

Lake Hiwassee Community Wildfire Protection Plan

CWPP

11/24/2024

Lake Hiwassee Board

Local Fire Department

Oklahoma Forestry Services

Oklahoma County Emergency Services

Oklahoma County Sheriff's Department

Oklahoma Fire Mitigation Grant Services

Lake Hiwassee Fire Mitigation Group

AN ACTION PLAN FOR WILDFIRE MITIGATION

Prepared by: Brock Schnebel

Organization: Lake Hiwassee Board of Shareholders

Contact Information: Brock Schnebel

The following report is a cooperative effort between various entities. The representatives listed below are the core decision making team responsible for this report.

Community Representatives

Brock Schnebel

John Frick

Colin Beverly

David Baisden (Sheriff's Office)

Fred Wietelman

Dennis Delano

Peter Erdoes

Erick Ashlock

Riley Coy

Mike Fitzgerald

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 - E-2. Open Range Management (Adam Gourley)
 - E-3. State Water Quality Forester (Jason Whaley)

**E-4. Amie Robison “thepondlady” Water
Sediment Consultation, Erosion**

**E-5. Oklahoma Department of Wildlife
Conservation Field Note Report by Kyle Johnson**

12. Appendix F – Implementation Plan 2024

1. COMMUNITY BACKGROUND AND EXISTING SITUATION

County: Oklahoma

Latitude/Longitude: 35.65 N 97.31W

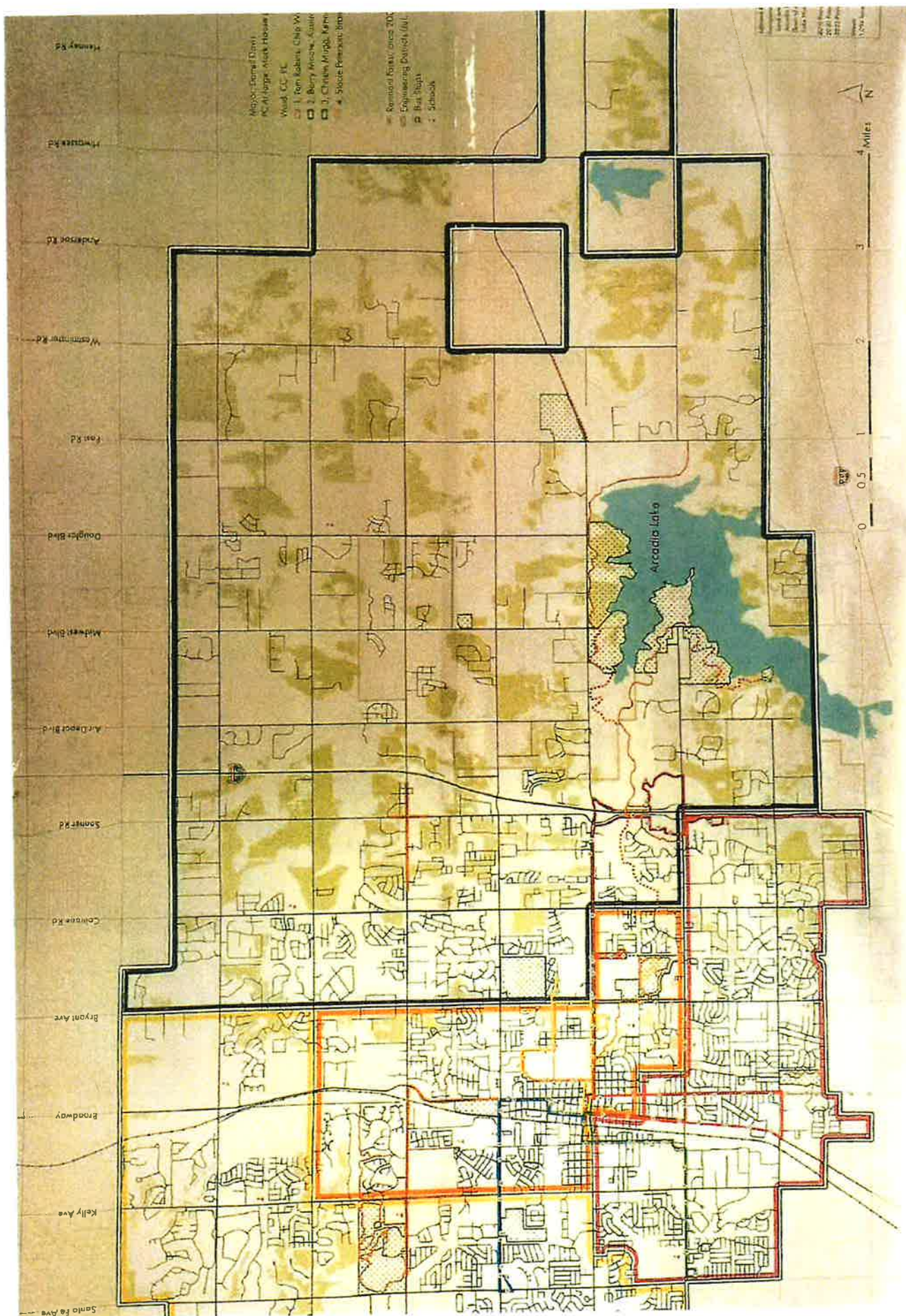
Fire Department: Local

Medical Emergency Services: EMSA

Year Established: 1938

Access: 1 mile south of Route 66 on Hiwassee Road, with surrounding roads being Hiwassee Rd. on East, 2nd St. on North, 15th St. on South. Three gates plus one emergency gate.

For map see following for position of this community relative to the City of Edmond and Arcadia. Notice in right lower corner our section of 640 acres and lake surrounded by, but not part of the City of Edmond, Oklahoma (we are unincorporated).



A.COMMUNITY DESCRIPTION

The name Hiwassee may derive from the Creek or Cherokee word, "Ayuwassee" , which means meadows or Savannah. Our community was founded in 1938 as 440 acres of property with 130 acres lake which has evolved into a Cross Timber Biome with meadows and woodland and the remainder in community property with platted residences, see appendix C. Population is 140 shareholders. Structures include: one community center, one pavilion and a community park. The south end of the property could be considered a wildland urban interface (WUI) area, and the properties to our east and west could also be considered wildland urban interface. Our southern border is interfaced with agricultural rangeland made-up of grasslands which are grazed, mixed with woodlands. All these surrounding properties have an amount of dry overgrowth and wooded areas that coupled with winds from any direction could introduce a fire risk to our community. This could involve the lake itself in terms of watershed sediment of ash and silt from exposed ground surface following a fire. Wildfires could cut off evacuation routes and limit response from EMS.

Portions of our property including the woodlands and forest at the south end, like the rest of surrounding properties, also carries some risk of wildfire with some forest undergrowth debris and natural fuels being present. The combination of these local and surrounding issues prompted our neighborhood to be concerned for the need of future planning. Overall, the community of Lake Hiwassee has a risk of wildfire exposure in the future. We have recently moved forward with consultations by the state forester, Riley Coy, the state water quality forester, Jason Wheeley, a private vendor with his individual company, Adam Gourley, and lake survey performed by a limnologist. In addition, the Oklahoma County NRSC office has visited our property and communicated with us regarding options. The Oklahoma County FSA office has been consulted. We have moved forward on the recommendation to try to solve the eastern red cedar invasion which increases the fuel load and risk to our properties. We have received financial aid in this endeavor from the county NRSC office and have followed their maps to eradicate certain areas of eastern red cedar invasion. This financial aid has been augmented by our significant community financial support. This community wildfire prevention plan is needed to help us move into the future in a safer environment with a plan of action for our community.

B. COMMUNITY SIZE

Number of structures:

Development status: Active

Estimated acres: 440

Number of households: 140

C.COMMUNITY INFRASTRUCTURE

1. Gatehouse, community center, board meeting location
2. Community pavilion
3. Community Park
4. Trails (walking, ATV, fire protection access)
5. Walking bridge at south end
6. Dam
7. 3 water wells, 2 functioning.
8. 1 dry fire hydrant, lake water source
9. Roads to residential properties surrounding the lake
10. Gates
11. Storage area

D.COMMUNITY LEGAL STANDING

S Corp functioning like a homeowner's association
Lake Hiwassee was developed in 1938 prior to the concept of homeowner's association. We, however, function as a homeowner's association.

E. RESIDENT POPULATION

Full-time: 50%

Part-time: 50%

F. WILDFIRE HAZARD RATING

Moderate: by SouthWRAP, and Oklahoma Forestry
Division Community Wildfire Risk and Hazard

Assessment Score: 149

Date Evaluated: 5/22/2024

Community assessment form: See Appendix A & B

- i. Community Assessment Highlights:149
(results of risk hazard rating)
- ii. Roads
Two lane county roads, asphalt, unlined. One mile
away from Route 66.
- iii. Topography
Topography varies from flats, ravines, hills,
Woodlands, forests, and meadows, residential areas,
park and lake with inflow sources from the South, East
and West.

iv. Primary Fuel Types

This property is a mixture of grassland and Cross Timbers ecosystem. Grass fuels surround the northern border and are mixed in with Cross Timbers on the East, South and West border. There is encroachment of eastern red cedar into some of the land and also invasives of Chinese privet, smilax, japonicum, with poison ivy, Virginia creeper, and native grape ladder fuels, along with deadfall, snags, standing dead with a component of hypoxylon canker involvement of the oaks. Community wide work is needed to increase our defensible space around structures.

v. Water Sources

- a. Lake
- b. Two functioning community wells
- c. Residential property water systems
- d. No fire hydrants excepting a dry hydrant attached to the lake

vi. Community Wildfire History

A . Luther wildfire 3/31/23 (See Daily Oklahoman 3/31/23 “Dozens of Grass Fires Consume Homes North of OKC, Residents Evacuated Near Edmond and Guthrie.

- B. Luther Wildfire 8/3-4/12 Wildfire near Luther, 80,000 acres, destroyed 50 homes and other structures. Governor Mary Falin had declared state of emergency. In November, 2012, OSU researchers declared state wildfires and drought responsible for over \$400,000,000 in damages.
- C. Payne County (Glencoe) fire 8/4/12, 2,000 acres, destroyed 53 homes.
- D. Mannford fire 8/2012 , burned 58,000 acres, 1 death, 400 homes destroyed.
- E. Simpson Road Fire Logan County, 4/2023, 30 homes destroyed.
- F. Hefner Road Fire, 4/2023, 3 homes destroyed.
- G. Winter Storms (ice storms) tree damage 2021
- H. Severe Winter Storms and Ice Damage 2016, Oklahoma County, tree damage
- I. Severe Storms, tornados, straight line winds, Oklahoma County, 2015 (tree damage)
- J. Covid 19 Pandemic 2020 Oklahoma County
- K. Midwest City and Choctaw Wildfire SW 15th & Anderson Road 4/9/2009 destroyed 70 homes.

vii. Additional Comments

The proximity to Interstate 44 (Turner Turnpike) 1 mile South puts us at risk during dry environment South winds carrying fire to us at a rapid rate, requiring fire mitigation efforts, urgency of notification, a plan of notification, care of the invalid, evacuation, all while allowing access to the firefighters through the same gates that residents use for escape, on limited width roads. Considering the common event of roadside fires related to chain dragging spark flying events.

2. OBJECTIVES AND GOALS

a. Objectives

The objectives of this plan are to guide efforts reducing the wildfire risk to the residents, homes, and lake through mitigation, prevention, education, and planning. The amount of fire fuels in and around lake Hiwassee provides some risk of loss of life and property from wildfire outbreaks.

b. Goals

- i. Establish and or improve safety zones and defensible space around homes.
- ii. Reduce vegetative fuel loads along roadways, and other ignitable areas improving the integrity of such features as fuel breaks.
- iii. Upgrade and or establish water systems to provide flow for the fire department.
- iv. Establish or increase accessibility for emergency vehicles responding to wildfires.
- v. Target public education efforts on wildfire prevention, fuel breaks and defensible space in the vicinity of values at risk.

- vi. Yearly evaluation of plan to monitor progress.

3. MITIGATION RECOMMENDATIONS

There are four areas in lake Hiwassee identified for potential implementation of mitigation strategies. Firstly, east side of dam, lake, to the last homes on the southeast. Secondly, West side of the lake, and dam, South to the furthest homes on the South side. Thirdly, east side from homes all the way South to 15th St. east of Beaver Creek. Fourthly, West side from homes all the way to 15th St. West of Beaver Creek. (see map, Appendix C)

Mitigation recommendations for this plan considers hazard reductions, ignitability, terrain, vegetation, and potential risk to the community.

a. Hazard Reduction

- i. Improve access for areas that are one ingress/egress.
- ii. Fuel reduction in residential areas.
- iii. Fuel reduction in forest and woodlands and meadows.

b. Structural Ignitability Reduction Practices

- i. Tree trimming and brush removal projects.
- ii. Thirty-foot defensible space zone,

- iii. Removal of excessive fuel materials from around the homes. (assistance for elderly and disabled)
- iv. Encourage clean gutters and screens on gutters to prevent fuel build-up.
- v. Share information concerning better fire resistance building materials.

c. Education And Outreach Programs

- i. Share fire safety information.
- ii. Firefighters share fire safety information during scheduled events. (Halloween)
- iii. Organize annual community clean-up weekend.

d. Develop A Notification Plan

- i. Rave program has been recommended.

e. Develop And Support An Evacuation Plan

- i. Similar to our current plan for July 4th, directed at urgency.

f. Develop a Plan To Assure The Care Of Those Who Are Unable To Care For Themselves.

- i. Neighbors responsible to help.
- ii. Notify emergency services of households that need attention.
- iii. Mailbox markers to identify those that need help.

4. ACTION PLAN

a. Funding Needs

- i. Tools
- ii. Salaries for workers
- iii. Provide services to remove excess fuels and flammable materials

b. Time Tables

c. Assessments of Progress

- i. Inspections
- ii. Observe for and reward properties that are following recommendations.

5. WILDFIRE PRESUPPRESSION PLAN

a. Responsibility Assignment

- i. Structural
- ii. Wildland

b. Alarm Response

- i. First Alarm
- ii. Second Alarm

c. Water Availability

d. Communications

e. Evacuation Plan (Appendix D)

f. Resource List—Agency, Name, Contact

APPENDICES

Appendix A

Page 1

OKLAHOMA FORESTRY DIVISION COMMUNITY WILDFIRE RISK AND HAZARD ASSESSMENT

Forestry Office: OKLAHOMA
Community: LAKE HIWASSEE County: OKLAHOMA
Latitude: 35.65 N Longitude: 97.31 W
Fire Department: ARCADIA
Date: 5/22/2024
Acres: 400 Lots: 337 Homes: 140 Future Homes: 5 LAKE 120 Acres
FOREST 220 Acres
47 undeveloped green spaces (forest)

CALCULATING THE WILDFIRE HAZARD RATING

SUBDIVISION DESIGN HAZARD RATING	+ SITE HAZARD RATING	+ BUILDING CONSTRUCTION HAZARD RATING	+ ADDITIONAL FACTOR HAZARD RATING	= OVERALL WILDFIRE HAZARD RATING
SUBDIVISION DESIGN RATING				Rating
ACCESS				
Two or more roads				0
One road, plus alternative				3
One road in/out				7
SUBDIVISION BRIDGES				
No bridges or bridges with no weight and or width restrictions				0
Low weight or narrow bridges restricting emergency access				5
PRIMARY ROAD WIDTHS				
>24 ft				0
>20 ft and <24 ft				2
<20 ft				4
ACCESSIBILITY				
Surfaced road, grade < 5%				0
Surfaced road, grade > 5%				2
Non-surface road, grade < 5%				2
Non-surface road, grade > 5%				5
Other than all-season road				7
SECONDARY ROAD TERMINUS				
< 300 ft with turnaround				0
> 300 ft with turnaround				2
< 300 ft without turnaround				4
> 300 ft without turnaround				5
UNSAFE ROADWAY				
No flammable vegetation threat				0
Highly flammable vegetation along road				5
STREET SIGNS				
Present 4 inches in size and reflective				0
Not present				5
TOTAL SUBDIVISION DESIGN				36

15' wide
24' wide

15' wide
24' wide

15' wide

15' wide

15' wide

OKLAHOMA FORESTRY DIVISION

COMMUNITY WILDFIRE RISK AND HAZARD ASSESSMENT

SITE HAZARD RATING (Within 30 feet of structure based on a majority of the properties in the community)	Rating	
DRIVEWAY CHARACTERISTICS		
Less than 150 feet long	0	
More than 150 ft with minimum 45 foot outside radius turnaround	3	
More than 150 ft with inadequate turnaround	5	
Average driveway width more than 12 ft	0	
Average driveway width less than 12 ft	5	5
No obstructing overhead branches below 15 ft	0	
Obstructing overhead branches below 15 ft	5	
No bridges or bridges with no weight or width restrictions	0	
Bridges restricting emergency vehicle access	5	
Slopes level or less than 10 %	0	
Slopes over 10%	5	
No gate/non-locking gate	0	
Locked gate	5	
Address clearly visible from road	0	
Address not visible from road	5	5
DOMINANT TREES (within 100 ft of homes)		
Deciduous	1	
Mixed	5	5
Evergreen	10	
LADDER FUELS		
Evergreen branches close to ground	5	5
Evergreen branches pruned up at least 6 ft	0	
VEGETATION (predominant type throughout community)		
Light (e.g. grasses and forbs)	5	
NFDRS Fuel Models A, C, L, N, S and T		
Medium (e.g. light brush and small trees)	10	
NFDRS Fuel Models D, E, F, H, P, Q and U		
Heavy (e.g. dense brush, timber and hardwoods)	20	20
NFDRS Fuel Models B, G and O		
Slash (e.g. timber harvesting residue)	25	5
NFDRS Fuel Models J, K and L		
SLOPE OF PROPERTY		
Flat (0-5%)	0	
Moderate (6-20%)	2	2
Steep (over 20%)	4	
DEFENSIBLE SPACE		
No trees, shrubs or tall grass within 30 ft	0	
Well spaced trees and shrubs within 30 ft	10	
Touching crowns or tall grass within 30 ft	20	20
No unthinned or unmanaged timber within 100 ft	0	
Unthinned or unmanaged timber within 100ft	5	
TOTAL SITE HAZARD RATING		67

Made
from
computer

BUILDING CONSTRUCTION HAZARD RATING		Rating
ROOFING MATERIALS		
Greater than 75% of homes have metal, tile or Class A shingles	0	0
50 to 75% of homes have a metal, tile or Class A shingles	10	
Less than 50% of homes have metal, tile or Class A shingles	15	
SIDING / SOFFETS		
Greater than 75% of homes have fire resistant siding and soffets	0	
50 to 75% of homes have fire resistant siding and soffets	5	5
Less than 50% of homes have fire resistant siding and soffets	10	
UNDERSKIRTING		
Greater than 75% of homes have the equivalent of fine mesh screening underneath	0	0
50 to 75% of the homes have the equivalent of fine mesh screening underneath	5	
Less than 50% of the homes have the equivalent of fine mesh screening underneath	10	
TOTAL BUILDING CONSTRUCTION HAZARD RATING		15
ADDITIONAL HAZARD FACTORS		Rating
FIRE CONTROL WATER SUPPLY		
Pressurized hydrants with minimum 500 GPM < 1,000 ft apart	0	
Pressurized hydrants with < 500 GPM or spaced > 1,000 ft apart	2	
Dry hydrant(s) available year round within the community	2	
Other accessible sources within community	5	5
Water sources located within 4 road miles of community	7	
No water sources within 4 miles of the community	15	
UTILITIES		
Both underground	0	
One underground, one above ground	3	3
Both aboveground	5	
SURROUNDING ENVIRONMENT		
Community is not surrounded by any large natural landscape	0	
Large natural landscape adjoins one side of the community	5	
Large natural landscape adjoins two sides of the community	10	
Large natural landscape adjoins three sides of the community	15	
Community is completely surrounded by natural landscape	20	20
UNDEVELOPED LOTS		
Less than 10% of lots have not been developed and pose no additional wildfire hazard due to lack of maintenance	0	
10 to 50% of lots have not been developed	3	3
51 to 75% of lots have not been developed	5	
Greater than 75% of lots have not been developed	10	
RISK LOCATION		31
Community has the following designated Wildland Urban Interface Risk Index according to SouthWRAP (Use the highest potential for impact).		
Low (Class Value -1 to -2)	0	
Medium (Class Value -3 to -5)	10	10
High (Class Value -6 to -9)	20	
TOTAL ADDITIONAL HAZARD FACTORS		10

OKLAHOMA FORESTRY DIVISION
COMMUNITY WILDFIRE RISK AND HAZARD ASSESSMENT

**What does the Wildfire Hazard Rating Mean for
My Community?**

149

**** This community's weighted mean score is XX. ****
This places the community in the Moderate category.

The Wildfire Hazard Assessment ranks communities from 0 points (low risk) to 247 points (Extreme Risk) using the categories of the Wildfire Risk and Hazard Assessment.

Low Risk:

Total Wildfire Hazard Rating is 0 – 90 points

The chances of a majority of homes in the community surviving a wildfire are GOOD. Little is needed to improve the community. Keep up the good work!

Moderate Risk:

Total Wildfire Hazard Rating is 91 – 155 points

149

The chances of a majority of homes in the community surviving a wildfire are FAIR. Some minor improvements will make the community more fire resistant. Check the areas on the form in which you scored poorly.

High Risk:

Total Wildfire Hazard Rating is over 155 points

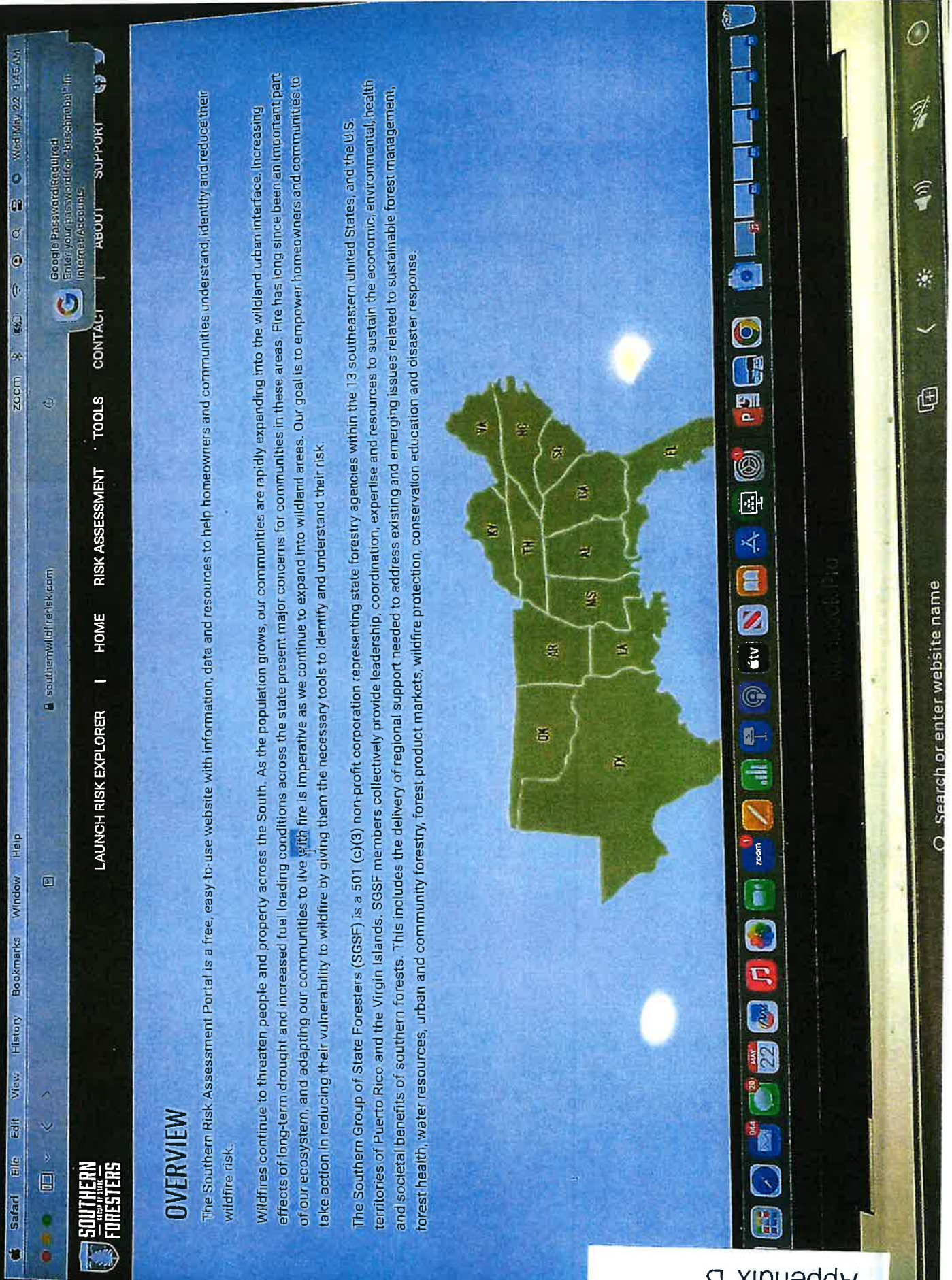
The chances of a majority of homes in the community surviving a wildfire are NOT GOOD. Some improvements in structure and site are necessary.

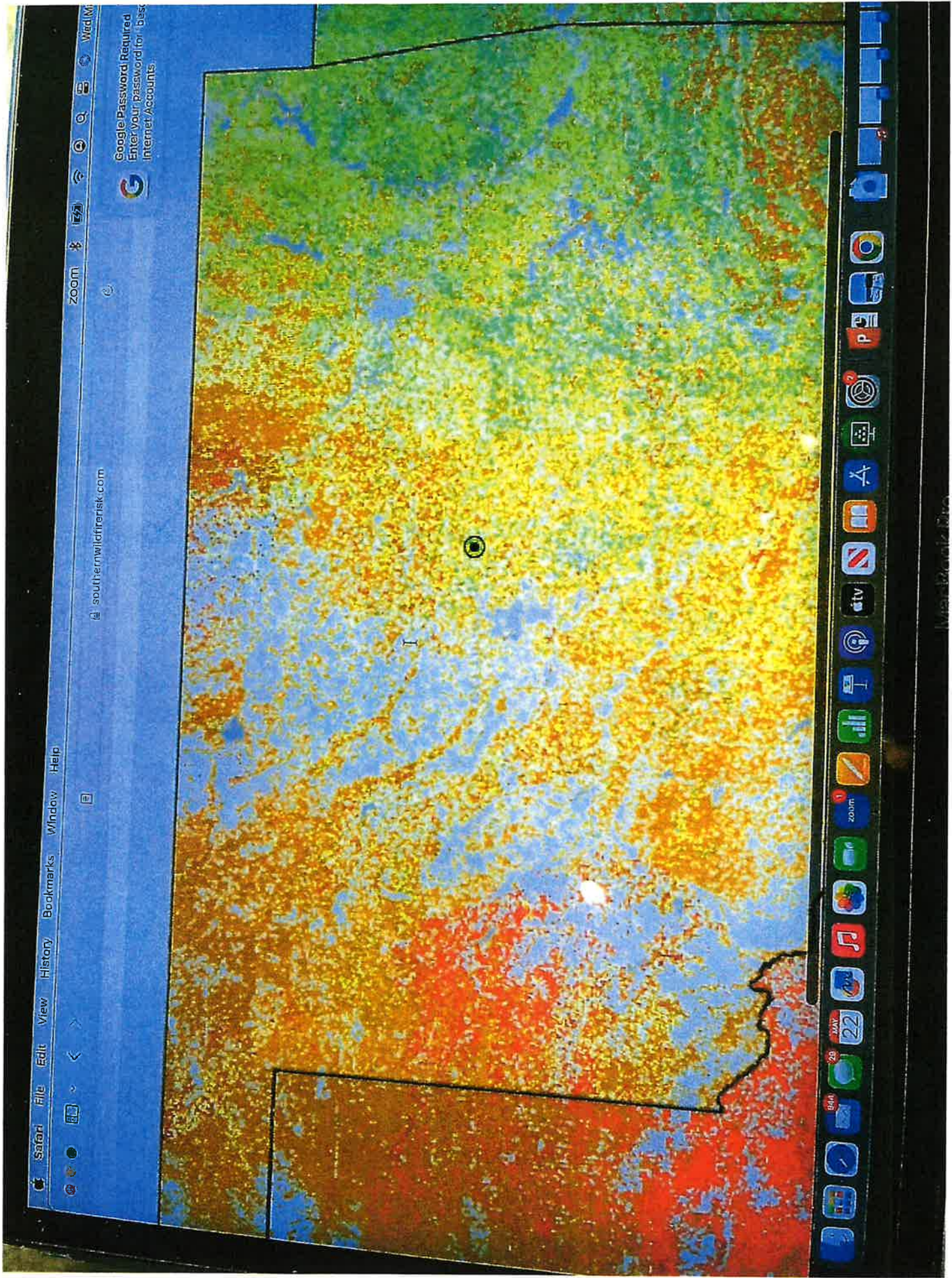
Extreme Risk:

Total Wildfire Hazard Rating is over 170 points

If a wildfire passes through the area, the community MAY NOT SURVIVE. Take a serious look at your community and make improvements. If you don't, you may be facing disaster. You will find that even small changes could make the difference.

For more information on your home's fire risk, or for more complete evaluation of your property, contact your local Fire Department.





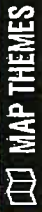
SGSF WILDFIRE RISK ASSESSMENT PORTAL BASIC VIEWER



HOME



WHAT'S YOUR RISK?



MAP THEMES



WHAT'S YOUR RISK?

Pan the map to identify the wildfire risk associated within the general vicinity of your location.

High to Very High

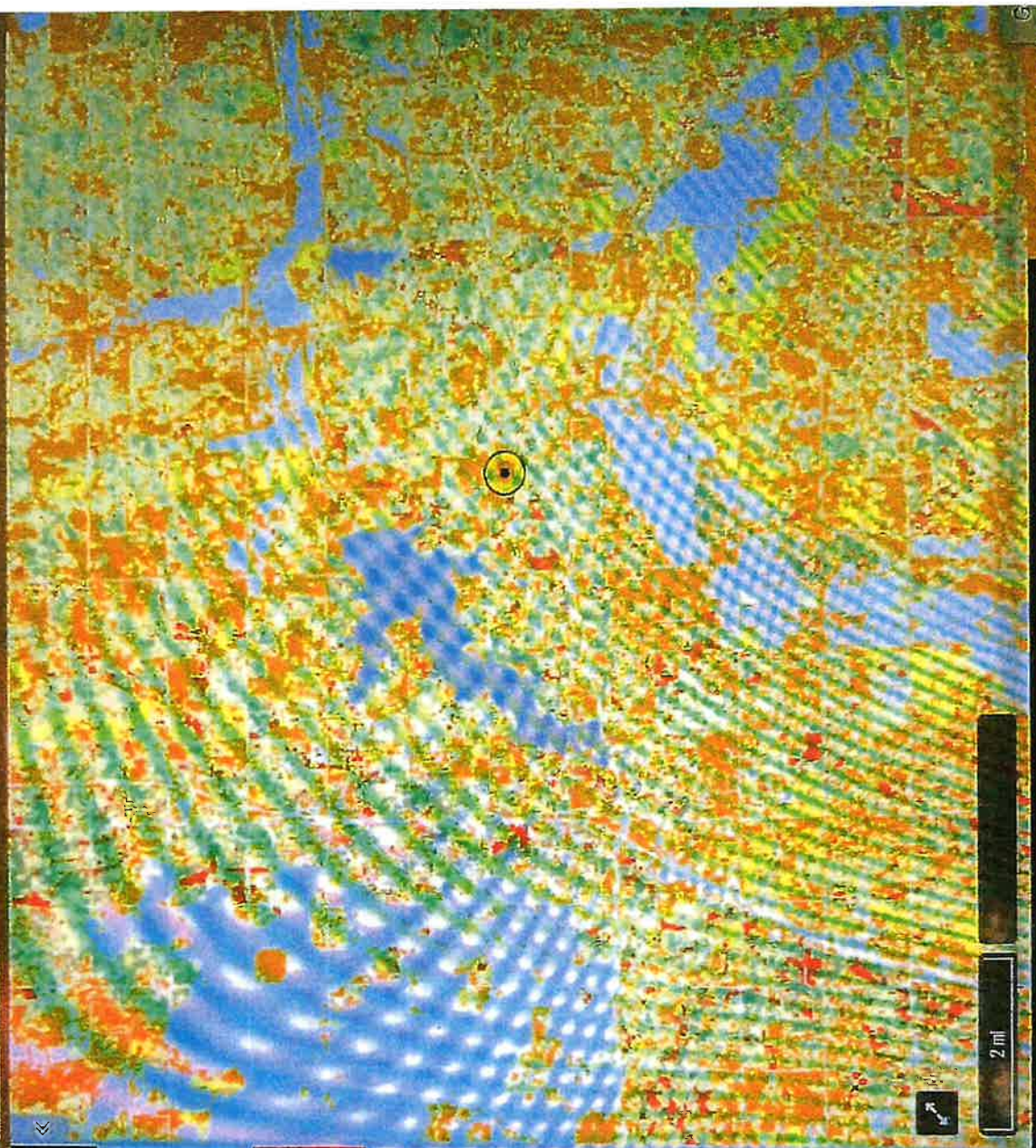
35.62089° N 97.35087° W

Take action now towards implementing wildfire mitigation strategies to better protect your home and property.

As a homeowner, you are not powerless in your defense against wildfires. By taking a proactive approach to wildfire prevention, you can significantly increase your safety and your home's likelihood of survival during a catastrophic wildfire event. The actions you take to mitigate the risk on your property before a fire occurs can make all the difference.

Learn more about reducing your risk

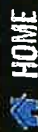
Characteristic Fire Intensity Scale



3 - Moderate



SGS WILDFIRE RISK ASSESSMENT PORTAL BASIC VIEWER



HOME



WHAT'S YOUR RISK?



MAP THEMES



WHAT'S YOUR RISK?

Pan the map to identify the wildfire risk associated within the general vicinity of your location.

Moderate to High

35.63011° N 97.30290° W



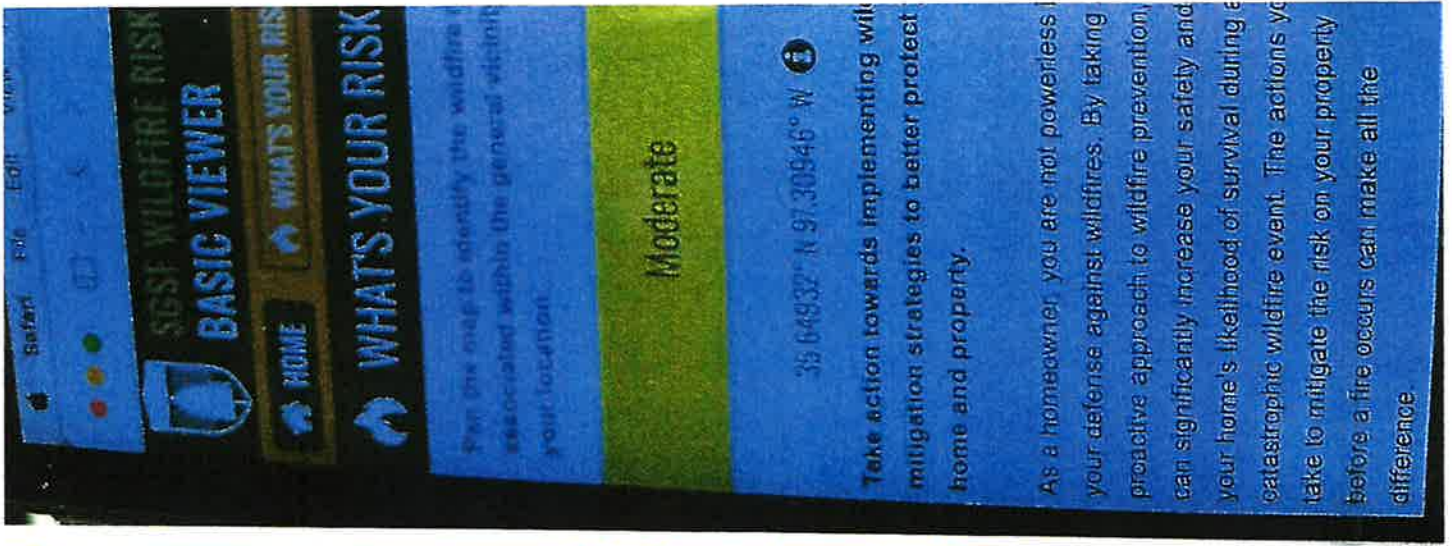
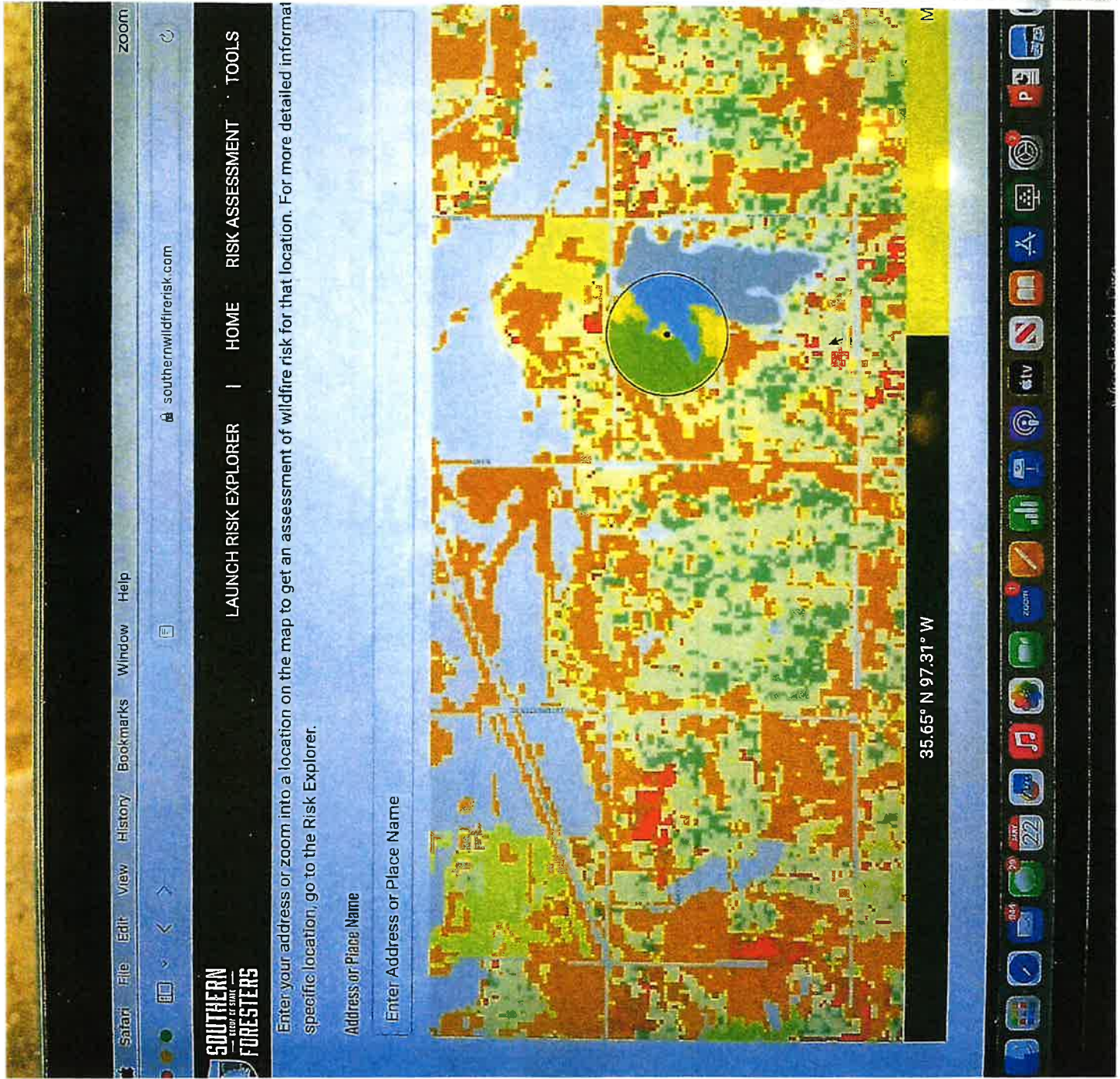
Take action towards implementing wildfire mitigation strategies to better protect your home and property.

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Learn more about reducing your risk



Characteristics: Fire, Location, Risk



SGSF WILDFIRE RISK ASSESSMENT PORTAL BASIC VIEWER

HOME WHAT'S YOUR RISK? MAP THEMES

WHAT'S YOUR RISK?
Pan the map to identify the wildfire risk associated within the general vicinity of your location.

Moderate

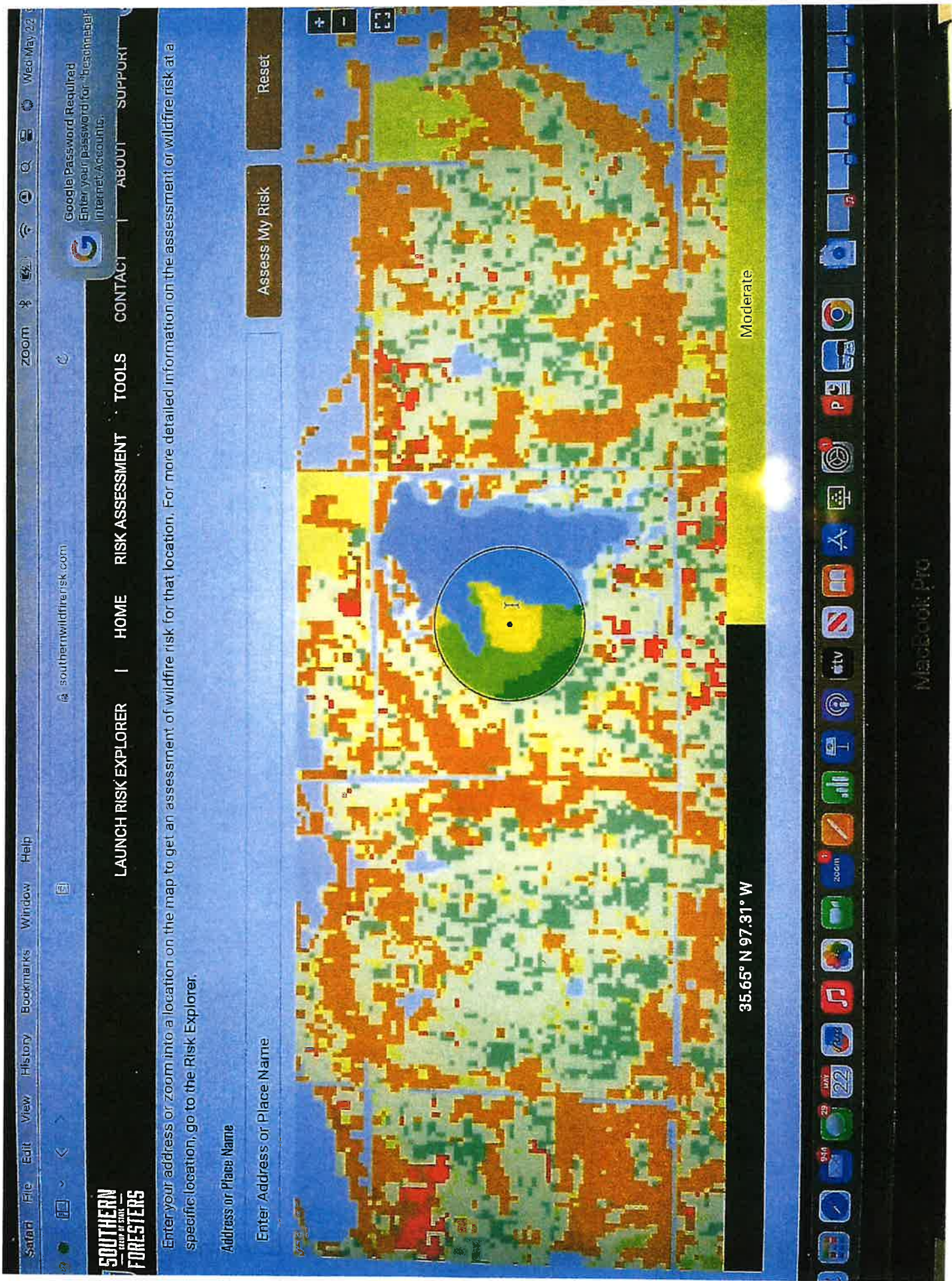
35.64573° N 97.30901° W

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Learn more about reducing your risk
Characteristic Fire Intensity Scale





southernwildfire.risk.com

SOUTHERN
FORESTERS

LAUNCH RISK EXPLORER | HOME | RISK ASSESSMENT | TOOLS | CONTACT | ABOUT | SUPPORT

Google Password Required
Enter your password for "besonmagat"
Internet Accounts

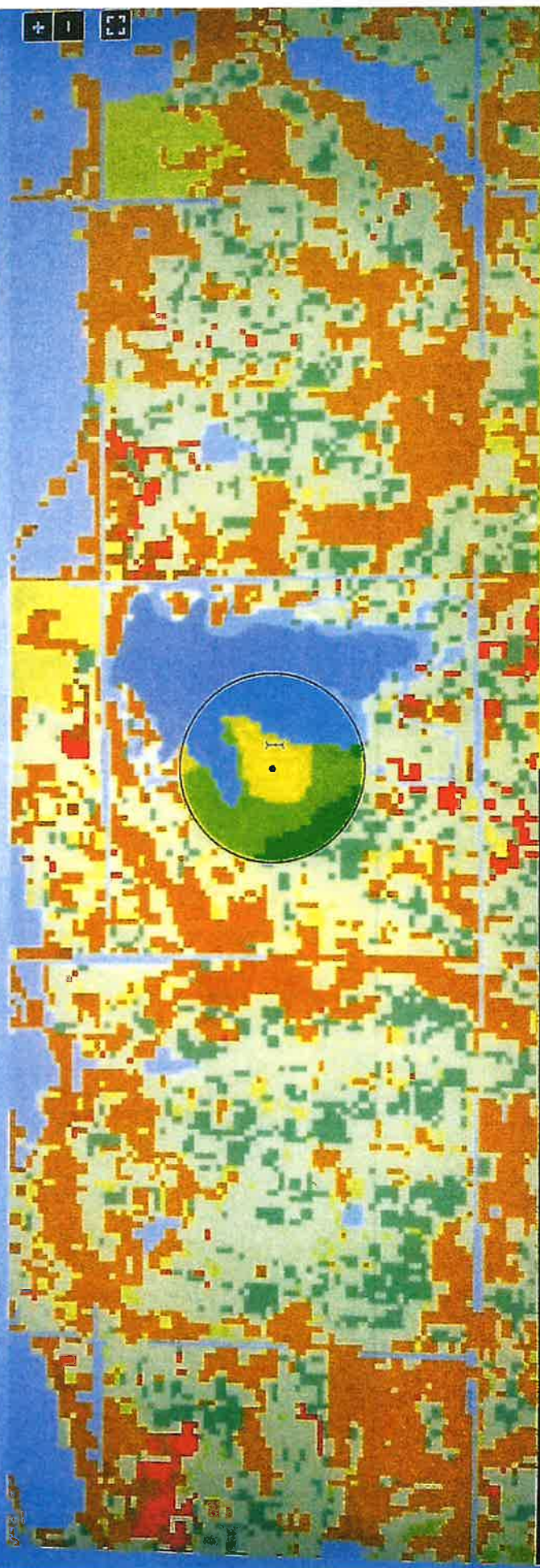
Enter your address or zoom into a location on the map to get an assessment of wildfire risk for that location. For more detailed information on the assessment or wildfire risk at a specific location, go to the Risk Explorer.

Address or Place Name

Enter Address or Place Name

Assess My Risk

Reset



35.65° N 97.31° W

Moderate

MacBook Pro

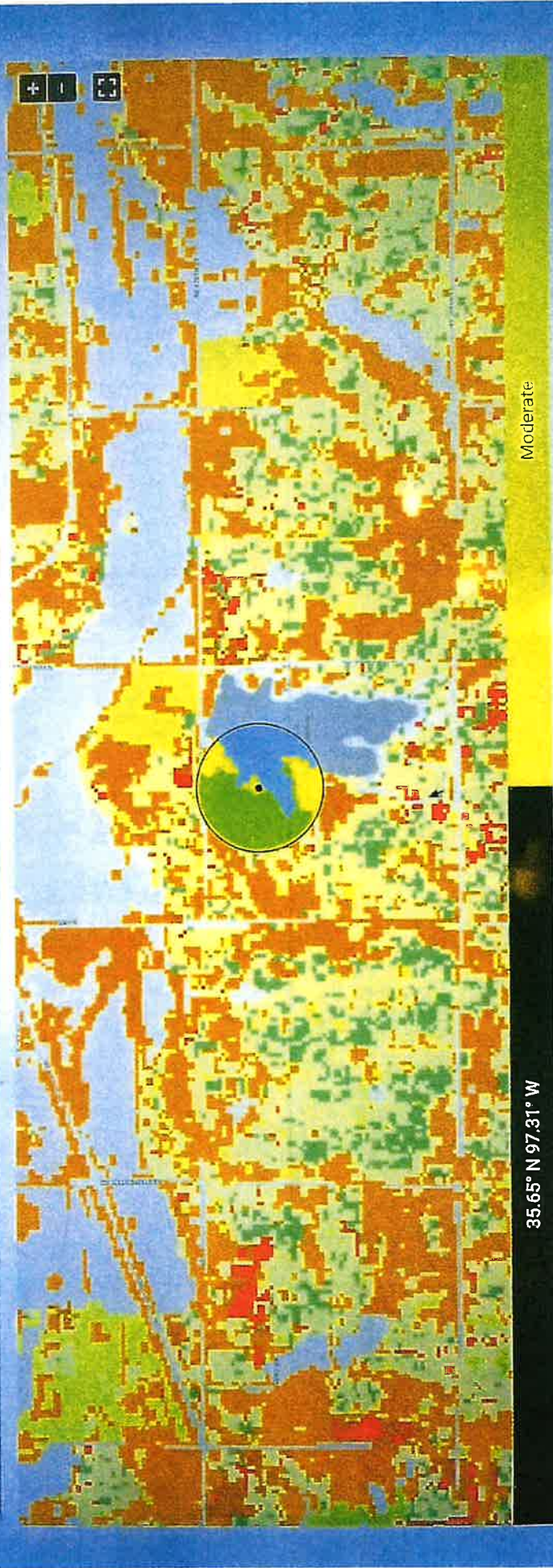
Enter your address or zoom into a location on the map to get an assessment of wildfire risk for that location. For more detailed information on the assessment or wildfire risk at a specific location, go to the Risk Explorer.

Address or Place Name

Enter Address or Place Name

Assess My Risk

Reset



SOUTHERN WILDFIRE RISK ASSESSMENT PORTAL

SOUTHERN
FORESTERS

ABOUT US | HOME | RISK ASSESSMENT | TOOLS | CONTACT | ABOUT | SUPPORT

COMING SOON TO YOUR PHONE!

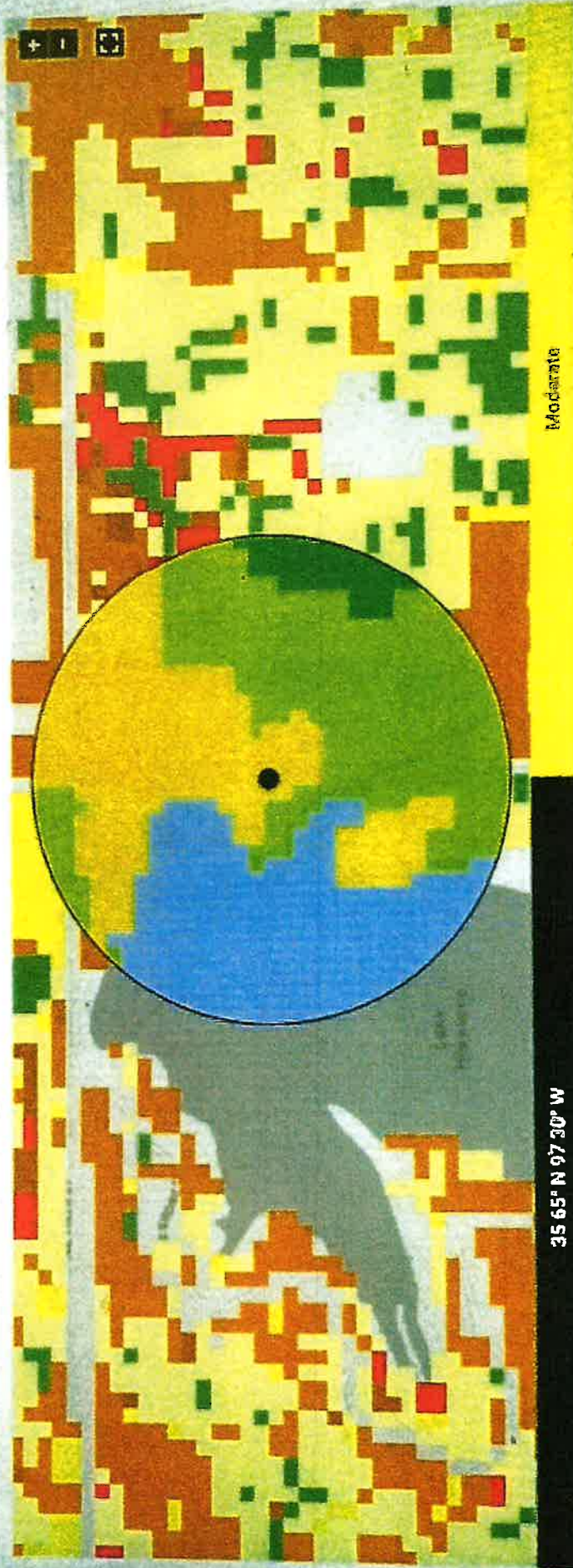
Enter your address or zoom into a location on the map to get an assessment of wildfire risk for that location. For more detailed information on the assessment of wildfire risk at a specific location, go to the Risk Explorer.

Address or Place Name

Hiwassee Lake Access, Arcadia, OK, 73007, USA

Assess My Risk

Reset





Appendix D

● EXIT
NORTHWEST
GATE

● EXIT
SOUTH
GATE

● EXIT
EAST AND
NORTH
GATES

IF FIRE IS
SOUTH
DO NOT USE
SOUTH GATE
(USE NORTHWEST
GATE)

IF FIRE IS
NORTH
DO NOT USE
NW OR N
GATES,
USE
SOUTH AND
EAST



Appendix E.1

Oklahoma Forestry Services Findings and Recommendations for the Lake Hiwassee Community

The property consists of 440 acres MOL in Oklahoma County approximately 2.3 miles southeast of Arcadia, OK. Based upon a site visit conducted by forester Riley Coy on Monday December 8th, 2021 and landowner conversation, it was determined the community has two objectives for which to manage the property.

1. Forest Health/Wildfire Mitigation
2. Recreation

Current Conditions

The canopy is primarily closed with mature hardwood species.

Species observed include post oak, blackjack oak, common persimmon, black hickory, eastern redcedar, black locust, Mexican plum, callery pear, and Chinese privet. Much of the property consists of native prairie degraded by eastern redcedar encroachment. Along the creeks and in low, wet areas, the observed species include pecan, American sycamore, boxelder, American elm and eastern redbud in addition to the aforementioned species. The forest floor currently consists of moderate hardwood debris, greenbrier, poison ivy, wild grape and various canopy species. Regeneration of both grasses and hardwoods are low to moderate throughout the stand. The absence of recent fire and/or mechanical thinning has led to accumulation of undesirable species such as the invasive Chinese privet and native eastern redcedar, in addition to over-mature native species such as wild grape and greenbrier.

Additionally, the absence of recent fire and/or mechanical thinning has allowed the forest density to reach unhealthy proportions across much of the forested property.

Forest Health/Wildfire Mitigation

To achieve the primary objective of Forest Health/Wildfire Mitigation, it is important to maintain the current stand density through mechanical thinning and prescribed fire. The forest will attempt to thin itself through die back and wildfire. Die back occurs when the nutrients, sunlight and space given is no longer adequate for the plant life established. Over-crowding causes plants to become stressed allowing diseases, pests and fungus, such as Hypoxylon Canker, to enter the stand. Evidence of Hypoxylon Canker was not observed on the property. As density dependent mortality occurs throughout the stand, fire-

accumulate on the forest floor, which, over time will create an environment ideal for a catastrophic, stand replacing wildfire.

Historically, as the stand thins itself naturally, low intensity wildfire would enter the stand helping to clear the fuel load periodically. Reintroducing fire to the stand mimics the historic fire regime for the area.

Wildlife Habitat

Stand structure and species diversity is important for wildlife habitat for all species of fauna. Throughout the prairie, remove all eastern redcedar and allow thicketing species such as sumac, persimmon and sand plum to establish. Once a thicket reaches 1.5 acres or more, mow a linear path through the middle and maintain the path in perpetuity. Linear features through dense brush entices many species of wildlife and allows them access to fruit from the mature plants within the center of the thicket.

Tree species favorable to wildlife though not observed on the property include bur oak, American plum and sand plum.

Sparsely planting these species within the meadows will allow for large open crowns for maximum mast production. Species to avoid for wildlife include Bermuda grass, Johnson grass, sericea lespedeza, Chinese privet, and callery (Bradford) pear.

Treatment Description: Disc Lines

January – March:

Discing boundary lines and/or trails will stimulate production as food sources for quail and deer as well as offer access for firefighters to safely suppress wildfire. Disc two strips every other year around the property where there are no roads to act as a firebreak. Disc a row in year one then disc a row next to row one the following year. Maintain this interval so each row is disced every two years to achieve the goal of heterogeneity in food sources and brood rearing habitat for wildlife. Avoid driving on disced trails so as to avoid compaction.

Treatment Description: Forest Health/Wildfire Mitigation

January – April:

When removing hardwoods, find mast producing trees with large crowns and remove competing trees from around them.

For wildlife forage it is recommended to clear an area in all directions around a tree as wide as the tree is tall. This allows grasses and tender seedling shoots to grow which provide ideal forage. In addition, it is necessary to leave some dense patches for wildlife habitat. This will mimic a natural setting and the

introduction of a fire regime will maintain the setting.

It is important to thin the stand based upon the objectives stated.

Many loggers will attempt to "high grade", which is a type of timber harvesting in which larger trees of commercially valuable species are removed with little regard for the quality, quantity, or distribution of trees and regeneration left on the site. Leaving many of the commercially valuable species will leave large, mast-producing crowns which add mast for wildlife. Once thinning is complete, firelines should be constructed around the perimeter of the tract. Fire should then be reintroduced to control hardwood sprouts and ground vegetation. If possible, the forested portions of the tract should be burned every 3-5 years to mimic the historical forest type with thick grass ground cover and an open canopy. If fire cannot be introduced, removal of accumulated fuels is necessary to mitigate for stand-replacing wildfire. Simply gather woody debris from the forest floor and either pile and burn in a central burn pit, or mulch and spread evenly about the forest floor to decompose naturally. Using the wood chips along established trails can also be an effective use for this material.

Treatment Description: Invasive Species Control

Remove all eastern redcedar (ERC) from the property except those that are preventing erosion with their root system, or those that could have commercial value as timber in the future. ERC grown densely within the forest have straight stems with very little taper and lower branches. ERC growing open in the meadows have too much taper and too many lower limbs to be commercially valuable. If leaving commercially valuable ERC on site, prune all the lower limbs to the stem as far up as one can reach with a chainsaw to limit wildfire potential and maximize commercial quality. Cut mature grapevine and greenbrier at the ground to promote new growth for wildlife consumption and to limit damage done to nearby trees from the weight of the vines in the tree crowns. In winter, remove ALL Chinese privet. It will be the only broadleaf plant that remains green throughout winter. Immediately brush the sawdust off each stump after cutting and apply a sponge soaked with Triclopyr or comparable product to kill the roots and prevent resprouting. Simply cutting the privet will only encourage root sprouts, making matters worse in the long run. Goats can achieve the same results without the use of chemicals, but they will eat anything they can reach with impunity, decreasing overall forage for wildlife. Treat all callery pear the same as Chinese privet. Allowing callery pear to establish will degrade the meadows further by preventing native species to establish.



Oklahoma Forestry Services website; the number one source for forestry information in Oklahoma: www.forestry.ok.gov

Forest*A*Syst provides an introduction to the concepts of managing a forest for timber production, wildlife, recreation & aesthetics, and water quality: <http://www.forestasyst.org/>

Images of many insect pests: www.forestpests.org/

Information and pictures on many aspects of forestry:
<http://www.bugwood.org/>

Oklahoma State University's Extension Service has several publications of interest to forestland owners. Find more information at <http://osufacts.okstate.edu>. Of particular interest to absentee owners is the fact sheet entitled "Absentee Rural Land Ownership" found at <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2520/AGEC-966web.pdf>

Many issues surround the future of the forestland by the next generation of landowners. These issues are thoroughly and thoughtfully discussed in the pdf "Succession Planning for Woodland Owners" found on the University of Missouri's extension service website. This pdf can be found at <http://extension.missouri.edu/explorepdf/agguides/agroforestry/fl1013.pdf>

Hypoxylon Canker Fact Sheet Link:
<http://www.forestry.ok.gov/Websites/forestry/Images/Hypoxylon%20Canker.pdf>

For quality whitetail deer forest management Oklahoma State University has an in depth PDF found at: <http://www.okrangelandswest.okstate.edu/files/wildlife%20pdfs/E-979.pdf>

For quality rangeland wildlife management information please visit: <http://www.okrangelandswest.okstate.edu/Wildlife.html>

For comprehensive information about the Cross Timbers Ecosystem please visit:
<http://cavern.uark.edu/misc/xtimber/index.html>

Appendix E.2

LAKE HIWASSEE FUEL MANAGEMENT RECOMMENDATIONS

Prepared by Open Range Management LLC (CPRM)
March 3, 2022

A site visit and verbal consultation was conducted at the Lake Hiwassee property in Late February 2022. The purpose of the consultation was to determine the best path of action to manage the woodlands that are on the south end of the property. The vacant lots between some of the houses were also inspected for management considerations. The stated goals of the group showing the property were to manage for recreational space (too thick to use), restore forest health, develop an invasive species plan and mitigate wildfire risks.

The site visit determined that the current state of the property was worse than expected from previous phone calls. It is evident that there have been no natural disturbances on the property for at least 50 years. Natural processes such as fire and grazing that maintained this ecosystem throughout history have been excluded and the resulting accumulation of biomass is extreme. The property is so overtaken with woody plants and residual woody debris that it is not in a manageable state. The condition of the property warrants a restoration plan rather than a management plan.

The accumulation of biomass represents an enormous fuel load should the property catch on fire. Heavy fuel accumulations can cause normal firefighting tactics to be unsuccessful and result in loss of structures. The ecological solution to this condition would be to target fire conditions that would produce a stand replacing fire, i.e., burn it to the ground and let nature start over but that is just not feasible in this location. The number of houses that are directly downwind is the main concern but the fuel loads on the surrounding properties are very heavy as well. The smoke concerns for the houses are bad enough to rule out burning as a management tool. The chances of something going wrong are way too high to consider using fire. The conversation that was had about liability insurance coverage for the burn would also rule out the use of fire.

After assessing the property, it is recommended to reprioritize the goals and move wildfire mitigation to the top of the list. After visiting the property, the surrounding area was assessed to determine potential ignition sources and fuel conditions connecting to the property. The roads on the exterior serve as a boundary to prevent most fires from spreading to the Lake Hiwassee property; However during extreme conditions a fire can easily jump across the roads. Having I-44 a mile to the south of the property represents an active ignition source and the land in between is covered in volatile fuels (eastern red cedar). Most catastrophic fires in the Cross Timbers ecosystem occur in the hot, dry parts of the summer and are fueled by strong southerly winds. These types of fires burn through the canopy and are impossible to control. A fire starting on the interstate could spread to the Lake Hiwassee property in less than 15 minutes and be completely uncontrollable. There are also multiple other ignition sources that can start a fire: cars on the adjacent roads, the burn pile on

the property as well as campfires and fireworks. The fuel loads coupled with possible ignition sources could make for a catastrophic event. The houses are positioned very close to one another leading to a domino effect if one structure catches fire. Only having one point of entry/exit will compound the problem even further. The fire will come from the south so that locked gate will be cutoff by smoke and flames. The panic that this situation would cause would congest the road so there would be no chance of fire crews entering the property to help.

A program called Firewise has been developed to provide guidelines on fuel management in wild-land-urban interface situations such as this. This program involves managing fuels in a series of zones that increase in size based on the distance from the structure (Image 1). The premise is that fuels need to be disconnected from each other to prevent any laddering or crown fires. This will keep the flames on the ground with shorter flame lengths so they can be attacked easier. The homeowners would have to take care of the vegetation in the inner zones of the program but the extended zone would be more for community protection. In this program there would be two extended zones, one on each side of the lake on the south end of the housing areas (Image 2). These areas create what is called a defensible space where fires can be attacked before reaching the homes. Creating this type of area involves separating the tree canopy and preventing any large fuel accumulations on the ground. This type of vegetation management was discussed on the site visit as being done by a skid steer that mulches the vegetation and leaves it on the ground to decompose. After having some time to think about the situation and the accumulation of biomass being the problem, it is recommended to have the vegetation cut or grubbed and then mulched and hauled off of the property. Having that much mulch laying around will take a long time to decompose and it would still represent a problem for attacking an advancing fire. Mulch also burns for days on end if it does catch fire which will result in nuisance smoke in the community for an extended time. It is also recommended to thin, limb up and remove woody debris from the vacant lots within the housing areas. This material should also be moved off site.

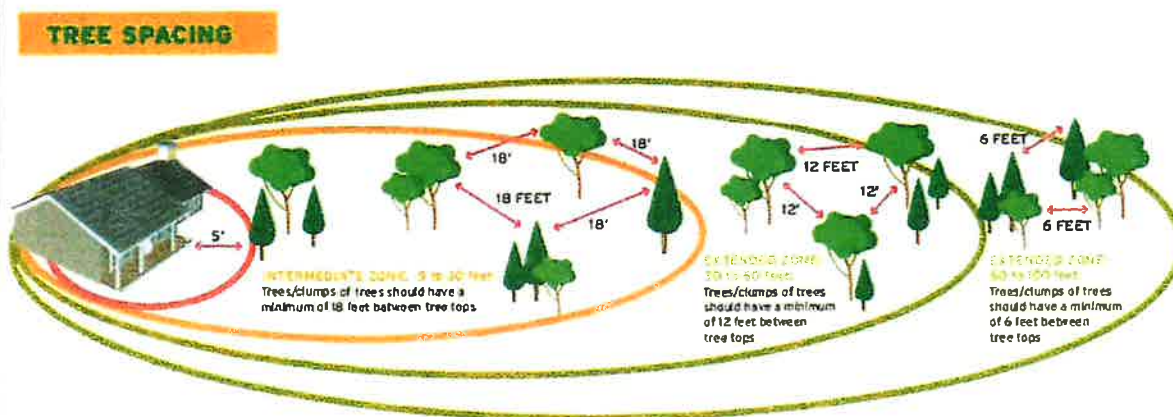


Image 1: Firewise

After the defensible space has been created, it will need to be maintained. The areas will be open enough to manage invasive species such as privet and sericea with herbicide applied from a UTV. It would be an impossible task to try and manage them with the current state of the property. The work in the vacant lots will also likely cause more invasive plants to sprout which will need to be managed as well.

The areas to the south of the residences will need to be periodically mowed or mulched every 2-3 years to prevent the problem from happening again. If enough funding is available after the defen-

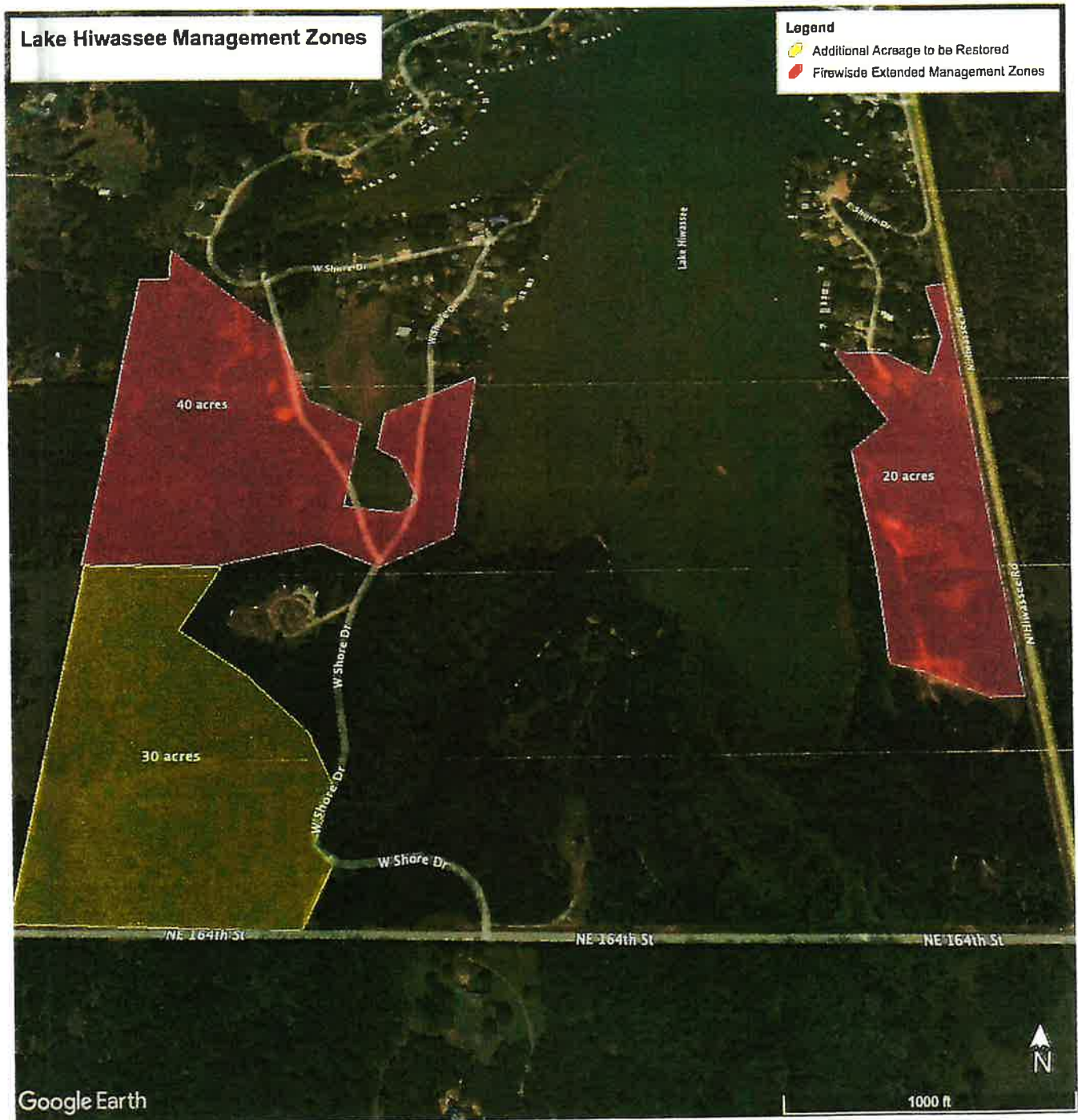


Image 2: Management zones.

sible space and maintenance program are established, there is an additional area of the southwest corner of the property that should be cleared of cedar trees and oaks thinned. This area will provide additional protection from catastrophic fire as well as increase the open area available for recreation. The remaining areas of the property on the south end of the lake can be left in the current state if enough people want a super thick, nasty cedar thicket. These areas are not representative of what vegetation would be there historically but they don't represent an immediate fire risk to the community.

The evolution of the proposed management of the property has progressed outside of the capabilities of Open Range Management LLC. This situation needs to be treated more like a construction site and less like an ecological restoration project. Our liability coverage is not structured to operate in such a high-risk environment and we do not have the equipment to mulch and haul the material off site. Our network of contacts in the industry has led us to the recommendation of a local contractor that has the capabilities of handling the project. We would be glad to help explain what the final product should look like if there is any confusion with the other contractor. They come highly recommended from a trusted source but we have never worked with them directly. The company is Gallion Excavating LLC, 405-590-0331, located in Edmond. We spoke with them on the phone about the scope of the project but did not obtain any price quotes.

Firewise information:

<https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Preparing-homes-for-wildfire>

Appendix E.3

Brock Schnebel
Lake Hiwassee

April 26, 2023

Dear Brock Schnebel:

Thank you for expressing interest in protecting the water quality in your community. During our recent visit and tour of your community's forested areas, a number of trails and activities were identified that require mitigation to reduce erosion and water quality degradation. Here is a list of recommendations that I would suggest be implemented to help protect the water quality of Lake Hiwassee:

1. Establish 50 foot wide buffer zones around the lake and along stream channels (buffer zones extend out 50 feet from each stream bank or ordinary high water mark). Trails and soil disturbing activities should be restricted from the buffer zones.
2. Eliminate all trails that travel within stream channels (limited stream crossings may be utilized when Best Management Practices are followed).
3. Remove piles of dredged material from buffer zones (piles are presently located along stream banks on south property boundary). NOTE: Remove piles of dredged material from the root zone of any trees that are to remain on site as this can lead to tree mortality.
4. Relocate trails that are presently along border fence to allow establishment of a buffer strip between the fence and trails (approximately 10 feet wide). Establish grass in the buffer, maintain with mowing, and exclude soil disturbing activities. This will aid in maintaining structural integrity of fence by reducing erosion around posts through reduced soil disturbance.
5. Install water drainage structures, such as rolling dips, on all trails to reduce erosion. Follow guidance outlined in "Oklahoma's Best Management Practices for Water Quality" <https://ag.ok.gov/wp-content/uploads/2020/12/Forestry-Best-Management-Practices-for-Water-Quality-Management-in-Oklahoma.pdf>

The most critical mitigation efforts needing immediate action are the elimination of trails within stream channels and removal of the piles of dredged material located along stream banks. The risk associated with these conditions is significant and must be prioritized.

Proper forest management and community wildfire protection requires access for necessary activities so I would suggest maintaining a good network of trails that implement Best Management Practices. When your community begins implementation of these practices, please feel free to contact me or Oklahoma Forestry Services for further guidance.

Sincerely,



Jason Whaley
Water Quality Forester
Oklahoma Forestry Services
405-496-6876

Appendix E.4

Begin forwarded message:

From: Amie Robison <thepondlady@outlook.com>
Date: November 18, 2022 at 12:20:33 PM CST
Subject: [EXTERNAL] Lake Hiwassee information and sediment/erosion recommendations

Brock,

Here is the brief report from our environmental specialist. We may need to do a more detailed site visit specifically to look at these issues, as she did everything remotely using satellite images and documentation that she was able to find. I feel like this is a good start and I really like the catch basin idea. I realized earlier when we spoke that I was a little switched around in my mind. I keep thinking the Deep Fork drains into the lake, and I had it backwards. I have my bearings now! Please let me know if you have any questions and I will review the documents you sent over. Thank you and we will be in touch!

Amie Robison - "The Pond Lady"
Aquatic Ecologist and Co-owner
Robison Wildlife Solutions
9401 S. Harrah Rd. | Newalla, OK 74857
405-269-4575 | www.robisonwildlife.com



Lake Hiwassee (Lake Hiwassee Improvement Company, established in 1943) is in the Deep Fork of the Canadian River watershed near Arcadia, OK. The lake/pond is 122.5 acres in size at an elevation of 297.20 feet. Lake Hiwassee is downstream of Arcadia Reservoir; two tributary streams (Coffee Creek and Soldier Creek) discharge into Deep Fork Creek upstream of the discharge drainage route from Lake Hiwassee.

Lake Hiwassee is a private lake with a Home Owners Association (HOA) and is used for recreation (swimming, boating, skiing, ATV trails around lake). Greenbelt areas surround the lake. Requirements for construction must be approved by HOA, which include parking restrictions off the paved road, burn pile location, and dumpster use.

US Army Corps of Engineer assessment report for Lake Hiwassee in the Summer of 2013 indicated a Cynobacteria (also known as blue-green algae) Harmful Algae Bloom (CyanoHAB) occurred. During this event, tests indicated a blue-green algae cell count of 78,000 cells/ml and a count of anything greater than or equal to 100,000 cells/ml indicates an Advisory posting for human health concerns. This past event indicates that another large bloom could occur again in the future. These blooms are more likely to occur when there are high levels of phosphorous. Mitigating phosphorous levels in the lake will help but could be difficult to accomplish, and costly.

There is some new construction and agriculture land disturbances observed via satellite imagery, but not enough to account for the accumulated sedimentation. Stormwater runoff from these sites may contribute to sediment loading, but it is possible that past development efforts did not include the use of erosion and sediment controls. The accumulation may just be due to the total disturbances to the land that have occurred since Hiwassee was built but is not a major concern for management of the fishery. Mitigation could be achieved with management modifications.

Recommendations for reducing sediment loading include:

1. Encouraging landowners to stop mowing to the edge of their lots. Keeping a vegetation buffer around as much of lake shoreline as possible, will help prevent sediment loading from the area directly adjacent to the edge. If shoreline access has been barricaded with riprap or retaining walls, care should be taken to maintain these structures/implements. Aquatic vegetation should also be allowed to establish along the shoreline edge of these structures to help anchor sediment and prevent erosion.
2. Installation of a sediment retention basin (small pond) near the inflow at NE 164th will slow water down and cause sediment to fall out. A catch basin can be more easily maintained for sediment removal than dredging the lake itself.
3. Installation of a floating wetland/rain garden structures at the inflow area into the lake will naturally filter remaining sediment. These can be easily built by landowners at a reasonable cost.
4. Allow aquatic vegetation to remain in places where it has already been established and to spread to other areas. Targeted removal of cattails along landowner shoreline areas is allowable but should be supervised and restricted to approved areas only. If landowners wish to remove vegetation, it is recommended that they be required to get permission from the HOA.



Oklahoma Department of Wildlife Conservation



Private Lands Technical Assistance Field Note Report

Biologist: Kyle Johnson (405-590-2584) **Date of Site Visit:** 8-2-2024
Landowner: Lake Hiwassee Improvement Co. **Acres:** 450
County: Oklahoma **Legal:** Sec. 33 T14N R1W
Email Address: bschnebel@mcboh.com **Phone:** 405-642-9451

LANDOWNER/ASSOCIATION OBJECTIVES/GOALS

To enhance and manage the property for wildlife, fishing, and outdoor recreation.

GENERAL EVALUATION OF CURRENT HABITAT

This great property is characterized by fine sandy loam and loamy bottomland soils. Historically, the undeveloped, upland portions of the property were characterized by an approximate 50-50 mix of open grassland to hardwood forest habitats. Today, about 75% of the undeveloped areas are dominated by tree cover. About 50 acres of eastern red cedar removal has been completed to date, and this great work has helped recover some native, natural herbaceous communities.

Overall, the Lake Hiwassee property is dominated by native vegetation. However, seven of Oklahoma's Dirty Dozen Invasive Species occur on the property. Eastern red cedar, Chinese privet, and Japanese honeysuckle are already problematic within most forest communities and within some open areas. Sericea lespedeza, Johnsongrass, musk thistle, and yellow bluestem are also present and likely to spread.

HABITAT RECOMMENDATIONS

Recovering some of the historic prairie and woodland/savanna communities through forest stand improvements is recommended to help maximize habitat diversity for game and nongame wildlife. In addition, reducing the presence and controlling the further spread of invasive vegetation is critical to maximize the native forest and prairie vegetation that Oklahoma's wildlife require for their year-round needs. Maintaining healthy, productive habitats through rotational prescribed burning is highly encouraged.

Quick List of Recommendations:

- **Forestry Mulching of Upland Forest Acres - Spraying Forest Invasives**
 - To Remove Eastern Red Cedar
 - To Selectively Thin Smaller Diameter Hardwoods (reduces the competition for older trees)
 - To Reduce the Height of the Invasive Privet and Honeysuckle (for spraying)
- **Mowing and Spraying of Invasive Prairie Vegetation**
 - Mowing the Problem Areas this Fall to Remove the Above Ground Thatch
 - Spraying the Invasive Vegetation at the Proper Time (and with the appropriate herbicide)
- **Prescribed Burning**
 - Rotational Burning will Maintain and Promote Forest and Prairie Health.



Proposed Habitat Projects for 2025

WHIP COST-SHARE ESTIMATES:

OPTION #1:

25.8 Acres of Forestry Mulching:

(This option requires 2 years of contracts)

Year 1: 15.3 Acres Completed =

\$303.92/Acre = \$4,500 of Reimbursement

Year 2: 10.5 Acres Completed =

\$303.92/Acre = \$3,191 of Reimbursement

OPTION #2:

25.8 Acres of Cedar Cutting

(This can be completed with one contract)

\$106.68/Acre = \$2,752 of Reimbursement

APPENDIX F

IMPLEMENTATION STRATEGY 2024

EMERGENCY PREPAREDNESS

1. Develop a relationship with firefighting service in combination with medical and security service.
 2. Develop a plan and move forward on a notification process, with an understanding with what happens and how to respond.
 3. Develop and implement plans for improved gates and improved turnaround sites.
 4. Develop evacuation plan and routes.
 5. Identify those residents that require assistance and develop a method of providing assistance
 6. Develop a practice event to educate residents (4th of July event can be used as a guide)
 7. Develop a funding plan. Continue to assess community members, and in addition, apply for county programs, Oklahoma Department of Wildlife Conservation Programs, and State and Federal Programs.
-

8. Emergency Notification System acquisition. (RAVE or alternative)
9. Develop water access for fire protection (pumps, hydrants, wells, city-like systems).
10. Develop an education program for our community regarding fire safety and appropriate actions.
11. Develop a plan to train our community members to assist in work required to be more fire safe and to improve out wildland urban interface (WUI)

MITIGATION EFFORTS

1. Attempt to follow desired recommendations of state foresters and vendors.
 2. Try to decrease numbers of, and limit infestation of the dirty dozen as outlined by Kyle Johnson, Appendix E-5.
 3. Try to appropriately clear the understory with understanding that some standing dead and deadfall play a role in a healthy forest.
 4. Eventually try to get to where a controlled burn management strategy could be considered, segmentally and systematically. (per appendix)
-

5. Maintain fire wise trails and roads with an environmentally conscious effort as per state forester recommendations. (per appendix)
 6. Neighborhood "fire wise" lot management effort and greenbelt care.
 7. Develop a funding plan.
-

Approval Signatures

The Lake Hiwassee Community Wildfire Protection Plan was developed collaboratively and in consultation with interested parties, including the Edmond Fire Department, Oklahoma Forestry Services, and the residents of the community.

The Plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends other types and methods of treatments that will protect the Lake Hiwassee community.

The following entities mutually agree with the contents of this Community Wildfire Protection Plan:

Agreed: _____

Date: 2-3-25

Print Name: Chad Weaver

Edmond Fire Department

Agreed: _____

Date: 2-3-25

Print Name: Josh Hillis

Edmond Fire Department

Agreed: _____

Date: January 27, 2025

Darrell A. Davis, Mayor

City of Edmond

Agreed: _____

Date: _____

Print Name: _____

Oklahoma Forestry Services

Agreed: _____

Date: _____

Print Name: Myles Davison, Oklahoma County Commissioner, District 3

Oklahoma County