



URBAN FORESTRY ASSOCIATES, INC.

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PROPOSED CENTRAL TPZ MANAGEMENT

For
Sea Ranch, CA

Prepared for:
Jim Larsen
22 Ramona Drive
Orinda, CA 94563

Prepared by: Ray Moritz, Fire Ecologist
SAF Cert. Forester

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PURPOSE

I, Ray Moritz of Urban Forestry Associates (UFA), was hired to review documents and particularly the January 13, 2016 Nonindustrial Timber Management Plan (NTMP # 1-16NTMP-001 SON) and recreational/fire management issues in the management of the Sea Ranch Central TPZ at the request of Jim Larsen.

QUALIFICATIONS

I am an urban forester and fire ecologist. I have worked in parklands, urban areas and the wildland / urban interface for over forty years. I am the senior consultant for Urban Forestry Associates, Inc. I am a SAF Certified Forester #241 and an ISA Qualified Tree Risk Assessor. I have conducted numerous fire risk assessments, vegetation management plans, and fire recovery plans in northern California. I have been a cause and origin and fire behavior consultant to State agencies, counties, cities, towns, developments and individuals. I am not a California Licensed Registered Professional Forester. I do not conduct Timber Harvest Plans (THPs) or NTMPs.

HISTORY

This history was taken from a Sea Ranch document explaining the project:

"Logging appears to have begun between 1897 and 1898 on the northern part of The Sea Ranch. Logging began on the rest of the property as early as 1903. Logging during this time period was very labor intensive. Trees were cut down by hand and logs were skidded by oxen. Following WWII steam power gave rise to more mechanized logging methods. Skid trails were created in the path of least resistance, which was usually in the creek bottoms, and logs were skidded downhill to the flats where steam powered trains waited to take the logs to the sawmill.

Between 1910 and the 1960's not much harvesting happened on the property and it developed into an even-aged forest. It appears that some parts of the Central TPZ were logged in the 1970's. There are a few remaining residual trees within the Central TPZ that may have been alive when the original redwoods were harvested

In 1991 & 92 the Central TPZ, under the ownership of Travelers Insurance was logged selectively. The northern 154 acres were logged under THP 1-90-383 SON and the southern 80 acres under THP 1-91-225 SON. Approximately 40% of the trees over 18 inches dbh and 50% of the trees between 12" – 18" dbh were harvested... The Sea Ranch bought the property in 1993 and annexed it in 2002."

PROJECT ANALYSIS

1. The NTMP and the Sea Ranch documents recognize that the Central TPZ was acquired and managed for recreational purposes. Given the Central TPZ's location and use the southwest perimeter would also be managed for wildfire mitigation (defensible space). Currently Calfire and the California recommend a defensible space up to 100 feet around any habitable structure in the wildland Urban Interface (WUI). However, 150 feet of defensible space is reasonable for the Central TPZ perimeter.
2. There is no defensible space requirement or need to log the 272 acres of the Central TPZ to achieve excellent defensible space.
3. In my experience "TPZ" typically means "Tree Preservation Zone or "Tree Protection Zone". Typically such zones are managed for aesthetics, recreation, wildlife habitat and other environmental amenities.
4. The NTMP recognizes the recreational purpose of the Central TPZ but proposes a management that is strictly timber production with the additional benefit of temporarily removing undergrowth and ladder fuels by removing a large proportion of the mature conifers and a larger component of the hardwoods (down to 15 square feet basal area per acre) to "reduce competition" with the remaining conifers and encourage conifer reproduction. While Douglas fir component would skyrocket due to clearing and equipment scarification of the land, redwood would not expand its numbers to any significant extent.
5. The NTMP, under 913.2 (a) calls the silvicultural prescription "light selective cut" leaving 100 square

feet total basal area measured in trees 1" in dbh (dbh = diameter breast height, 4.5 feet above grade) or greater and at least 15 square feet basal area comprised of trees greater than 18" DBH. This would leave as little as 8.47 mature trees per acre at 18" DBH or only 4.77 trees per acre at 24" DBH on areas with a minor component of mature conifers. This could radically change the forest and wildlife characteristics of the Central TPZ. The NTMP is largely a redwood harvest, apparently to maximize harvest value.

6. The "harvest intensity" is estimated to be 30 to 40 % trees 18" DBH and greater. In tracts logged in the 1990s and 1970s this could result in the removal of all the conifers older than 40 years.
7. The hardwood harvest intensity is estimated under the NTMP to be "approximately 30 to 40% if a fire wood market is available." (My emphasis). Hardwoods within fifty feet of a retained conifers will be mechanically removed to create growing space (reduce competition) and encourage conifer reproduction. The plan calls for hardwood harvesting to be done "as a tool for managing hardwood competition." There is no mention of their management for aesthetics and wildlife. The hardwood component and brush layer are the critical components for wildlife habitat. While conifers provide nesting and hunting habitat for several species including several special status species they do not compare with the benefits of hardwoods and the shrub layer.
8. The NTMP does not count hardwoods for stocking. The claim is that the remaining conifers will be adequate to meet stocking requirements. The mature hardwood component is the most important component for wildlife. Yet the plan does not address this issue.
9. The up to 40% conifer and hardwood cut would significantly open the forest canopy and stimulate both vegetative and seed reproduction of brush and trees. Most of our native brush and tree species reproduce vegetatively, sprout from both dormant and adventitious buds within weeks after logging, from stumps and roots. Supported by the mature root systems of the original plants, the sprouts grow extremely fast. Redwood sprouts from root crowns typically grow 24 to 36 inches, but may reach six feet in the first year. Fire management studies show that the brush layer and ladder fuels can grow as fast as 3 feet per year in the coastal zone. Thus the shrub layer and some ladder fuels may be reestablished in 3 to 5 years. UFA fire management plans typically call for shrub maintenance every 3 years.
10. The Plan calls for a return in 5 to 8 years, "if necessary", to mechanically suppress brush and hardwoods with hand crews or masticators. It is not clear who will pay for this follow-up.

CONCLUSIONS

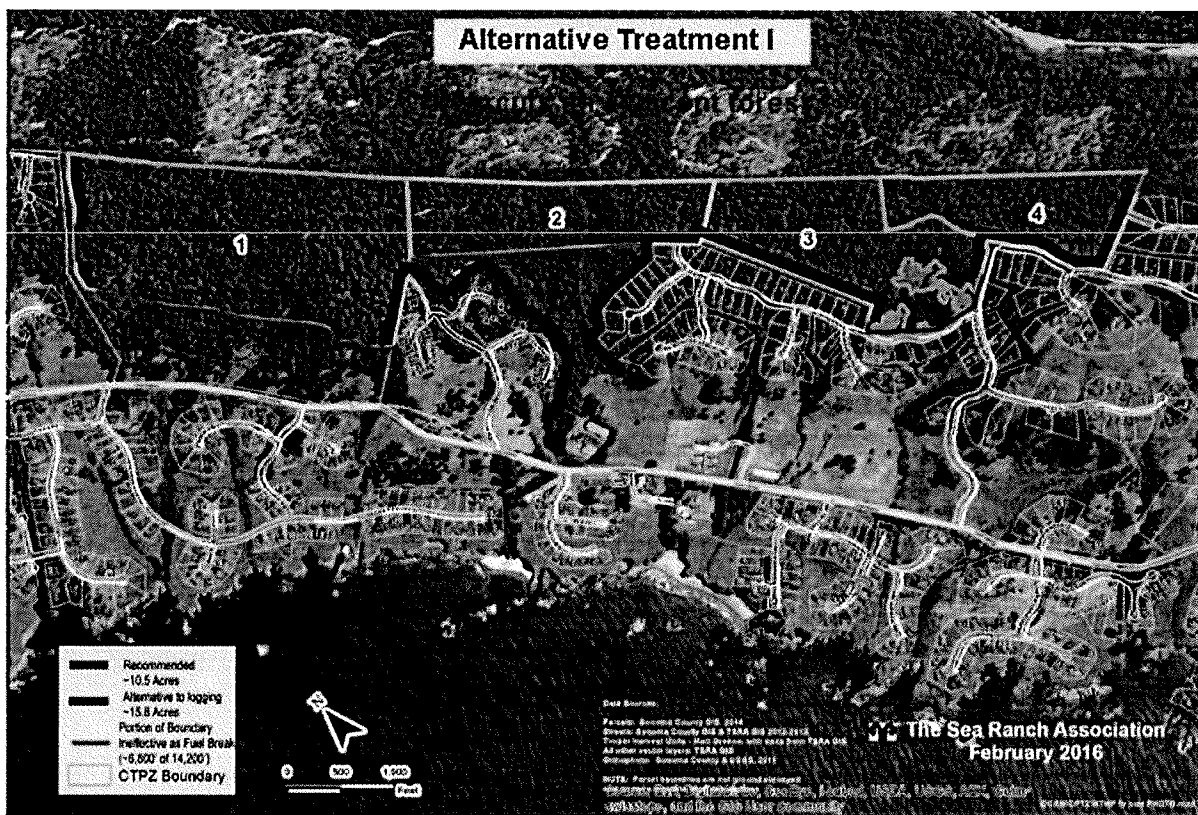
1. The NTMP is neither a recreational management plan nor a fire management plan. It imposes a timber harvest plan and ongoing management for timber for maximizing conifer timber production. It fails to adequately address recreation, wildlife, and other amenities provided by the purchase of the Central TPZ.
2. If this plan were to adequately address fire management it would address annual and periodic "weed abatement" and forest treatments. The opening of the canopy and removal of hardwoods within 50 feet of leave conifers will optimize Douglas fir reproduction which is a pyrophytic (fire-prone) species while concentrating on the removal of redwood stems which are far more fire resistant.
3. Is the Central TPZ to be managed for recreation, aesthetics and wildlife or timber production? The NTMP is predominantly balanced toward timber production management.
4. Timber harvest to the extent proposed (271 acres) is not necessary for residential and community facilities defensible space. Defensible space maintenance requires annual treatment.
5. The plan calls for a return treatment of undergrowth in five to eight years "as needed". It does not address who pays for the return treatment. The native plants and many invasive non-native plants are fire adapted. They sprout quickly after cutting and grow rapidly back to a balanced "root-to-shoot ratio" because they have a root system that is sized to support the entire pre-existing trunk and canopy. Thus in five to eight years there will be a "second growth" shrub layer rivaling the pre-logging conditions, plus there will be tree reproduction, much of it fire-prone species.
6. Wildfire risk reduction is clearly needed at Sea Ranch but fire hazard mitigation to the extent required for public safety requires annual maintenance of light fuels and periodic maintenance of vegetative and sexual reproduction of shrubs and trees. The proposed NTMP does not address who will accomplish

this over the long term, particularly over the long term greater than 5 to 8 years ("as needed"). There is little benefit to biting off more than you can chew. Long term treatment of 271 acres is as impractical as it is unlikely.

7. The NTMP appears to maximize income at the expense of other values. Coast Redwood is a relatively fire resistant species. Typical fire management plans for shaded fuel breaks emphasize retention of fire resistant plants (redwood) over fire-prone plants (Douglas fir). Also redwood does not produce the abundance of invasive fire-prone reproduction that Douglas fir produces.
8. I recommend that instead the Sea Ranch community create a shaded (park-like) fuelbreak along the wildland/developed interface to the extent Sea Ranch can maintain. The community of Fountaingrove II fuel break system provides an excellent shaded fuelbreak model you may wish to follow.

ALTERNATIVES

- I. Provide a shaded fuelbreak to reinforce the defensible space of developed properties interfacing the CTPZ (See below).
 - Shaded fuelbreak supporting residential defensible space= 17.5 acres of treated forest.
 - At \$3,000 per acre = \$52,500.00 for initial treatment
 - Annual maintenance / weed abatement worker productivity (maintenance of grasses, weeds and sprout growth) is 0.8 acres per worker per day. = 22 total worker days biannually, plus roadside fuel.



- II. Create a shaded fuelbreak along unprotected interface residential interface = 29.7 acres
 - At \$3,000 per acre = \$89,100.00
 - Annual maintenance / weed abatement worker productivity (maintenance of grasses, weeds and sprout growth) is 0.8 acres per worker per day = 37 total worker days biannually.
 - Plus current roadside fuel management.

Ray Moritz
 Ray Moritz, Urban Forester SAF Cert #241
 ISA Qualified Tree Risk Assessor



Resume
Raymond F. Moritz
SAF Certified Forester # 241
ISA Qualified Tree Risk Assessor

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Areas of Professional Expertise:

- Arboriculture and Urban Forest Management
- Tree Care Specifications
- Tree Structural Hazard Assessments
- Plant Appraisal (Valuation of Partial and Total Loss)
- Pest and Disease Diagnosis
- Species Selection and Planting Specifications
- Vegetation Analysis, Evaluation, Management and Maintenance
- Aerial Photography and Imagery Interpretation
- Environmental Impact Studies
- Vegetation Management Grant Writing

Professional Experience

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|---------------|--|
| 1988- Present | Principal Consulting Arborist and Urban Forester, Urban Forestry Associates, Inc. (Formerly: Moritz Arboricultural Consulting and Landscape F.I.R.E.S) |
| 2011 | Certified Tree Risk Assessor #1205 - Pacific Northwest Chapter ISA |
| 2010 | Speaker at Bay Friendly Landscaping Training Workshop |
| 2009 | Principal Presenter California Urban Forestry Council Fire in the Urban Forest |
| 1989 - 2009 | Principal Urban Forester and Fire Ecologist, Landscape F.I.R.E.S. |
| 2004-2009 | San Francisco Chronicle, Feature column writer for Home & Gardening Section - "Ask an Arborist" |
| 2002-2004 | Board of Directors and Executive Committee - California Oak Mortality Task Force (COMTF) |
| 1998- Present | Marin Co. Dept of Public Works - Roads Hazard Consultant |
| 1999, 2000 | Chair, Education & Steering Committee, Strategic Oak Management Task Force |
| 1998-2000 | Speaker: California Tree Failure Report Annual Meeting, UC Cooperative Extn. |
| 1997-2002 | Principal Instructor in Veg. Fuels Management, California Conservation Corps. |

- 1999, 2000 Speaker: "Firescaping", Continuing Education Program, WCISA
- 1997, 1998, 2000 Speaker: "Firescaping", Professional Association Pesticide Applicators (PAPA)
- 1993-1999 Technical Consultant to the FireSafe Marin program and Speaker: "Firescape-Landscape Management for Fire Hazard Mitigation", FireSafe Marin
- 1998 Speaker: "Fire Damaged Tree Assessment and Mitigation", Annual Meeting, American Society of Consulting Arborists (ASCA)
- 1997, 1998, 2009 Speaker: California Urban Forestry Council
- 1995-1997 Instructor: Marin County Fire Inspector Training, FireSafe Marin, Inc. And Marin County Fire Chiefs Association
- 1997 Speaker: International Master Gardeners Conference
- 1983-1997 Firefighter and Safety Officer, Bolinas Fire Protection District, Bolinas, CA.
- 1995 Speaker: California Fire Instructors Workshop '95, California Training Officers Association
- 1993, 1992 Fire Ecologist, MMWD/MCOSD Mt. Tamalpais Area Vegetation and Fuel Management Plan
- 1990-1991 Technical Editor, Chronicle Books
- 1978-1988 Arboricultural Consultant, Pacific Slope Tree Company, Bolinas, California
- 1981 Visiting Professor of Silviculture: Rainforest Canopy Ecosystems Studies, Instituto de Biologia, University of Mexico, Mexico City, Mexico
- 1979 Thesis: "Strategies for the Restoration of Fire Dependent Forest Plant Communities in the North Central Region"
- 1976-1978 Researcher: Project NC-126, "Campground User Impact Study", USDA Forest Service, North Central Experiment Station
- 1977 Research Assistant: Silviculture design of a biomass fuel forest, Bemidji, Minnesota, Minnesota Department of Energy
- 1975-1976 Researcher/Author: "The Pine Restoration Project for Itasca State Park, Minn."
- 1968-1972 Vice President and Hearings Editor of Illinois Environmental News, a publication of Legislation, Litigation, and Administrative Procedures in the State of Illinois.

Education

- 1976 Awarded Bachelor of Science with honors: Forestry, University of Minnesota, College of Natural Resources. Minor areas: Plant Pathology, Soil Science, and Forest Ecology
- 1976-1978 Graduate work in Silviculture Ecology, University of Minnesota

Professional Affiliations

- Society of American Foresters, Certified Urban Forester # 241
- International Society of Arboriculture (ISA)
- Western Chapter ISA
- Pacific Northwest Chapter ISA
- FireSafe MARIN

Publications (since 1996)

- "Ask an Arborist" - more than 60 columns, San Francisco Chronicle, Home & Garden
- "Firescaping" Western Chapter International Society of Arboricultural
- "Firescaping" Forest Stewardship Newsletter, California Department of Forestry (CDF)
- "Fire Damaged Tree Assessment" American Society of Consulting Arborists (ASCA)
- "Fire Resistant Trees and Shrubs", U.C. Cooperative Extension
- "Defensible Space Works - Do it Safely", UC Cooperative Extension
- "FireScape '96", FIREsafe Marin
- "Phoenix Report" (Recovery plan for the Inverness fire zone), EAC, Inc
- "Pyrophytic vs Fire Resistant Plants", HortScript Journal No. 18, U.C. Press
- "Pyrophytic vs Fire Resistant Plants", U.C. Cooperative Extension
- "Defensible Space - Do It or Lose It", International Master Gardeners

Experienced Expert Witness

Civil litigation cases:

- Assessment of condition of woody vegetation
- Valuation of damaged or removed vegetation
- Hazard assessment of woody vegetation
- Negligence in vegetation management
- Tree maintenance: disputes, view and solar access, property line, co-tenancy, e.t.c
- Vegetation identification, traits & characteristics
- Vegetation management for erosion control and slope stability
- Fire investigation: cause, origin, and ignition risk potential
- Wildland and landscape fire behavior & prevention

Criminal cases:

- Vegetation identification, traits, and characteristics
- Trespass, mutilation, or removal of vegetation
- Aerial Photogrammetry and remote sensing
- Tree Appraisal
- Fire cause and origin

California Courts Certified:

- Alameda, Contra Costa, Humboldt, Marin, Mendocino, Napa, Nevada, Sacramento, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Yolo.

San Francisco Chronicle Columns:

| Date | Title of Article | Published by |
|-------------|---|---------------------------------|
| 12/29/2004 | Festive berries brighten winter gardens | Ask the Arborist - SF Chronicle |
| 01/05/2005 | Rainy days, big trees: What you can do | Ask the Arborist - SF Chronicle |
| 02/02/2005 | No need to wine dine native oaks | Ask the Arborist - SF Chronicle |
| 03/02/2005 | When car smashes into tree | Ask the Arborist - SF Chronicle |
| 03/30/2005 | Tips on detouring garden nibblers | Ask the Arborist - SF Chronicle |
| 04/06/2005 | Taking care to avoid sudden oak death | Ask the Arborist - SF Chronicle |
| 05/04/2005 | Frankenstein pine | Ask the Arborist - SF Chronicle |
| 06/01/2005 | Beware of planting aggressive pioneer trees | Ask the Arborist - SF Chronicle |
| 07/06/2008 | Construction guys: Tread lightly around trees please | Ask the Arborist - SF Chronicle |
| 08/03/2005 | Redwoods can tolerate topping | Ask the Arborist - SF Chronicle |
| 09/07/2005 | Tips for locating, interviewing and hiring the right pro | Ask the Arborist - SF Chronicle |
| 10/05/2005 | Oak forest taking a pounding | Ask the Arborist - SF Chronicle |
| 11/30/2005 | Pruning poplars is job for professionals | Ask the Arborist - SF Chronicle |
| 12/07/2005 | Keep your trees healthy and safe in winter | Ask the Arborist - SF Chronicle |
| 12/14/2005 | Trees go dormant in cold weather, but still need care | Ask the Arborist - SF Chronicle |
| 01/04/2006 | California colors don't limit themselves to fall flourish | Ask the Arborist - SF Chronicle |
| 02/01/2006 | Fallen trees may be tax-deductible | Ask the Arborist - SF Chronicle |
| 03/01/2006 | Stalking the sap-licking squirrel | Ask the Arborist - SF Chronicle |
| 03/29/2006 | Vanquish villainous vines | Ask the Arborist - SF Chronicle |
| 04/05/2006 | Salty soil makes poor homes for plants | Ask the Arborist - SF Chronicle |
| 05/05/2006 | Many ways to keep property safe from fire | Ask the Arborist - SF Chronicle |
| 06/10/2006 | In Bay Area, April showers brought tree disease in May | Ask the Arborist - SF Chronicle |
| 07/05/2006 | Decay not a death sentence for all trees | Ask the Arborist - SF Chronicle |
| 08/09/2006 | Be careful mixing chemicals and trees | Ask the Arborist - SF Chronicle |
| 08/30/2006 | Redwoods stressed but not in danger | Ask the Arborist - SF Chronicle |
| 09/06/2006 | Trees help stabilize stream banks | Ask the Arborist - SF Chronicle |
| 10/07/2006 | Looming wet season best time to plant | Ask the Arborist - SF Chronicle |
| 11/01/2006 | Giving new tree healthy start | Ask the Arborist - SF Chronicle |
| 12/02/2006 | Dueling Views on planting trees | Ask the Arborist - SF Chronicle |
| 12/09/2006 | Redwoods tree's sprouts are a growing concern | Ask the Arborist - SF Chronicle |

Resume of Raymond F. Moritz, Urban Forester

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|------------|--|---------------------------------|
| 02/03/2007 | Tree, heal thyself - tendency to plug holes in trunks | Ask the Arborist - SF Chronicle |
| 03/03/2007 | Redwoods dropping branches a common problem | Ask the Arborist - SF Chronicle |
| 04/07/2007 | Topping your eucalyptus trees could be dangerous | Ask the Arborist - SF Chronicle |
| 05/05/2007 | Cable embedded in redwood causes concern | Ask the Arborist - SF Chronicle |
| 06/02/2007 | Look out for owls nest before trimming trees | Ask the Arborist - SF Chronicle |
| 07/01/2007 | Bees in trees not a big problem | Ask the Arborist - SF Chronicle |
| 08/04/2007 | Some eucalyptuses actually make good, tough street | Ask the Arborist - SF Chronicle |
| 08/31/2007 | Blackwood acacia makes nice lumber | Ask the Arborist - SF Chronicle |
| 08/31/2007 | Ask the Arborist- Barrier can halt invading poplar roots | Ask the Arborist - SF Chronicle |
| 09/01/2007 | Root issues keep magnolias off side streets | Ask the Arborist - SF Chronicle |
| 10/06/2007 | Ask the Arborist- Sudden Oak death still alive and well | Ask the Arborist - SF Chronicle |
| 11/03/2007 | Ask the Arborist- Make way for firefighters, clear landscape now | Ask the Arborist - SF Chronicle |
| 12/01/2007 | Don't dismay over tree decay | Ask the Arborist - SF Chronicle |
| 01/12/2008 | More than one way to keep jack frost at bay | Ask the Arborist - SF Chronicle |
| 02/09/2008 | Wet Weather poses problems for winter planters | Ask the Arborist - SF Chronicle |
| 03/01/2008 | Beware taking on the cranky avocado tree | Ask the Arborist - SF Chronicle |
| 03/01/2008 | Meyer lemons, cherries thrive in coastal areas | Ask the Arborist - SF Chronicle |
| 04/05/2008 | Vines use trees for their own survival | Ask the Arborist - SF Chronicle |
| 05/03/2008 | Many ways to keep property safe from fire | Ask the Arborist - SF Chronicle |
| 06/07/2008 | How to evaluate fire damage to trees | Ask the Arborist - SF Chronicle |
| 07/05/2008 | California bay laurel will return after cutting | Ask the Arborist - SF Chronicle |
| 08/02/2008 | Fine the right predator to zap whiteflies | Ask the Arborist - SF Chronicle |
| 09/06/2008 | Let bay laurel logs season before burning | Ask the Arborist - SF Chronicle |
| 01/03/2009 | Oak trees' revenge 'drippy nut' | Ask the Arborist - SF Chronicle |

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