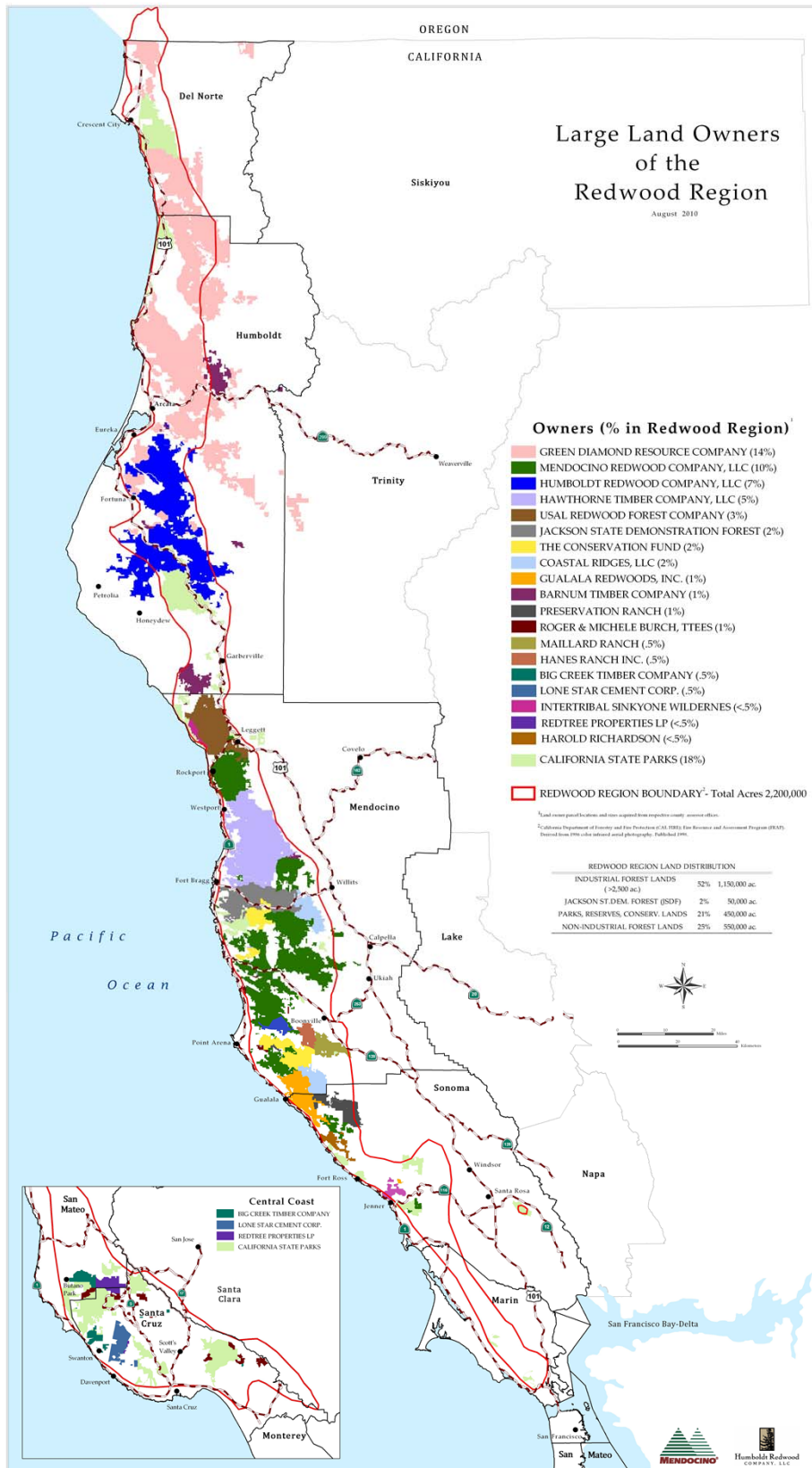




## After Twenty Years

---

When we first started as a company in 1998, we had great ideas and lots of aspirations. After seventeen years, we have developed a road map and ways to measure our progress. This presentation is designed to show you how we got from there to here, where we are now, and where we see ourselves going in the future. From the beginning we've operated with a purpose to show that it is possible to run a successful business and at the same time be good stewards of the land – literally, “to leave it better than we found it”. We have also set out to make sure that we understand the results of these changes – on the ground – during our lifetime.



The redwood forest is limited in distribution to a thin band along the north and central coast of California, stretching from central California north to the Oregon border. Intensive logging efforts of redwood began over 150 years ago. Over the past few decades, the number of sawmills in this region have declined due to a decrease in harvest rates.

# About MRC®

## The Landscape

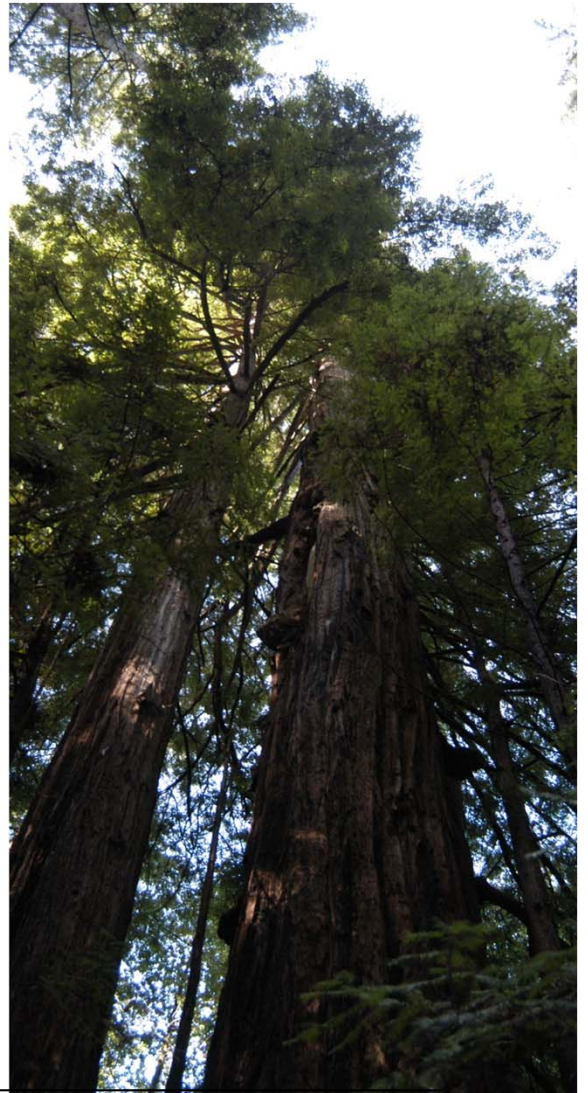
- 228,800 Acres (350 sq. miles)
- 1500 miles of year around streams
- 2400+ miles of roads

## Wildlife & Aquatic Habitat

- 50+ significant aquatic and upslope animal species
- Over 100+ significant plant species

## Economics

- 43 Employees
- Supply logs to local sawmills (350+ employees)
- Local expenditures (+/- \$10.4Million)



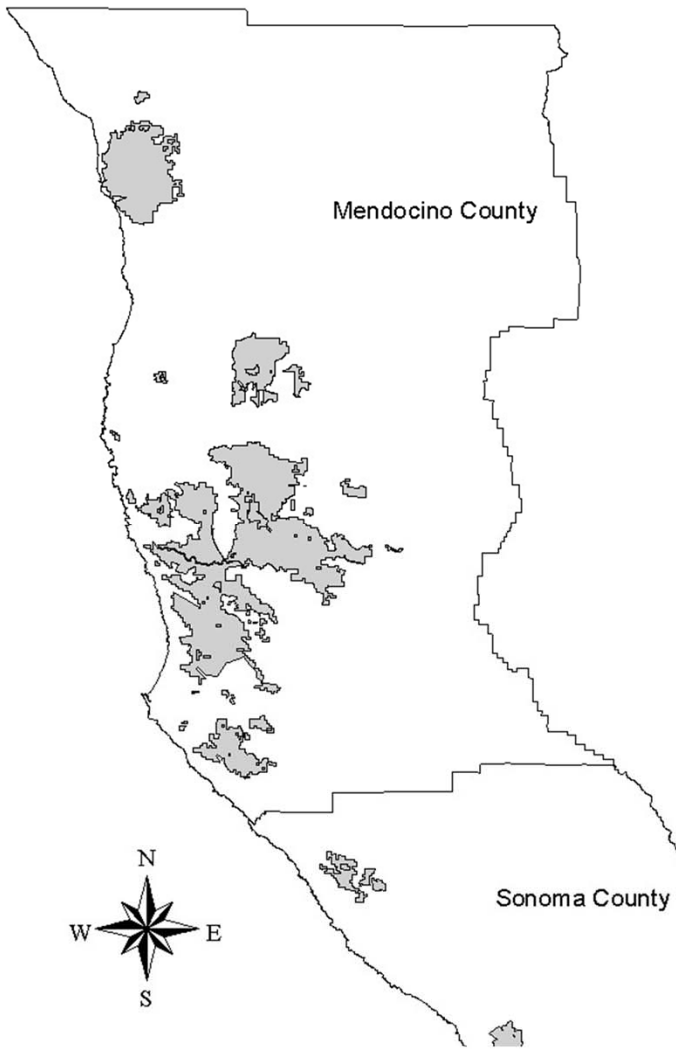
MRC® forestlands are composed of approximately 228,800 acres of redwood and Douglas-fir forests. This land includes 1,500 miles of year round streams as well as a dense road network (over 2,400 miles of roads – mostly built by previous landowners).

MRC® forestlands are home for several endangered, threatened, and rare species. The northern spotted owl, a well-known threatened species, is found in abundance on MRC forestlands. Additionally, the marbled murrelet; Point Arena mountain beaver; Coho and Chinook salmon; and steelhead are some other endangered or threatened species that exist here. Recent discoveries include a Pacific fisher detection in the Rockport tract as well. MRC forestlands are also home to rare amphibian species such as the red-legged frog and tailed frog. There are a multitude of rare plant species that exist on these lands as well.

Our business is an important part of the local economy with 58 employees that work to supply logs to local sawmills while restoring our forestlands. Our related sawmill, lumber distribution business

and other operations employ another 300 people.

# Long History



**Rockport Beach – early 1900's**



In 1998 we purchased an important piece of property (both ecologically and economically). There is a long history of intensive harvest on these lands with many owners since the 1850's. Typically, there were high economic expectations from these harvests. These past harvests relied on clearcutting and burning with little thought for long-term impacts to the forest. We took on a landscape with lots of challenges and opportunities.

This picture depicts one of hundreds of mills that existed along the Mendocino Coast. Redwood lumber was put on schooners and shipped to the San Francisco Bay. Most of these mills are now gone, but there are still folks around who worked in these mills and know how much things have changed. For more information on the history of mills and this area – please visit our history website ([http://www.mrc.com.php5-19.dfw1-2.websitelink.com/history\\_project/index10.htm](http://www.mrc.com.php5-19.dfw1-2.websitelink.com/history_project/index10.htm)).



## The Need For Restoration

- 150 year history of industrial logging.
- 2400 mile legacy road system.
- Growth of Tanoak and decline of original species mix.

### Legacy Road (1996) Slide Little North Fork of the Navarro



The long history of intensive harvest and burning has led to a forest that is out of balance. It would take many hundreds of years for this forest to revert to a natural state without restoration efforts. We are committed to a long-term view of these lands which includes investing in restoration expertise and continuing studies, crews and work, and ongoing monitoring to make sure it is working as expected.

Here are some of the restoration efforts we are undertaking:

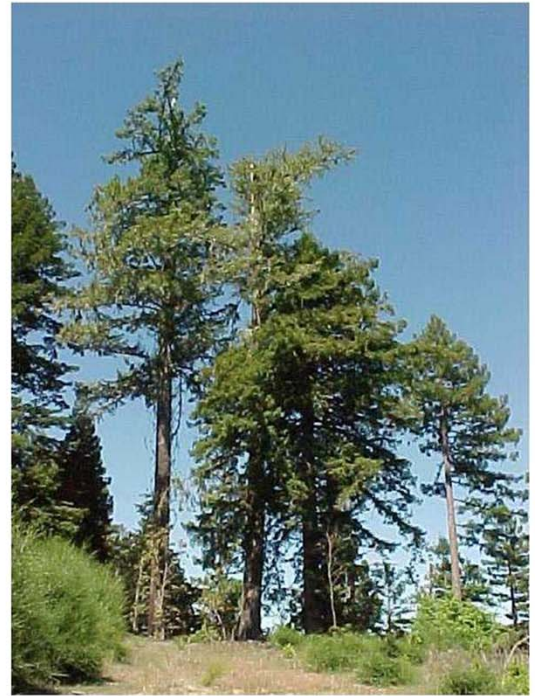
- Where harvesting resulted in a species imbalance of hardwoods (specifically tanoak – a broadleaf hardwood species which, if left alone will dominate lands once covered with conifers) restore these lands to their former conifer mix.
- Where harvesting resulted in even-aged forests with depleted upslope habitat, move forests towards uneven-age structure as well as retain and recruit important habitat elements for upslope habitat (such as old growth trees and trees with nest structures).
- Where road building has resulted in impaired aquatic habitat from sedimentation (dirt deposition in streams) and slide prone slopes that deposit additional sediment – upgrade roads to new standards

which better control sediment

- Where clean-up and removal of woody debris resulted in limited salmon pools and riffles – return existing downed wood to the stream to provide habitat structure.

# What is Restoration at MRC?

- **Long-Term Commitment**
- **Aquatic Habitat Improvement**
  - Remove barriers to migration
  - Reduce sediment in streams
  - Maintain appropriate stream temperatures
  - Increase in-stream habitat structure
- **Upslope Habitat Improvement**
  - Restore former tree-species mix
  - Protect old growth, snags and other key habitat components
  - Increase forest inventory, age and structure
  - Increase carbon sequestration



**Old Growth  
In Navarro Watershed**



---

Our goal is to continuously improve the biological potential of these forestlands. Since we began our work, we have developed tools to identify and prioritize specific restoration projects, we have collected baseline data on our forestlands and current conditions, and we have completed many restoration projects. We view each harvest as an opportunity to upgrade roads, reduce sediment, restore conifer forestlands, and retain and recruit upslope habitat.

We focus on the following key elements for aquatic and upslope habitat improvement:

#### Aquatic Habitat Improvement

- Remove barriers to migration
- Reduce sediment in streams
- Maintain appropriate stream temperatures
- Increase in-stream habitat structure

#### Upslope Habitat Improvement

- Restore former tree-species mix



- Protect old growth, snags, and other key habitat components
- Increase forest inventory, age, and structure

# Remove Barriers to Migration



**Culvert outlet - 2008**



**Bridge Replacement - 2009**

## **Frykman Gulch, Big River, 2009**



The picture on the left is a good example of aquatic habitat challenges requiring restoration. This culvert was part of a road system left after many decades of logging, these are “legacy” road systems. A spawning salmon would have to make a large vertical jump to get through this culvert in order to make it upstream. This culvert (and others like it) effectively cut off fish from upstream habitat including migration and spawning habitat.

The picture on the right was taken at the same location the year the culvert was replaced with a bridge to allow for fish passage. As a result of this project, more than 0.6 miles of additional spawning habitat was opened for use by fish. Several times after completing fish barrier removal projects such as this one, we have found fish beyond the former barrier the next year.

# Remove Barriers to Migration



**Fish Barrier**



**Restored Summer 2007**

## Little Waldron Creek – Hollowtree Watershed



---

These pictures show the result of another fish passage barrier removal.

# Variable Retention – Post Harvest



## MRC approach to restoring tanoak challenged forest



Early on, we were challenged with discovering a way to deal with tanoak dominated areas without using clearcutting. Just five months after MRC was established, we found an answer. On the advice of Dr. Jerry Franklin (Professor of Ecosystem Analysis, University of Washington) and the Pacific Forest Trust, MRC adopted a harvest method called “variable retention” in lieu of traditional clearcutting. Variable retention allows for heavy management of tanoaks, an economical harvest of conifers, and leaves behind important structural elements as well as a high proportion of conifer growing stock.

This is a “big picture” view of one of our first variable retention harvests. Retention areas are designated around key habitat features such as wet areas, snags (standing dead trees), old growth trees, etc.

This is an aerial photo of the Navarro Watershed area showing acreage that **was** dominated by tanoak. The lighter green texture on the top and bottom of this picture is tanoak, the darker green is

redwood and Douglas-fir. The center of the photo shows the variable harvest area (notice the number of conifers left in the harvested stand) while the outlying areas have a large proportion of the light green, tanoak texture which will be targeted for future restoration.

# Variable Retention - Post Harvest



**Rockport tract**



---

This is another picture of a variable retention harvest completed on MRC.

# The Tanoak Challenge



**Tanoak dominated forestland**



This picture shows the type of forest that might result from the clearcut in the previous picture if the area was left without planting after harvest. Additionally, many areas of our lands were logged and burned to prepare the land for sheep grazing resulting in a similar outcome. Tanoak thrives on disturbance and easily sprouts, often taking over these heavily disturbed sites. Redwood and Douglas-fir seedlings and/or sprouts are unable to compete with tanoak in open growing conditions – often resulting in sites like this picture.

Tanoak will outcompete any planted trees if the tanoak has a pre-established root system (as in the case shown in this photo). This stand will remain a tanoak forest unless it is managed. MRC uses variable retention harvesting (see previous slides) and herbicides to control tanoak in these stands. Someday, MRC will be able to say that we only use herbicides as necessary to control non-native species. Today, MRC's tanoak issue stands in the way of our ability to make these declarations.

Over 17 years, MRC has restored approximately 85,336 acres of tanoak impacted forest to conifer

dominated forest. This is a significant step towards rebalancing the tree species on our forestlands – one of our most significant restoration challenges.



# Restoring Conifer Forests



**Replanted openings following Variable Retention harvest**



---

Once a variable retention harvest is complete, MRC replants the harvested area with redwood and Douglas-fir seedlings to insure the site returns to conifer forest. This picture shows planted seedlings (and some redwood sprouts) that are eight years old.

# Restoration Milestones Achieved

- Increased Conifer Inventory by 2.55 billion board feet.
- Controlled over 1 million cubic yards of sediment. This represents approximately 100,000 dump truck loads of soil where threat of entering a stream has been eliminated.
- Enhanced 27.4 Miles of salmon and steelhead habitat through removal of 37 fish barriers.
- Restoring conifer overstory forest and transitioning to a multi-aged conifer forest.
- Planted 10.9 million redwood and Douglas-fir seedlings.

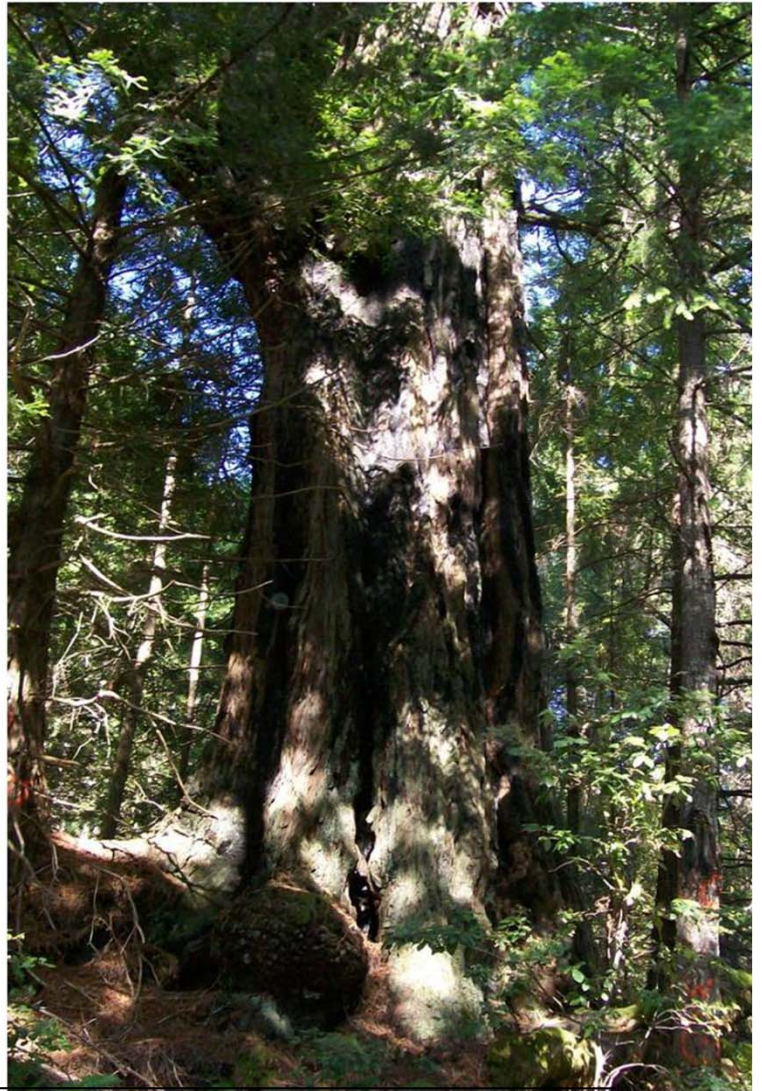


---

Over 17 years, we've accomplished many restoration milestones. We look forward to continuing our restoration work on these forestlands as there is a more work to be done.

# Protect Biologically Significant Forest Attributes

- Old Growth
- Snags
- Downed Woody Debris
- Goosepens (tree cavities)
- Rocky Outcroppings
- Pygmy Forest
- Carbon storage
- Forest Structure



To protect these resources, MRC has implemented an old growth protection policy which prohibits harvest of trees that:

- Are at least 48” diameter redwood or 36” diameter Douglas-fir that were established prior to 1800, or
- Any tree, regardless of diameter that exhibits a preponderance of old growth characteristics (big flat limbs, plate like bark, lichen, flat tops, etc)

MRC has also implemented a wildlife tree policy to insure other valuable wildlife trees are retained and recruited across the landscape. In addition, MRC protects regionally significant forest types (such as pygmy forest) and where we have well-stocked conifer stands use selection harvesting techniques that retain the structure and function of the forest stand.

# Selection Harvest



**MRC preferred harvesting technique to  
maintain high value forest structure**

---



Here is an example of a selection harvest in a well stocked conifer harvest in the Albion watershed.

# “Release” of Growth in Redwood Tree



## Increased growth rate following selection harvest



Selection silviculture is used primarily to thin conifer-dominated stands of redwood or Douglas-fir, or very young stands of redwood and Douglas-fir. Redwood (at any age) and young Douglas-fir (up to around 60 years old) will respond well to a stand thinning and “release” (meaning the tree increases its annual growth with greater access to sun and less competition for nutrients). Periodic selection harvests (every 15-20 years) encourages tree growth while allowing smaller trees to fill in small gaps created by harvest.

# Old-Growth Protection



Cliff Ridge



---

An old growth tree protected in a harvest plan in the Cliff Ridge area.

# “Goosepens”



## **Protect “Goospens” to provide critical wildlife habitat**



This slide shows what is know as a “goosepen,” which is a burned out cavity in the bottom of a live redwood tree. These trees were used by early ranchers to pen their geese. These cavities provide great habitat for several species of bats, birds, and small and medium-sized mammals. Trees such as this one are protected as part of our wildlife tree policy.

# Downed Large Woody Debris (LWD)



**Important for nutrient cycling, soil protection and habitat**



This large piece of downed woody debris may serve as a biological anchor for a variable retention harvest. Downed woody debris provides an important micro-climate for fungi, mosses, invertebrates, and amphibians and are important feeding and hiding areas for mammals. Other biological anchors include snags and hard to replace structures as well as rare or important habitat (e.g. wet areas).



# Snags

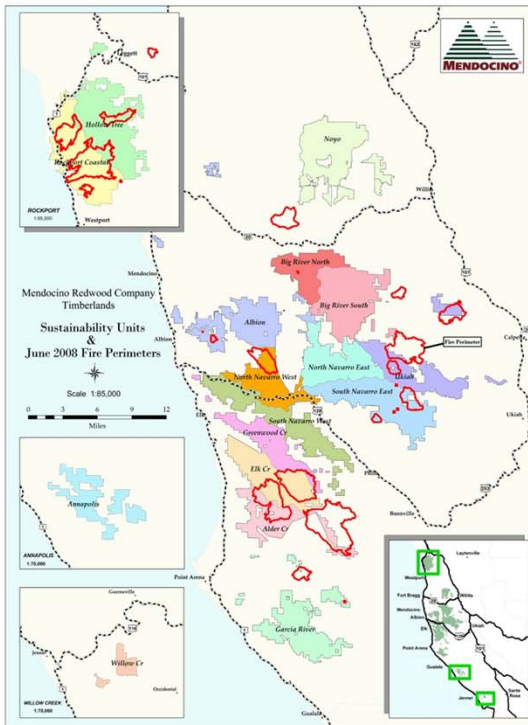


**Provides important nest sites for raptors and small cavity nesting birds**



These photos show another important habitat feature – snags (standing dead trees). Snags are critical for cavity dwelling species, such as woodpeckers, songbirds, and owls. Historically snags were cleared from forested areas during logging activities. Snags like these are now protected during harvest and are often used as biological anchors for retention areas in variable retention harvests. With guidance from the California Department of Fish and Game, MRC has developed a wildlife tree policy which includes the retention of these snags and other valuable wildlife trees with the goal of identifying 3 wildlife trees per acre on harvested areas for long-term retention.

# Mendocino Lightning Fires 2008



- Lightning storm June 20-21, 2008 spawned 21 separate fires
- 23,198 acres burned
- Covered 10% of MRC's land base
- Ranged from low intensity ground fires to crown fires



In June and July of 2008, 23,190 acres of MRC forestland burned in the Mendocino Lightning Complex. This was part of a larger lightning complex which swept across northern and central California in the evening of June 20th and continuing into the early hours of June 21st spawning over 2,000 individual wildfires and burning a total of 1.2 million acres in California. MRC staff was heavily involved in planning fire suppression strategies along with CalFire and local fire agencies.

As a result of the 2008 Lightning Complex fires, MRC has developed further actions to better prepare for a fire event including:

- Providing all forest-based employees a map atlas with locations of all roads, water drafting facilities, helicopter landings, and gates across our forestlands for better navigational capabilities.

- Maintaining a subscription with a weather service which notifies key personnel automatically if a lightning strike is detected on or near our land.

# Testing Our Assumptions through an independent third party certification



The mark of  
responsible forestry

## Independent *forestry* *management* certification through Scientific Certification Systems



While there are many models for companies on being a successful business, there are very few models that spell out how to be a successful environmental steward. We decided we had to get independent, third-party assessment of our operating plans. The Forest Stewardship Council® (FSC®) formed in 1993 by a coalition of environmental organizations including the Natural Resources Defense Council (NRDC), World Wildlife Fund (WWF), National Wildlife Foundation, etc. was a good fit.

The FSC® certification is a program of voluntary measures – this allowed us to work with a set of experienced experts for continuous improvement of our forest stewardship work, with peer review on an annual basis. This provides as an opportunity for ongoing improvement in our forest management work. MRC:

- Publicly committed to the pursuit of FSC® certification 6 months after we started,
- Became FSC® (FSC-C004495) certified in November 2000,
- Obtained validation of our practices – especially in the landscape planning process, harvest impact calculations, and how to deal with the tanoak issue,
- Successfully completed our 5 year re-certification in 2005, a major audit under strict new

guidelines (Pacific Coast Standards).

- Successfully completed our 2<sup>nd</sup> and 3<sup>rd</sup> 5 year re-certification in 2010 and 2015.

# Community Involvement



## Working to build trust with our community



As a member of the North Coast community, we knew we would have to work hard to build trust with our employees, our business partners and the community. We continue to work on this everyday. We have one additional restoration effort ongoing – restoration of public trust. Restoration of public trust means we engage with the community all the time.

To build and maintain trust, we are willing to:

- Take anyone, anywhere on our property – we believe that the best way to learn about what we are doing is to go out in the forest at MRC,
- Be open to new points of view – if you have an idea of how we might do a better job, we would like to hear from you, and,
- Answer questions candidly and promptly.



**Want to  
know more?**

**We invite you to  
come see us.**

**[www.mrc.com](http://www.mrc.com)**



We have given literally hundreds of tours since MRC's inception and believe that coming to see us at MRC is the best way of learning what we are trying to accomplish. We'll take out a map and you just point to where you want to go. We want to create a model of sustainable forestry that restores a previously harvested forest as part of a viable business plan. This is what we work on everyday.

To arrange a visit or tour, please call us or contact us via our web site ([www.mrc.com/contact-us](http://www.mrc.com/contact-us)).