MANAGEMENT PLAN, POLICIES and TARGETS

August 2000

The complete text of this report and additional information about the Mendocino Redwood Company can be found on our Web Site:

www.mrc.com

If you would like to give feedback to Mendocino Redwood Company on any aspect of this report, feel free to contact us at 707-962-2807, or use the contact form available at the Web Site location.

Table of Contents

Our Purpose

Mendocino Redwood Company was formed with the idea that it is possible to manage a large block of productive forestland utilizing high standards of environmental stewardship and at the same time to operate as a successful business.

To us, managing forestland with a high degree of environmental stewardship means that as each decade of MRC management passes:

1. The inventory of redwood, Douglas-fir, and other conifer trees on our property will improve.
2. The habitat available to land-based species will improve.
3. The habitat available to aquatic-based species will improve.
4. The species composition present on our land will begin to more closely resemble the composition of forestlands and wildlife before commercial timber harvest removal.

Operating as a successful business means:

5. Being a business that people will want to work for.
6. Being a business that the community is proud of.
7. Being a business that is known for producing quality products and keeping its word.
8. Being a business that earns a return on the capital invested in the business over time.

Introduction

The Mendocino Redwood Company (MRC) began operations on June 30, 1998 with the purchase of 232,000 acres of timberland in California. The purpose of the company, presented on the previous page, was written in October of 1998 with input from many employees. This Management Plan has been completed to provide details on where we are today with our purpose, policies, plans, and targets. It is meant to give employees, neighbors, regulators, and other interested members of our larger community a concise, "user-friendly" summary of where we are going and how we will monitor progress.

MRC OPERATIONAL POLICIES

- Are written to supplement the California Forest Practice Rules.
- Are meant as internal guidance for areas where MRC will operate with a higher degree of environmental sensitivity or urgency than is currently required by law.
- Are followed in all situations except where forest conditions are unique or pose a threat to safety and therefore warrant a deviation from the policy. In these cases all changes from policy will be approved by Director of Stewardship, Chief Forester, and Forestlands Manager.
- Are meant to be unambiguous and measurable.

Each of the eight components of the company's purpose is explored in a separate section. These sections contain data tables, operational policies, plans, and targets. At the end of the document we have included an example of scorecards, policy summaries, maps, and a glossary to help explain some of the forestry terminology.

MRC's intent is to restore and maintain forestlands for long-term ecological, social, and economic vitality. In addition to its own internal monitoring, MRC is actively pursuing independent, third party validation of its timberland management practices. As more research and information becomes available we will publish updates to this Management Plan.

MRC OPERATIONAL TARGETS

- Are consistent with the components of Our Purpose.
- Are monitored to measure progress.
- Are used in recognizing and rewarding employees.
- Are verifiable by outside organizations.

1. Inventory of Conifer Trees

Introduction: The Mendocino Redwood Company owns 232,000 acres of land in California: 220,000 in Mendocino County and 12,000 acres in Sonoma County. (See Map on following page) Approximately 98% of our lands are forested. The balance is covered with grass, water, brush, or other non-timber vegetation. These forests include a variety of conifer and hardwood species as shown by watershed management area in the chart below.

Number of Trees
Estimate of Trees Greater Than 10" dbh* (as of 1/1/00)

Watershed Area	Total Acres	Total Trees	Redwood	Doug-fir	Tanoak	Madrone	Other Species
Albion	16,473	1,083,000	559,000	202,000	241,000	43,000	38,000
Big River	34,333	1,897,000	757,000	308,000	663,000	120,000	49,000
Garcia	15,687	1,136,000	397,000	212,000	379,000	59,000	89,000
Southcoast **	34,429	2,713,000	1,017,000	631,000	837,000	146,000	82,000
Navarro East	29,733	1,644,000	642,000	265,000	571,000	116,000	50,000
Navarro West	24,986	1,553,000	718,000	303,000	418,000	64,000	50,000
Noyo ***	19,388	2,175,000	760,000	301,000	1,030,000	73,000	11,000
Rockport	39,036	2,981,000	854,000	537,000	1,328,000	214,000	48,000
Sonoma	12,242	807,000	390,000	86,000	286,000	18,000	27,000
Ukiah	5,717	334,000	80,000	97,000	90,000	30,000	37,000
Total	232,024	16,323,000	6,174,000	2,942,000	5,843,000	883,000	481,000

* dbh = diameter breast height, approximately 4.5' off the ground
** The Southcoast Inventory Block includes the Greenwood Creek, Elk Creek and Alder Creek watershed areas.
*** The Noyo Watershed Area has been updated during July 2000.

History: Prior to the 1850s, MRC forestlands were largely untouched late successional redwood and Douglas-fir mixed forests supporting communities of Native Americans (such as the Pomo, Yuki, Cahto, Wilaki, and Sinkyone). The grounding of the trading ship, *Frolic*, led to discovery of these lands by white settlers from San Francisco. A sawmill, constructed in 1852 at Big River, was the beginning of the redwood lumber industry on the Mendocino Coast of California.

Companies such as the Union Lumber Co., Albion Lumber Co., Mendocino Lumber Co., Rockport Redwood Co., L.E. White L.C., Holms Lumber Co., and Southern Pacific Land Company were some of the early owners of what now comprise MRC forestlands. Harvesting started at the mouths of watersheds and progressed up-stream and up-slope to the ridgelines. Initial logging activities generally consisted of a regimen of burn, clearcut, and burn again, followed by logs being dragged

Mendocino Redwood Company, LLC
OWNERSHIP

downhill to the nearest stream. Logs were transported to mills via the river systems. Later entries into these forests, and forests further inland, were commonly accomplished with steam donkeys (steam driven cable machines), and railroads. During the 1940s, crawler tractors and trucks replaced the railroads. Clearcutting continued to be a common harvest method. In response to tax laws in the 1940s and 1950s, many stands were managed to remove 70% of the stocking, typically the larger, healthier trees. Subsequent owners managed the lands to maximize fiber output and the success of their mill investments. As a result of this ownership history, a significant portion of the MRC acreage is at reduced levels of conifer stocking with trees in smaller diameter size classes.

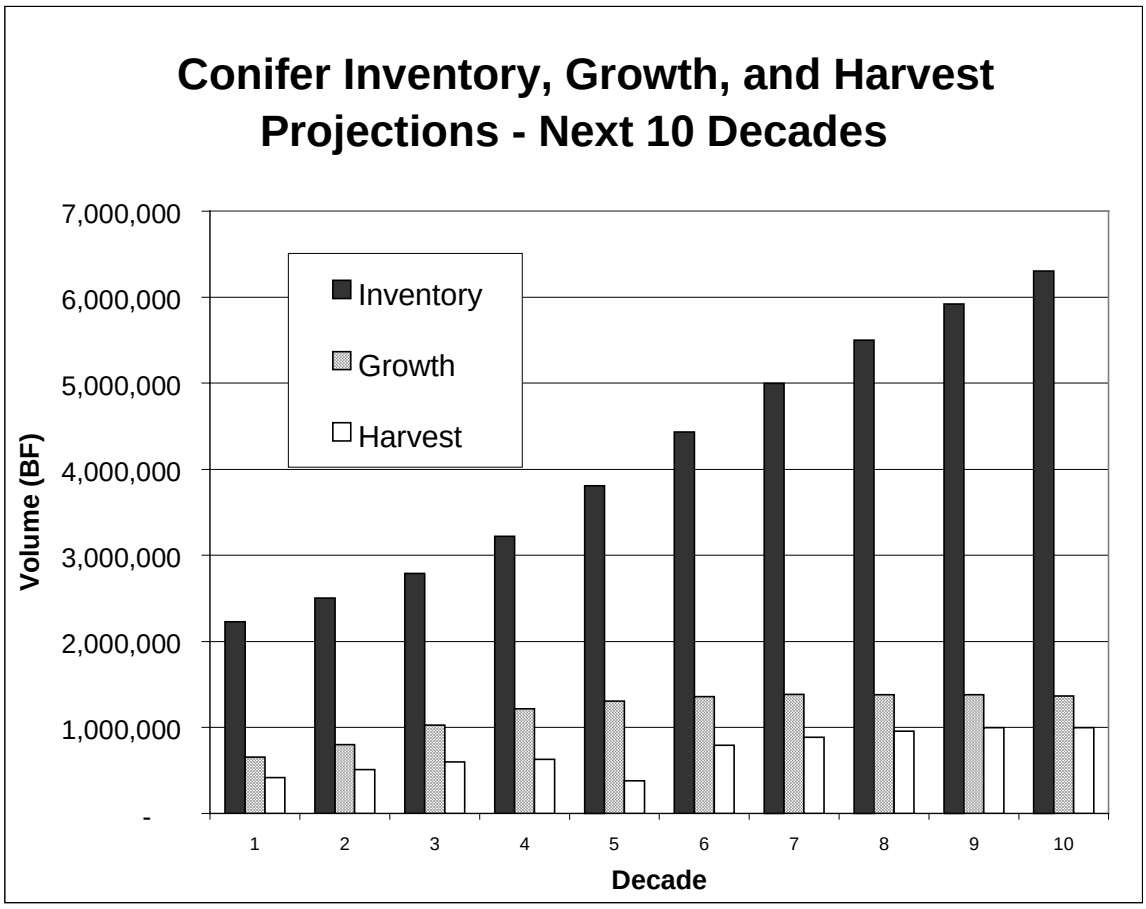
Inventory Target: MRC's inventory target is to reverse this historical trend and improve the quantity and quality of redwood, Douglas-fir, and other conifer trees on these forestlands as indicated in the table below.

MRC Inventory Target
Redwood, Douglas-fir and other Conifers - Board Feet*

	Current	By End of First Decade	By End of 5th Decade	By End of 10th Decade
	2000	2010	2060	2100
Total Redwood, Douglas-fir, and other Conifer Inventory				
Total Inventory 10" dbh and greater trees (billions of board feet)	2.30	2.53	4.61	6.80
Inventory per Acre 10" dbh and greater trees (thousand board feet per acre)	9.9	10.9	19.9	29.4

* A Board Foot is approximately 1 foot by 1 foot by 1 inch of wood, a common term used to determine the volume in the trunk of a tree; it is systematically adjusted during tree measuring (scaling) for flare and bark.

This objective calls for a doubling of the board foot inventory of conifers on our forestlands by the end of the 5th decade. These decade targets are based on estimates of conifer growth which average of between 2.9% to 3.8% per year. Simply put, this increase in inventory is achieved over time by growing more each year than we harvest. The following chart shows the results of modeled simulation of the growth of conifer inventory by decade. These model projections are based on real data from the redwood region calibrated to MRC lands and use conservative growth estimates.



Total Inventory: To achieve these or even more accelerated inventory growth targets, MRC needs accurate estimates of total inventory and growth to determine harvest levels and to plan silvicultural (planting, thinning and vegetation control) activities. The current inventory data for the MRC acreage is based on collection activities over the past five years. During this time, a variety of techniques have been used to increase the level of accuracy in the watershed management areas on the property. These have included satellite imagery, vegetative typing by foresters, and stand-specific ground-based cruises.

Between 1995 and 1997, the forestlands (under prior ownership) were classified into stands that represent similar vegetative types such as mature redwood, open canopy Douglas-fir, hardwood, and brush. Field inventory plots (numbering over 6,500) were used to determine timber volume estimates by vegetation types over four major inventory blocks across the ownership. Since that time, the four blocks were split into ten watershed management areas indicated in the chart on page 5. In 1998 and 1999, the Garcia, Southcoast, Albion, and West Navarro watershed management areas were the focus of an inventory monitoring project aimed at achieving higher levels of accuracy for the smaller geographic areas. This project involved the installation of over 2,000 new inventory plots and included the collection of data regarding downed logs, snags, and old growth trees in addition to traditional inventory data collection.

Total Inventory* by Watershed Management Area

Watershed Area	Most Recent Year Inventory Remeasured	**Conifer**** Board Feet (millions)	**Hardwood** *** Board Feet**** (millions)
Albion	1999	344	25
Big River	1996	276	65
Garcia	1998	113	35
Southcoast	2000	423	84
Navarro East	1996	202	56
Navarro West	1999	268	58
Noyo	2000	157	46
Rockport	1996	377	154
Sonoma	1996	112	26
Ukiah	2000	38	19
Total		2,310	568

* Net Inventory is calculated less bark, rot and breakage

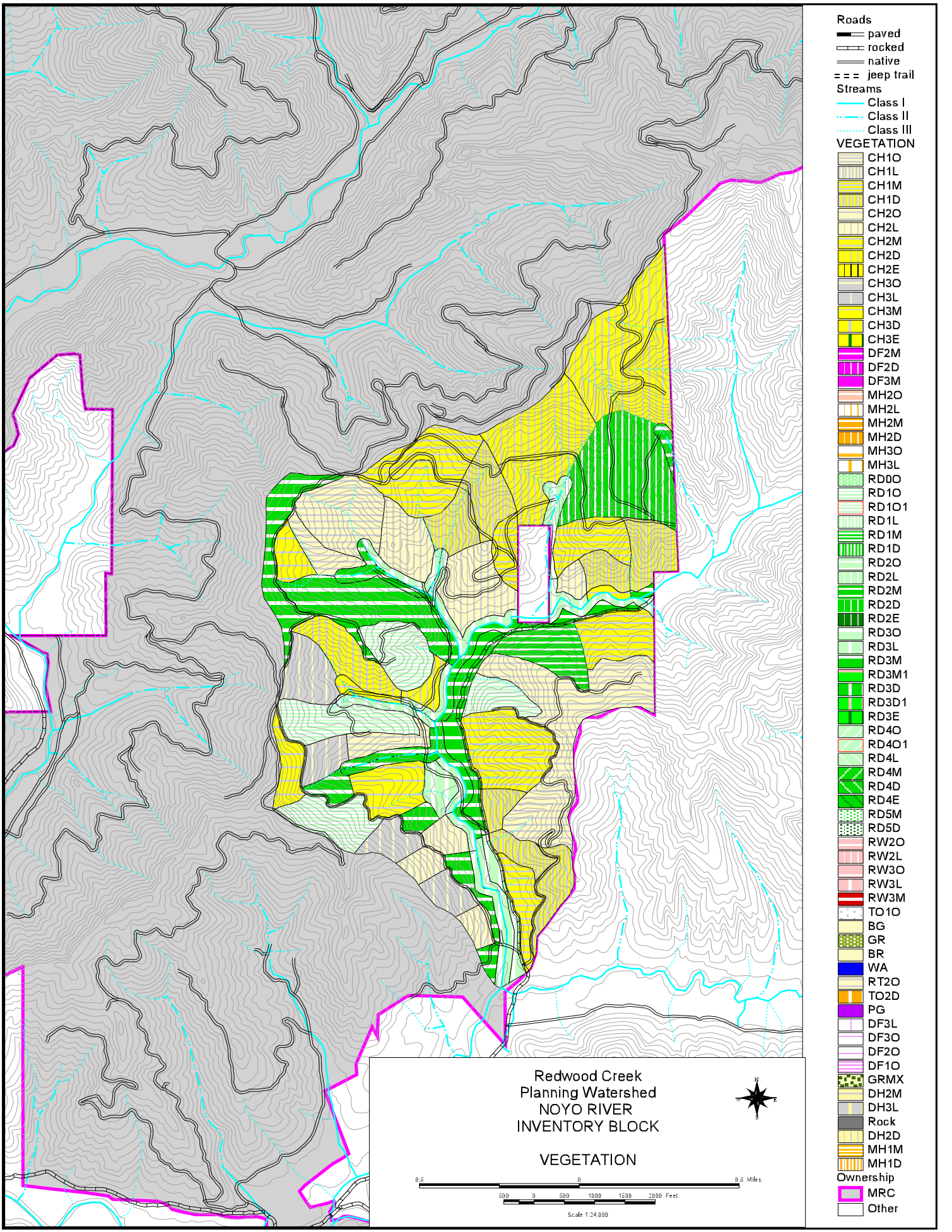
** Conifer species include redwoods, firs and pines

*** Hardwood species include tanaok, madrone, chinquapin, black oak, etc.

**** There are approximately 8 tons/mbf average for hardwoods

Landscape Planning: During the last half of 1999 and first half of 2000, MRC has implemented a method of inventory calculation and monitoring that further increases the precision of total inventory numbers and the ability to plan for cumulative harvest impacts across the landscape. The focal units are the 85 California Planning Watersheds found within MRC property and depicted on the maps in Appendix A. Focusing on the smaller watershed areas facilitates the creation of landscape-wide planning and monitoring. This "Landscape Planning" will incorporate numerous factors to determine harvest effects on growth, forest structure, and biodiversity.

The Landscape Planning methodology divides each planning watershed into stands. Each stand is typically 20 to 40 acres, grouped by common features such as vegetation, harvest design, and sensitivity (such as proximity to a watercourse). The stands are mapped and each stand accumulates a set of data, also known as stand attributes. As time progresses, this data will include harvest and management history, wildlife and aquatic features, community values, and other data. Measurements of tree characteristics and general forest structure are taken in a large sample of stands to provide confidence in the total inventory at the watershed level. Through August of 2000, 23 of the total 85 planning watersheds have been mapped for stands with upgraded inventory data. All of the remaining planning watersheds will be complete by the end of 2001. The following two maps demonstrate how one planning watershed, Redwood Creek in the Noyo, is divided into stands and stand data layers. Explanations for the vegetation classifications are in Appendix B.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Streams
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Ownership
MRC
Other
Redwood Creek
Planning Watershed
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INVENTORY BLOCK
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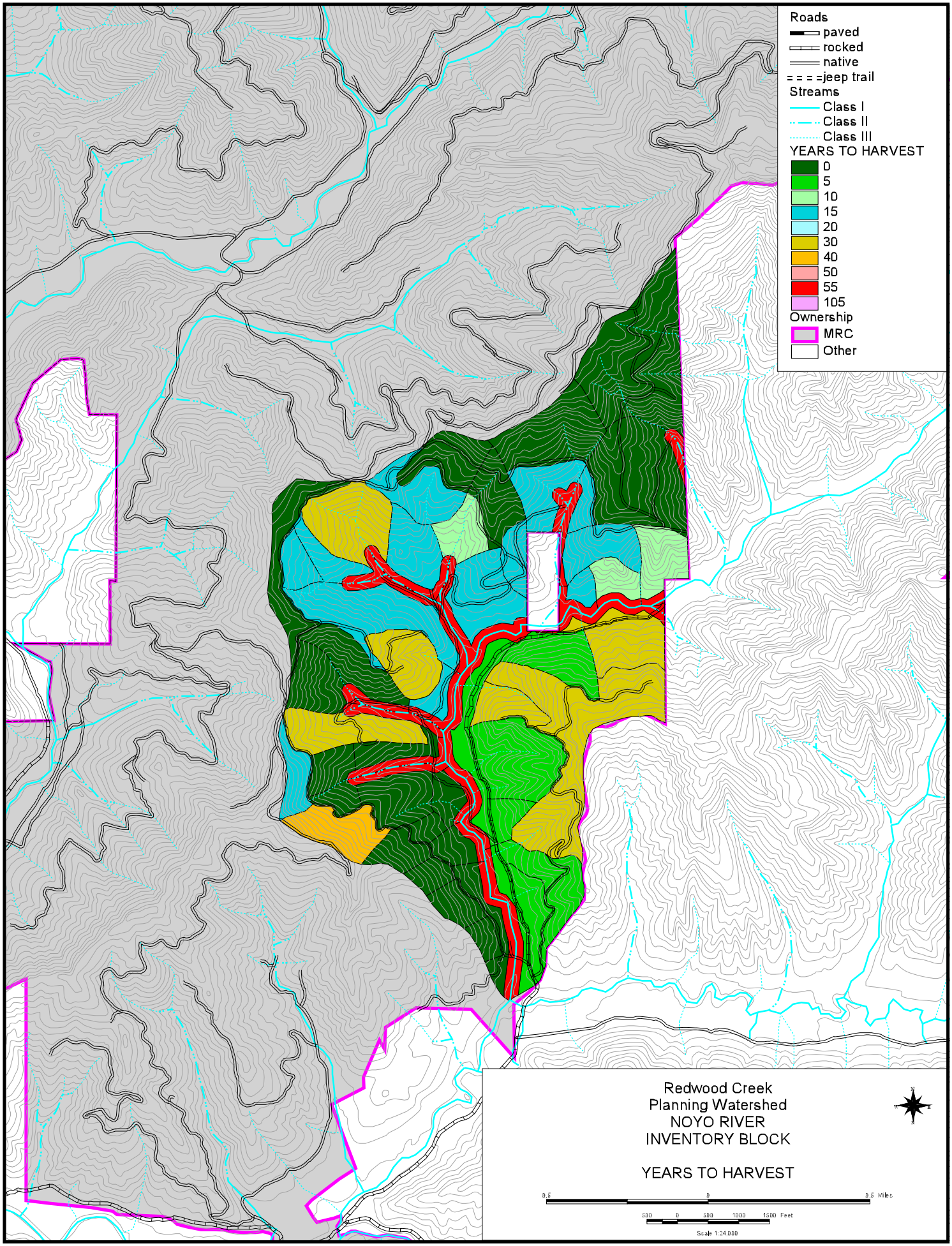
Scale 1:24,000


Roads
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Streams
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Class III
YEARS TO HARVEST
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Ownership
MRC
Other
Redwood Creek
Planning Watershed
NOYO RIVER
INVENTORY BLOCK
YEARS TO HARVEST
0.5
0
0.5 Miles
500
0
500
1000
1500 Feet
Scale 1:24,000

Tree Growth: Growth of the forest is estimated by calculating the growth of new trees in harvest areas, the growth of new trees in non-harvested areas, and the diameter and height growth on existing trees. Growth estimates take into account tree species, individual tree conditions, competition, harvest and other kinds of tree mortality. Projections of growth are also based on soil quality, temperature, moisture, slope, and elevation.

The model CRYPTOS (Cooperative Redwood Yield Research Project) is currently used to simulate growth across MRC forestlands, to help determine appropriate harvest levels, and to update annual inventory. Growth data in this model was originally obtained from plots installed across the redwood region from 1930 to 1980. MRC is in the process of further calibrating the CRYPTOS model with data gathered from over 200 permanent growth plots in various watershed areas across its ownership. These plots provide the ability to better represent actual growth conditions on MRC lands.

Growth varies widely by stand. Young stands with small trees may not have any measurable volume, and although they may be growing rapidly, show zero volume growth. Stands that have trees that are 25 to 50 years old may be growing in excess of 10%. Growth rates slow down as stands approach maturity. Estimates of total growth for the ownership are weighted averages of growth rates for individual stands.

Conifer growth estimates for MRC forests show the total conifer tree inventory growing at an average annual rate of 2.9% per year or an average of 66 MMbf/year over the next five years. A rough estimate of region-wide hardwood growth rates is 4% per year. The hardwood rates have been studied less than conifer growth. We expect to refine our estimates of both conifer and hardwood growth through the measurement of the permanent growth plots.

Total MRC Lands - Average Conifer Growth Estimate Next 5 Years		
	Volume	% of Inventory
Conifers	66 million Bf/year	2.9%
Per Acre Average	280 Bf/acre/year	

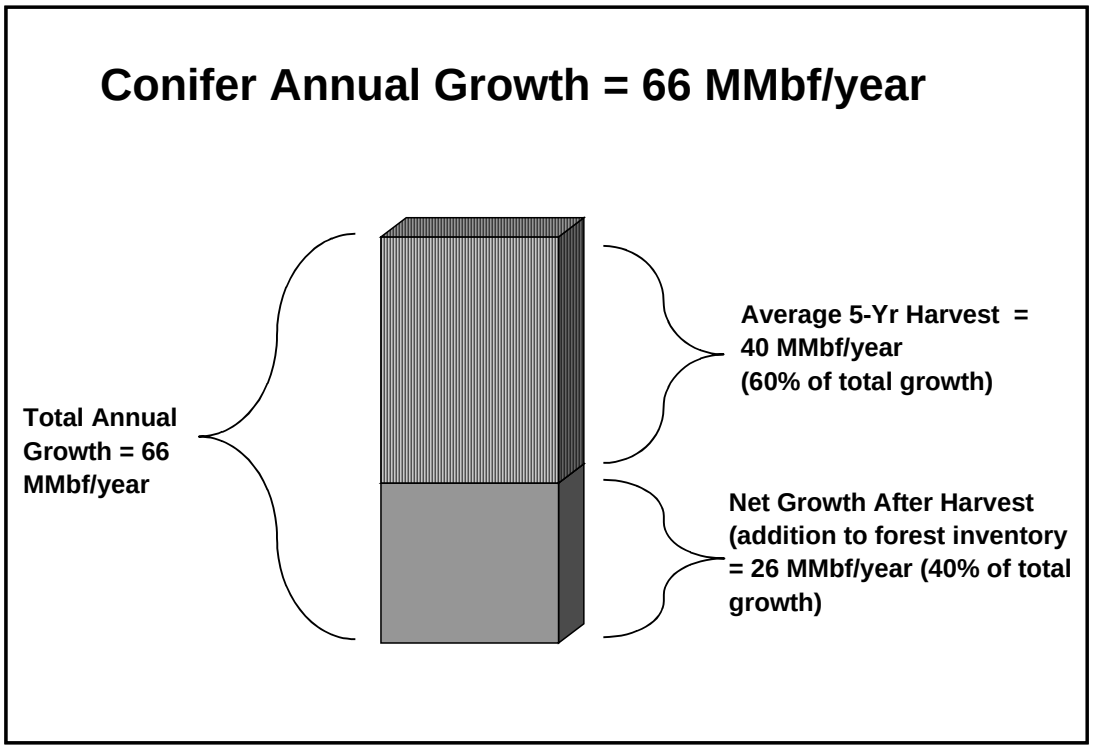
Harvest Levels: Annual harvest on MRC forestlands is determined by reviewing impacts on individual stands, watersheds, and on the total 232,000 acre landscape.

MRC HARVEST POLICY

- Harvest less conifer than we grow on our forestlands.
- Disperse harvest activity over the landscape to prevent concentrating impacts.
- Retain and recruit the older stand component in the forest with more advanced structure.
- Operate without traditional clearcutting (for all new plans since the fall of 1998); all harvests will retain elements of the original stand such as snags, green trees, stand structure, and other features important for a variety of functions for biotic organisms.
- Well-stocked conifer stands (greater than 135 square feet conifer basal* area) will have a minimum basal area retention post harvest of 50% of the original conifer stand.

** basal area: Cross sectional area of all stems of a species in a geographical area taken at dbh (4.5' height)*

Each individual stand (generally defined by MRC to be between 20 and 40 acres) being considered for harvest must meet certain trigger and retention conditions (See following silviculture discussion and tables). These internal guidelines are written to maintain intact forested areas, to protect ecological structure on multiple scales, to achieve a gradual conversion to uneven aged stands with larger, older trees, and to return tanoak dominated stands back to redwood and Douglas-fir. The trigger and retention conditions combined with inventory targets and landscape-specific sensitivities limit the forested areas available for annual harvest. In each watershed, annual harvest is constrained to avoid detrimental cumulative impacts of harvest during any five-year period.



Each area forester uses a variety of factors to decide where to harvest within a particular watershed area. These include previous harvesting activities in the stand and surrounding stands, conditions of road systems, historical and underlying erosion conditions, wildlife concerns, proximity to high priority road restoration work, and the health of the trees in the stand. The targeted annual volume is approximately 2% of total conifer inventory. The specific percentage depends on the conditions present in each watershed management area. The table shows annual harvest volumes and harvest as a percent of inventory for 1999 by watershed area.

Conifer Harvest by Watershed Area
1999

Watershed Area	1999 Volume Harvested	Percent of Conifer Inventory
Albion	8.8	2.6%
Big River	3.6	1.3%
Garcia	0.7	0.6%
Southcoast	6.8	1.6%
Navarro East/Ukiah	3.0	1.3%
Navarro West	4.1	1.5%
Noyo	4.5	2.9%
Rockport	7.8	2.1%
Sonoma	1.0	0.9%
Total	40.3	1.7% (Weighted Average)

The landscape planning process, in which tree inventories, wildlife attribute features, and other landscape data are geographically referenced to stands, gives the area foresters better information to determine the levels and locations for annual harvest and other management activities.

With this tool, a forester is able to plan specific harvest areas by year for as many as 50 years. Multiple year harvest planning allows for evaluation of potential harvest impacts on water quality, upslope species habitats, road de-activation, stand improvement practices, and prioritization of restoration work. Much of this is accomplished by the overlay of data, such as baseline watershed analysis work, on stand maps. (See discussion on pages 32-34). The initial Landscape Planning assessment will be completed for the Ukiah, Noyo, Southcoast, Rockport and Big River watershed areas by the end of 2000, and the balance of the property by the end of 2001.

LANDSCAPE PLANNING allows foresters to assess the following at a stand level in determining location and volume of harvest:

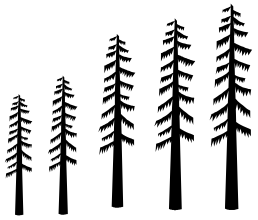
- Total Trees by Species
- Inventory Targets
- Stream Locations
- Streamside Protections
- Wildlife Tree Retention
- Snag Retention
- Chronic Erosion Areas
- Road Systems
- Slope and Instability Potential
- High Priority Sediment Control Projects
- Species Protections and Habitat Targets
- Old Growth Protection
- Preservation of Oak Woodlands and Other Special Areas

Silviculture: Silviculture is the science of managing aspects of forest composition and growth. Silviculture treatments include a variety of activities such as harvesting, planting, thinning, and brush management that impact the stocking and growth of a forest stand as well as the habitat provided by the stand.

Currently, the vast majority of MRC acreage is in the young forest types. One of the company's objectives is to move significantly more of the acreage into older and larger size class stands by the end of the 5th decade as shown in the table below. To achieve this and other goals, MRC developed and implemented a set of trigger and retention policies for different kinds of harvest logic. MRC foresters prescribe classic uneven-aged harvest, such as selection, to conifer stands with healthy stocking (greater than 120 square feet conifer basal area per acre). Watercourse and lake protection zones (WLPZs) are targeted for high retention selection harvest to promote the growth of larger trees. MRC foresters prescribe even-aged management, such as variable retention, in order to restore stands from hardwood overstory dominance to conifer overstory dominance. MRC has discontinued the use of traditional clearcutting on its properties.

MRC Targeted Forest Conditons

	Percent of Acres Standing Conifer Volume		*Percent of Acres* Wildlife Classification
	>25 mbf/acre	15-25 mbf/acre	>=WHR 4B* (>=16" QMD**)
Current	7%	29%	32%
After 5th Decade	20%	75%	55%
	Total Volume - MBF Conifer Trees in Larger Size Classes		
	24" - 32" dbh	> 32" dbh	
Current	622,000	606,200	
After 5th Decade	1,076,700	1,362,500	



* WHR is a classification system for "Wildlife Habitat Relationship" calculated by using a quadratic mean diameter (QMD) of all trees greater than 5" dbh (15 years old +).

** QMD, quadratic mean diameter is calculated by pooling stem diameters of all stems in the sample including conifers and hardwoods, squaring the diameters, summing up the squared diameters, and then computing the square root. QMD is used because it gives more weight than a simple arithmetic mean to the larger diameter trees.

Variable retention is an interim hardwood removal silviculture with a harvest pattern designed to maintain presence of structure for ecological functionality on the landscape. Variable retention leaves from 10% to 40% of the original stand intact. In 20 years, MRC expects the restoration of stands back to conifer dominance will be largely completed and selection harvest regimes, with 50% or more original stand retention, will become the predominant silviculture practiced on MRC forestlands.

Explanations of the silvicutural activities and guidelines for company foresters are set out in the following tables.

Descriptions of Different Silvicultural Harvest Prescriptions Used by MRC		
Prescription	**Description**	**California Forest Practices Rules Ref. and Label**
Uneven-Aged Management		
Single Tree Selection	To establish and maintain multi-storied, uneven-aged stands of redwoods and Douglas-fir by harvesting individual trees more or less uniformly throughout the stand. Provides space for growth of remaining trees and space for growth of new trees.	913.2(a)(2)(A) "Selection System"
Group Selection (Conifer & Mixed)	To establish and maintain multi-storied, uneven-aged stands of redwoods and Douglas-fir by harvesting trees in small (< 2.5 acre) groups. Width of groups is commonly twice tree height of surrounding mature trees to maintain forest influence.	913.2(a)(2)(B) "Group Selection"
High Retention Selection	To accelerate stand development of large trees and closed canopy by harvesting individual trees targeted to result in the growth of larger trees and to create and maintain special habitat elements such as decadent trees, snags, and downed logs.	913.2(a)(2)(A) "Selection System"
Commercial Thinning	To promote timber growth, increase average stand diameter, and improve forest health.	913.3(a) "Commercial thinning"
Transition	To develop an uneven-aged stand from an even-aged stand or a stand with unbalanced or irregular stocking. Involves removal of trees individually or in small groups to create a balance of different stand structure and natural reproduction.	913.2(b) "Transition"
Even-Aged Management		
Variable Retention	To rotate stands with poorly stocked conifer volume and relatively high volumes of hardwood, dispersed and/or aggregated retention of 10% to 40% or more of the existing stand to provide for vigorous growth of remaining stand combined with pockets of undisturbed trees to provide for ecological functionality, habitat structure, and forest complexity.	913.6 "Alternative Prescription" "AP/Clearcut"
Seed Tree Removal Step	This step harvests a portion of the seed trees left in an earlier entry and after a fully stocked stand of regenerated trees has become established.	913.1(c)(2) "Seed Tree Removal Step"
Shelterwood Removal Step	This step harvests a portion of the overstory of trees left in an earlier entry for wind and soil stability and after a fully stocked stand of regenerated trees has become established.	913.1(d)(3) "Shelterwood Removal Step"
Rehabilitation	To rehabilitate poorly stocked conifer stands experiencing excessive hardwood competition and allow for site prep and conifer regeneration and transition into well-stocked stand of conifers.	913.4(b) "Rehabilitation"

Targeted Pre-Harvest Conditions on MRC Forestlands				
Prescription	**Species**	**Pre-Harvest Conifer Basal Area (Square Feet per Acre)**		**Other Key Pre-Harvest Factors**
Uneven-Aged Management		**Lower Limit**	**Upper Limit**	
Single Tree Selection	Conifer/Mixed	120	None	
Group Selection	Conifer	120	None	20% of the Stands' Area May Meet Stocking Standards Using the Point Count Method. The Remaining 80% Must Meet the Pre-Harvest Basal Area Trigger (120 sf per acre).
Group Selection	Mixed	90	None	Hardwood basal area greater than 50 sf/acre. 20% of the Stands' Area May Meet Stocking Standards Using the Point Count Method. The Remaining 80% Must Meet the Pre-Harvest Basal Area Trigger (90 sf per acre).
High Retention Selection	Conifer/Mixed	260	None	Basal Area Present for 70% Absolute Canopy Cover
Commercial Thinning	Conifer	120	None	Will Not Be Applied to a Stand That Has Been Selectively Harvested Within 10 Years
Transition	Conifer/Mixed, Mixed/Hardwood	60	100	
Even-Aged Management*				
Variable Retention	Mixed	25	135	Greater Than 60 sf ba/acre Hardwoods**
Seed Tree Removal	Conifer/Mixed	15	50***	Regeneration @ 300 Point Count
Shelterwood Removal	Conifer/Mixed	25	100***	Regeneration @ 300 Point Count
Rehabilitation	Mixed/Hardwood	None	50	Less than 300 point count. Greater Than 50 sf ba/acre Hardwoods

Note: These recommended silvicultural harvest prescriptions are expected to result over time in an increase in more mature forest types, which is the goal of MRC. If a forester determines that a different silvicultural prescription would better achieve the goals of MRC, then that prescription can be used after consultation with the Chief Forester, Forestlands Manager, or Stewardship Director.

* The majority of even-aged management is used in hardwood dominated stands to rotate the stands back to planted conifers.

** Due to the variability of hardwood inventory across MRC's forest lands, the pre-harvest hardwood basal area may vary as much as 30% for this prescription.

*** Pre-dominant conifer basal area.

MRC Targets For Stocking, Retention and Re-entry Specifications			
Silviculture	**Post Harvest Stocking Levels**	**Retention Conifer Basal Area (Square Feet of Basal Area per Acre)**	**Time before next harvesting activities**
Uneven-Aged Management			
Single Tree Selection	All Age, evenly distributed	Greater Than 90 sf ba if Pre-Harvest Stocking is Less Than 220 sf ba; Greater Than 140 sf ba if Pre-Harvest Stocking is Greater Than 220 sf ba	At Least 10 Years (15 year average)
Group Selection (Conifer)	Less Than 20% of Pre-Harvest Stand in Clearings	Greater Than 90 sf ba if Pre-Harvest Stocking is Less Than 220 sf ba; Greater Than 140 sf ba if Pre-Harvest Stocking is Greater Than 220 sf ba	At Least 10 Years (15 year average)
Group Selection (Mixed)	Less Than 20% of Pre-Harvest Stand in Clearings	Greater Than 90 sf ba if Pre-Harvest Stocking is Less Than 220 sf ba; Greater Than 140 sf ba if Pre-Harvest Stocking is Greater Than 220 sf ba	At Least 10 Years (15 year average)
High Retention Selection	Greater Than 70% Absolute Canopy Closure, Six Trees At Least 32" dbh or Greater Per Acre, If LWD Deficient, then Permanent Retention per Operating Policy	Greater Than 200 sf ba and Greater Than 75% sf ba of Pre-Harvest Stand	At Least 15 Years
Commercial Thinning	Equal to or Greater Average Tree Diameter Than in Pre-Harvest Stand	> 110 sf ba	Transition to Selection 10-20 Years
Transition	Less Than 20% of Pre-Harvest Stand in Clearings	> 50 sf ba	Transition to Selection 20-30 Years
Even-Aged Management			
Variable Retention	10% to 40% or More Pre-Harvest Acreage in Permanent or Rolling Retention in Representative Forest	Approximately 10% to 40% Depending on the Acreage Retention	Transition to Selection 30-60 Years
Seed Tree Removal Step	10% to 40% or More Pre-Harvest Acreage in Permanent or Rolling Retention in Representative Forest	Greater Than 10 sf ba, if Pre-Harvest Stocking is Less Than 75 sf ba; Greater Than 50 sf ba if Pre-Harvest Stocking is Greater Than 75 sf ba	Transition to Selection 30-60 Years

MRC Forestlands - Estimated Silviculture Applications		
Silviculture	Next 5-Years % Total Harvested Acres	Fifth Decade Average % Total Harvested Acres
Uneven-aged	55%	95%
Even-aged	45%	5%

Regeneration: Regeneration activities on MRC lands include tree planting, site preparation work, pre-commercial thinning, and brush removal work. Regeneration work is designed to improve conditions for the growth of new trees on a site that has been harvested and where openings are left in the forest canopy. In the 1998/1999 winter season, MRC planted 550,000 redwood and Douglas-fir seedlings and in the 1999/2000 winter season, MRC planted 619,000 seedlings.

Annual Tree Planting Winter of 1999/2000			
	Redwood	Douglas-fir	Total
Albion	12,900	15,150	28,050
Big River	34,700	29,300	64,000
Southcoast/Garcia	60,200	60,200	120,400
Navarro East/Ukiah	35,700	30,000	65,700
Navarro West	7,600	5,600	13,200
Noyo	78,100	75,300	153,400
Rockport	93,600	72,400	166,000
Sonoma	2,800	5,400	8,200
Total	325,600	293,350	618,950

Plans for the next 5-year period are to continue to plant genetically appropriate trees where harvest activities have left forest openings. In order to prepare for adequate future seedling supplies, MRC is identifying high quality redwood stands for seed sources. This will be accomplished using the landscape planning database. Several MRC foresters will be selecting three or more stands in each of three zones to flag for seed crop development. Harvest in these stands will be designed to improve redwood cone production.

Site preparation includes removal of a portion of the post-harvest slash material, brush, and in some cases stumps, with the use of mechanical, manual, or burning techniques. The majority of tanoak slash is treated by whole tree yarding and moving limbs and tops to burn piles. MRC plans for 400 to 500 acres of site preparation on an annual basis. Burning is tightly restricted to areas with heavy slash concentrations and is generally spot burning rather than broadcast burning.

Pre-commercial thinning is typically prescribed on 300 to 500 acres annually to reduce stand density. Pre-commercial thinning enhances the growth potential of trees in forested stands where excessive competition for light, nutrients, and water is occurring due to the close spacing of trees.

Brush removal work includes the use of mechanical and chemical means to control the growth of woody plant species. The use of herbicides, especially Tryclopyr commonly know as Garlon, on MRC land has been unpopular with the neighbors adjacent to our properties.

MRC HERBICIDE POLICY

- Herbicides will be used only to address ecological imbalance on the forestlands (e.g. suppression of conifers by tanoak sprouts) with the goal of reducing and eliminating their use over time.
- Herbicides will only be applied by hand to control specific vegetation.
- MRC will actively work with BLM, USFS, CDF, California State Parks, and other public agencies to control invasive exotics.
- MRC will not apply herbicides within 150' of Class I streams, 100'of Class II streams, and within 25' of either side of a Class III watercourse if there is any moisture present.
- To ensure that no herbicides are present in the watercourses, MRC will work in partnership with the Regional Water Quality Control Board to test stream water downstream from herbicide application.
- MRC will notify neighboring landowners when applying herbicides within 300 feet of their property line.
- MRC will work with the County Agricultural Commissioner to ensure contractor operations are in compliance with all federal and state rules, regulations, and worker safety requirements.
- MRC will work with Native American groups to issue permits for safe gathering activities buffered from any herbicide application areas.

In 1999, MRC, in conjunction with an external watershed science consultant, designed experiments and received permitting to test nine products as alternatives to Garlon. Trials for these products as well as over ten kinds of manual and mechanical removal techniques began in the fall of 1999. Some results will be available as early as the fall of 2000 although additional research and testing will continue for the next several years.

In addition to testing and implementing alternatives to traditional industrial herbicides, MRC is also committed to reducing, and eventually eliminating the total use of herbicides on its ownership. To reach this target, MRC foresters are beginning to review each watershed area and characterizing stands as to the need and priority for herbicide application, the potential use of alternatives, and the transition away from the need for herbicides. When these characterizations are completed, MRC will have the data to set targets for the timing of its reduction and elimination of herbicides.

Herbicide Use Stand Characterization

I. No Need to Use Herbicides

- Treatment Completed
- High Conifer Stocking
- Watercourse Zones
- Not Targeted for Conifer Recapture
- Opportunity for Single-Step Manual Release

II. Herbicide Application On Recent Harvests

- Variable Retention
- Past Clearcuts
- Seed Tree/Shelterwood Removal
- Transition
- Rehabilitation

III. Herbicide Application For Tanoak Overstory

- High growing site with excessive competition
- High opportunity for release

IV. Control of Exotic Invasives

- Pampass Grass
- Eucalyptus
- French and Scotch Broom
- Yellow Star Thistle

Herbicide Alternative Trials Treatments Being Tested

Tanaok Stump and Frill* Applications

- Neem Tree Oil
- Eucalyptus Oil
- Camphor Oil
- Vinegar
- Bleach
- Sodium Chlorate
- Ammonium Sulfamate
- Black Walnut Oil
- Manual Single and Double Girdling
- Girdling With Reduced Herbicide Levels

Tanoak Stump Covers

- 10 ml Plastic
- 20 ml Plastic
- Weed Block Fabric
- Slash

2-Year and 4-Year Old Tanoak Brush

- Manual with Chainsaw - Once
- Manual with Chainsaw - Twice
- Manual with Chainsaw - "Designer Thin"
- Fertilize Conifer
- Ammonium Sulfamate Application
- Scythe (Fatty Acid) Application

* Frill involves tree girdling and chemical injection

Fire Prevention and Protection: Preventing fires on the forestlands is an important priority for all employees and logging contractors at MRC. Forestry personnel make regular rounds to inspect the adequacy of fire tools and prevention practices for the on-site logging subcontractors. These include adequate clearings or fire-retardant blankets around yarder cable blocks, spark arresters on chain saws, and fire trails. Pre-harvest meetings are held with contractors to address important fire prevention issues such as fire safety, access, fuel humidity, and the company policy regarding smoking and warming fires. Concentrations of logging debris, particularly logging related slash piles on landings are located along fire control ridges and are scheduled for burn or disposal within one year.

MRC meets annually with the local Battalion Chiefs and CDF engineers. This allows CDF personnel to become familiar with all primary road access to MRC property. MRC maintains a "call down" list of critical MRC employees and their emergency phone numbers. MRC also provides significant funding for a county-wide aerial patrol, which is completed daily during the peak fire season. All primary access roads are regularly maintained and open for fire truck access on MRC forestlands. MRC employees are provided fire-fighting equipment in their vehicles and trained to efficiently direct fire response traffic. A company-wide communication system provides for effective and quick response. Important helicopter landings are being inventoried and GPS coordinates recorded for emergency response. Where access to available water is limited for fire fighting-tenders, MRC is developing water systems with holding tanks and rapid fill capabilities.

MRC FIRE PROTECTION POLICY

- A phone list is maintained identifying who to contact if a fire should occur. Lists will be distributed periodically to employees as well as contractors.
- Meetings and tours with the local CDF Battalion Chiefs are coordinated on an annual basis.
- MRC participates in county-wide aerial fire patrol.
- Every attempt is made to dispose of slash piles within one year.
- Mainline road systems are maintained to allow access to the property.
- New employees receive training in fire suppression practices.

2. Land-Based Habitat

Over 150 federal or state threatened, endangered, or special concern (TES) species have been identified as potentially occurring on MRC ownership. This list includes 94 species of plants, one reptile, four amphibians, seven invertebrates, 10 fish, 12 mammals, and 35 birds. MRC timberlands are home to many other unlisted mammals, fish, reptiles, amphibians, birds and other species. This section will address the land, or terrestrial-based species and MRC's objectives for improving habitat for these species. The next section of this plan will address aquatic species.

Of the land-based TES species, 19 have been observed on MRC ownership and an additional eight species are likely to be found on

Wildlife Population Survey Work Priorities

Continued Northern Spotted Owl Surveys
- Understand habitat requirements
- Vegetation sampling around known nest sites
- Radio telemetry surveys for habitat use info

Increased Marbled Murrelet Surveys
-Radar surveys for mapping potential habitat
-Understand distribution on ownership

Sooted Track Plate Surveys
- Information on American Martens
- Information on Pacific Fishers

Reptile and Amphibian Work
- Baseline data for riparian work
- Develop data collection protocols
- Information on Yellow-legged frogs, Northern Red-legged frogs, Tailed frogs, Western Toads and Bull Frogs.
- Identification of salamander habitat and the role of salamanders in the ecology of the redwood forest

Songbird Surveys
- Understand distribution on ownership
- Develop data collection protocols

MRC BREEDING RAPTOR POLICY

- **To protect breeding raptors in proposed operating areas**:
  -The RPF, or designee, will complete a documented inspection for nests, white wash, and other signs during on-the-ground inspections of the THP areas during THP design and layout .
  -The RPF, or designee, will target specific retention of trees that have the characteristics attractive for raptor nesting.
  -If raptor sign is detected during preparation or operation of a THP, the company biologist will be called for internal consultation.
  -During pre-operative meetings with the Licensed Timber Operators (LTOs) MRC will alert the LTO to protective measures and concerns for breeding raptors.
  -Fallers will be advised to look up in the tree prior to falling and check for raptor nests. If a nest, or other sign, is observed the faller will suspend operations in the immediate vicinity of the nest until reviewed by MRC personnel.
  -Active raptor nests will be buffered a minimum of 300' throughout the breeding season.

the property given the availability of suitable habitat. Formal survey work on the ownership has included Northern Spotted Owl, Marbled Murrelet, American Peregrine Falcon, Red Tree Vole, Goshawk, and Southern Torrent Salamander. Some important results include establishing the presence of over 100 Northern Spotted Owl activity centers and one Marbled Murrelet nest site.

MRC RARE & ENDANGERED PLANT POLICY

- For each THP, MRC will determine the likelihood of impact on plants of concern. Initially this will involve working with the Native Plant database and/or a consulting botanist to identify likely habitats and develop survey protocols where appropriate.

In addition to increasing the baseline survey data for species populations, MRC targets certain habitat elements that have beneficial impacts to many land-based species. The maintenance and improvement of these elements are expected to promote biological diversity across the landscape and protect species sensitive to logging operations. The targeted elements include snags, downed large woody debris, mature conifer forest habitat, old growth trees, hardwoods, connectivity, and acreage with unique habitat such as decadence, wetlands, springs, cliffs, and caves.

Currently, MRC is engaged with a variety of federal and state agencies (National Marine Fisheries, United States Fish & Wildlife, California Department of Fish & Game) as well as external consultants for technical assistance in determining targets for these habitat elements. Discussions have centered on reviewing site potential, species recovery projections, and recruitment to achieve targeted element levels. MRC is drawing from a variety of literature and experience in the redwood region to assist with these discussions. It is likely that within two years, MRC will produce a Habitat Conservation Plan (HCP) to summarize the outcome of this technical work, and formalize a long-term commitment to habitat improvement work. The following sections detail the current MRC policies for protection and enhancement of these habitat features.

Land-Based Habitat Elements Priorities
Snags
Downed Logs
Mature Conifer Forest
Old Growth Trees
Hardwoods
Unique Habitats
Connectivity

MRC SNAG POLICY

- All snags will be retained except in cases where they pose safety or excessive fuel loading hazards.
- Permanent conifer and hardwood snag retention and recruitment, of size and distribution to be biologically meaningful, will be a part of every timber harvest plan.
- On a THP by THP basis, either before or after harvest activities, MRC will capture and map snag locations and record tree morphology as part of a long-term monitoring project.
- If snag density is deficient, live cull trees or deformed green trees will be recruited.
- In WLPZs and other wildlife emphasis areas (Northern Spotted Owl sites, unique areas) recruit a minimum of 2-3 snags/acre (min 16"d.b.h., 10' length) averaged over 40 acres.
- In general forested areas, recruit a minimum of 1-2 snags/acre (min 16"d.b.h., 10' length) averaged over 40 acres.

Standing Snags: MRC defines snags as standing dead or partially dead trees greater than 16 inches dbh and taller than 10 feet. The availability of standing snags is critical for cavity-dependent wildlife populations such as several species of woodpeckers, wood ducks, spotted owls, many songbirds, bats, and fishers. Information on the abundance and condition of snags was collected as part of the inventory update process in 1998 and 1999.

Average Snags Per Acre By Watershed Area

	Average Number of Snags/Acre >= 16" dbh, 10' length		
	conifer	hardwood	total
Albion	0.56	0.19	0.75
Garcia River	0.85	0.63	1.48
Navarro West	0.49	0.36	0.85
South Coast	1.01	0.29	1.30
Total	0.75	0.35	1.10

The collected information indicates the current average snag density across a four-watershed area (approx. 96,000 acres) of about 1 snag/acre. MRC's objective is to have a greater presence of snags. The target is to retain 2 to 3 snags per acre averaged over 40 acres in riparian areas. The target in other forested areas is 1 to 2 snags/acre averaged over 40 acres. Snag selection includes a variety of tree species and diameters. When snags are deficient in an area, live cull trees with desired size and deformations are recruited for future snags. In some cases,

consideration of worker safety may cause departures from the landscape-wide guidelines.

Beginning in the fall of 1999, MRC foresters began to capture and map snag locations and morphology as part of a long-term monitoring project. This work will be followed in the next few years by species population studies in conjunction with the California Department of Fish and Game.

MRC SNAG SURVEY

Species	
DBH	inches
Total Height	feet

Wildlife Tree/Snag Condition Class (Circle One)			
0	1	2	3
			

Cavities		
Goosepen?	Large (>5" diameter) nesting cavity?	Small (<5" diameter) nesting cavity?

Other Features				
Platform Nest Present?	Granary?	Number of Horizontal Branches > 6"	Top Condition	Old Growth?

Large Woody Debris on the Forest Floor: MRC defines large woody debris (LWD) as downed logs or fallen trees greater than 16 inches in diameter at the large end and longer than 10 feet. The LWD provides a moist microclimate for various plant and animals including mosses, invertebrates, and amphibians. It also provides feeding substrate for invertebrates and for the mammals and birds that feed on the invertebrates and fungi living in and on the logs. As the wood decays, the downed logs also contribute nutrients to the forest floor. LWD has also been part of the ongoing inventory program.

Large Woody Debris on the Forest Floor
By Watershed Area

	Average Number of Downed Logs/Acre >= 16" diam. Large end, 10' length		
	conifer	hardwood	total
Albion	8.76	0.43	9.19
Garcia River	15.29	0.60	15.89
Navarro West	9.00	0.39	9.39
South Coast	8.71	5.35	14.06
Total	9.87	2.21	12.08

Baseline data collection in four of the watershed areas (approx. 96,000 acres) shows healthy amounts of downed woody debris. Targeted LWD density is 5 to 7 downed logs > 16" large end diameter per acre randomly distributed across the landscape. To achieve this target, LWD is retained and recruited during timber harvesting operations, retained from windfall, and increased by a program to return logs from cull decks (old decks of logs sitting along roads resulting from past utilization practices) to the woods. LWD accumulation is monitored by company biologists and foresters to avoid problems associated with creation of fire hazards or pest infestations.

MRC LWD POLICY

- All large woody debris (LWD) in WLPZs will be retained with the exception of removal due to road obstruction or moved for riparian and stream restoration work.
- In WLPZs, MRC will recruit a minimum of 7 downed logs/acre (min 16"avg. diameter, 10' length) averaged over 40 acres.
- In general forested areas, MRC will recruit and retain a minimum average of 5 downed logs/acre (min 16"avg. diameter, 10' length) averaged over 40 acres.
- All unmerchantable logs generated from current operations will be returned to the forest floor prior to removal of equipment.
- Unmerchantable logs, left from past operations, will be returned to the forest floor or watercourse enhancement projects when equipment is available in the area.

Mature Conifer Forest: Mature forest habitat contains relatively dense canopy closure, an overstory of trees with greater than 24" d.b.h., and the presence of forest structure such as snags and downed woody debris. This kind of habitat is not prevalent on MRC lands or other private timberland ownerships in the area. Currently, there are about 16,000 acres of mature forest habitat on MRC lands. The targeted amount of this habitat is over 70,000 acres by the end of the fifth decade. The company's silvicultural prescription policies, harvest policies within the WLPZs (approximately 22,000 acres) and Northern Spotted Owl buffer zones (approximately 9,000 acres) are designed to encourage development of more mature forest on MRC lands. The landscape planning process described in the first section of this management plan will allow for much more specific planning and monitoring for the amount of mature conifer forest present in the different watershed areas.

MRC UN-HARVESTED OLD GROWTH STAND POLICY

- MRC will preserve all previously un-harvested stands displaying old growth and late successional characteristics (Forest Stewardship Council Type I)
  - No harvesting will occur in these stands.
  - MRC will pursue conservation easements to permanently protect these Type I Old Growth stands.

MRC PREVIOUSLY HARVESTED OLD GROWTH STAND POLICY

- MRC will preserve the character and functionality of all previously harvested stands with at least 6-15 old growth trees or more per acre, approximately 25% of the original tree density (Forest Stewardship Council Type II)
  - In some cases, single tree selection harvesting may be done in these stands.
  - Residual Old Growth trees will be protected per policy.

Old Growth Trees: MRC developed protection measures for three kinds of old growth. MRC lands contain approximately 130 acres of stands that have never been harvested that contain significant old growth characteristics. These stands are preserved from harvest and will be protected with a conservation easement. MRC lands contain approximately 1,250 acres of stands that have previously been harvested but could contain at least 6-15 old growth trees per acre, or approximately 25% of the original old growth stand.

MRC RESIDUAL OLD GROWTH TREE POLICY

- MRC will preserve individual Old Growth trees, conifers and hardwoods, that have significant habitat values or provide unique biological function within the forest. These Old Growth Trees are remnant trees from the primary forest, established prior to 1800 AD which will be difficult, if not impossible to replicate within the MRC forest landscape. They include:
  - Any redwood tree, 48" dbh and larger, established prior to 1800.
  - Any Douglas fir tree, 36" dbh and larger, established prior to 1800.
  - Any tree established prior to 1800 with a preponderance of species-specific Old Growth characteristics, regardless of diameter. (See Table on Next Page)
  - Any tree established prior to 1800 which cannot be replaced in size and function within 80-130 years, regardless of diameter or presence of Old Growth characteristics.

The residual old growth trees and late successional characteristics of these stands are protected and only silviculture, such as thinning from below, is allowed to enhance or extend these stands. MRC lands are estimated to contain up to 50,000 residual old growth trees. These trees are preserved based on a policy that protects by age, size, function, and characteristics specific to particular species. Individual trees are marked, recorded, and digitized as foresters and inventory personnel visit stands across the ownership.

Redwood Old Growth Characteristics

- Trees generally in the upper 20% diameter class of the species on site
- Deep, plate-like bark patterns, fire resistant
- Flattened or irregular crowns, highly complex structure
- Highly reiterated crowns(multiple sprouting, replicated growth patterns)
- Large limbs, in excess of 6-8 in diameter
- Crown debris accumulation
- Platforms
- Cavities, partial snag formation
- High presence of complex lichens and moss
- Cat-facing or basal burn cavities

Douglas-fir Old Growth Characteristics

- Trees generally in the upper 20% diameter class for the species on site
- Bark deeply fissured, thick and fire resistant
- High presence of lichens and moss, where crown soils present, ferns
- Large lateral limbs in excess of 8-10 inches in diameter
- Flattened, irregular crowns with lower limbs with signs of decay and crown thinning
- Conks
- Partial sagging in tops
- Broken out tops
- Crown debris accumulation
- Trees along the margins of pioneer vegetation types which reoccupied the sites following disturbances, normally will have limbs extending nearly to the ground, and are often wind shaped.

Hardwood Old Growth Characteristics (Tanoak, Live Oak, Black Oak, Madrone, Laurel, Chinquapin)

- Trees generally are in the upper 20% diameter class for the species on site
- Flattened or irregular crowns, highly complex structure
- Multiple branching crowns with few large well developed main limbs
- Large limbs, in excess of 4-12 inches in diameter
- Crown debris accumulation
- Platforms
- Cavities, partial snag formation
- Crown die- back
- Cat-facing or basal burn cavities

Hardwoods: The role of hardwoods in a properly functioning conifer forest is often discounted because the hardwood species have not provided commercial returns to timberland owners. MRC has policies to protect a natural balance of hardwoods on its forestlands, to retain a representation of hardwood trees such as Tanoak, California Black Oak, Pacific Madrone, Live Oak, Alder, Laurel, and Chinquapin, and to retain concentrated stands of hardwood species where site conditions are unsuitable for conifer species.

MRC HARDWOOD POLICY

- Every timber harvest plan will be reviewed for the retention of any hardwood trees that enhance wildlife habitat.
- Every THP will retain all of the trees of the true oak species (> 18" dbh) present prior to harvest with the exception of incidental removal for safety, road right of way, or yarding corridors.
- The objective across the forestlands is to restore the natural balance between conifer and hardwood, which will vary depending on site. Hardwood retention will be 15% of the total post harvest basal area, provided that hardwoods comprised at least 15% of the basal area prior to harvest.

Unique Habitats: Many wildlife species use special habitat types for nesting, cover, and foraging activities. In addition to hardwood trees, these include wetlands, springs, cliffs, and caves. Wetland areas such as seeps and springs provide important habitat for plants, invertebrates, and amphibians adapted to cool, moist conditions. These and other unique habitat types found on the property (cliffs, talus slopes, serpentine barrens, burrows, caves, mine shafts, meadows, coastal bluff scrub, coastal dunes) will be protected by site-specific buffer zones to avoid any adverse impacts of harvesting or other forest management activities.

Unique Habitat Areas Current Retention

	Current
No Harvest Acres	
Un-Harvested Old Growth (FSC Type I)	130
Oak Woodlands	4,800
Navarro Strip	230
Conservation Easement	90
Protected Groves	13
Pygmy Forest	150
Total Acreage	5,413
High Retention Selection Harvest	
Previously Harvested Old Growth (FSC Type II)	1,250
Streamside Buffer Zones	21,400
Marbled Murrelett Management	1,400
State Park and other buffer zones	380
Total Acreage	24,430
Buffered Areas	
seeps, springs, cliffs, caves, talus slopes, serpentine barrens, burrows, mine shafts, meadows, coastal bluff scrub, coastal dunes	

Connectivity: Unique areas, such as oak woodlands and streamside buffer zones currently provide some connectivity on MRC forestlands. Connectivity for different species at appropriate spatial scales will be a part of the future harvest planning process for each watershed. Forest fragmentation and loss of cover will be evaluated with the landscape planning process as logic and metric values by species are developed.

3. Aquatic-Based Habitat

Anadromous salmonids (salmon that are born and raised in freshwater, move to the ocean to mature, and return to freshwater to reproduce) such as Chinook salmon, Coho salmon, and Steelhead have been the focus of surveys over different watersheds on MRC lands. Sampling has been done through electrofishing and snorkeling techniques, outmigrant trapping and winter carcass surveys. This work gives MRC a current look at the distribution of these species throughout streams within the ownership and in some cases will allow for tracking of life-stage trends.

Fish & Fish Habitat Sampling Activities on MRC Lands

Carcass Surveys
Albion 1998-99

Electrofishing
Albion 1998-99
Flynn Creek 1999
Hollow Tree 1999
Throughout Ownership 2000/2003

Stream Temperature Monitoring
Throughout Ownership 1999/2000

Habitat Assessment
Hollow Tree 1999
Navarro 1999
Albion 1999
Willow Creek 2000
Big River 2000
Gualala 2000

Thalwag and Cross-Section Profiles (Spawning Gravel Assessment)
Garcia 1998
Albion 1998
Noyo 1998
Hollow Tree 1999
Navarro 1999
Elk Creek 1999
Willow Creek 2000
Ackerman Creek 2000
Big River 2000

Outmigrant Trapping
Hollow Tree 2000/2001
Cottoneva 2000/2001
Greenwood Creek 2001
Elk 2001

California Department of Fish and Game Steelhead Research and Monitoring Program (SRAMP) began collecting baseline information using outmigrant trapping, carcass surveys, and electrofishing in the Noyo River in 1999. Other watersheds within MRC forestlands have been utilized as sites for DNA collection by company biologists and other participating agencies used to develop a genetic database compiled by Bodega Marine Lab and National Marine Fisheries Service (NMFS) scientists. The UC Davis John Muir Institute for the Environment funded by California Department of Transportation continues to conduct research on salmonids and habitat use in the Navarro River watershed. MRC supports and encourages outside researchers and universities to help further the research in California coastal watersheds for the benefit of the fisheries resource.

In addition to increasing the baseline survey data for species such as coho salmon, chinook salmon, steelhead trout, aquatic amphibians, and macro invertebrates, MRC targets the habitat elements that have beneficial impacts to these and other aquatic-based species. The maintenance and improvement of these elements, combined with controlling the harvest activities upslope, are expected to improve fish species numbers over time. Targeted habitat elements include large woody debris, stream temperatures, canopy/shade, coarse and fine sediment, water flow, nutrients and barriers to migration. Restoration work is directed to enhance these elements by identifying limiting habitat factors in the Watershed Analysis work (see following section), and biological survey work.

Aquatic-Based Habitat Elements Priorities
Large Woody Debris
Stream Temperature
Canopy/Shade
Coarse and Fine Sediment
Water Flow
Nutrients
Barriers to Migration

As with the land-based habitat protections, MRC is currently engaged with a variety of federal and state agencies (National Marine Fisheries Service, United States Fish & Wildlife Service, California Department of Fish & Game) as well as external consultants for technical assistance in determining targets for these habitat elements. It is likely that within two years, MRC will produce a Habitat Conservation Plan (HCP) to summarize the outcome of this technical review, and demonstrate a public commitment to habitat improvement work. This habitat plan will draw heavily on the ongoing watershed analysis work, road survey work, harvest protective measures, and restoration programs described in following sections.

Watershed Analysis: Several of the watercourses on the MRC ownership have been listed as quality impaired by the State Water Resources Control Board and the U.S. E.P.A.(Section 303d, Clean Water Act) and are in need of restoration activities. These watercourses were listed due to concerns that accelerated sediment production and, in some cases, elevated water temperatures, have adversely affected salmonid habitat. As a result of these listings, a company hydrologist, fisheries biologist and a team of geologists and fisheries technicians have been actively engaged in watershed analysis.

Watersheds are a fundamental unit of ecosystems that can be used effectively to evaluate cumulative impacts on fish and other aquatic resources. The purpose of the intensive watershed analysis work is to provide baseline data to monitor stream conditions that will allow MRC to determine the mitigations needed for any harvest plan, to prioritize road repair, stream restoration, and to monitor long term trends.

Mapped data, such as mass wasting areas, stream reaches with high temperatures, and stream reaches lacking in large woody debris can be combined into the landscape planning process to integrate high levels of protection into harvest management planning. SHALSTAB (Shallow Slope Stability Model) maps are used

as predictors of shallow-seated landslides. These maps have been integrated into the landscape planning process to increase tree retention in stands with moderately high or greater risk. (See SHALSTAB map on following page)

By understanding restoration priorities and the locations of high risk roads and stream crossings, foresters can combine the restoration work and harvest work while equipment is present in any one watershed area. (See following map on high priority road projects) Watershed analysis also enables MRC to establish more sophisticated improvement targets and to monitor progress.

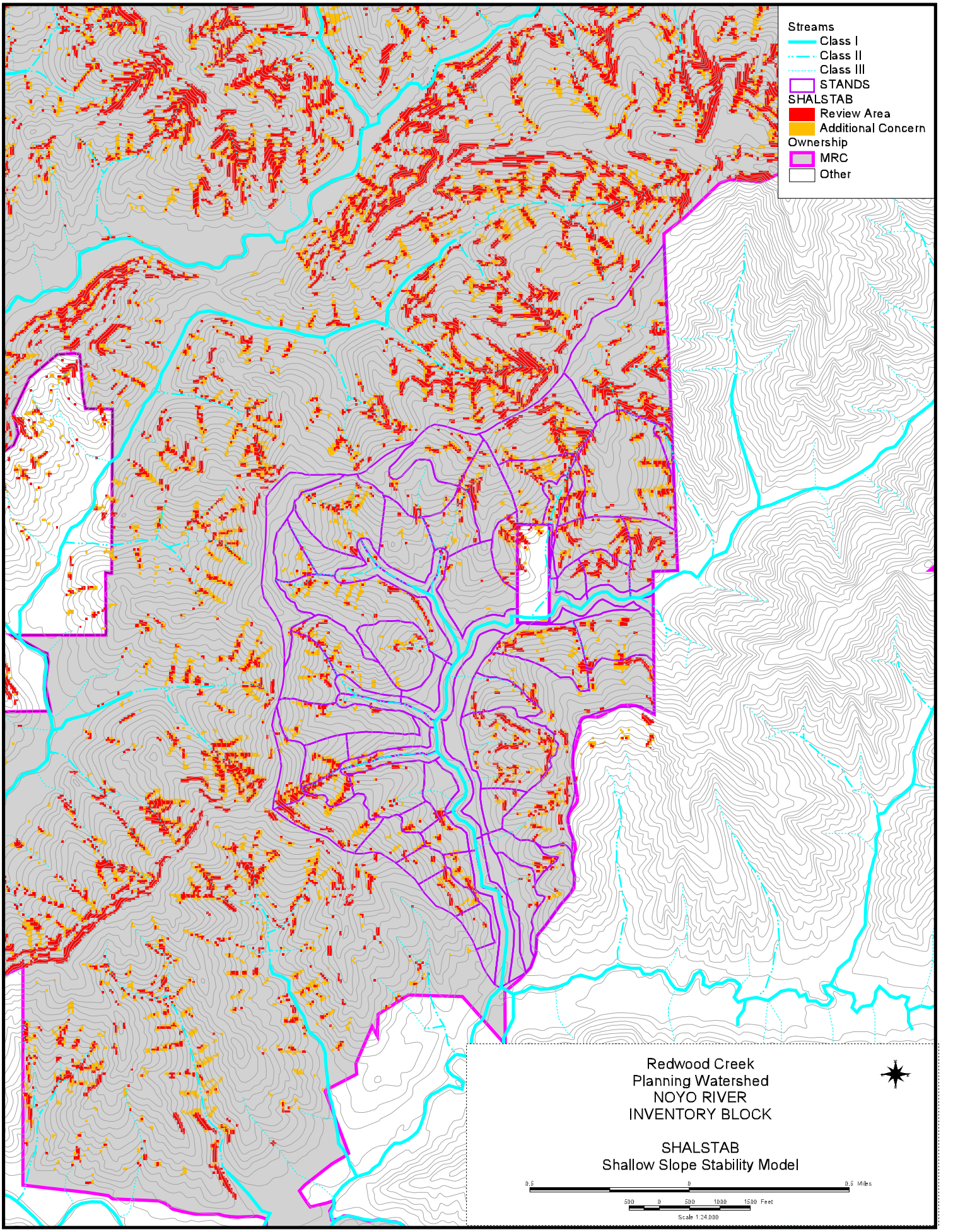
MRC Watershed Analysis Work
Clean Water Act Section 303(d)
Threatened or Impaired Waterbodies

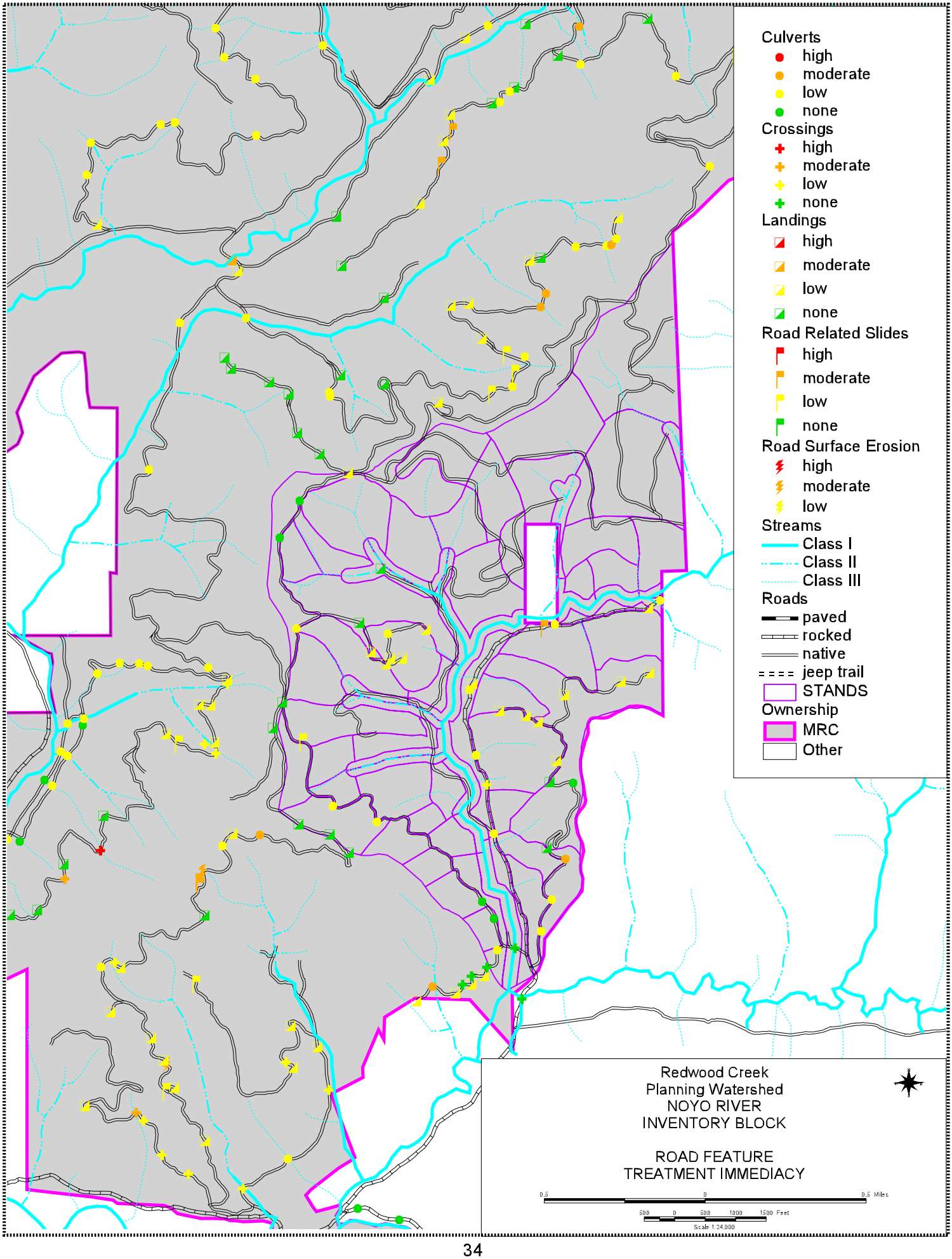
Watershed	MRC Acreage	MRC as % Total Watershed Acreage	Target Date to Complete Watershed Analysis	Area of Major Concern
Garcia River	11,500	16%	*completed*	Sediment and Temperature
Noyo River	20,000	28%	*completed*	Sediment
Albion River	15,500	54%	*completed*	Sediment
Willow & Freezeout Creeks	4,575	22%	2001	Pilot Project with Board of Forestry to Assess Rule Proposals
Hollow Tree Creek	19,000	69%	2001	Sediment and Temperature
Navarro River	55,000	27%	2001	Sediment and Temperature
Big River	34,500	45%	2001	Sediment
Gualala River	8,000	3%	2001	Sediment
Russian River	11,000	1%	2001	Sediment

MRC WATERSHED ANALYSIS OBJECTIVE

- Intensive field watershed analysis (also know as “Level II”) will be completed on all 303d listed watersheds (70% of MRC forestlands) by the end of 2001.

  This analysis includes assessments of:
  - Mass wasting inventory and map units.
  - Analysis of road erosion and road erosion hazard.
  - Stream channel condition.
  - Riparian function and condition for shade and large woody debris recruitment potential.
  - Fish habitat conditions.
  - Potential salmonid distribution and habitat.


Streams
Class I
Class II
Class III
STANDS
SHALSTAB
Review Area
Additional Concern
Ownership
MRC
Other
Redwood Creek
Planning Watershed
NOYO RIVER
INVENTORY BLOCK
SHALSTAB
Shallow Slope Stability Model
0.5
0
0.5 Miles
500
0
500
1000
1500 Feet
Scale 1:24,000


Culverts
high
moderate
low
none
Crossings
high
moderate
low
none
Landings
high
moderate
low
none
Road Related Slides
high
moderate
low
none
Road Surface Erosion
high
moderate
low
Streams
Class I
Class II
Class III
Roads
paved
rocked
native
jeep trail
STANDS
Ownership
MRC
Other
Redwood Creek
Planning Watershed
NOYO RIVER
INVENTORY BLOCK
ROAD FEATURE
TREATMENT IMMEDIACY
0.5 0 0.5 Miles
500 0 500 1000 1500 Feet
Scale 1:24,000

Road Improvements: MRC owns and manages approximately 1,800 miles of forest roads. The company budgeted over $3 million per year in 1999 and 2000 to upgrade and relocate historic roads. This effort is based on the belief that road improvement will have the largest and most immediate positive impact on reducing sediment in the streams. Improperly designed roads and road crossings, whether being actively used or not, are the primary sources of man-made stream sediment on MRC lands. Past road building practices still contribute to chronic sediment loading. Priorities for road projects are based on the volume of sediment that can potentially be controlled, and the risks of imminent failure to the road or drainage structures. These measurements are part of the road survey that and used as part of the watershed analysis work.

MRC ROAD SURVEY OBJECTIVE

- All MRC roads will be inventoried, mapped, associated sediment sources assessed, and mitigation work identified and prioritized by December 2003.
- Site-specific upgrade projects for road stabilization, road removal, and other prescriptions to address sediment sources will be developed, implemented, and monitored.

MRC ROAD POLICY

- Construction/reconstruction of roads will follow guidelines in the 1994 Handbook For Forest and Ranch Roads by Weaver and Hagans.
- All construction/reconstruction of roads will meet water quality standards developed in MRC's watershed analysis work to control sediment delivery, protect stream bank stability, and provide passage for fish in all life stages in Class I streams.
- Rocked fords, rolling dips and out-sloping will be used where possible; watercourse crossings will be sized to pass 100 year flood requirements.
- The condition of culverts, bridges, and all other erosion control structures will be monitored on an annual basis. Additional monitoring of identified projects or trouble spots will occur during the winter and major storm events.
- A long-term road management plan will be developed to cover ongoing monitoring and maintenance for temporary, seasonal, and permanent roads.

Sediment reduction is an integral part of the preparation of each Timber Harvest Plan (THP) and is specifically targeted in several ongoing restoration projects outside harvest areas. These projects often involve cooperative work with conservation organizations and government agencies. MRC's Garcia project includes approximately 8.75 miles of road improvements, recommended and managed by a group led by Trout Unlimited. Other road projects are in the North Branch Navarro, South Fork Albion, Ackerman Creek, and Schooner Gulch where MRC will work to leverage its own funds by accessing various grant funding sources.

Road Improvement Representative Project Cost List			
	Cost Range $		
	Low	High	Per
Relocate or close roads next to stream beds or with unstable slopes.	20,000	85,000	Mile
Remove excess perched material on roads or landings.	1,500	20,000	Mile
Provide improved drainage such as waterbars to direct surface runoff.	800	2,000	Mile
Install upgraded culverts.	5,000	40,000	Mile
Install upgraded watercourse crossings.	7,000	80,000	Each
Construct sediment ponds.	500	2,500	Each
Outslope roads to reduce erosion.	1,500	20,000	Mile
Rocking of road surfaces to reduce	15,000	30,000	Mile
Implement road inspection surveys.	40	220	Mile

Streamside Protections: Key aquatic habitat elements are protected with policies that direct management activities in WLPZ (Watercouse and Lake Protection Zones). (See policies on following page) Silviculture activities in these zones are restricted to High Retention Selection that requires high conifer stocking before harvesting is considered. A practical result of MRC's restrictive streamside policies is that MRC will delay harvest in stream zones for the next 20 years.

Large woody debris (LWD) in streams influence the scour of streambeds thereby creating to pools and gravels favorable for rearing, overwintering, and spawning habitat for salmonids. LWD also acts to store and slowly release stream sediment as it routes through the stream network. To improve recruitment of LWD in streams, MRC permanently retains larger trees near stream channels, restricts removal of downed logs in streamzones, and works with the California Department of Fish and Game to place larger log pieces and root wads into stream channels. To maintain and improve streamside temperatures MRC implements canopy closure guidelines, stream buffer zone policies, and riparian vegetation restoration work. To control the flow of fine and coarse sediment into streams, MRC restricts operations in unstable

areas, restricts winter harvesting, covers bare mineral soil, and most importantly reconstructs and de-activates roads with high potential for sediment input or failure.

MRC Streams and Stream Classifications		
	Miles on MRC Lands	**Definition**
Class I	520	Year-round water flow, fish bearing stream
Class II	460	Adequate water flow for nonfish aquatic species
Class III	720 (estimate)	Seasonal flow, no aquatic species

MRC STREAMSIDE POLICY

- At least 70% absolute canopy cover within the WLPZs (Watercourse and Lake Protection Zones) will be retained or recruited. (ref. High Retention Selection retention specifications)
- Where watershed analysis indicates there is high or moderate in-stream large woody debris (LWD) demand, any harvest activity in the WLPZ will recruit and permanently retain 20 trees per 330 feet of lineal Class I watercourse (10 each side) and 10 trees per 330 feet of lineal Class II watercourse (5 each side) that have the greatest potential for LWD input. Greatest potential for LWD input is defined by: disposition (likelihood to fall in the watercourse), distance to the stream, size, and species. Priority will be given to the largest 20% diameter trees within 60' of the watercourse. These retention standards will be held constant so long as scientific research indicates that the policy is necessary. (ref. High Retention Selection retention specifications)
- Sanitation salvage logging will not be conducted in WLPZ or ELZ buffer areas.
- 20-Year minimum interval between harvest activities in WLPZ.
- All large woody debris (LWD) in the watercourse and WLPZ will be retained. No salvage logging of LWD.
- Foresters are encouraged to look, with guidance from biologists, for ways to put more LWD into the stream channel.
- Foresters are encouraged to develop increased filter capacity in these zones including thinning, pruning, lopping, and revegetating slides.
- Any current or future livestock leases will include mitigation measures to protect streamsides and avoid riparian damage.

MRC UNSTABLE AREAS POLICY

- Foresters will first use Division of Mines and Geology landslide maps, past Timber Harvest Plans and the SHALSTAB (Shallow Slope Stability) model as tools to identify potentially unstable areas.
- SHALSTAB maps will be included in the THP and sites will be reviewed in the field by the RPF (Registered Professional Forester) preparing harvest plans.
- No harvest, road, or landing construction activity will occur in areas identified in the field as having a significant likelihood of sediment delivery to a watercourse from mass wasting unless a site-specific assessment is conducted and operations approved by a registered geologist, with the exception of cable or helicopter harvesting that retains over 50% of the pre-harvest basal area.

MRC EXPOSED SOIL POLICY

- In WLPZs, 100 square feet of exposed mineral soil will require mulching, cover with slash, and/or seeding.
- In WLPZs, roads assessed and identified with capacity for significant discharge of sediment will require mulching, cover with slash, and/or seeding.

MRC EQUIPMENT POLICY

- Equipment is excluded from WLPZs for all Class I, II and ELZs (Equipment Limitation Zones) for all Class III streams with exception of use on existing trails with no sign of instability.
- When equipment is used in WLPZs or ELZs, trails and landings will be packed with slash and debris following completion of operations.

MRC WATER DRAFTING POLICY

- Water drafting for timber operations from within a channel zone of a Class I watercourse will meet the following standards:
  - -Speed of water entering intake pipe will be less than .33 feet per second.
  - -All approaches to drafting locations will be rocked.
  - -Intakes will be screened with mesh, perforated plate or pipe having openings of 3/32" or smaller.
  - -Water usage will be restricted so as to keep flows above critical levels.
  - -Modifications to drafting locations will minimize removal/disturbance to the streambank, streambed, and existing vegetation.

Logging Methods: During 1998 and 1999, MRC harvested approximately 80% of its conifer volume for the year by cable yarder and the balance by tractor or helicopter. Cable yarding techniques result in less soil disruption, less erosion potential, and less road and skid trail construction. The company will continue to emphasize cable yarding over other methods, and expects the percentage of cable yarding to remain at or close to 1998-99 levels in the future. MRC also restricts winter logging operations to prevent detrimental aquatic habitat impacts (See policy below).

Restoration Projects:
Restoration projects on MRC properties are a mix of company and cooperatively sponsored activities. MRC is fortunate to have interested conservation groups and government agencies willing to assist in stream restoration work. In addition to the road work previously discussed, the focus of these projects has been assessment studies, adding structure to the streams (large woody debris and boulders), and improving stream-side vegetation. The following tables show the variety of projects ongoing in 2000 and MRC is exploring ways to increase their number in the future.

MRC WINTER HARVESTING POLICY (Nov. 15 - April 1)

- Cable yarding on rocked landings may be conducted if sediment movement can be avoided.
- Loading and hauling on rocked roads and landings will not be conducted during periods of rainfall or when roadside ditches are flowing with surface runoff, or when roads are saturated and cannot support the heavy loads. At first sign of measurable rain, trucks in the woods will make their final trip out and trucks not yet in the woods will be asked to return home for the day
- Operations during extended periods of dry weather (prior to two inches of seasonal rainfall) might include logging and hauling on non rocked roads.

MRC Restoration and Assessment Projects – 2000

Watershed /Location	Project	MRC Partner	Status
North Branch/ North Fork Navarro & Flynn Creek	• Fish Habitat Inventory • Fish Habitat Improvement • Riparian Tree Planting • Fish habitat inventory • Fish habitat improvement • Riparian tree planting	California Department of Fish and Game, and California Conservation Corps	• Planting began in February 1999 • Stream work began in May, 1999, ongoing in 2000
Daughtery Creek (Big River)	• Fish Habitat Inventory • Fish Habitat Improvement • Riparian Tree Planting	California Department of Fish and Game, and California Conservation Corps	• Planting began in February 1999 • Stream work began in summer, 1999
Hollow Tree Creek (and Waldron Creek)	• Fish Habitat Improvement • Spawning Surveys, and Juvenile Population Studies	California Department of Fish and Game, and California Conservation Corps	• Spawning survey completed • Fish habitat work began July 1999 • 10 Loads of cull logs will be shipped from Juan Creek for habitat improvement in summer 2000
Albion River, So. Fork Albion	• Fish habitat improvement • Riparian Tree Planting	California Department of Fish and Game, and California Conservation Corps.	• Tree planting completed winter of 1999 • Fish habitat improvement will include root wads and other large wood debris (LWD) for stream structure. • Completed

Watershed /Location	Project	MRC Partner	Status
Noyo River, Redwood Creek, Middle Fork Noyo River	• Fish Habitat Assessment • Fish Habitat Improvement	California Department of Fish and Game, California Conservation Corps	• Fish habitat assessment started May 1999 • Fish habitat improvements ongoing
Garcia River	• Stream Channel Morphology Monitoring • Stream Temperature Monitoring • LWD Surveys Spawner Surveys	California Department of Forestry, through the Mendocino County Resource Conservation District	• Stream surveys began in 1998 • Spawner surveys, Winter 1998-9 • Stream surveys continued in 1999. • Report completed in 2000
South Fork of the Garcia River	• Road Assessment and Rehabilitation • In Stream Structure Work • Coho Rearing Habitat Improvement	Trout Unlimited and Craig Bell	Proposal submitted to Department of Fish and Game, work started in 2000
Schooner Gulch	• Road Rehabilitation and Sediment Source Reduction.	Moat Creek Managing Agency	Permits still pending, to be started late Summer 2000
Russell Brook, Mettick, and Ramon Creeks (Big River)	• Inner Gorge Erosion Stabilization and Stream Bank Protection	Mendocino Fisheries Program, E Center	Proposal submitted to U.S. Fish and Wildlife, funding pending, work to be done Summer 2000
Beaver Pond Gulch (Big River)	• Fish passage Barrier Removal • Stream Bank Stabilization	Mendocino Fisheries Program, E Center	Proposal submitted to State, funding pending, work being completed Summer 2000
South Branch North Fork Navarro	• Fish Habitat Improvement • Riparian Tree Planting	California Department of Fish and Game, and California Conservation Corps	Stream work to be completed in 2000 Planting started in 1999 and to be completed in 2000

Watershed /Location	Project	MRC Partner	Status
Dutch Henry Creek (Navarro River)	• Road assessment	Mendocino County Resource Conservation District, Dan Sicular	Assessments to start in 2000
Little North Fork of South Fork Albion River	• Road Upgrades and Sediment Control • Fish Passage Barrier Removal	California Department of Fish and Game	Work completed in Summer 2000
Ackerman Creek, 5-Mile Culvert	• Channel Improvement • Fish Passage Barrier Removal	California Department of Fish and Game	Work completed in Summer/Fall 2000
North Fork Navarro	• Road Upgrades and Sediment Control	California Department of Fish and Game	Work completed in Summer/Fall 2000

4. Species Composition

Human activities have profoundly changed MRC's forestlands over the past 150 years. One of the most significant of these changes has been the alteration of the historical tree species composition. Past harvest operations focused on the easiest and most valuable trees, generally large redwood and Douglas-fir. Few reforestation efforts existed following these harvests, and repeated burning was frequently used to attempt to convert forestland into grazing lands. The net result of these past high-grading and conversion activities is a current imbalance in species composition. About half of MRC's lands have a much higher percentage of hardwood in forested stands than existed before commercial logging activities. In these stands hardwoods typically make up the dominant overstory species. One of MRC's objectives is to return the lands to the mix that originally existed on the ownership where hardwoods were typically an understory species.

Tanoak is by far the most common and abundant hardwood. It is a stump-sprouting species and competes vigorously in commercially harvested areas. Hardwoods make up about 36% of the basal area on MRC lands and the hardwood tree or "stem" count percentage is almost 50% (there is much less basal area per stem for hardwood than conifer). Over 80% of the hardwood present is tanoak. MRC's objective is to reduce, but not eliminate, tanoak from its ownership. Retention of a proportion of hardwoods, especially Madrone and true oaks, is desirable for wildlife habitat. The targeted level for hardwood retention in the long term is about 15% of standing basal area.

Comparison of Conifer and Hardwood Densities
Current Estimates (6/00)

Watershed Area	**Conifer** Basal Area (average square feet per acre)	**Hardwood** Basal Area (average square feet per acre)	% Hardwood of Total Basal Area
Albion	135	27	17%
Big River	58	31	35%
Garcia	76	48	39%
South Coast	105	58	36%
Navarro East	51	31	38%
Navarro West	85	45	35%
Noyo	83	52	39%
Rockport	70	59	46%
Sonoma	73	38	34%
Ukiah	53	58	52%
Weighted Average	79	45	36%

MRC is working to minimize harvesting disturbance and use of chemicals currently in dealing with the excess tanoak volume. Finding solutions that work is important to MRC because restoration of the historic mix of tree species is the first step towards a more comprehensive move towards re-establishing the composition of pre-settlement forestlands and wildlife/fish dependent species.

During 1999, MRC experienced a net loss of over $1.5 million on the harvest of 70,000 tons of tanoak and restoration of the acreage into redwood and Douglas fir. Any increase in the level of this harvest, necessary to reverse the species mix trend, becomes cost-prohibitive over time. A promising development, however, is the conversion of tanoak into a value-added hardwood flooring product. In the last eighteen months, MRC, in partnership with its associated mills and distribution business, has invested in engineering and equipment to restart the Willits sawmill and develop remanufacturing capability for hardwood flooring. The first commercial quantities of product are currently being prepared to go to market in the Fall of 2000. The flooring will be made of tanoak, which will be marketed under the trade name of California Chestnut Oak (a name for tanoak used more commonly in the 1940's and 1950's).

Species	Side Hardness (lb)
Aspen	350
Black Cottonwood	350
American Chestnut	540
Yellow – Poplar	540
Red Alder	590
Silver Maple	700
Giant Chinquapin	730
Bigleaf maple	850
Black Ash	850
Cherry	950
Black Walnut	1010
Southern red oak	1060
California black oak	1100
Oregon ash	1160
California – laurel	1270
Northern red oak	1290
Eastern White Oak	1370
California Chestnut Oak	**1410**
Sugar Maple	1450
Pacific Madrone	1460
Oregon white oak	1660

MENDOCINO
FOREST PRODUCTS CO., LLC
California Chestnut Oak Flooring

Sawmill Production
= 3 MMsf

Appearance Grades
= 3 (Country, Vintage, Classic)

Sizes - All Side and End Matched
= 2 1/4", 3 1/4", 4"

Annual Sales
= $ 5 MM plus

5. Employees

MRC can only achieve its objectives with the help of dedicated employees. To retain and attract creative, motivated people, the company is committed to providing a safe workplace, attractive pay and benefits, opportunities for personal development, and a chance to impact MRC's strategies and goals.

MRC Employees	
# Full-Time	**51**
# Part-Time	**28**
Total Annual Payroll	**$2.4 Million**
# With RPF License	**19**
# With Advanced Degrees	**6**
# With College Degrees	**42**

MRC currently employs 51 full-time and 28 part-time employees. This group includes people with a wide variety of scientific backgrounds and expertise. Over the next decade, the company would like to expand this expertise as well as the diversity of its team to meet challenges raised by the goals of this plan.

MRC Safety Statistics			
	1999	Jan-July 2000	Target
Recordable	3	3	0
First Aid	25	17	0

1999 OSHA Recordable :	Poison Oak , sore wrist, sore back
1999 First Aid:	20 tick bites, one sore back, one bee sting, 3 hand lacerations/bruises
2000 OSHA Recordable :	Back injury in office, finger laceration with stitches, fainting in woods
2000 First Aid:	17 tick bites, one sore shoulder

MRC's associated mills and businesses employ an additional 454 full-time and 20 to 30 part-time and seasonal workers with an annual payroll over $17 million. These companies, Mendocino Forest Products (MFP) and Mendocino Wood Specialties (MWS), are dependent on MRC for a large portion of their raw materials.

6. Community

From the day it was formed, improved community relationships have been important goals for MRC. MRC is stepping into a set of relationships, many of which have been damaged by past practices and lack of good communication. MRC is committed to building trust with the community over time based on open, honest and responsive communication. To that end, MRC will continue to respond to inquiries in as prompt a manner as possible. MRC encourages people to make arrangements to visit its forestlands and see how this plan is taking shape on the ground.

MRC has set-up Community Action Teams at each of its locations to respond to requests for local community organization donations and sponsorship. These teams are made up of a representative committee of local employees that meet once every quarter to review local needs for cash, materials, or labor.

Some of MRC's forestlands are adjacent to public and private roads, neighbors, railroads, and parks. Approximately 17,000 acres on the ownership are managed with special sensitivity to the impacts any silivicultural activities may have on the viewsheds and aesthetic quality for adjacent neighbors.

Important Community Issues

- Clean water sources
- Neighbor notification
- Access to property for recreation, education
- Access to property for mushrooms, firewood
- Community donations
- Viewsheds
- Historical sites on the property
- Archeological sites on the property
- Use of herbicides on the property
- Health of the forest ecosystem
- Health of fisheries
- Health of wildlife
- Protection of unique areas
- Viability of company
- Over-Harvesting
- Cumulative Impacts
- Housing subdivisions
- Cultivation of marijuana
- Old growth
- Employment
- Fire protection
- Yield taxes
- Shared use of roads

High Community Impact Retention and Viewshed Acres

	Current
Coastal Zone Areas	8,300
Neighbors	3,800
County Road Buffers	2,800
Visual Corridors	1,100
State Park Buffers	380
Skunk RR Buffer	260
Navarro Strip	230
Total Acreage	16,870

MRC PUBLIC ACCESS POLICY

- MRC encourages cooperative education and research projects on its ownership.
- MRC properties are open at designated times and locations for the following additional activities:
- Hiking, camping, picnicking, firewood cutting, bicycling, horseback riding, cross-country running, hunting, fishing, and collection of burls, mushrooms, greens, and basket making materials
- Written permits and/or leasing arrangements (obtained by calling the Calpella office 707-485-8731 or Fort Bragg office 707-962-2800) are required for all of the above in order to shelter wildlife, prevent road damage or sedimentation, shield watercourses, educate individuals about safety issues, and to allow the company protection from personal liability claims.

Neighbors and other community members take a strong interest in what is happening on MRC forestlands. This interest comes from a heartfelt desire to ensure the lands will remain a vital community resource well into the future. This interest also comes from a desire to protect a variety of individual and group educational and recreational uses that are available on MRC properties.

The public access policy for the MRC lands is to encourage cooperative education and research on its ownership. MRC is also open to a variety of other activities including hiking, camping, picnicking, firewood cutting, bicycling, horseback riding, running, hunting, fishing, and collection of burls, mushrooms, greens, and basket making materials. Written permits and/or leasing arrangements are required for all of these activities in order to shelter wildlife, prevent road damage or sedimentation, shield watercourses, educate individuals about safety issues, and to allow the company protection from personal liability claims.

MRC DOMESTIC WATER SOURCE POLICY

- Foresters will protect sources of domestic water by providing a no-harvest and/or a High Retention Selection Harvest buffer.

In addition to the direct employment of 500 people, MRC and its two associated companies, MFP, and MWS purchase products and services from over 90 local suppliers located in Mendocino County. The value of these contracts is more than $ 20 million.

Most contracts are involved in logging and hauling operations. MRC is partnering closely with these contractors to ensure that company policies and forest stewardship objectives are carried out in all aspects of operations on the ground. Partnering activities include joint training programs and greater involvement of contractors with timber harvest planning and layout.

Mendocino Companies (MRC, MFP, & MWS) Major Local Vendors & Contractors

	Approx. Number of Major Local Vendors/ Contractors	Approx. Value of Annual Purchases $ millions
Logging	12	14.7
Reforestation	10	2.1
Roads	12	3.5
Operating Supplies	60	1.5
Total	94	21.8

MRC CONTRACTOR TRAINING POLICY

- All contractors and employees of MRC will receive training on company policies as they relate to particular forest management activities.
- Whenever possible, pre-harvest inspection meetings will include the logging contractor as well as the MRC representative.
- Information will be clearly communicated to logging contractors (e.g.abbreviated THP and color-coded maps when appropriate to eliminate any confusion over following management policies and exemplary stewardship practices).

As MRC improves forest inventories and wildlife habitat, these successes will contribute to the stability and diversity of employment in our communities. Employment opportunities will be related directly to the forest products industry and value-added products. The impacts will also be indirect with the benefits of restored fisheries, recreation and tourism.

The company pays a yield tax of approximately $13 for each thousand board feet of timber harvested as well as property taxes. Yield and property taxes amount to about $ 1.1 million annually.

7. Quality Products

MRC currently produces approximately 40 MMbf of conifer logs per year, sells 85% of these logs to mills of its associated company, Mendocino Forest Products (MFP), and the balance to other sawmills in northern California. MRC currently produces about 100,000 tons of tanoak logs per year (560 Mbf), sells 26,000 tons to the Willits hardwood flooring operation and the balance to firewood and chip producers in California.

Conifer Log Quality Measures		
2000 Year-To-Date	Board Feet	%
Logs to the Ukiah Mill		
Total Mismanufacture	3,760	0.0408%
Logs to the Fort Bragg Mill		
Total Mismanufacture	230	0.0051%

Hardwood "Merchantibiliy" Target		
	2000 ytd	Target
Tanoak Logs to the Willits Mill		
% Merchantable	58.5%	50.0%

Reliable delivery of high quality logs to customers is an important component of MRC's long-term viability. Quality control means delivering logs that meet customer specifications with a minimum of wood or fiber loss. Damage of logs in the woods can cause significant loss in product recovery and undo years of valuable fiber growth. Logging contractors receive penalties to payments based on any mismanufactured logs received. One objective is to close the feedback loop and let logging contractors know immediately about quality targets, improvements, and issues. MRC is adding a bucking program to facilitate removal of customized log sizes from the woods.

Sustainable, exemplary forest management practices will serve MRC's customers well. MRC is pursuing the certification of its forest practices as one method of promoting high levels of environmental stewardship. MRC hopes third-party certification of its forestry operations will create a greater demand for its products over time.

MRC is also exploring development of non-timber sources of revenue from its lands. Traditionally, timberland owners have derived a small amount of revenue, through hunting leases, grazing leases, and contracts for the removal of small volume products such as greenery for Christmas wreaths. Of potentially more significance is a growing field for non-extractive "conservation" products. MRC is currently researching and investing in pilot projects such as carbon offsets and conservation easements to further assess the potential of these innovative areas.

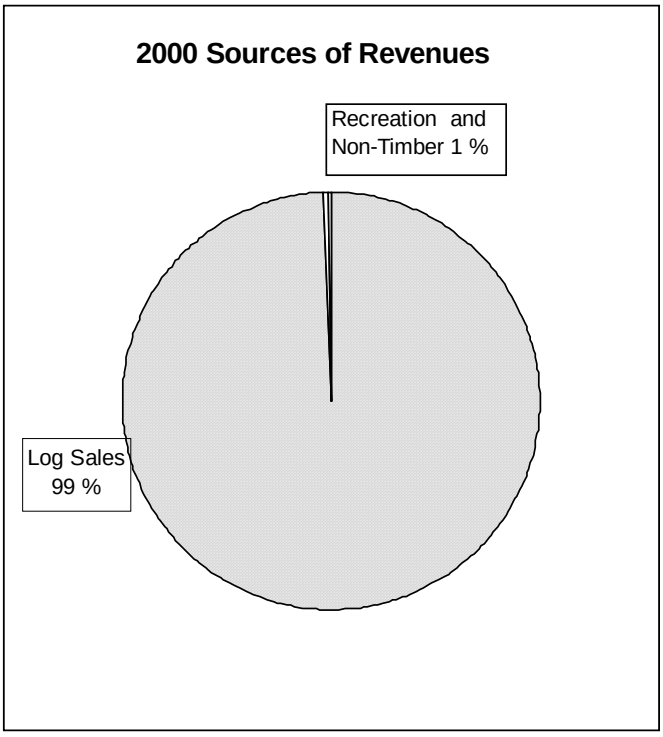
8. Business Return

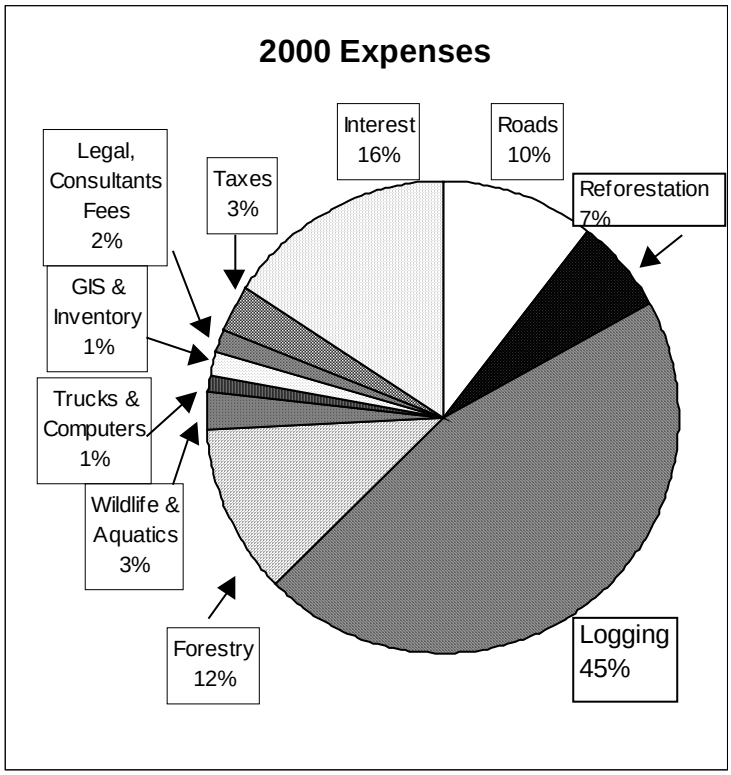
MRC does not expect to generate a significant return to its owners during the first decade. However, we are determined to demonstrate that a high level of environmental stewardship is good business and will result in fair profits over time.

Revenues for the business come largely from log volumes sold at market rates to local mills. Other revenues come from recreational leases, and non-timber sales of rock, burls, and other products.

Expenses covered by these revenues include contracted logging costs, road improvements, forestry work, wildlife and aquatics restoration work, taxes, legal, and insurance.

The breakout for our 2000 budgeted revenues and expenses are shown in the adjacent pie charts.





Monitoring

Monitoring is an integral part of MRC's stewardship. It is the way the company ensures that its policies are being followed and its goals are being met. MRC's monitoring process includes:

- Specific Measures
- Meaningful Targets
- Constant Adjustment of Policies In Light of Trends in the Data
- Education of Employees
- Involvement of the Public
- Review of Completed THPs
- Analysis of Business Factors

The focal unit for longer term stewardship monitoring will parallel the landscape planning process and attribute trends will be reported by the 85 California Watershed Planning Areas (See attached sample report for Redwood Creek). These reports will include the key measures for inventory, land-based habitat improvements, aquatic-based habitat improvements, and species mix targets. Where appropriate, the watershed planning units will be combined for area and company reporting. This monitoring program will incorporate state and federal requirements associated with the Option A, watershed analysis, and potentially HCP monitoring and reporting.

Each Registered Professional Forester (RPF) is responsible for review of his or her completed THPs and part of the THP review includes filing a report and questionnaire. (See attached two-page report). These reports assess the way site specific management activities implement stewardship policies and contribute to stewardship targets. They provide the Chief Forester and Timberlands Manager with a coaching and continuing education tool to use with area foresters and support staff.

Another monitoring report keeps track of the business targets for safety, quality, community, and financial success. (See attached sample report)

MENDOCINO REDWOOD COMPANY, LLC

Redwood Creek

Larger Watershed Area:	NOYO

MRC Acres in Watershed:

Total Acres in Watershed: Date of Report

Percent Ownership in Watershed:

Categories	Current Conditions	Desired Future Conditions 2050	Planned Management Activities	Trends from Monitoring Activities
Inventory	This column is for measurable resource descriptors that are used as a basis for management strategies.	This column is to identify watershed goals (targets) for the measurable resource descriptors.	This column is an extremely brief summary of the planned management activities that will allow us to achieve targets. For inventory, it might be a graph showing assumptions of timber inventory, growth, and harvest by decade, or silviculture acres by decade.	This column is for displaying results of monitoring activities that display trends towards achieving goals (targets).
Harvest Volume, Conifer, Hardwd				
Harvest Silviculture, acres				
Conifer Inventory Mmbf				
Conifer Inventory/Acre				
% Acres > 25 Mbf/acre				
Volume > 24" dbh				
% Acres >=WHR 4B				
Terrestrial				
Snags/Acre				
Downed Logs/Acre				
Acres Mapped O.G./snags				
Connectivity Factor (tbd)				
Aquatics				
LWD				
Stream Temperature				
Sediment -Fine				
Sediment - Coarse				
Watershed Analysis Complete				
Road Survey Complete				
Ongoing Restoration Projects				
Species				
% Basal Area Conifer				

Implementation for MRC Policies and Silvicultural Guidelines

RPF: _____ Silvicultural System(s) _____

THP Name: _____ Harvesting System(s) _____

THP Number: _____ Acres Logged: _____

Date: _____

1. Was the THP written to comply with Option "A" policies? Any exceptions to these policies?

2. Was the THP implemented as written? Specify variations?

3. Was the leave stand, retention areas, advanced regeneration protected as planned?

4. What is the approximate basal area of the post harvest stand?

5. What percent of the pre-harvest stand was protected for retention?

6. What percent of the total THP area, or area adjacent to the plan, was a riparian zone? If included in the THP, was the riparian zone harvested? Were the Option "A" post-harvest minimum stocking and shade canopy standards retained?

7. Approximately how many snags, green wildlife trees and large residuals were retained post harvest?

8. How many acres of the plan (non riparian) were either retained from harvest because of wildlife species or protected plant habitat?.

9. Were the riparian zones and stream channels protected as planned?

10. Was the construction of skid trails or the re-opening of skid trails minimized?

11. Were the resulting yarder roads of acceptable width?

Implementation for MRC Policies and Silvicultural Guidelines

Page 2 of 2

RPF: _____ Silvicultural System(s) _____

THP Name: _____ Harvesting System(s) _____

THP Number: _____ Acres Logged: _____

Date: _____

12. Post harvest, were the roads properly outsloped, berms removed, rolling dips or water bars properly installed?

13. Were any roads narrowed?

14. Were any perched fills pulled back?

15. Were any culverts removed, repaired, or replaced?

16. Were the retention areas protected? Did the location of retention areas create logging problems?

17. Could the new road location have been improved?

18. Number of miles of road restoration (Storm proofing)?

19. Number of miles of road de-activated?

20. Was the logging and road system significantly changed from the last entry?

21. What post harvest treatment will be needed to achieve establishment of a new stand?

22. Where any areas of the plan protected or mitigated in consideration of archeological or aesthetic resources?

Mendocino Redwood Company

Date of Report

Categories	Current Conditions	Target	Planned Management Activities	Trends
Employees				
Safety Incident Rate				
Community				
% Local Annual Purchases				
Attitude Survey				
Product Quality				
% Mismanufacture				
% Revenue Non-Timber Products				
Financials				
Retained Earnings/Total Debt				