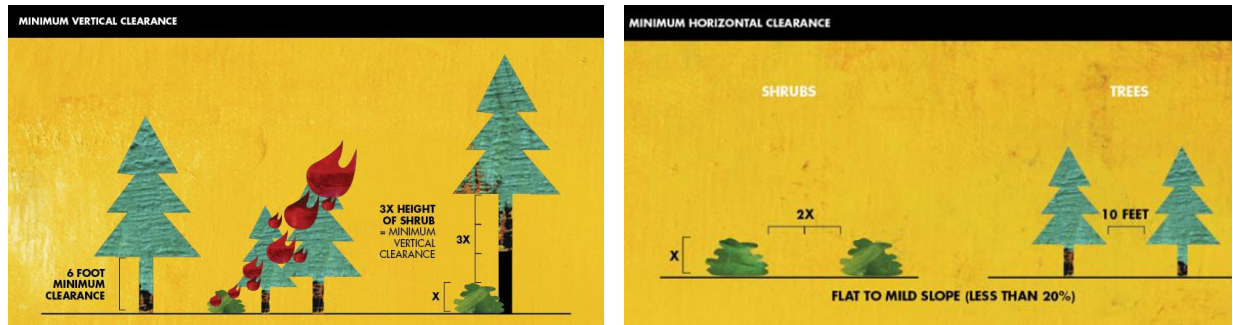
Fire Behavior



Here are diagrams of the Fire Triangle and the Fire Behavior Triangle. You will notice that the one element common to both triangles and the one we can most directly influence is Fuel.

When fuels (small trees & brush) are present and connected, such as from the ground to the treetops or crowns, a fuel ladder exists that can carry a surface fire up into the crowns, where the fire becomes far more dangerous

and difficult to control. A crown fire can sustain itself when trees are too close to each other such that their crowns (branches) once ignited can spread fire from crown to crown. Therefore, to reduce the chances of a crown fire, it is necessary to disconnect both vertical and horizontal fuels.



Deed Restrictions for the Wells Preserve

The deed restrictions for Wells Preserve are

1. The property shall be maintained as a wildlife preserve and permanent open space; no permanent buildings shall be constructed on the parcel.
2. No hunting, commercial logging, commercial agriculture, or mining is allowed on the property.
3. ARC and its guests, docents, volunteers, board of directors and staff may visit the property; other members of the public may only visit the property with an escort or invitation from ARC.

Possible Actions to Restore the Landscape

Ecological Thinning can involve treatments in both the understory and the canopy. Understory treatments such as mastication, piling and burning, cutting and chipping, and grazing can be used to reduce ladder fuels. With all of these treatment methods, the plant material stays on the property and the treatments can cost up to \$3,000 per acre. With canopy treatments, large trees are removed to create gaps between the crowns of trees and reduce competition, allowing the remaining trees to restore vigor and increase their ability to resist wildfire and sequester carbon. Harvested trees are often transported to a lumber mill to be made into dimensional lumber, however, at the Wells Preserve, the deed restrictions do not allow commercial logging. Additionally, the logs cannot legally be used for other things like firewood or being chipped and transported to a biomass energy facility. As a guideline, if the trees were being commercially logged, there would be a minimum basal area that would have to be retained. For this location, being Site Class II, the legal standard is 75 square feet of basal area per acre.

Fieldtrip: On the afternoon of Thursday, October 24, your team will be assigned a 1/10 acre plot for data collection, and you will determine:

- The number of trees in the plot with a diameter at breast height (DBH) of 10" or greater, their species, the height to the lowest branch, an assessment of canopy overlap, and a tally of live versus dead trees.
- A tree count of smaller diameter trees ranging from 2" to 9.9" DBH
- Basal area using an angle gauge, which will be compared to the sum of the basal area of each tree calculated based on DBH
- Growth rate of the most dominant tree for the most recent 10 years compared to the 10 years before that
- The height of vegetation on the ground and brush cover and woody debris levels

Items to be Addressed in Your Presentation:

1. The location, size, and history of the Wells Preserve
2. An overview of data collection techniques and a summary of the data collected
3. A determination of whether the existing condition is in need of watershed restoration using ecological forestry based on the data collected
4. Your recommended actions to restore the watershed while providing protection from wildfire and suggestions on how to pay for it

Resources:

You will be given resources on a flash drive to load onto your team's computer, including the data set you generated. Additionally, you can use photos you take on Thursday and statements from the Foresters you worked with and interview during Ask a Forester.

Final Product:

Your goal is to produce a 15-minute PowerPoint presentation that describes, in detail, the current forest conditions at the Wells Preserve and a determination of whether or not the existing condition needs restoration, as well as your plan for any actions needed to restore the forest and how to pay for it. You are encouraged to use photos and information collected on the fieldtrip, interviews with resource professionals during the Challenge, and the maps, tables, and information in the resources provided. Additionally, use the presentation score sheet as a checklist to make sure you cover the items on which you will be scored.