Watershed Characterization

February 2009

NMFS-SWR-HCD

Wages Creek Watershed

Area	Hydrologic Units	Calwater Subbasins ---	(Planning Watersheds)
8,584 Acres	18010108	1113120202	Rider Gulch (8584 Acres)
3474 Hectares	4th Field **HUC**		
13 Square Miles			
	1113		
Location	4th Field **Calwater**		
Mendocino County			

Species Potential	Miles of Streams with Species Present
Northern California **Steelhead**	Steelhead
North-Central Coastal Diversity Stratum	9
- Potentially Independent Population	NOAA Fisheries, Critical Habitat Redesignation, 2005
Central California Coast **Coho**	Coho
Lost Coast Diversity Stratum	6
- Dependent Population	CDFG, Coho Distribution, May 2007
California Coastal Chinook	Chinook
Diversity Stratum	5
- Dependent Population	NOAA Fisheries, Critical Habitat Redesignation, 2005

Critical Habitat

Northern California Steelhead	9 Miles of Stream
Central California Coast Coho	All accessible river reaches between Punta Gorda & San Lorenzo River including 2 San Francisco Bay streams: Arroyo Corte Madera del Presidio and Corte Madera Creek (64 FR 24049)
California Coastal Chinook	5 Miles of Stream

Coho Intrinsic Potential

Km of Historical Coho IP (21.5 C mask)	10
% of IP (21.5 C Mask) with Current Coho Distribution	76%

Spence, B. C., et al., 2008. A framework for assessing the viability of threatened and endangered salmon and steelhead in the North-Central California Coast Recovery Domain. NOAA Tech Memo NMFS-SWFSC-423.

Miles of Waterway[A]	Miles	Number of Dams[C]
Naturally Occurring Waterways		0
Intermittent Stream	15	
Perennial Stream	11	

[C]Passage Assessment Database,
Pacific States Marine Fisheries Commission, 2005

[A]USGS National Hydrography Dataset, High Resolution, 2004. 1:24,000

USGS Gaging Stations[B]	Number of Barriers[C]
None	7
	0 Dams
	3 Diversions (Unknown Passage Status)
	2 Natural Barriers (Chutes, Falls, Log Jams, etc. (1 Impassable))

[C]Passage Assessment Database,
Pacific States Marine Fisheries Commission, 2006

Average Annual **Precipitation**[E]	Average Annual **Precipitation Range**[E]
52.5"	45 - 75"

[E]California Mean Annual Precipitation Zones, 1900-1960, CA Department of Forestry, 1990

Roads[A]	***(US Census Bureau (TIGER))***	Miles
Roads in Watershed		
Secondary and connecting road, state highways		2
Local, neighborhood, and rural road, city street, unseparated		50
Vehicular trail, 4WD		1
Total Miles		53

Road Density	***(US Census Bureau (TIGER))***	
Miles of Roads per SqMi of Watershed		4.1
Miles of Roads per SqMi of 100m Riparian Buffer*		5.3

*Buffer is 100 meters on either side of the stream centerline

[A]U.S. Census Bureau - Tiger 2000, 2002. 1:24,000

Roads[A1]	***(Timber Harvest Plans)***	Miles
Roads in Watershed		
Abandoned Seasonal		
Bridge		
Existing Permanent (rocked)		7
Existing Seasonal		66
Existing Temporary & 4WD		1
Proposed Permanent (rocked)		
Proposed Seasonal		0
Proposed Temporary & 4WD		2
Reconstructed Seasonal		
Secondary Road (2-3 lanes)		

Road Density	***(Timber Harvest Plans)***	
Miles of Roads per SqMi of Watershed		5.9
Miles of Roads per SqMi of 100m Riparian Buffer*		5.7

*Buffer is 100 meters on either side of the stream centerline

[A1]California Department of Forestry, Timber Harvest Plans for Ten Mile Watershed, 2006

Slope[D]	Acres	Percent of watershed
Lands of 0-2 percent slope	41	0%
Lands of 2-4 percent slope	60	1%
Lands of 4-10 percent slope	269	3%
Lands of 10-15 percent slope	194	2%
Lands of 15-30 percent slope	1,141	13%
Lands of 30-60 percent slope	4,647	54%
Lands of 60-100 percent slope	2,167	25%
Lands of 100-117 percent slope	66	1%
Elevation Range	0 - 2692 ft.	0 - 821 m

[D]Slope derived from USGS 10 meter Digital Elevation Models (DEM's)

Vegetation[G]	Acres	Percent of watershed
Annual grassland	222	3%
Barren	67	1%
Conifer Forest		
Closed Cone-Pine-Cypress	5	0%
Douglas Fir	242	3%
Montane Hardwood-Conifer	27	0%
Redwood	6,781	79%
Hardwood Forest		
Montane Hardwood	1,102	13%
Montane Riparian	17	0%
Hardwood Woodland		
Blue Oak Woodland	2	0%
Coastal Oak Woodland	7	0%
Eucalytus	5	0%
Shrub	62	1%
Urban	59	1%

[G]Multi-source Land Cover Data (2002 v2), CA Department of Forestry, 2002. 100 meter Grid

Erodability of Watershed[F]	Acres	Percent of watershed
All of watershed is ranked as 8	8,584	100%

[F]Department of Conservation, Division of Mines and Geology; minimum mapping unit: approx. 8000 acres
Watersheds were rated based on slope, precipitation, and lithologic susceptibility to failure. Total erosion potential is based on a combination of the landslide potential, debris slide potential, and the surface erosion potential. Rating 0-10 [**0 = Low slide potential, 10 = High slide potential**]

Land Ownership[H]	Acres	Percent of watershed
Private	8,561	100%
State (Parks & Recreation)	21	0%

[H]Management Landscape, CA Department of Forestry, 2002

Area Under a Timber Harvest Plan[A] past 10 years		Area Under a Timber Harvest Plan[A] past 12 years (1994-2006)	
2,511	29% of watershed	2,835	33% of watershed

[A]California Department of Forestry, Timber Harvest Plans for Ten Mile Watershed, 2006

Population[I]

Total Population within the watershed -- 130 People

Housing[I]

Total Housing Units within the watershed -- 87 Houses

Housing Density	
0 to Less than 1 Housing Unit / 160 Acres	68%
1 Unit / 160 Acres to 1 Unit / 20 Acres	31%
1 Unit / 20 Acres to 1 Unit / 5 Acres	1%
1 Unit / 5 Acres to 2 Units / Acre	
2 Units / Acres to Greater than or Equal to 5 Units / Acre	

[I]Census 2000 Block Data (Migrated), CA Department of Forestry, 2003

Wages Creek

Vegetation density and age class in the entire watershed

California Department of Forestry and Fire Protection; fveg02_2. Vector digital dataset. 100m Grid, 2002.

Acres

Size	Density	Agriculture	Barren	Conifer Forest	Conifer Woodland	Hardwood Forest	Hardwood Woodland	Herbaceous	Shrub	Urban	Water	Wetland	Grand Total by Size class
Not Determined	Not Determined		67					225		64			
	S												
	P												
	M						5						
	D			5		12	2						
	Total		67	5		12	7	225		64			380
Seedling													
	S												
	P												
	M												
	D												
	Total												
Sapling													
	S			35		2							
	P					5							
	M			131		40	5						
	D			195		12	2						
	Total			361		59	7						427
Pole													
	S			27		67							
	P			109		15							
	M			195		64							
	D			1628		341							
	Total			1959		487							2446
Small Tree													
	S			47		15							
	P			91		42							
	M			40		22							
	D			1433		484			52				
	Total			1611		563			52				2226
Medium/Large Tree													
	S			188									
	P			190									
	M			235									
	D			1977		5							
	Total			2589		5							2594
Multi Layered													
	D			479									
	Total			479									479
Grand Total by Species Type			67	7005	0	1126	15	225	52	64	0	0	8553

Percent

Size	Density	Agriculture	Barren	Conifer Forest	Conifer Woodland	Hardwood Forest	Hardwood Woodland	Herbaceous	Shrub	Urban	Water	Wetland	Grand Total by Size class
Not Determined	Not Determined		1%					3%		1%			
	S												
	P												
	M						0%						
	D			0%		0%	0%						
	Total		1%	0%		0%	0%	3%		1%			4%
Seedling													
	S												
	P												
	M												
	D												
	Total												0%
Sapling													
	S			0%		0%							
	P					0%							
	M			2%		0%	0%						
	D			2%		0%	0%						
	Total			4%		1%	0%						5%
Pole													
	S			0%		1%							
	P			1%		0%							
	M			2%		1%							
	D			19%		4%							
	Total			23%		6%							29%
Small Tree													
	S			1%		0%							
	P			1%		0%							
	M			0%		0%							
	D			17%		6%			1%				
	Total			19%		7%			1%				26%
Medium/Large Tree													
	S			2%									
	P			2%									
	M			3%									
	D			23%		0%							
	Total			30%		0%							30%
Multi Layered													
	D			6%									
	Total			6%									6%
Grand Total by Species Type			1%	82%		13%		3%	1%				99%

SIZE Description	Diameter at Breast Height (DBH)
Not Determined	N/A
Seedling	Less Than 1 inch
Sapling	1 to 6 inches
Pole	6 to 11 inches
Small Tree	11 to 24 inches
Medium/Large Tree	Greater Than 24 inches
Multi Layered	Size 5 Over Size 4 Or 3; Total Tree Crown Closure Greater Than 60%

SIZE (SHRUB) Desc.	Crown Decadence
Not Determined	N/A
Seedling Shrub	Seedlings or sprouts < 3 years
Young Shrub	None
Mature Shrub	1 - 25%
Decadent Shrub	> 25%

DENSITY	Description
	None
S	10 to 24%
P	25 to 39%
M	40 to 59%
D	60 to 100%

Wages Creek

Vegetation within Riparian Buffer (100 meter on either side of stream)

California Department of Forestry and Fire Protection; fveg02_2. Vector digital dataset. 100m Grid, 2002.

Acres

Size	Density	Agriculture	Barren	Conifer Forest	Conifer Woodland	Hardwood Forest	Hardwood Woodland	Herbaceous	Shrub	Urban	Water	Wetland	Grand Total by Size class
Not Determined	Not Determined		51.9					44.5		14.8			
	S												
	P												
	M												
	D			2.5		2.5							
	Total		51.9	2.5		2.5		44.5		14.8			116
Seedling													
	S												
	P												
	M												
	D												
	Total												0
Sapling													
	S			7.4									
	P												
	M			19.8									
	D			24.7		2.5							
	Total			51.9		2.5							54
Pole													
	S			7.4		37.1							
	P			14.8		2.5							
	M			64.2		34.6							
	D			415.1		69.2	4.9						
	Total			501.5		143.4	4.9						650
Small Tree													
	S			22.2		4.9							
	P			7.4		19.8							
	M			12.4		2.5							
	D			257.0		138.4			12.4				
	Total			299.0		165.6			12.4				477
Medium/Large Tree													
	S			64.2									
	P			27.2									
	M			44.5									
	D			501.6		2.5							
	Total			637.5		2.5							640
Multi Layered													
	D			74.1									
	Total			74.1									74
Grand Total by Species Type		0	52	1567	0	317	5	45	12	15	0	0	2012

Percent

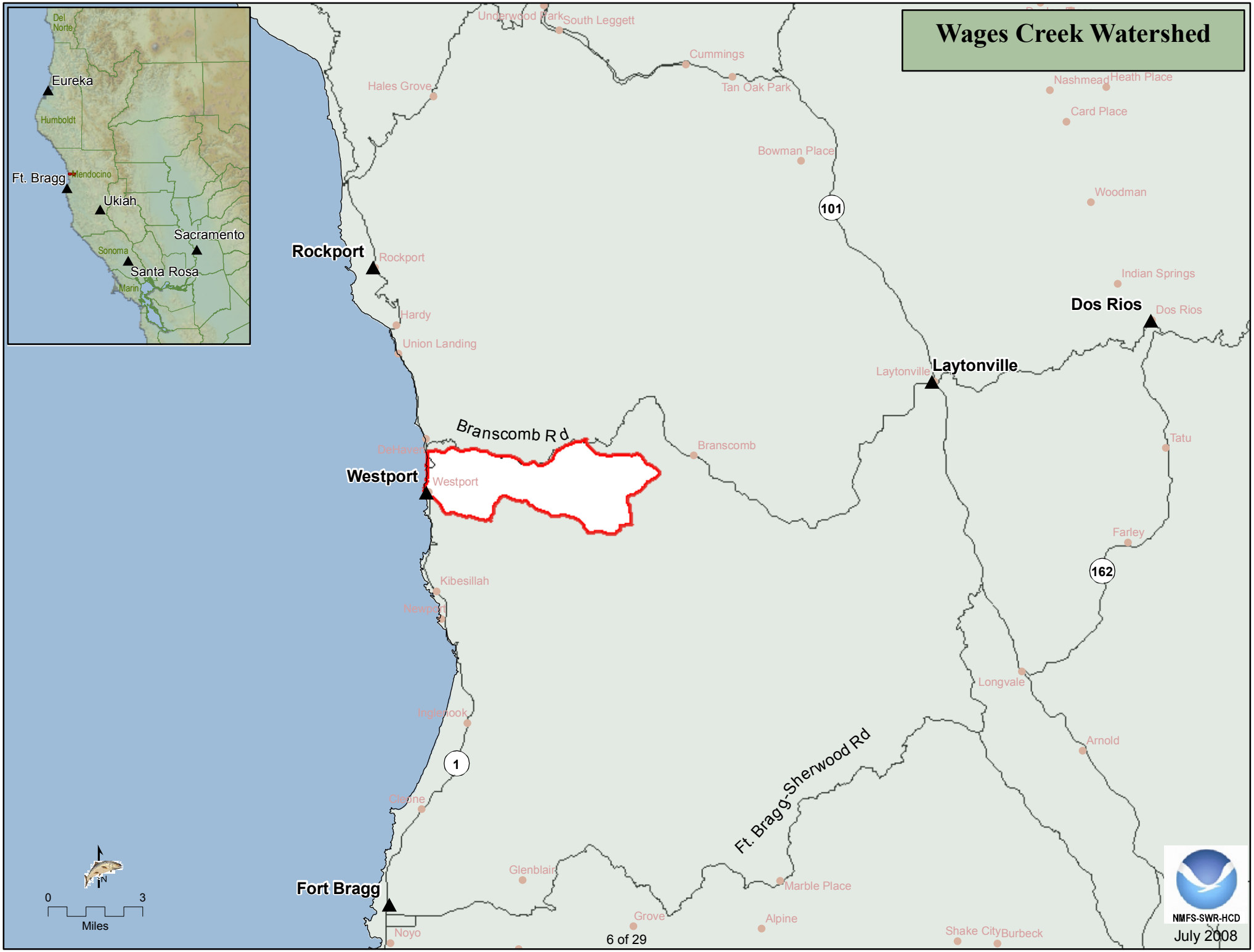
Size	Density	Agriculture	Barren	Conifer Forest	Conifer Woodland	Hardwood Forest	Hardwood Woodland	Herbaceous	Shrub	Urban	Water	Wetland	Grand Total by Size class
Not Determined	Not Determined		3%					2%		1%			
	S												
	P												
	M												
	D			0%		0%							
	Total		3%	0%		0%		2%		1%			6%
Seedling													
	S												
	P												
	M												
	D												
	Total												0%
Sapling													
	S			0%									
	P												
	M			1%									
	D			1%		0%							
	Total			3%		0%							3%
Pole													
	S			0%		2%							
	P			1%		0%							
	M			3%		2%							
	D			21%		3%	0%						
	Total			25%		7%							32%
Small Tree													
	S			1%		0%							
	P			0%		1%							
	M			1%		0%							
	D			13%		7%			1%				
	Total			15%		8%			1%				24%
Medium/Large Tree													
	S			3%									
	P			1%									
	M			2%									
	D			25%		0%							
	Total			32%		0%							32%
Multi Layered													
	D			4%									
	Total			4%									4%
Grand Total by Species Type		0%	3%	78%	0%	16%	0%	2%	1%	1%	0%	0%	100%

SIZE Description	Diameter at Breast Height (DBH)
Not Determined	N/A
Seedling	Less Than 1 inch
Sapling	1 to 6 inches
Pole	6 to 11 inches
Small Tree	11 to 24 inches
Medium/Large Tree	Greater Than 24 inches
Multi Layered	Size 5 Over Size 4 Or 3; Total Tree Crown Closure Greater Than 60%

SIZE (SHRUB) Desc.
Not Determined
Seedling Shrub
Young Shrub
Mature Shrub
Decadent Shrub

Crown Decadence
N/A
Seedlings or sprouts < 3 years
None
1 - 25%
> 25%

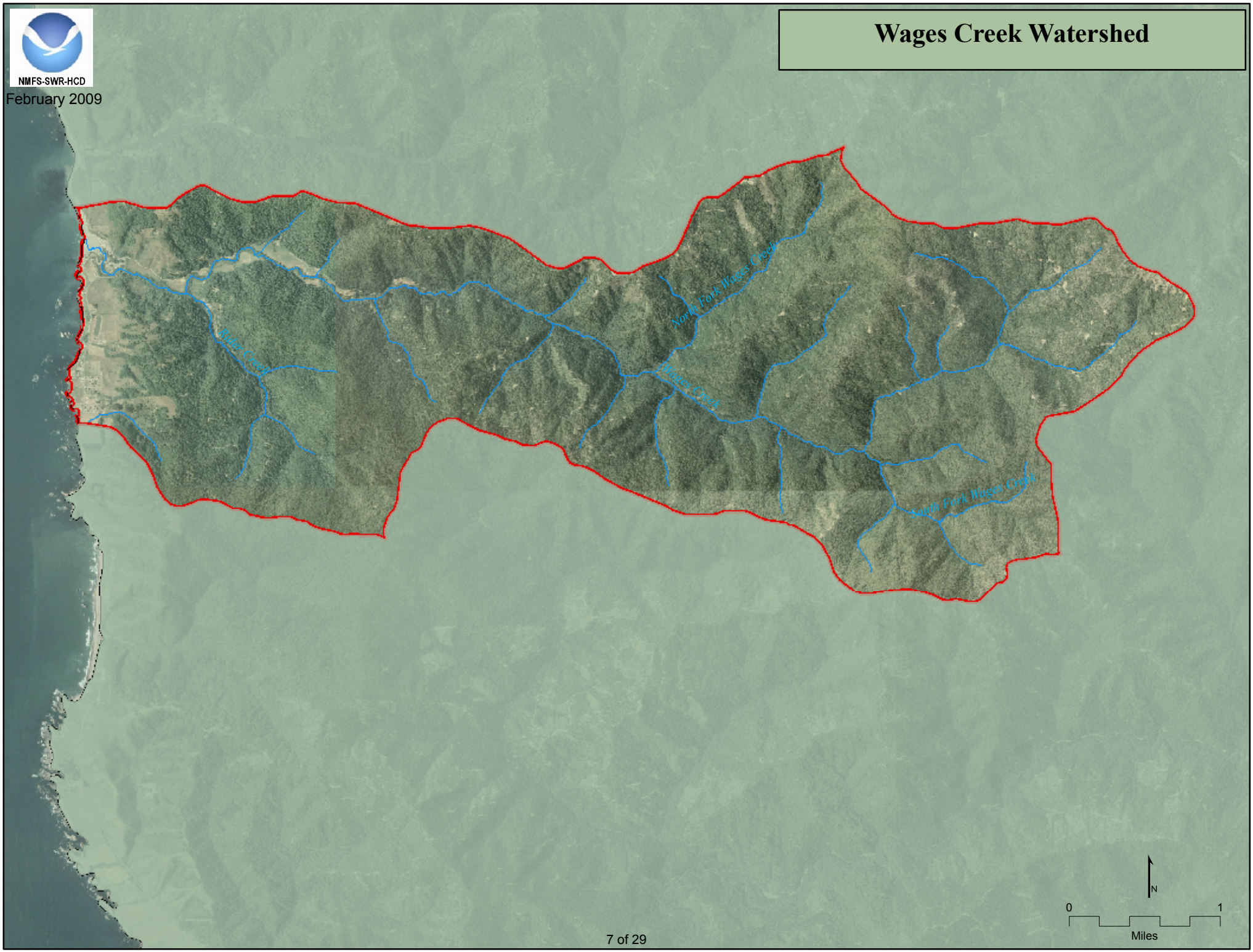
DENSITY	Description
	None
S	10 to 24%
P	25 to 39%
M	40 to 59%
D	60 to 100%


Wages Creek Watershed
Del Norte
Eureka
Humboldt
Ft. Bragg
Mendocino
Ukiah
Sacramento
Sonoma
Santa Rosa
Marin
Underwood Park
South Leggett
Cummings
Hales Grove
Tan Oak Park
Nashmeag
Heath Place
Card Place
Bowman Place
Woodman
101
Rockport
Rockport
Hardy
Union Landing
Indian Springs
Dos Rios
Dos Rios
Laytonville
Laytonville
Branscomb Rd
DeHaven
Branscomb
Tatu
Westport
Westport
Farley
162
Kibesillah
Newport
Longvale
Inglenook
Arnold
1
Ft. Bragg-Sherwood Rd
Cleone
Glenblair
Marble Place
Fort Bragg
Grove
Alpine
Noyo
Shake City
Burbeck
N
0
3
Miles
NMFS-SWR-HCD
July 2008

Wages Creek Watershed

NMFS-SWR-HCD

February 2009

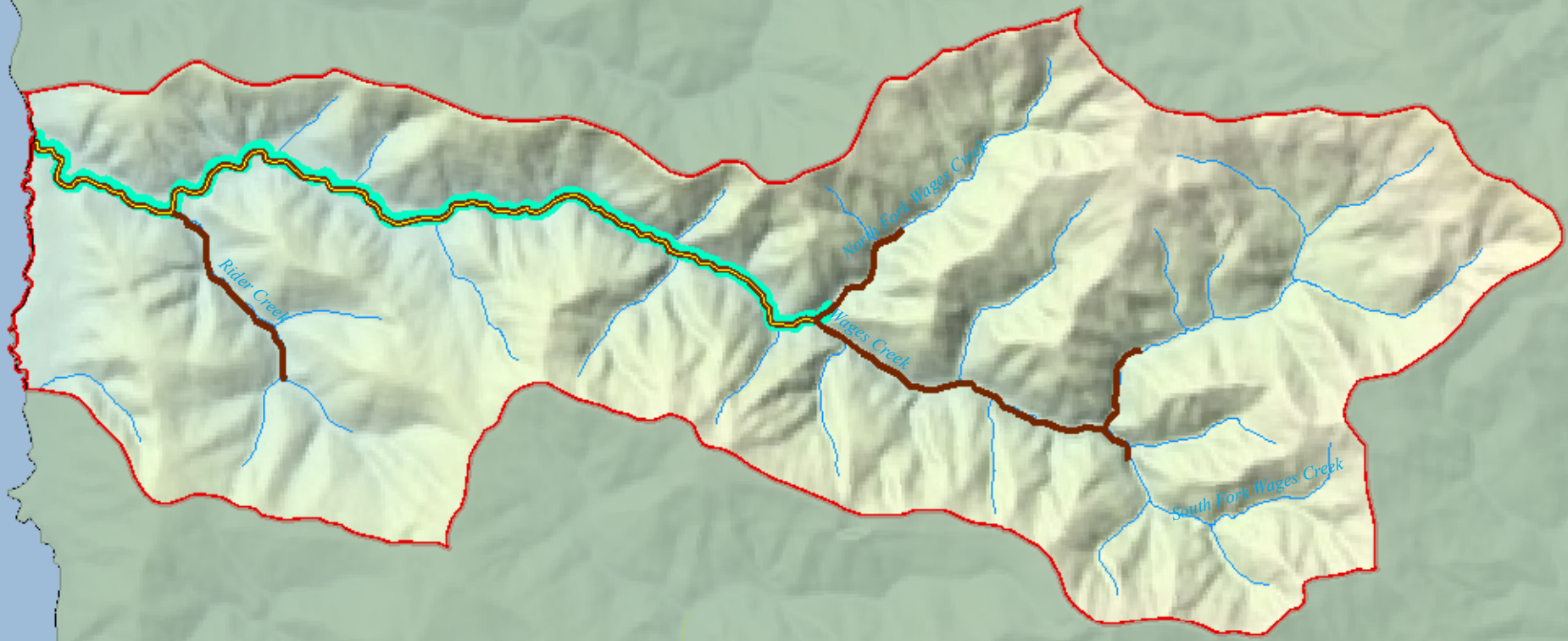



Wages Creek Watershed
NMFS-SWR-HCD
February 2009
Rider Gulch
8584 Acres
Rider Creek
North Fork Wages Creek
Wages Creek
South Fork Wages Creek
N
0
1
Miles

Wages Creek Watershed
Fish Distribution and Critical Habitat

NMFS-SWR-HCD

September 2009



CC Chinook Distribution and Critical Habitat
National Marine Fisheries Service, August 2005. 1:100,000.

NC Steelhead Distribution and Critical Habitat
National Marine Fisheries Service, August 2005. 1:100,000.

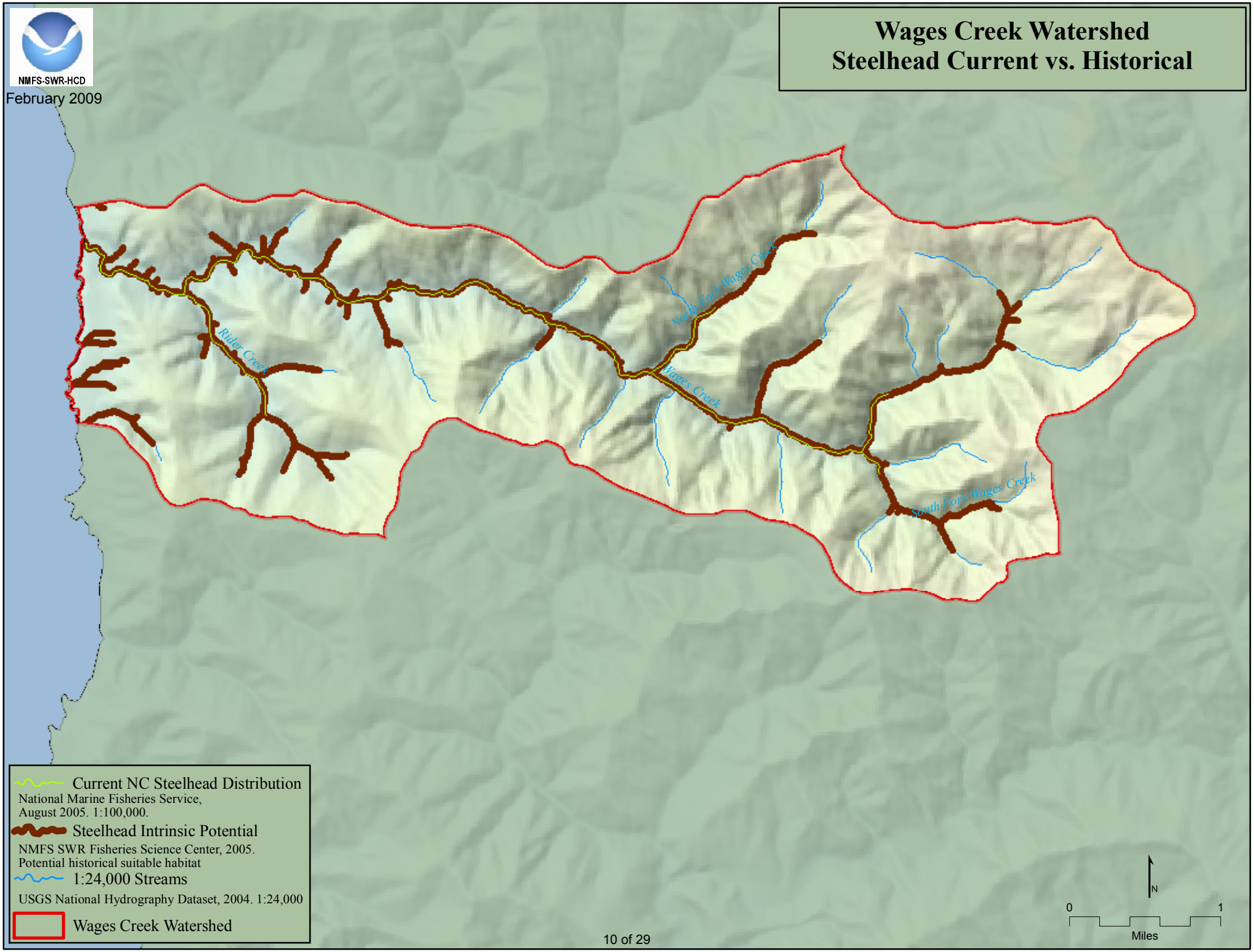
Coho Distribution
CDFG - NCNCR-ISB, 2009. 1:100,000.

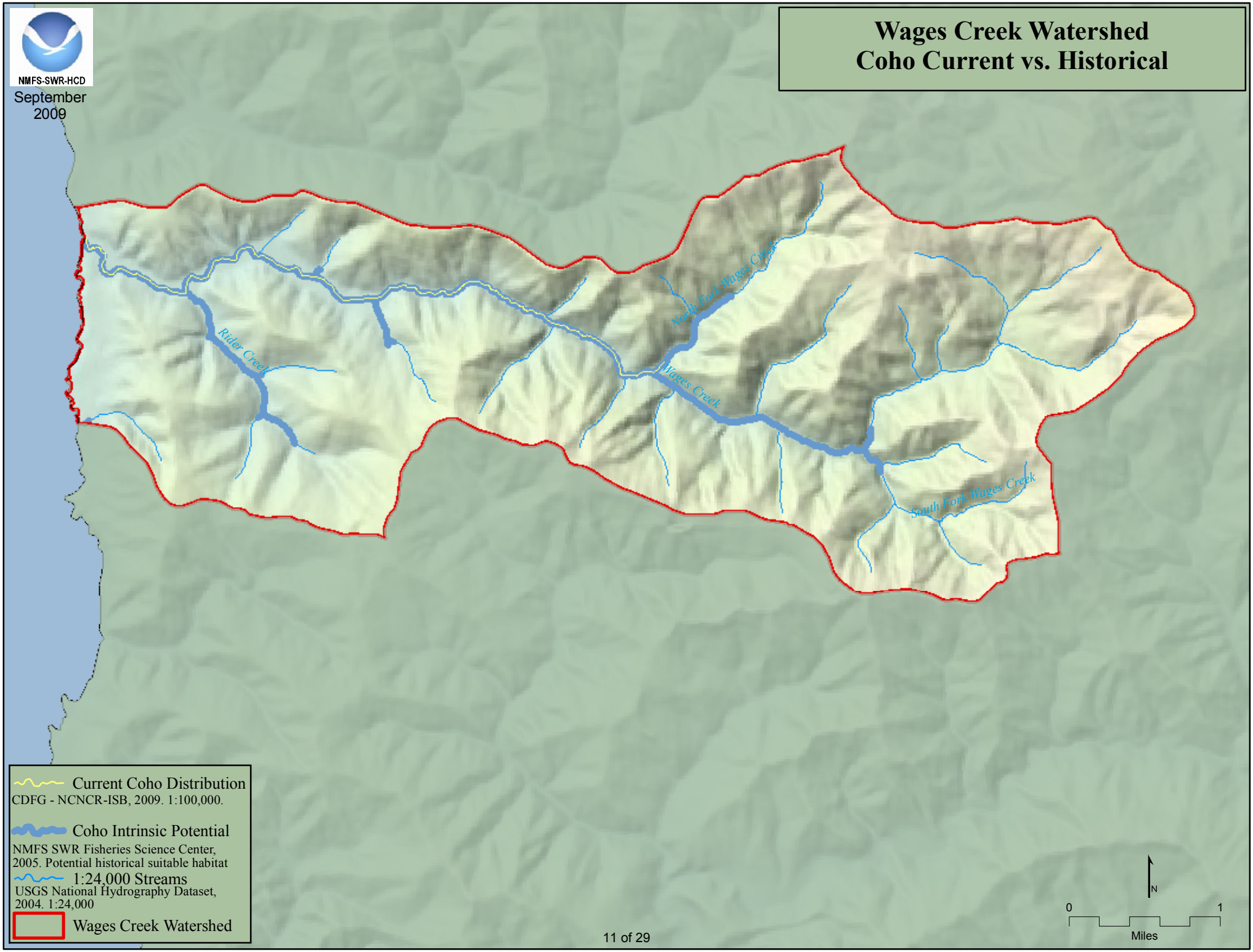
1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000

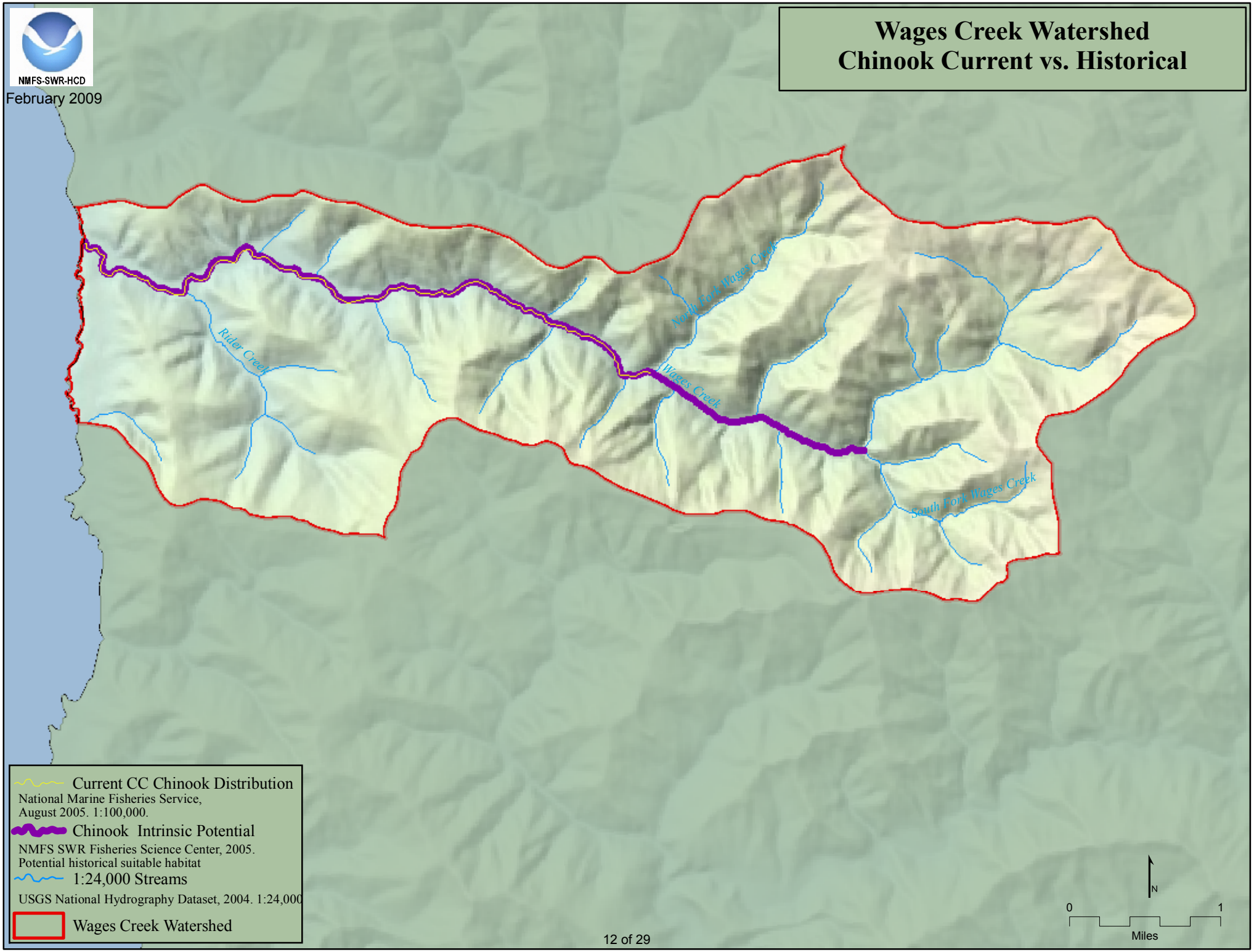
Wages Creek Watershed

N

0 1
Miles


NMFS-SWR-HCD
February 2009
Wages Creek Watershed
Steelhead Current vs. Historical
Rider Creek
North Fork Wages Creek
Wages Creek
South Fork Wages Creek
Current NC Steelhead Distribution
National Marine Fisheries Service,
August 2005. 1:100,000.
Steelhead Intrinsic Potential
NMFS SWR Fisheries Science Center, 2005.
Potential historical suitable habitat
1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000
Wages Creek Watershed
N
0
1
Miles


NMFS-SWR-HCD
September 2009
Wages Creek Watershed
Coho Current vs. Historical
Rider Creek
North Fork Wages Creek
Wages Creek
South Fork Wages Creek
Current Coho Distribution
CDFG - NCNCR-ISB, 2009. 1:100,000.
Coho Intrinsic Potential
NMFS SWR Fisheries Science Center, 2005. Potential historical suitable habitat
1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000
Wages Creek Watershed
N
0
1
Miles


NMFS-SWR-HCD
February 2009
Wages Creek Watershed
Chinook Current vs. Historical
Rider Creek
North Fork Wages Creek
Wages Creek
South Fork Wages Creek
Current CC Chinook Distribution
National Marine Fisheries Service,
August 2005. 1:100,000.
Chinook Intrinsic Potential
NMFS SWR Fisheries Science Center, 2005.
Potential historical suitable habitat
1:24,000 Streams
USGS National Hydrography Dataset, 2004. 1:24,000
Wages Creek Watershed
N
0
1
Miles

Wages Creek Watershed Elevation

NMFS-SWR-HCD

February 2009

Wages Creek Elevation (Meters)

High : 821

Low : 0

SCFSC
10 Meter Digital
Elevation
Model (DEM)

N

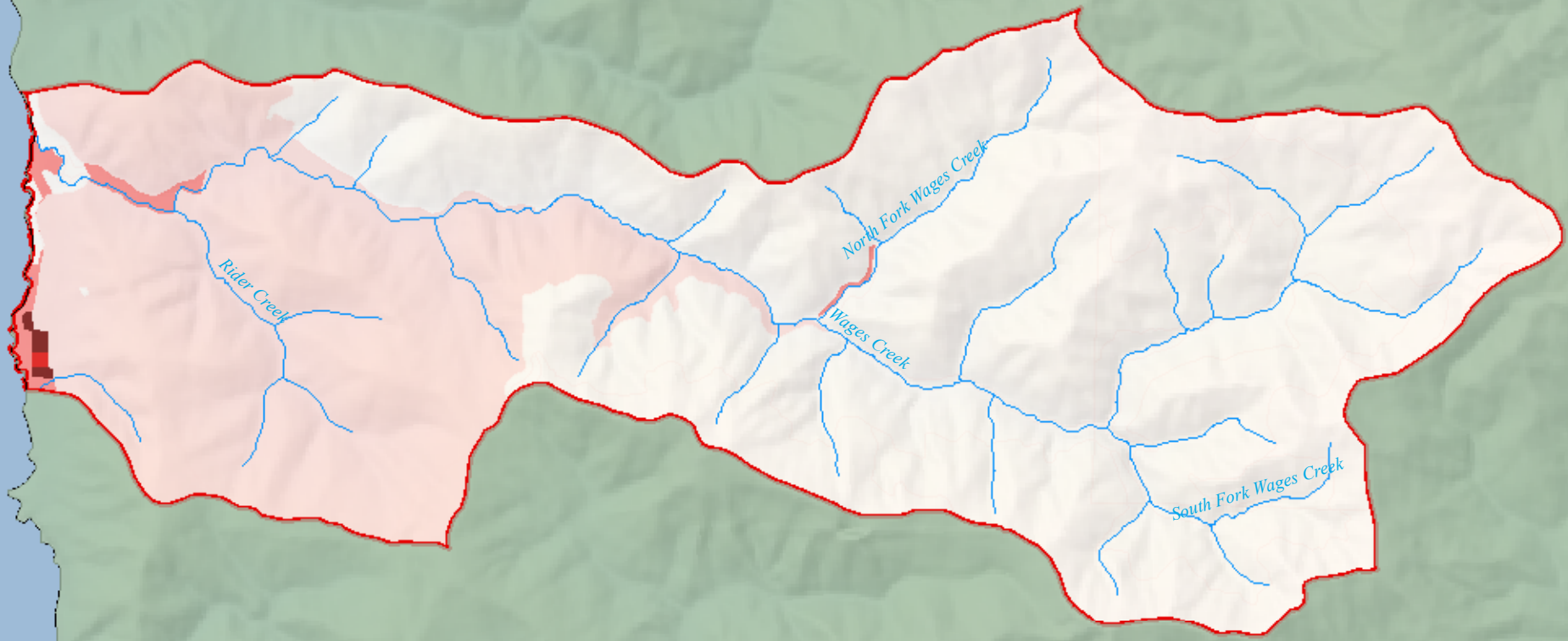
0 1

Miles

Wages Creek Watershed Development

NMFS-SWR-HCD

February 2009



Housing Density

- 0 to < 1 Housing Unit / 160 Acres (68%)
- 1 Unit / 160 Acres to 1 Unit / 20 Acres (31%)
- 1 Unit / 20 Acres to 1 Unit / 5 Acres (1%)
- 1 Unit / 5 Acres to 2 Units / Acre
- 2 Units / Acre to >= to 5 Units / Acre

Population within the Watershed = 130 People
Houses within the Watershed = 87

California Department of Forestry, 2003. 1:100,000.

N

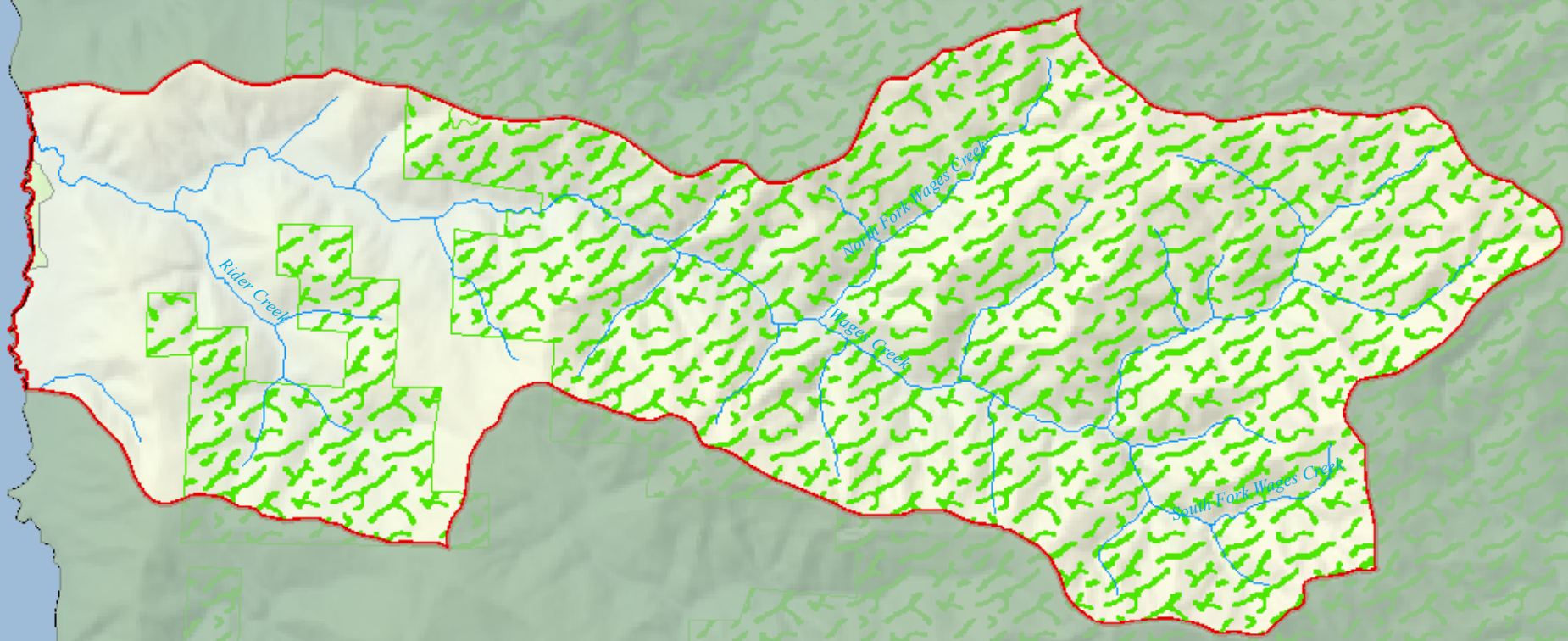
0 1

Miles

Wages Creek Watershed Ownership

NMFS-SWR-HCD

February 2009



Forest Industrial Ownership

USFWS 2000

Georgia Pacific

Ownership

California Depart. of Forestry, 1999. 1:100,000.

Private

State, Parks & Recreation

N

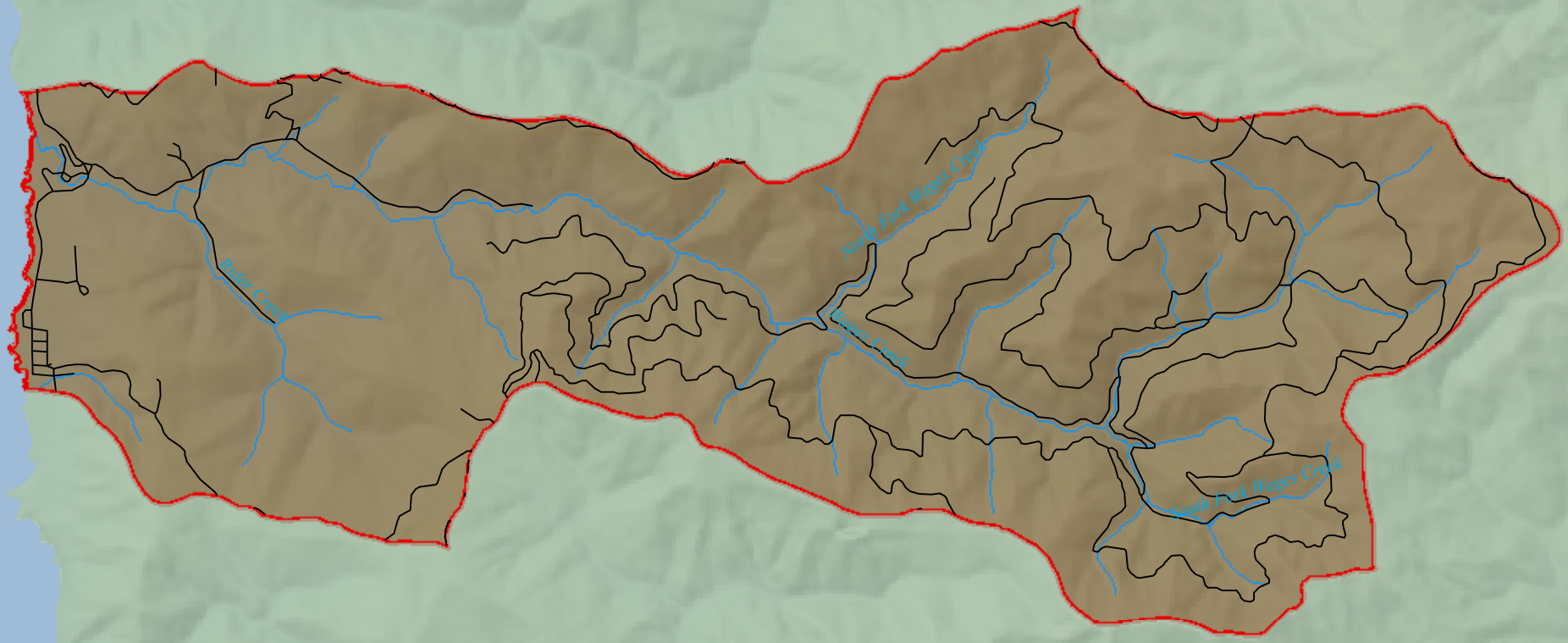
0 1

Miles

Wages Creek Watershed
Road Density

NMFS-SWR-HCD

February 2009



Road

U.S. Census Bureau - Tiger 2000, 2002. 1:24,000

Road Density **(Miles of Road per Square Mile of Watershed)**

4.1

Overall Watershed
Density = 4.1 Miles / SqMi

N

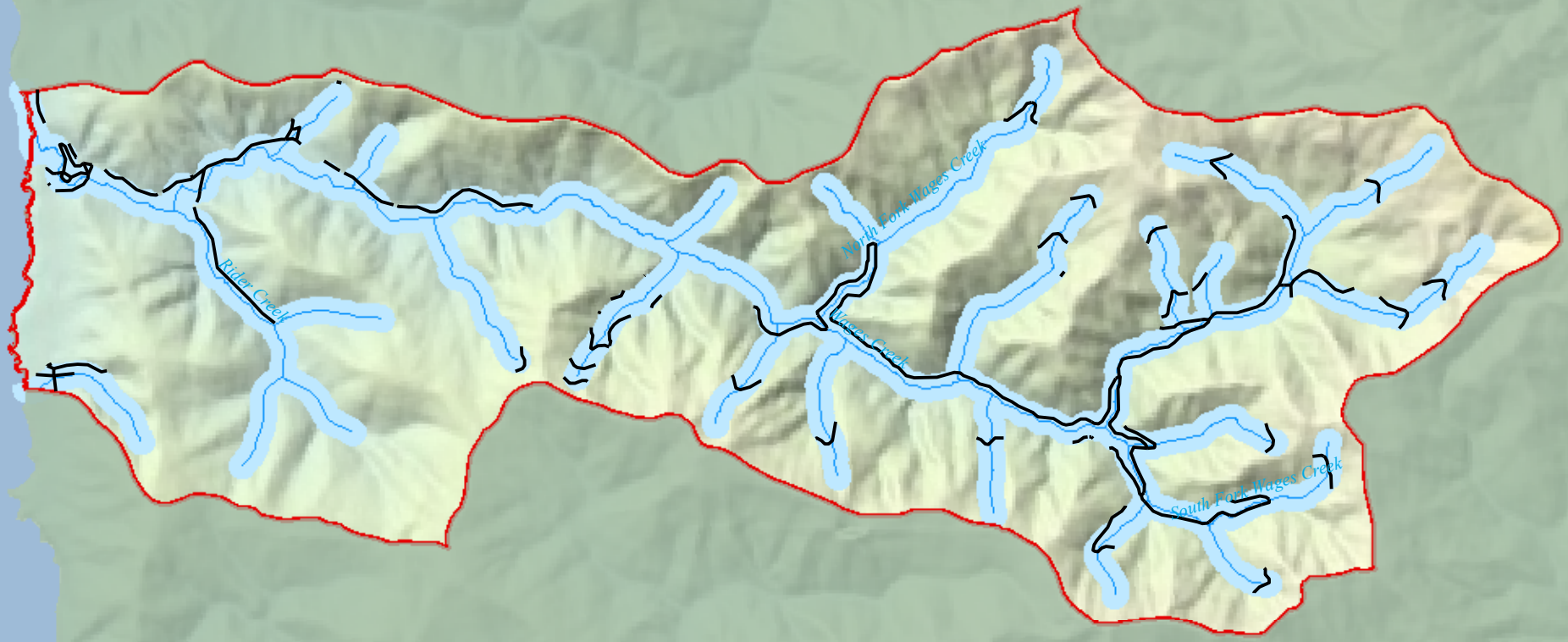
0 1

Miles

Wages Creek Watershed
Road Density in the Riparian Corridor

NMFS-SWR-HCD

February 2009



Road Segments within the 200 meter Riparian Corridor

U.S. Census Bureau - Tiger 2000, 2002. 1:24,000

1:24,000 Streams

USGS National Hydrography Dataset, 2004. 1:24,000

200 Meter Riparian Buffer (100 m on either side of stream centerline)

Overall Riparian Corridor Density = 5.3 Miles / SqMi of Corridor

N

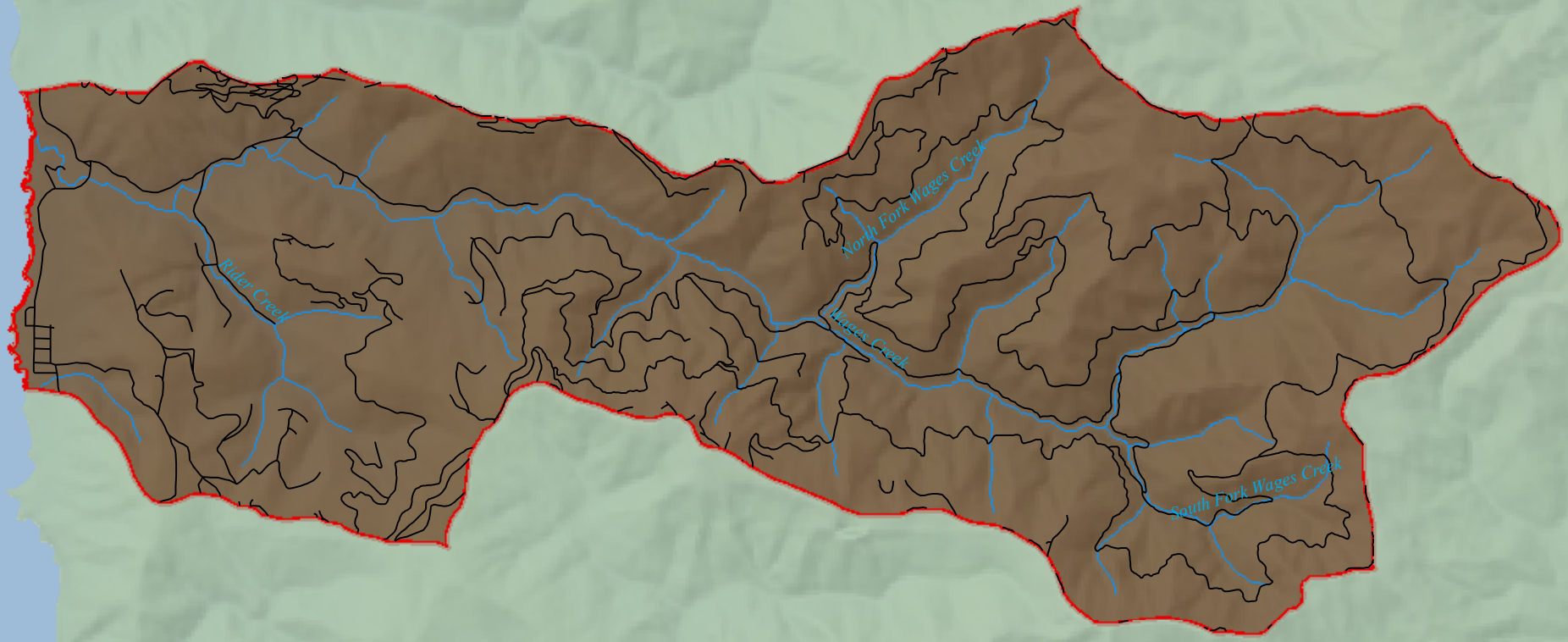
0 1

Miles

NMFS-SWR-HCD

February 2009

Wages Creek Watershed
Road Density
per Timber Harvest Plan Roads



Road

California Department of Foresty, Timber Harvest Plans, 2006

Road Density **(Miles of Road per Square Mile of Watershed)**

5.9

Overall Watershed
Density = 5.9 Miles / SqMi

N

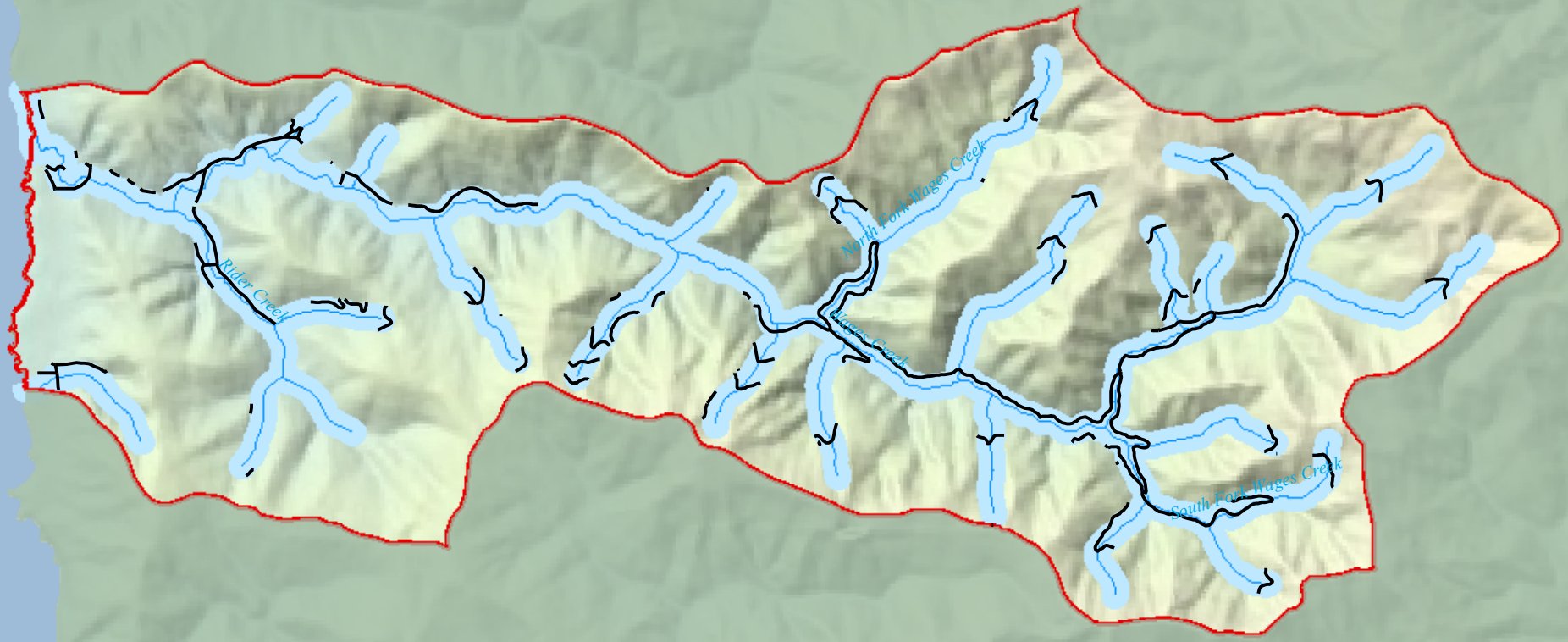
0 1

Miles

NMFS-SWR-HCD

February 2009

Wages Creek Watershed
Road Density in the Riparian Corridor per Timber Harvest Plan Roads



Road Segments within the 200 meter Riparian Corridor

California Department of Foresty, Timber Harvest Plans, 2006

1:24,000 Streams

USGS National Hydrography Dataset, 2004. 1:24,000

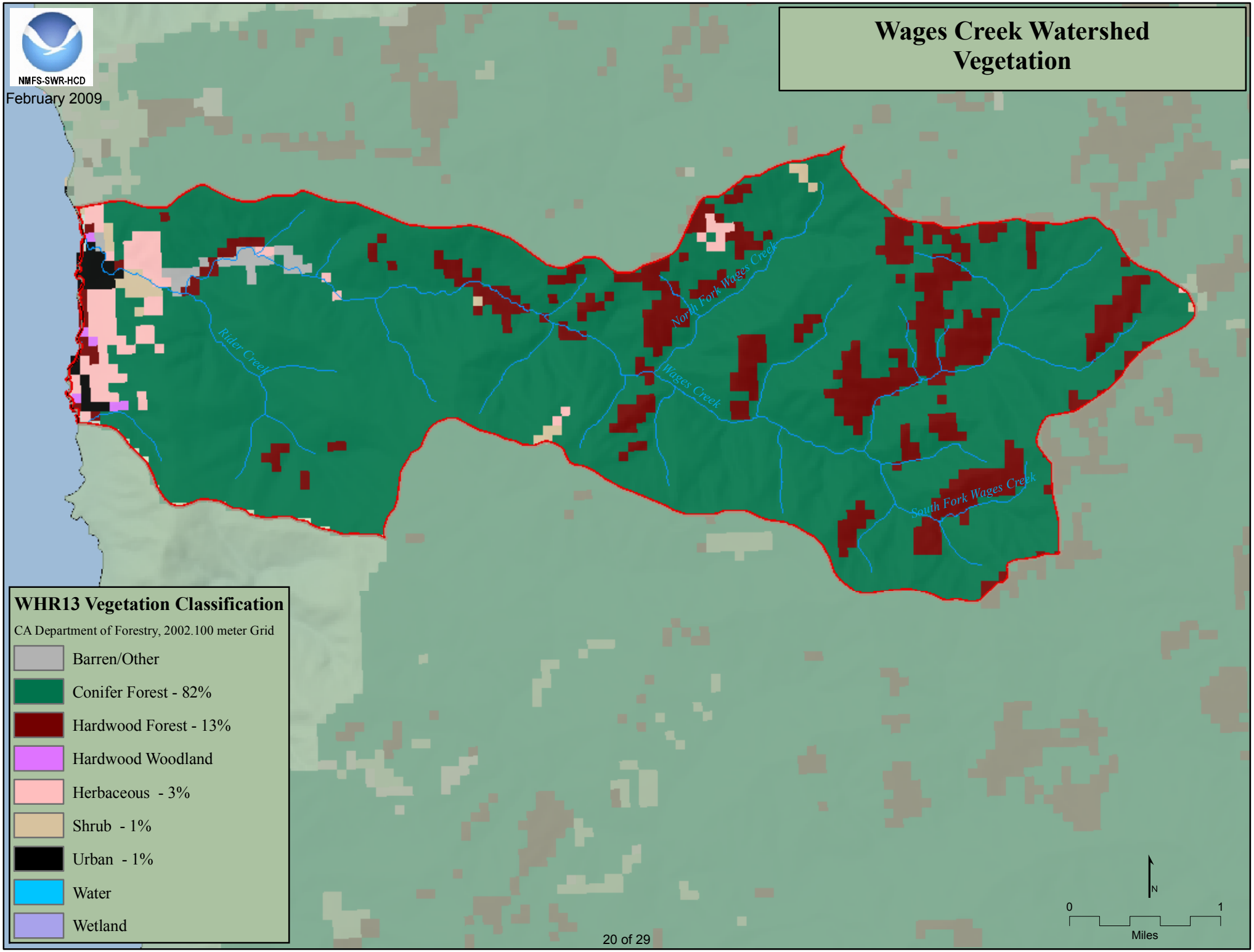
200 Meter Riparian Buffer (100 m on either side of stream centerline)

Overall Riparian Corridor Density = 5.7 Miles / SqMi of Corridor

N

0 1

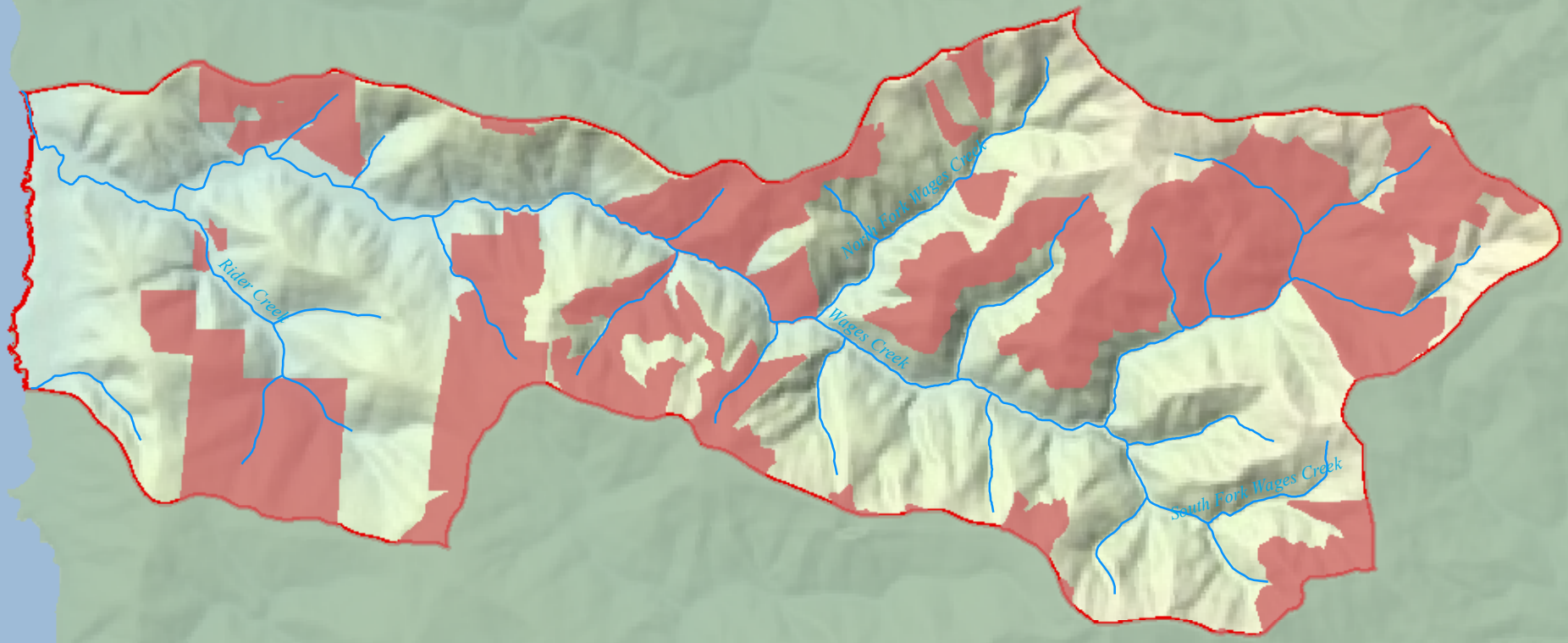
Miles


NMFS-SWR-HCD
February 2009
Wages Creek Watershed
Vegetation
Rider Creek
North Fork Wages Creek
Wages Creek
South Fork Wages Creek
WHR13 Vegetation Classification
CA Department of Forestry, 2002.100 meter Grid
Barren/Other
Conifer Forest - 82%
Hardwood Forest - 13%
Hardwood Woodland
Herbaceous - 3%
Shrub - 1%
Urban - 1%
Water
Wetland
N
0
1
Miles

Wages Creek Watershed
Timber Harvesting 1994-2006

NMFS-SWR-HCD

February 2009



1:24,000 Streams

USGS National Hydrography Dataset, 2004. 1:24,000

Timber Harvest Plans 1994-2004 California Department of Forestry, 2006.

Harvest Plans Footprint (Silviculture method not defined)

N

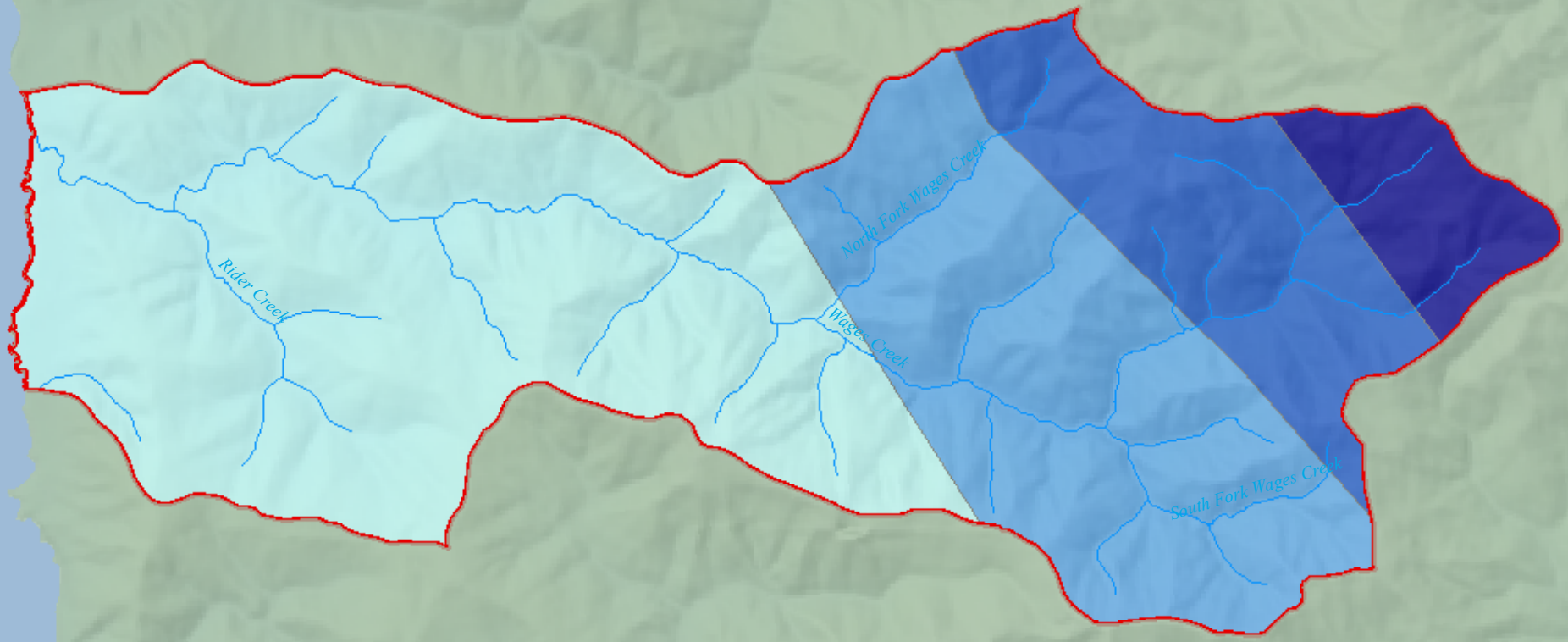
0 1

Miles

Wages Creek Watershed Precipitation

NMFS-SWR-HCD

February 2009



1900-1960 Annual Precipitation

- to 45"
- to 55"
- to 65"
- to 75"

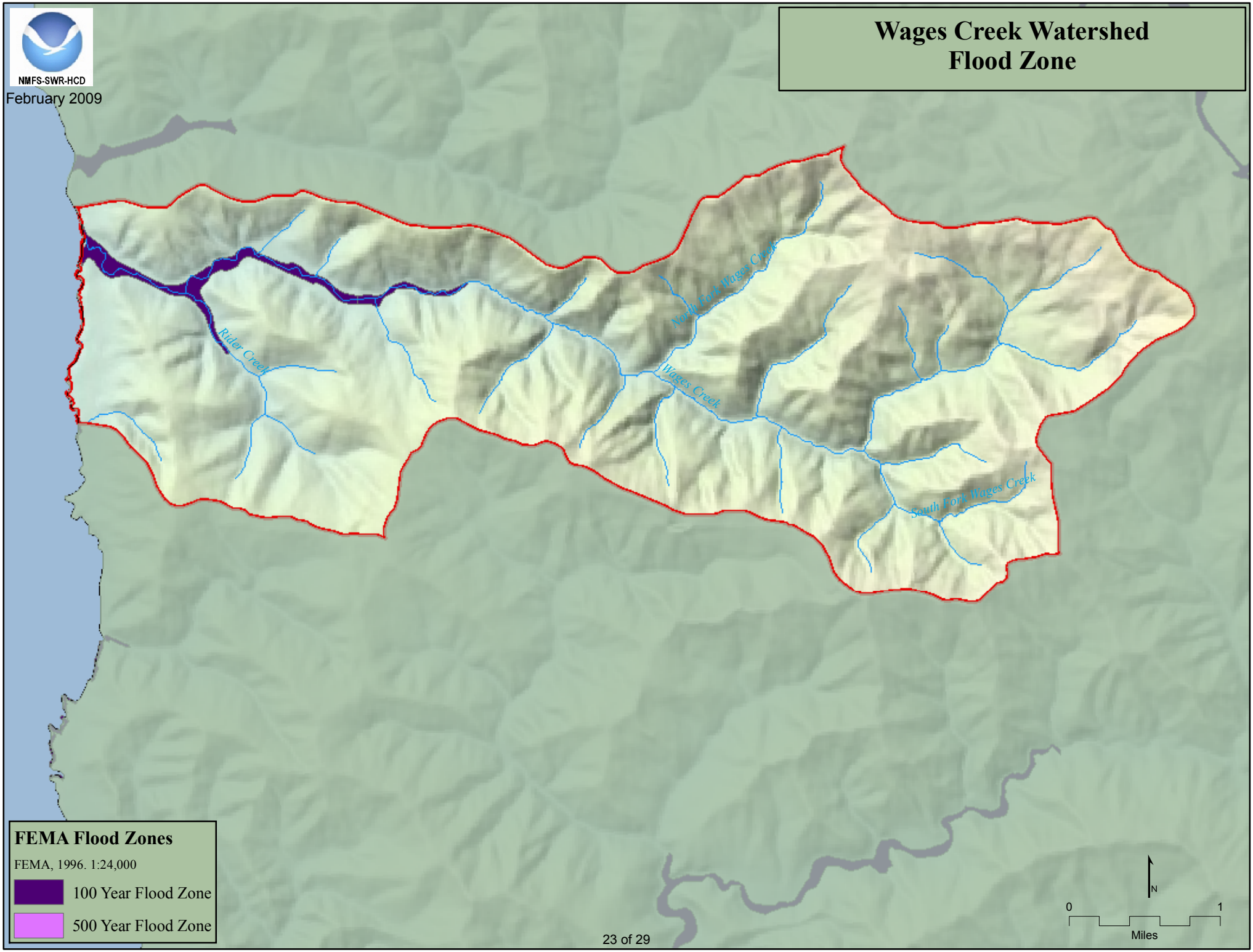
Watershed Average 52.5"

California Department of Forestry, 1990. 1:100,000

N

0 1

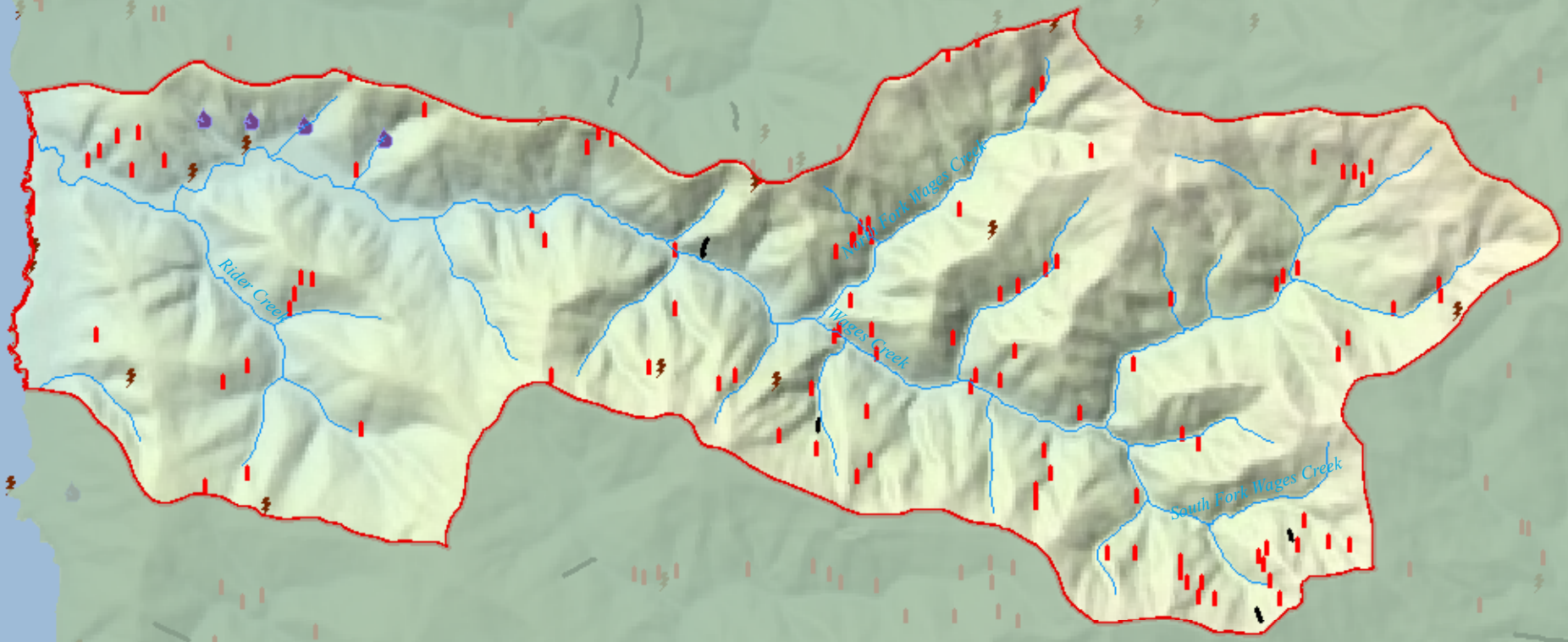
Miles


NMFS-SWR-HCD
February 2009
Wages Creek Watershed
Flood Zone
Rider Creek
North Fork Wages Creek
Wages Creek
South Fork Wages Creek
FEMA Flood Zones
FEMA, 1996. 1:24,000
100 Year Flood Zone
500 Year Flood Zone
N
0
1
Miles

Wages Creek Watershed
Geologic Features

NMFS-SWR-HCD

February 2009



Geologic Feature

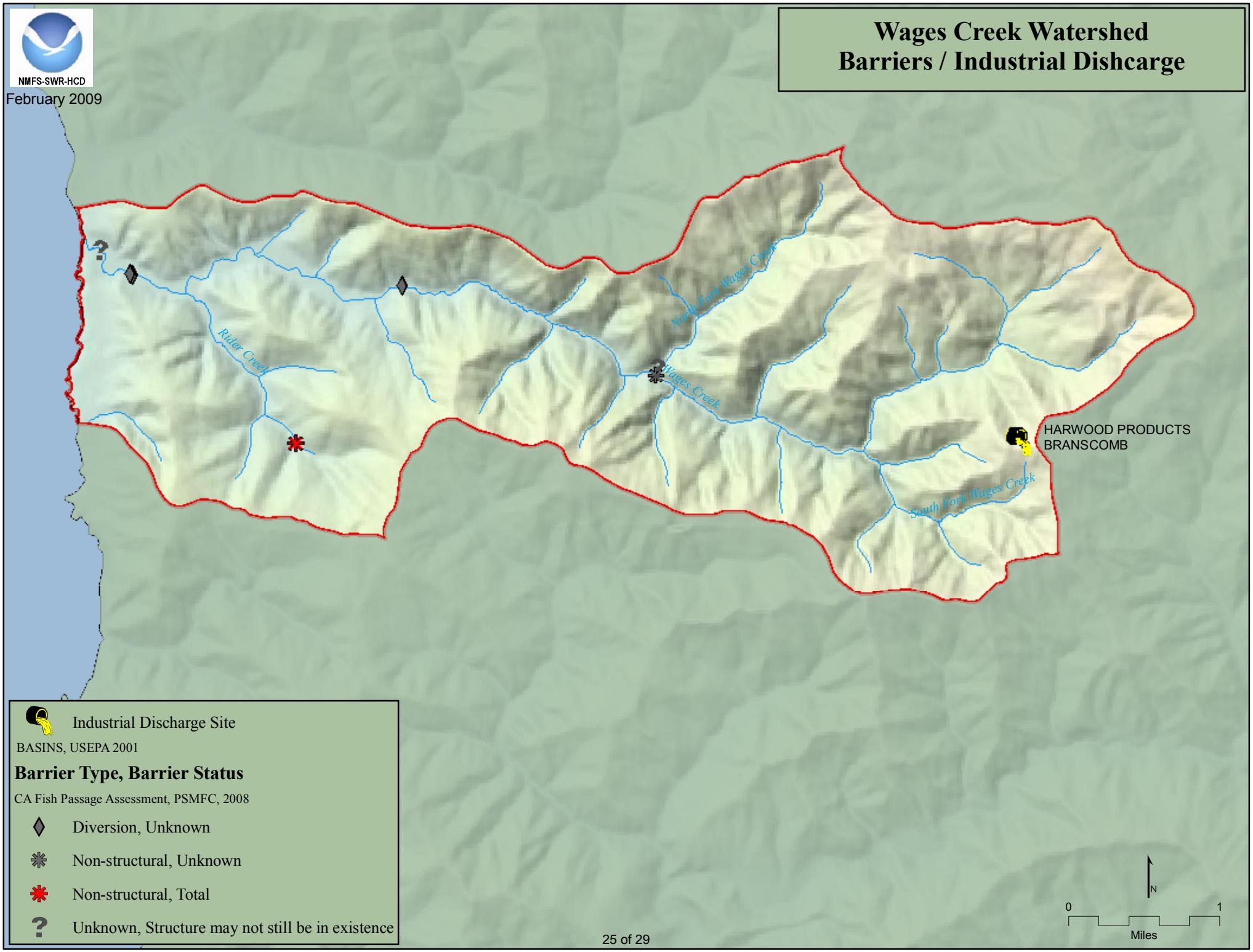
CA Geologic Survey 2001

- Dipbed
- Slide
- Spring
- Torrent track

N

0 1

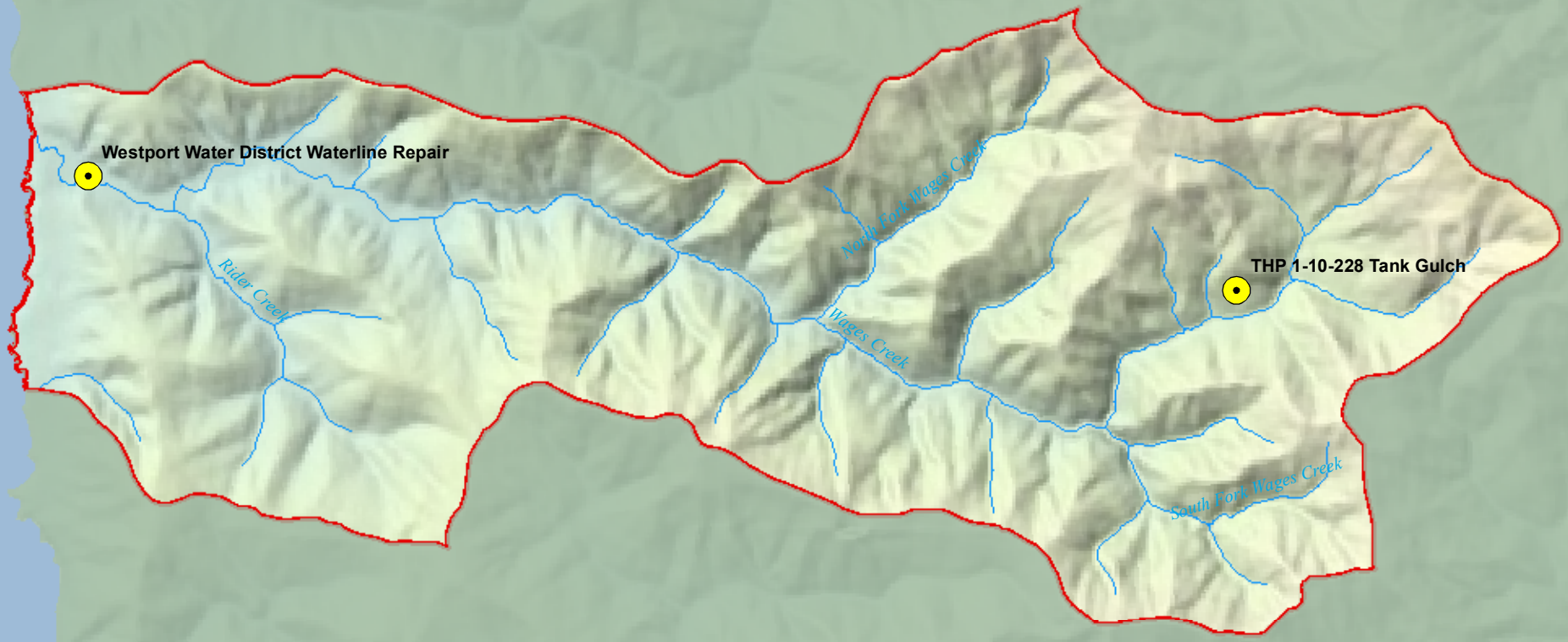
Miles


NMFS-SWR-HCD
February 2009
Wages Creek Watershed
Barriers / Industrial Dishcarge
Rider Creek
North Fork Wages Creek
Wages Creek
South Fork Wages Creek
HARWOOD PRODUCTS
BRANSCOMB
Industrial Discharge Site
BASINS, USEPA 2001
Barrier Type, Barrier Status
CA Fish Passage Assessment, PSMFC, 2008
Diversion, Unknown
Non-structural, Unknown
Non-structural, Total
Unknown, Structure may not still be in existence
N
0
1
Miles

Wages Creek Watershed
Public Consultation Tracking System

NMFS-SWR-HCD

February 2009



PCTS_January_2009

Current as of January 2009.
Only those records
with a Latitude and Longitude
entered appear here

N

0 1

Miles

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calwater_ver2_2
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Historic Suitable Habitat (Coho, Chinook, Steelhead)
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Geologic Features
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