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March 14, 2022

Peaksview, Inc
Attention: Kevin Peak
P.O. Box 1951
Redway, CA 95560

Subject: Oak Woodland Restoration Plan APN 216-082-006

Introduction

This report presents the results of an evaluation of oak woodland habitat restoration opportunities located within APN 210-072-009 conducted by Timberland Resource Consultants. The intent of this report is to discuss the ecological values of the oak woodland habitat prior to unpermitted timberland conversion, and to provide recommendations to restore habitat where it exists. Ultimately, the proposed restoration activities are meant to mitigate the loss of oak woodland habitat associated with post-2015 tree removal and loss of oak woodland located within APN 216-082-002 (1.50 acres) and APN 216-082-006 (2.24 acres).

The scope of this plan included an analysis of a variety of historical aerial images dating back to 1968, site reconnaissance, and the preparation of this report presenting observations and conclusions. The plan was prepared in response to Humboldt County Planning and Building Department's November 1, 2021 email, which requires:

8. Restoration plan for areas of post-2015 tree removal on both parcels (including oak woodland mitigation at minimum ratio of 3:1)

Timberland Resource Consultants visited the property on November 23, 2021. The investigation focused on identifying existing oak woodland and evaluating the potential to either augment existing habitat, or to restore encroached oak woodland where feasible at a 3:1 ratio of the two timberland conversions located within APN 216-082-002 (1.50 acres) and APN 216-082-006 (2.24 acres). This equates to 11.22 acres of oak restoration.

Site Description

The subject property, which consists of APN 216-082-002 and APN 216-082-006, is approximately 295 acres in size and is located in the S ½ of Section 25, Township 4 South, Range 4 East, Humboldt Base and Meridian of the U.S. Geological Survey Harris 7.5-minute quadrangle. The property occupies mid-slope to upper-

slope elevations on the southwestern face of Mail Ridge in the upper headwaters of the Rancheria Creek watershed.

The property's lower to mid-slope elevations are dominated by second growth Douglas-fir and tanoak regenerated from the harvesting old growth Douglas-fir in the late 1950's/early 1960's. As elevation increases, the Douglas-fir transitions to oak woodland and ultimately natural grasslands near the upslope portions of Mail Ridge. The oak woodlands consist primarily of Oregon white oak with lesser California black oak. Most of the oak woodlands have some degree of conifer encroachment. Douglas-fir encroachment generally increases in density and tree size as elevation decreases. Decadent oak trees with fire scars were observed within the timber stands throughout the ownership, suggesting that fire indeed played a role in controlling encroachment. Available soil maps indicate these areas to be underlain by soils of the Coolyork-Yorknorth complex and also by the Yorknorth-Witherell complex (USDA NRCS, 2019).

Ecological Setting

Oak woodlands have ecological, economic and cultural significance. They provide food and cover for a wide range of wildlife species, and provide important ecosystem services including air purification, water conservation, and soil retention functions. They also play an important role in maintaining livestock grazing habitat, and hold important cultural values among many tribes of the North Coast. Their significance is further emphasized by the growing spread of sudden oak death (SOD) in California and Oregon forests. In these regions, tanoak acorns are the primary food source for many forms of wildlife, however, as the spread of SOD effects tanoak stands the greatest, acorns from true oak species (Oregon white oak and California black oak) become increasingly more important as a substitute food source for sustaining wildlife populations (Green & Magnuson, 2011).

As described above, the subject property is located in eastern Humboldt County in the upper headwaters of the Rancheria Creek watershed.

This part of Humboldt County features broad grassy hillsides interspersed between true oak woodlands, surrounded by large blocks of conifer forests. Historically these vegetation types would have been maintained by the regular occurrence of fire, however since the adoption of an aggressive fire suppression policy, Douglas-fir has become a major competitor of many oak woodlands. A variety of aerial imagery indicates this successional change as oak woodlands transition into conifer stands here and in many parts of northern California. Encroachment is widely accepted to be the greatest threat to oak woodlands.

Considering the nature of ecological succession, it is inevitable that the vegetation types within and adjacent to the project area will be subject to change sometime in the future. Forest succession is gradual, and occurs in stages by which one plant community replaces another following disturbance or the lack thereof. Consequently, there is the potential that any management activities aimed at restoring the true oak component may only be successful at postponing this transition. However, it is the opinion of the RPF that the true oak woodlands within the subject property are currently healthy and stable enough that restoration activities to remove the conifers would yield successful results and should occur.

Forest Stand Conditions

Oak Woodlands

Within the true oak forest type, these areas vary in age and structure and range from 50-100ft² of basal area from true oaks per acre. These areas exhibit a mix of stand structural characteristics ranging between young dense, clustered multi-stemmed trees, and mature open-grown stand types. Oregon white oak occupies the majority of true oak stems per acre; however, California black oak is the principal oak species in areas where conifer encroachment is the most advanced; particularly in the lower elevations. In general, oaks appear relatively healthy in the oak woodland stand type. While some mortality is certainly occurring, the majority of oaks display good form with full live crowns and minimal branch die-off. Douglas-fir is the principal competitor within these areas, accompanied by Pacific madrone and tanoak in parts of the property. The understory consists mainly of annual and perennial grasses, and in some areas very dense Douglas-fir regeneration ranging from 600-1,000 stems per acre.

As stated previously, the degree to which these areas are being encroached varies greatly. Whereas some of the property contain only minimal amounts of encroachment in the form of seedlings and sapling-sized conifers, others contain mature Douglas-fir trees in the dominant and codominant canopy positions. Of the 11.22 acres of oak woodland proposed for restoration, three management types were qualitatively stratified as follows: Encroachment Stages 1, 2, and 3.

Encroachment Stage 1

These areas consist of a dominant overstory of scattered Oregon white oak and California black oak and an understory of Douglas-fir regeneration, generally 0-15 feet tall. No overtopping is occurring and all of the Douglas-fir is sub-merchantable. This includes Douglas-fir encroachment located within the small natural grassland openings that are part of the oak woodland habitat type. If no action is taken, these stands will inevitably transition into conifer stands is approximately 20 years.

Encroachment Stage 2

These areas consist of an overstory made up of pre-dominant and dominant oak trees and younger sapling to pole sized Douglas-fir which currently range from co-dominant to dominant in the canopy layer. The understory is generally dense with young Douglas-fir regeneration. Oak trees within this type are beginning to show 'funnel' shaped crowns as Douglas-fir trees shade out the lower canopy.

Encroachment Stage 3

These areas consist of an overstory made up of pre-dominant oak trees and younger pole to small timber sized Douglas-fir trees in the dominant crown position. The average conifer diameter is approximately 15 inches at breast height, and basal area ranges from 75-250 ft² per acre. Sapling sized Douglas-fir trees occupy the intermediate crown positions, and the understory is generally sparse.

Restoration Plan

Phase 1 - (Immediate)

- Remove Douglas-fir regeneration via hand crew (chain saws). Cut all Douglas-fir trees up to 12" DBH. Removal target is 80% or more of Douglas-fir stems. The cut needs to be made as low as possible on the stem, below the lowest live branch. Trees that are too difficult to fell safely can be girdled.
- Retain all living deciduous oaks and all snags greater than 10 inches in diameter. Avoid damage to retained trees; fall removed trees away from oaks to the extent feasible.
- Girdle (or cut) all Douglas-fir trees 12" DBH and greater if safety or damage to residual trees is a concern. Girdles must completely go around the tree and should consist of two parallel horizontal bands through the bark and cambium several inches apart. After the grooves have been made, the bark and cambium should be peeled away. Merchantable trees may be left for future commercial harvests.
- Afterward, hand pile slash into manageable piles for burning. Piles must not be underneath the crowns, or directly adjacent to other trees.

*No large old trees (trees existing before 1800 AD and is greater than 48" in diameter at stump height) or Decadent and Deformed Trees with Value to Wildlife shall be cut.

Phase 2 - (2-10 years following Phase 1)

- Re-evaluate treated areas to determine if thinning oaks is appropriate. The goal of the thinning is to capture mortality and improve growing conditions. The target oak density will be site specific based on the crown size of individual trees. The objective is to not have interlocking crowns outside of multiple stem trees. This will lead to a spacing on average of 40-60 stems per acre. These stands should be marked by a forester prior to thinning.
- Remove remaining young encroaching Douglas-fir, and treat slash, following the criteria in Phase 1.

Phase 3 - (Indefinitely following Phase 2)

- Monitor treated stands periodically for further encroachment. Encroachment is anticipated to continue, however, following Phase 1 and 2 treatments it will be minimal and easily controlled.
- Identify the need for oak regeneration. California black oak and Oregon white oak are both capable of resprouting from dormant buds following disturbance, however the conditions to promote natural regeneration are not well understood. It may be desirable to artificially plant in some areas.
- Pursue alternative means of understory management including mowing, tilling, or prescribed fire.

Conclusions

The intent of this investigation is to assess the proposal to restore oak woodland habitat within the subject property and, where appropriate, to provide management recommendations in order to mitigate any adverse ecological effects associated with conversion activities. This study focused on identifying restorable oak woodlands and evaluating options to achieve the objective of restoration and enhancement.

Ultimately, the proposed restoration activities are meant to mitigate the loss of oak woodland habitat associated with the two timberland conversions located within APN 216-082-002 (1.50 acres) and APN 216-082-006 (2.24 acres).

The activities described in this report were developed in general conformance with accepted oak restoration treatment practices and are prescribed to meet the specific conditions of the project area. After evaluating alternatives, the RPF supports oak woodland enhancement within APN 216-082-006 and recommends treatment of no less than 11.22 acres of oak woodland. The treatment area is depicted on the attached Oak Restoration Map.

Certification

Following the completion of operations, an RPF should examine the treatment area to evaluate compliance with the practices outlined in this report. This inspection shall be used to certify no less than 11.22 acres were successfully treated. After the inspection, a letter including pictures of the project area shall be sent to the Humboldt County Planning Department Cannabis Division describing the results of the restoration activities and the project's status in conformance.

Limitations

The conclusions presented in this report are based on conditions at the time of our work. Given the dynamic state of forest ecosystems, it is impossible to preclude changes that may occur in the future that could alter site conditions.

We trust that this report provides the information that you need at this time. If you have any questions, or require additional information, please contact our office at 707-725-1897.

Sincerely,



Chris Carroll, RPF #2628
Timberland Resource Consultants

Appendices

- Appendix A: References
- Appendix B: Maps and Diagrams

Appendix A

References

California Department of Forestry and Fire Protection. 2020. Forest Practice Rules.

Green, Shayne & Magnuson, Lindsay. 2011. Oak Woodlands of Humboldt County, A Report on Their Use, Distribution, Diversity, Ownership, and Conservation. Northcoast Regional Land Trust.

U.S. Department of Agriculture, Natural Resource Conservation Service, California. Practice Requirements, Forest Stand Improvement, Deciduous Oak Woodland Restoration. September 14, 2015.


U.S. Department of Agriculture, Natural Resource Conservation Service. Web Soil Survey, March, 2020.
www.websoilsurvey.sc.egov.usa.gov

Appendix B

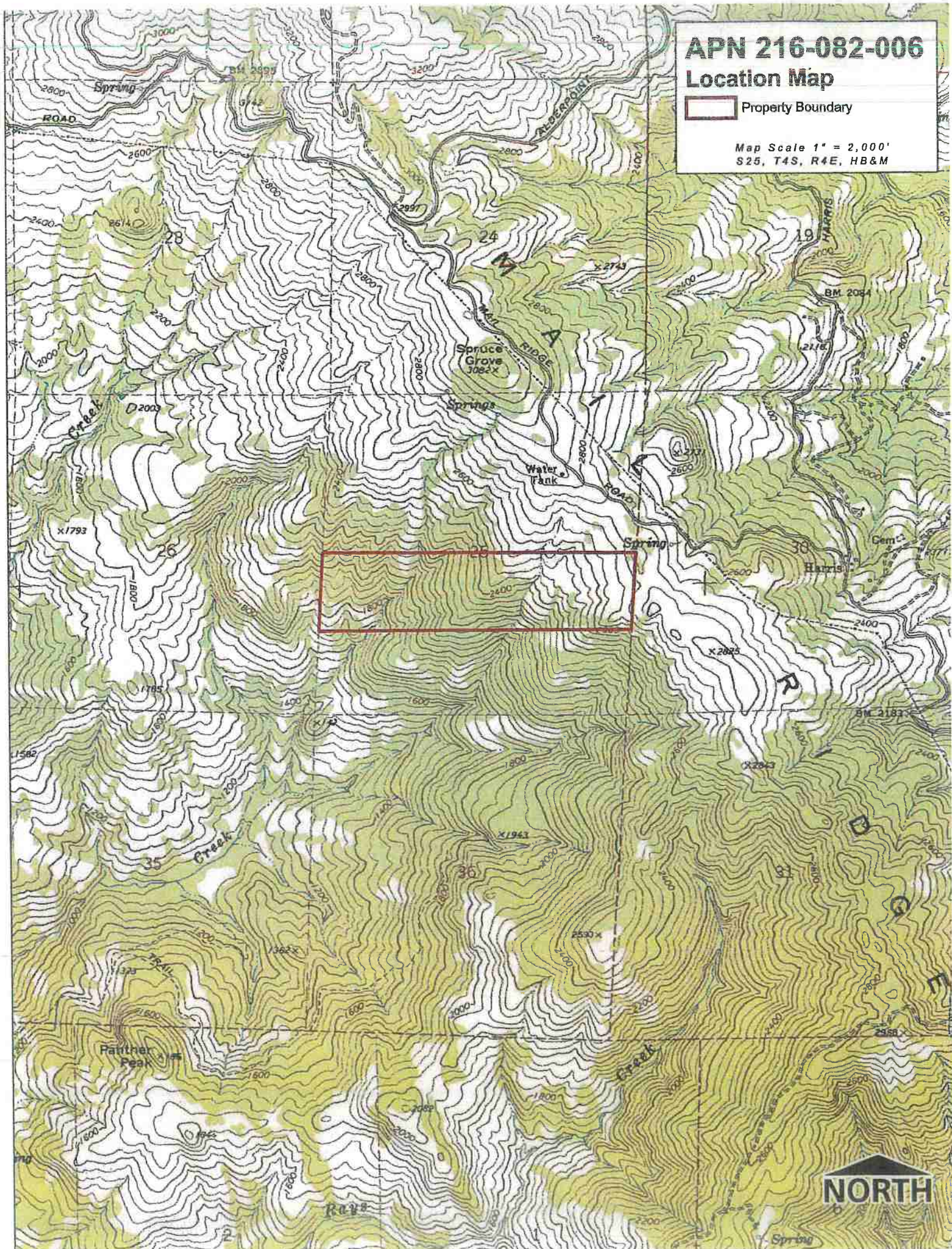
Maps and Photographs

APN 216-082-006

Location Map

 Property Boundary

Map Scale 1" = 2,000'
S25, T4S, R4E, HB&M

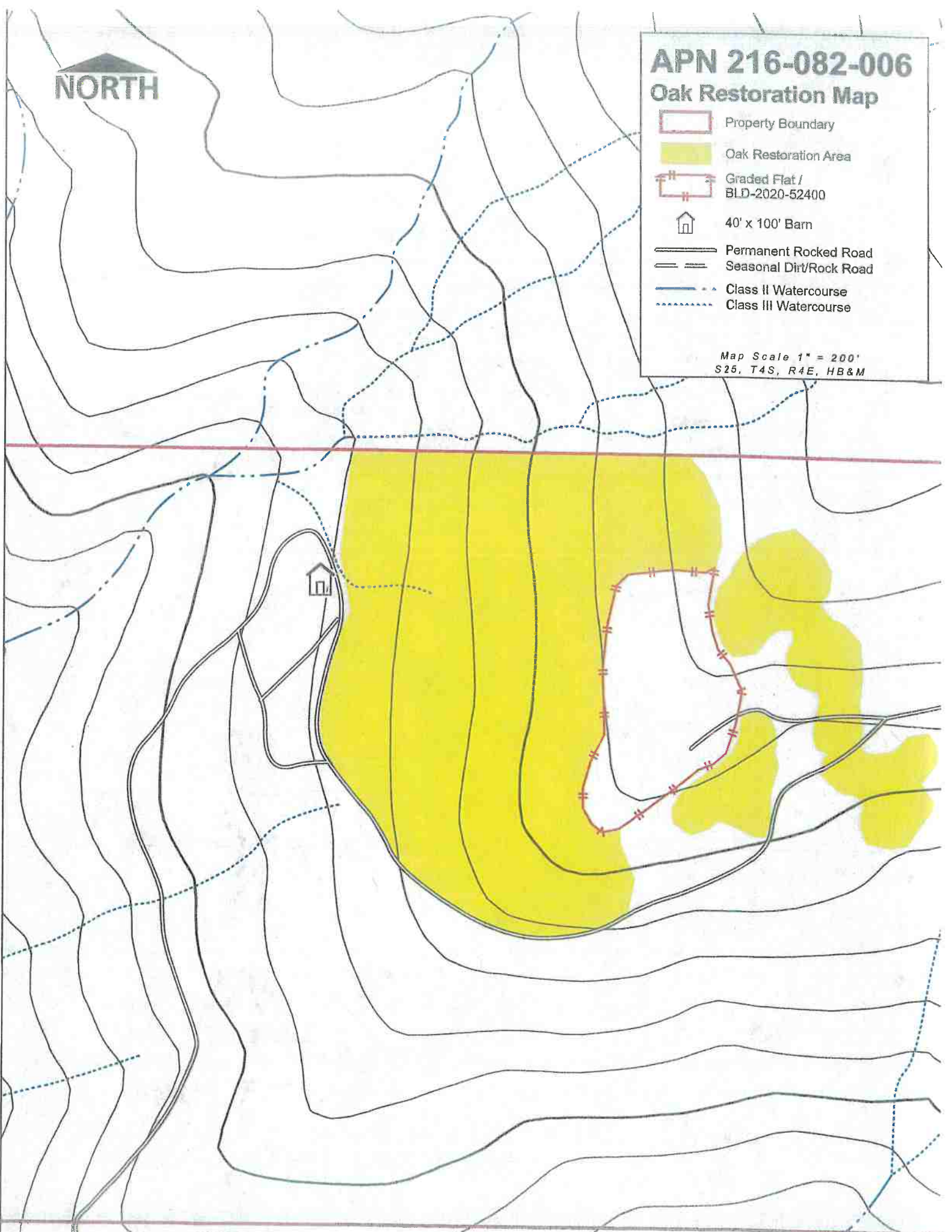



NORTH

APN 216-082-006 Oak Restoration Map

-  Property Boundary
-  Oak Restoration Area
-  Graded Flat /
BLD-2020-52400
-  40' x 100' Barn
-  Permanent Rocked Road
-  Seasonal Dirt/Rock Road
-  Class II Watercourse
-  Class III Watercourse

Map Scale 1" = 200'
S25, T4S, R4E, HB&M



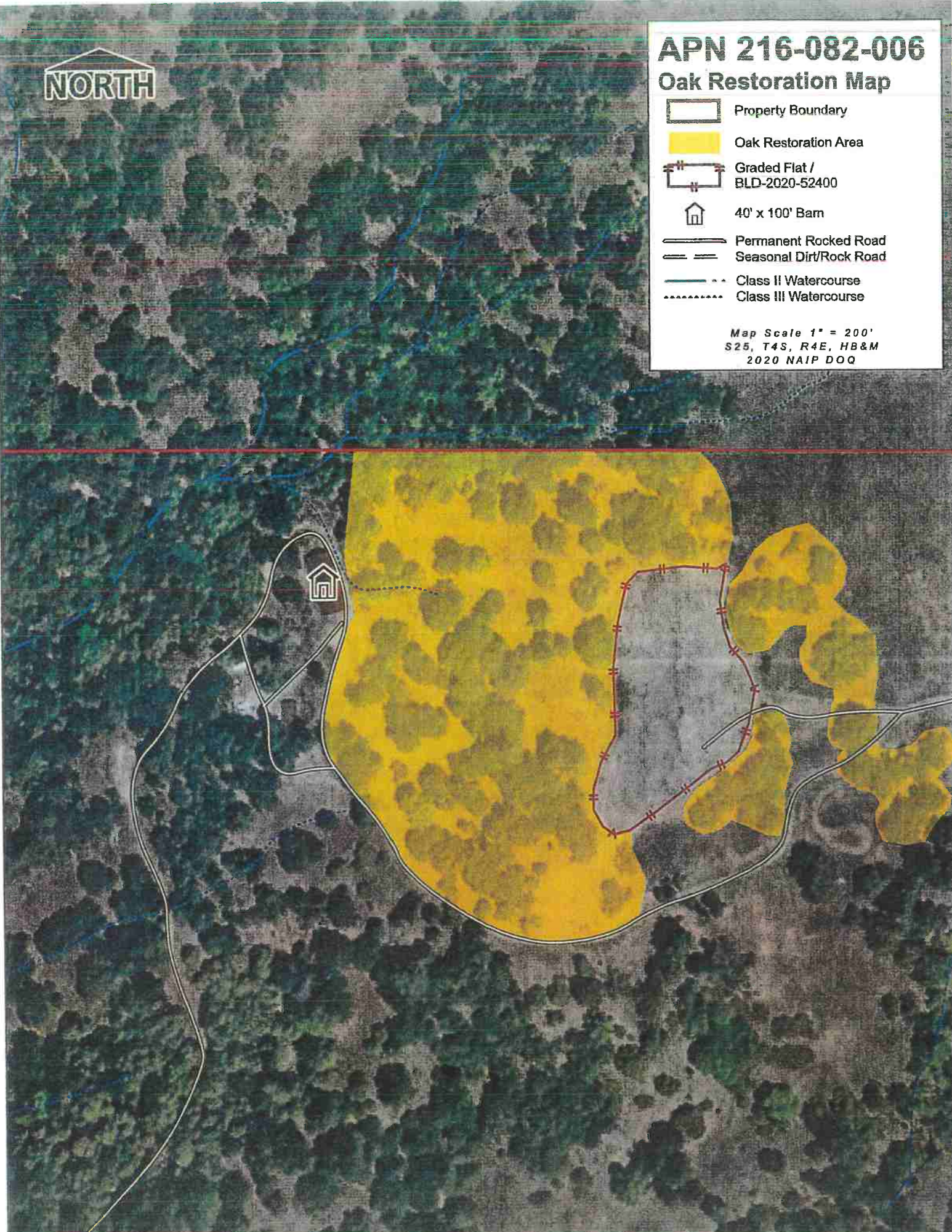
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APN 216-082-006

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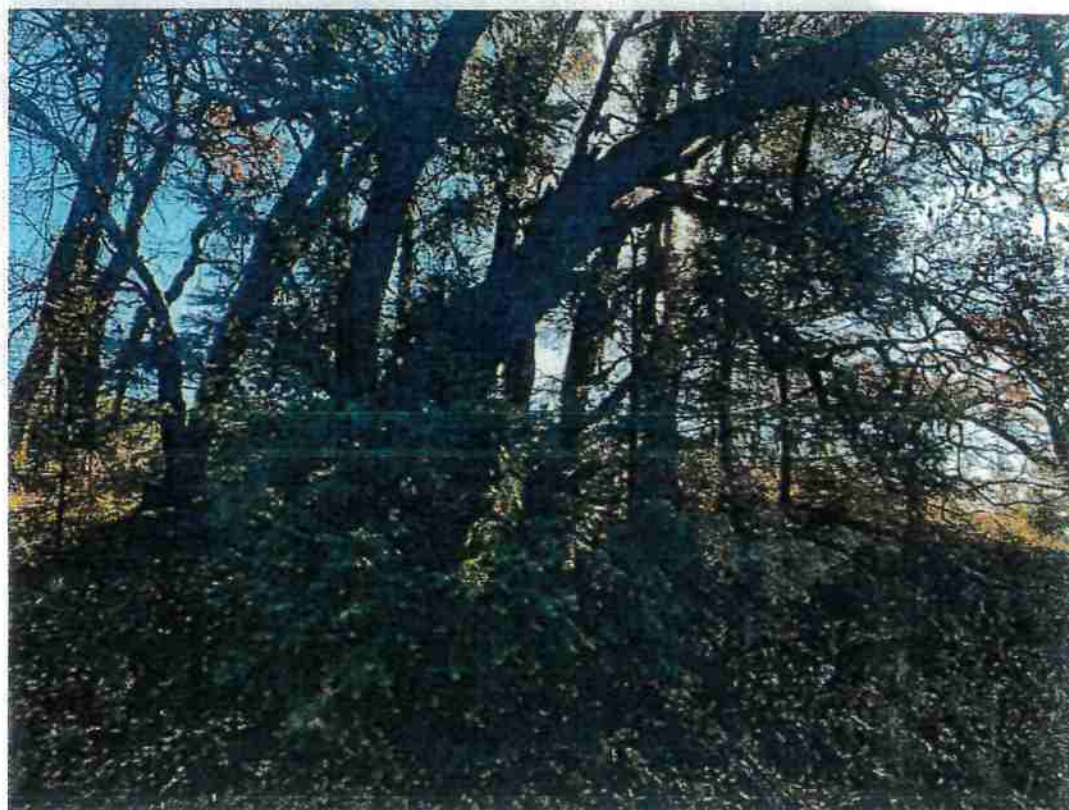
Map Scale 1" = 200'
S25, T4S, R4E, HB&M
2020 NAIP DOQ

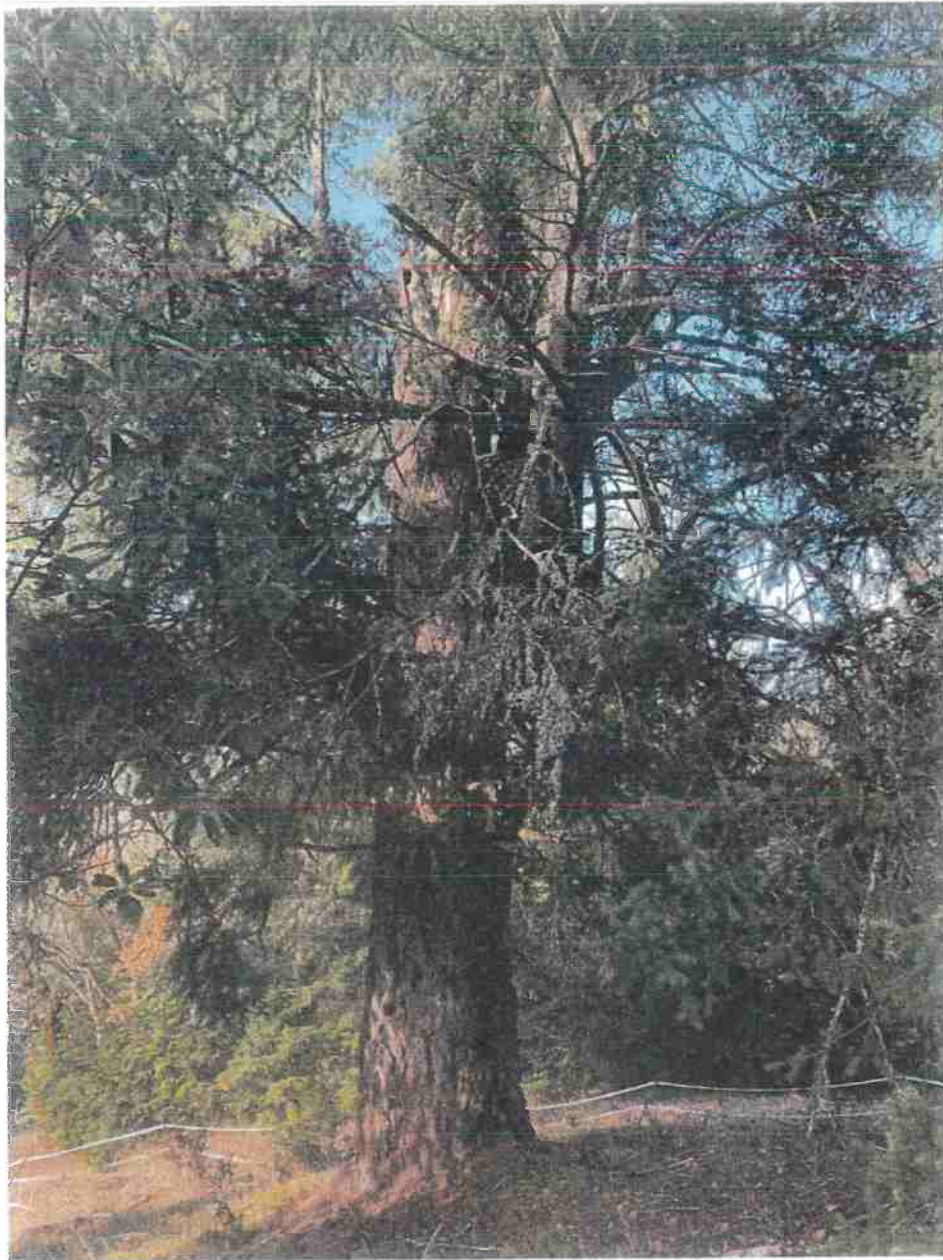


Appendix B -- Photographs

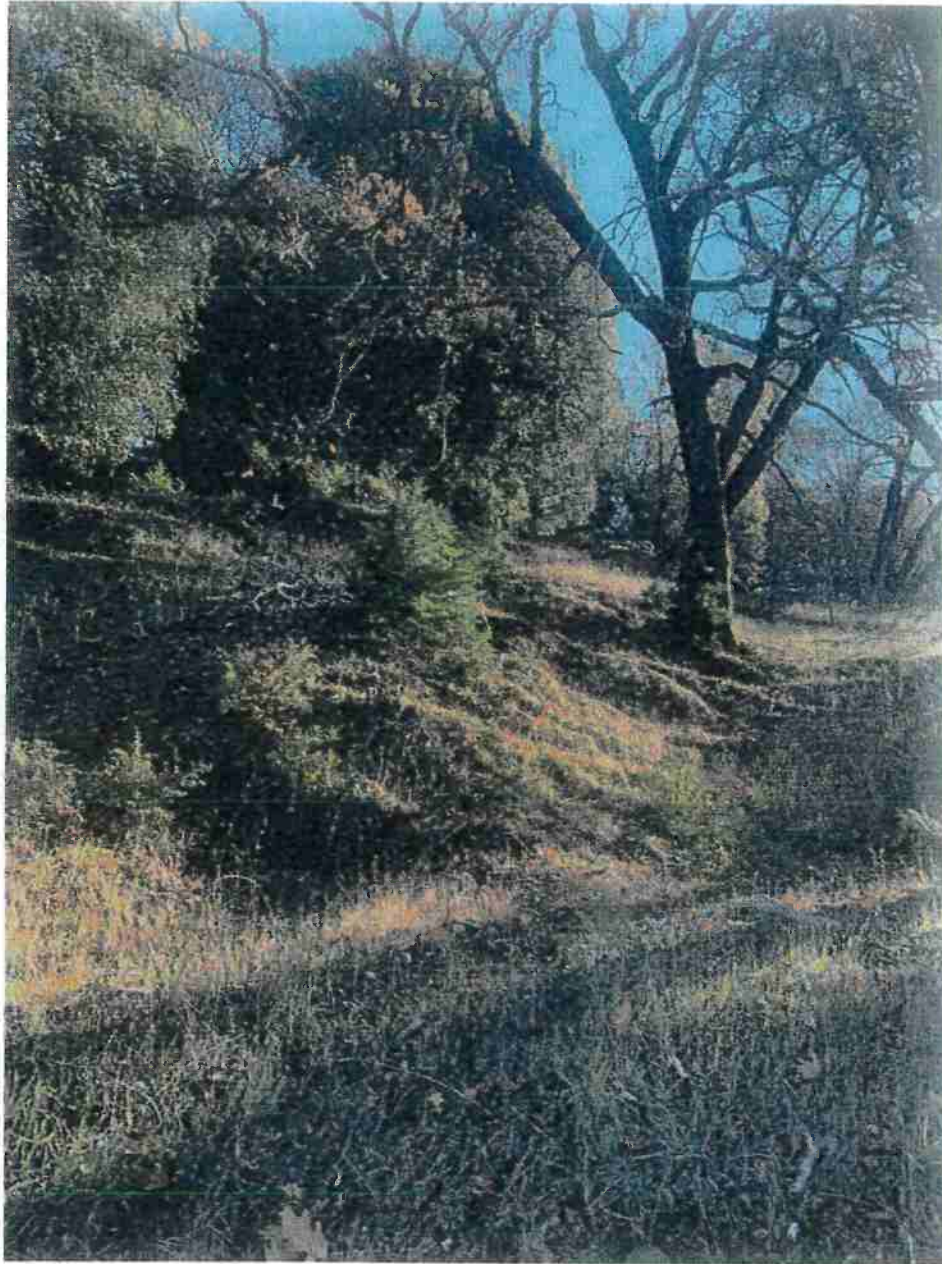


Oregon white oak and California black oak woodland with encroaching Douglas-fir trees. Above & below

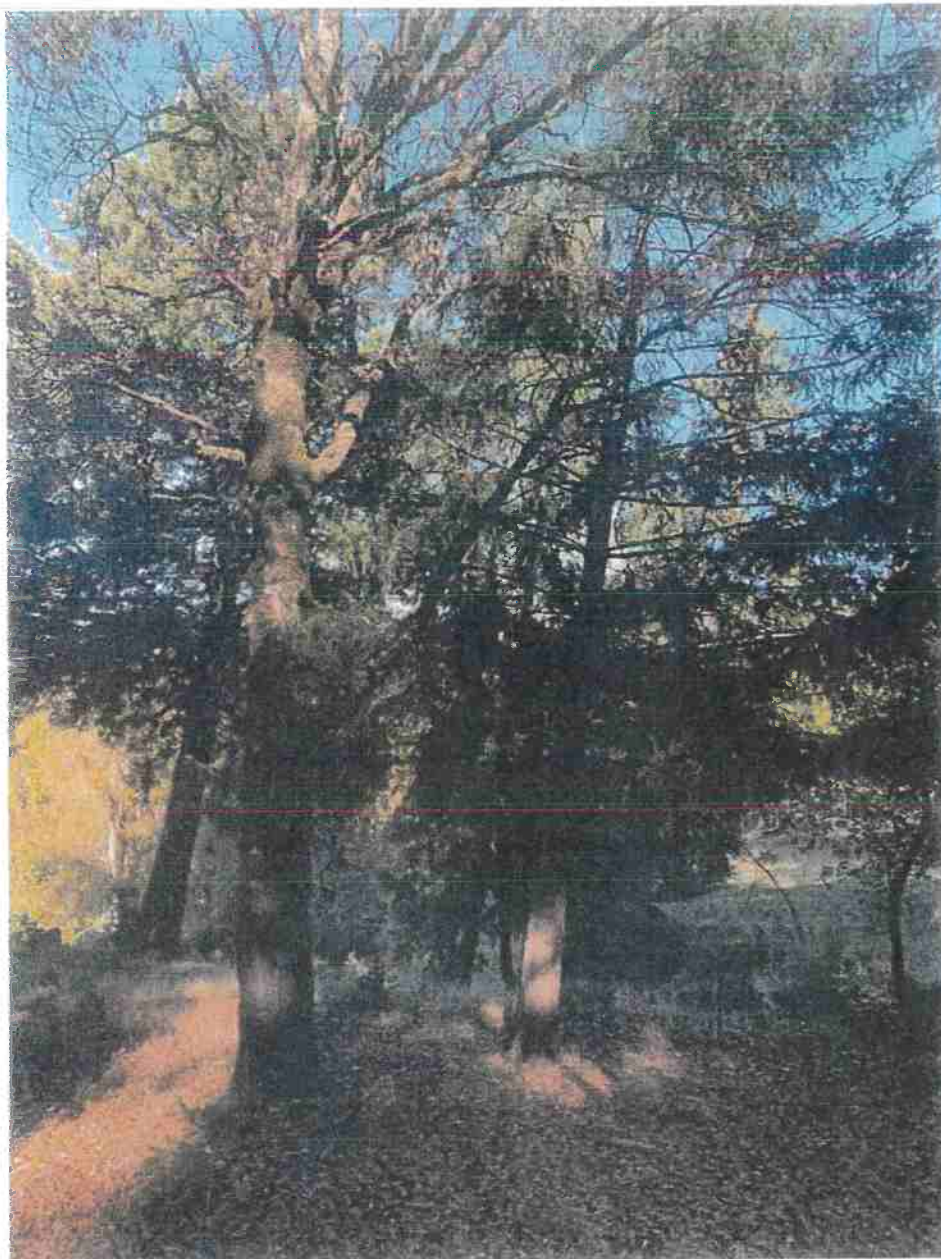




Decadent and Deformed Trees with Value to Wildlife, which shall be retained.



Example of oak woodland Encroachment Stage 1.



Example of oak woodland Encroachment Stage 3



Example of oak woodland Encroachment Stage 3

