

Tahoe Region CROP

A Summary of CROP Landscape Analyses Results

Presented by

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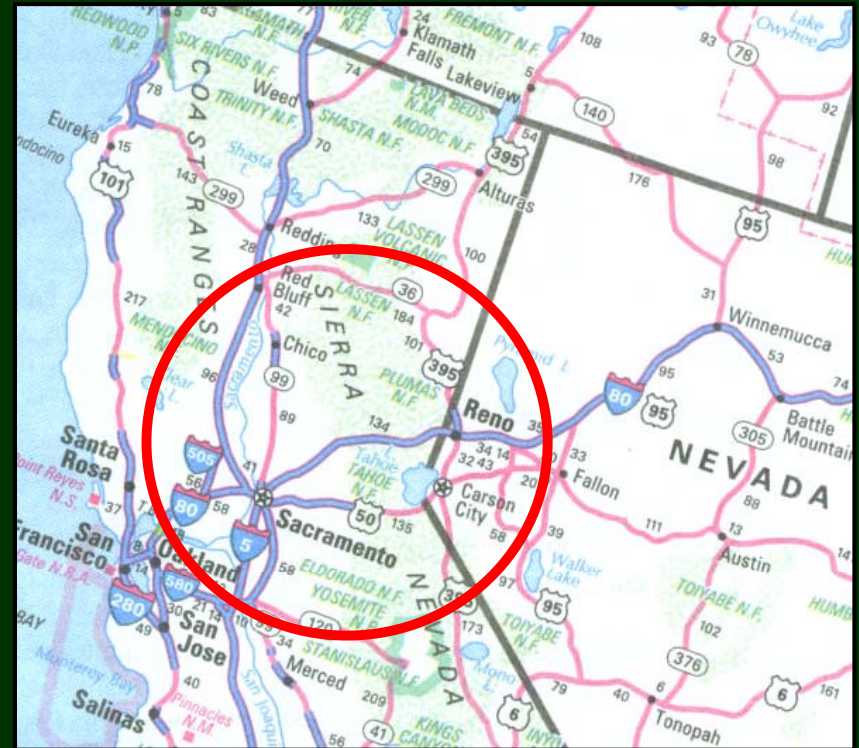
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Tahoe Region CROP:

**Centerpoint: Nevada City, CA
100-mi. radius**

- 7 National Forests
- 1 Federal Management Unit
- 22 Ranger Districts
- 2 BLM Districts
- 32 Counties
- State Lands
- Private Lands



<i>Species</i>	<i>5-yr total mmbf</i>
Douglas fir: (15%)	479.69
Ponderosa pine: (28%)	868.92
Hem/Fir: (32%)	992.24
Incense cedar: (7%)	226.01
Port Orford cedar: (<1%)	.014
Other hardwoods: (1%)	26.12
Other conifers: (17%)	514.4
Redwood: (<1%)	4.147
<i>Totals</i>	<i>3,111.5</i>

Historical Performance

Private lands (in CROP landscape)

2001 – 2005

Total 5-yr = 3,111.5 mmbf

7 National Forests & 1 Federal Mgmt. Unit: 19 Ranger Districts* (*see Lassen NF below)

- **Plumas NF**: Beckwourth, Feather River, Mt. Hough
- **Tahoe NF**: Yuba River, Sierraville, American, Truckee
- **Eldorado NF**: Amador, Placerville, Pacific, Georgetown
- **Stanislaus NF**: Mi-Wok, Calaveras, Summit
- **Mendocino NF**: Grindstone, Upper Lake, Covelo
- **Humboldt-Toiyabe NF**: Carson, Bridgeport
- **Lassen NF**: (Information given only at NF level; no separate data for RD's)
- **Lake Tahoe Basin Management Unit**


BLM Districts:

- **CA:** Folsom, Eagle Lake, Ukiah, Redding
- **NV:** (Combined field office data)

Counties:

<u>CA:</u>	Shasta	Lassen	Tehema	Plumas
	Glenn	Butte	Sierra	Nevada
	Yuba	Colusa	Lake	Sutter
	Placer	Sonoma	Napa	Yolo
	Solano	Amador	Alpine	Sacramento
	Tuolumne	Calaveras	Mono	El Dorado
	San Joaquin	Stanislaus	Contra Costa	
<u>NV:</u>	Washoe	Storey	Douglas	Lyon

What we asked for:

- **Volume** (by mmbf, green tons, ccf, etc.)
 - **Diameter sizes** 
 - biomass*
 - small log*
 - large log*
 - **Species** (17 species evaluated for resource flow)
 - **Harvest “type”**: fuel load reduction, timber sale, etc.
 - **Location** of resource offering
-
- **NEPA Phase**
 - **Road accessibility**
- } **Federal lands**



**So, let's take a look at
the final results . . .**

Overall (next 5 years):

Year	Total Biomass (947,182.01 gT)	% of 5-yr volume
2007	182,872.4	19%
2008	193,527.4	21%
2009	183,502.4	19%
2010	203,127.4	22%
2011	184,152.4	19%

Total Small Log (687.516 mmbf)	% of 5-yr volume
140.948	21%
134.517	19%
130.721	19%
142.241	21%
139.086	20%

Total Large Log (657.131 mmbf)	% of 5-yr volume
130.47	20%
135.416	21%
113.535	17%
138.100	21%
139.600	21%

Biomass = 12%
(up to 7" dbh)

Small Logs = 45%
(>7" – 12" dbh)

Large Logs = 43%
(>12" dbh)

Who's providing what?

Agency	5-yr total <i>Biomass (gT)</i>	5-yr total <i>Small Log (mmbf)</i>	5-yr total <i>Large Log (mmbf)</i>	% of 5-yr total
Plumas NF	194,375	235.165	300.66	37%
Lassen NF	38,669	156.321	92.883	17%
Eldorado NF	359,494	96.805	30	13%
Stanislaus NF	170,000	60.87	82.58	12%
Tahoe NF	74,375	72	70.625	10%
Lake Tahoe BMU	56,650	39.75	36.41	6%
Mendocino NF	10,920	9.385	23.483	2%
Humboldt-Toiyabe NF	0	11.45	3.975	1%
NV DOF-DSL	41,450	2.025	3.035	1%
UC Center of Forestry	372.9	.450	8.920	1%
Boggs Mtn. State Forest	0	.5	3.7	0%
NV BLM	850	1.91	.8	0%
CA BLM	25	.885	.06	0%

Plumas NF: (gT= 194,375; Small log = 235.16 mmbf; Large log = 300.66 mmbf)

Ranger Districts	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Beckwourth	27,875	31.36	40.56
Mt. Hough	121,250	146.7	115.25
Feather River	45,250	57.1	144.85

Lassen NF: (3 RDs combined)

Ranger Districts	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
	38,669	156.32	92.88

Eldorado NF: (*gT= 359,495; Small log = 96.80 mmbf; Large log = 30 mmbf*)

Ranger Districts	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Georgetown	107,849	29.04	9
Placerville	107,849	29.04	9
Pacific	71,899	19.36	6
Amador	71,899	19.36	6

Stanislaus NF: (*gT= 170,000; Small log = 60.87 mmbf; Large log = 82.58 mmbf*)

Ranger Districts	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Mi-Wok	53,800	19.78	20.67
Calaveras	90,500	28.99	43.81
Summit	25,700	12.1	18.1

Tahoe NF: (*gT= 74,375; Small log = 72 mmbf; Large log = 70.62 mmbf*)

Ranger Districts	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Yuba River	26,875	22	25.12
American River	26,250	22	22.75
Sierraville	17,500	24	22.5
Truckee	3,750	4	.25

Mendocino NF: (*gT= 10,920; Small log = 9.38 mmbf; Large log = 23.48 mmbf*)

Ranger Districts	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Grindstone	6,770	6.03	12.10
Upper Lake & Covelo	4,150	3.35	11.38

Humboldt-Toiyabe NF: (gT= 0; Small log = 11.45 mmbf; Large log = 3.97 mmbf)

Ranger Districts	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Carson	0	8.9	3.97
Bridgeport	0	2.55	0

Lake Tahoe BMU:

5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
56,650	39.75	36.41

California (state): (gT= 372.9; Small log = .95 mmbf; Large log = 12.62 mmbf)

Agencies	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Boggs Mtn. State Forest	0	.5	3.7
UC Center of Forestry			
Blodgett Forest	372.9	.386	8.507
Baker Forest	0	.064	.413

Nevada (state):

Agencies	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
NV DOF-DSL	41,450	2.025	3.035

California BLM: (*gT= 25; Small log = .88 mmbf; Large log = .06 mmbf*)

Agencies	5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
California BLM			
Eagle Lake FO	25	.14	.06
Folsom FO	0	.75	0

Nevada BLM: (*no field office breakout provided*)

5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
850	1.91	.8

Is there a change?

*Yes! An increase of 523.82
mmbf from '02-'06 to '07-'11*

<i>Agency</i>	<i>'02-'06 (mmbf)</i>	<i>'07-'11 (mmbf)</i>
Plumas Nf	167.81	574.7
Lassen NF	256.93	256.93
Mendocino NF	15.61	35.05
Eldorado NF	251.68	198.70
Stanislaus NF	141.02	177.45
Humboldt-Toiyabe NF	18.37	15.42
Lake Tahoe BMU	9.44	87.49
Tahoe NF	118.56	157.5
Totals	979.42	1,503.24

Is there a change?

Let's look at Plumas NF . . .

*Yes! An increase of
405.3 mmbf change from
'02-'06 to '07-'11*

<i>Species</i>	<i>'02-'06 (mmbf)</i>	<i>'07-'11 (mmbf)</i>
Incense cedar	.6206	27.33
Other conifers	142.729	0
Douglas fir	1.8758	76.685
White fir	13.5243	308
Other hardwoods	1.5068	0
Red/black oak	.00033	.4875
Lodgepole pine	.4081	2.955
Ponderosa pine	0	0
Ponderosa/Jeffrey pine	7.0058	94.09
Sugar pine	.8299	25.71
Cull	.33067	38.88
Totals	168.8313	574.1375

Tahoe Region CROP

<i>By Species</i> <i>(Black oak, pinyon pine, giant Sequoia, madrone, & Western juniper: all <1% each)</i>		5-yr total (Biomass = gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
White Fir	(32% of 5-yr. total)	235,607	232.14	207.78
Ponderosa Pine/Jeffrey Pine	(17% of 5-yr. total)	118,346	112.1	129
White Fir/Red Fir	(12% of 5-yr. total)	105,721	68.15	88.79
Douglas Fir	(10% of 5-yr. total)	75,346	65.01	74.28
Ponderosa Pine	(6% of 5-yr. total)	152,182	40.92	25.80
Incense Cedar	(6% of 5-yr. total)	81,497	39.68	36.99
Red Fir	(5% of 5-yr. total)	37,818	34.97	27.82
Other Conifers (non-specified)	(4% of 5-yr. total)	76,650	32.25	18.86
Sugar Pine	(4% of 5-yr. total)	53,981	27.41	24.74
Jeffrey Pine	(1% of 5-yr. total)	1,600	11.23	9.30
Lodgepole Pine	(1% of 5-yr. total)	2,570	13.0	4.88
Tan Oak	(1% of 5-yr. total)	2,262	2.85	7.24

Good picture for dedicated small log processing operation (4"-12") as annual volume sufficient to invite investment to the region for this purpose, and diameter breakouts in small log stratum beneficial for better grade recovery.

(5-yr small log volume = 687.51 mmbf or 137 mmbf/yr; 58% of small log volume in the 9"-12" diameter class).

		% of species volume		
		4"-7"	>7"-9"	>9"-12"
<i>White Fir</i>	(32%)	17%	15%	32%
<i>Ponderosa Pine/Jeffrey Pine</i>	(17%)	9	11	24
<i>White Fir/Red Fir</i>	(12%)	12	7	15
<i>Douglas Fir</i>	(10%)	5	12	26
<i>Ponderosa Pine</i>	(6%)	12	19	22
<i>Incense Cedar</i>	(6%)	11	12	19
<i>Red Fir</i>	(5%)	5	14	35
<i>Other Conifers</i>	(4%)	14	26	23
<i>Sugar Pine</i>	(4%)	9	16	24
<i>Jeffrey Pine</i>	(1%)	1	3	12
<i>Lodgepole Pine</i>	(1%)	2	11	60
<i>Tan Oak</i>	(1%)	4	4	23
<i>Black Oak</i>	(<1%)	9	9	9
<i>Pinyon Pine</i>	(<1%)	2	10	17
<i>Giant Sequoia</i>	(<1%)	4	0	0
<i>Madrone</i>	(<1%)	17	17	25
<i>Western Juniper</i>	(<1%)	0	40	40

Biomass removal volume sufficient to invite new investment interest to the area:

- Projected biomass volume of ~190,000 gT/yr as a conservative baseline to be removed;
- **76%** of volume coming from the Plumas, Eldorado, & Stanislaus NFs;
- Volume of biomass appears sufficient to support a 13 MW power plant that would use ~160,000 gT/yr. of biomass.

Resource Offering Maps (ROMS):

Here's what you get for each species . . .

- ✓ Who will supply?
- ✓ When will supply be offered?
- ✓ How much will be offered?
- ✓ What diameter size will it be offered in?
- ✓ Will supply be consistent and levelized over time to invite purchase and investment?

For each species:

- ✓ **Locator map** per specific supplier
- ✓ **Summary sheet**
- ✓ **Detailed supply breakouts** by volume, diameter, and year per supplier

*Let's look at white fir
as an example, (32% of total 5-yr volume) . . .*

Tahoe Region: White Fir CROP offering/removal '07 - '11
 (gT = 235,607 / S = 232.145 mmbf / L = 207.786 mmbf)

ROM # WF 1.1

WF = white fir

Plumas NF:

- A **Beckwourth RD** ** (gT = 10,437 / S = 14.48 / L = 19.28)
 B **Mt. Hough RD** (gT = 67,937 / S = 86.645 / L = 67.775)
 C **Feather River RD** (gT = 20,937 / S = 27.987 / L = 71.975)

Lassen NF:

- D **Lassen NF***** (gT = 32,117 / S = 83.505 / L = 38.541)

gT = green tons (up to 7" dbh)
 S = small log mmbf (>7"-12" dbh)
 L = large log mmbf (>12" dbh)

Eldorado NF:

- E **Georgetown RD** (gT = 19,124 / S = 5.129 / L = 1.566)
 F **Placerville RD** (gT = 19,124 / S = 5.129 / L = 1.566)
 G **Pacific RD** (gT = 12,749 / S = 3.419 / L = 1.044)
 H **Amador RD** (gT = 12,749 / S = 3.419 / L = 1.044)

Stanislaus NF:

- I Mi-Wok RD
 J Calaveras RD
 K Summit RD

Tahoe NF:

- L Yuba River RD
 M American River RD
 N Sierraville RD
 O Truckee RD

Lake Tahoe BMU:

- P Lake Tahoe BMU

Mendocino NF:

- Q **Grindstone RD** (gT = 495 / S = .328 / L = .82)
 R **Upper Lake & Covelo RDs** (gT = 0 / S = 0 / L = .7)

Humboldt-Toiyabe NF:

- S **Carson RD** (gT = 0 / S = .94 / L = .517)
 T Bridgeport RD

NV DOF-DSL:

- U **NV DOF-DSL** (gT = 39,850 / S = .99 / L = 1.011)

UC Center of Forestry:

- V **Blodgett Forest** (gT = 62.15 / S = .113 / L = 1.717)
 W **Baker Forest** (gT = 0 / S = .04 / L = .23)

Boggs Mtn. State Forest:

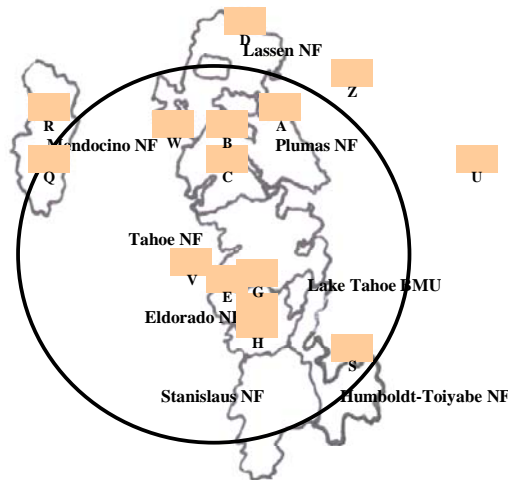
- X Boggs Mtn. State Forest

NV BLM:

- Y NV BLM

CA BLM:

- Z **Eagle Lake FO** (gT = 25 / S = .02 / L = 0)
 AA Folsom FO



Locator map

*A portion of volume may be removed but not available for public offering.
 **italics/bold = species offering in CROP
 ***No data available by RD.

Tahoe Region CROP

Tahoe Region: White Fir CROP offering/removal '07 - '11
 (gT = 235,607 / S = 232.145 mmbf / L = 207.786 mmbf)
 (487.052 mmbf)

ROM # WF 1

Summary Sheet

gT = green tons (up to 7" dbh)
 S = small log mmbf (>7"-12" dbh)
 L = large log mmbf (>12" dbh)

UC Center of Forestry - <1%
 (gT = 62 / S = .152 / L = 1.947)

Humboldt-Toiyabe NF: 1 RD - <1%
 (gT = 0 / S = .94 / L = .517)

***Plumas NF: 3 RDs - 63%**
 (gT = 99,312 / S = 129.115 / L = 159.03)
** A portion of volume may be removed but not available for public offering.*

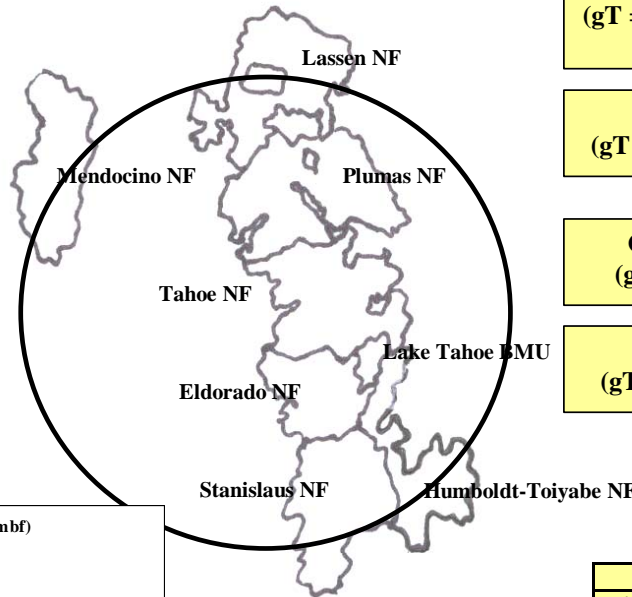
Mendocino NF: 3 RDs - <1%
 (gT = 495 / S = .328 / L = 1.52)

***Lassen NF: 26%**
 (gT = 32,117 / S = 83.505 / L = 38.54)
** No data available by RD.*

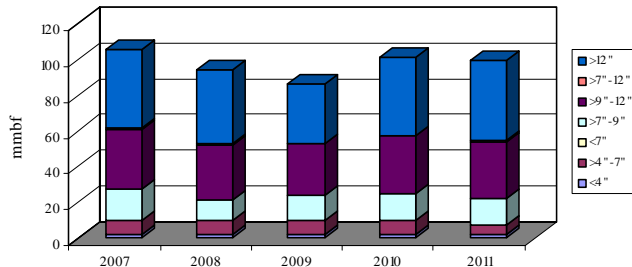
NV DOF-DSL: 2%
 (gT = 39,850 / S = .99 / L = 1.011)

CA BLM: 1 FO - <1%
 (gT = 25 / S = .02 / L = 0)

Eldorado NF: 4 RDs - 7%
 (gT = 63,746 / S = 17.095 / L = 5.22)



All Agencies: White Fir (5-yr total = 487.052 mmbf)
 47.121 mmbf is <7" = 235,607 gT of biomass
 232.145 mmbf is >7"-12" = small logs
 207.786 mmbf is >12" = large logs



	gT	mmbf	
	Biomass	Small Log	Large Log
2007	50509.97	51.24200215	44.26117089
2008	49037.47	42.98584465	41.4345283
2009	48399.97	43.45760805	33.4393469
2010	48999.97	47.86760805	43.3518469
2011	38659.97	46.59170805	45.2993469
Totals	235607.35	232.144771	207.7862399
%	10%	48%	43%
mmbf	47.12147		

487.0524811

Tahoe Region CROP

Detailed Breakout by Supplier

White Fir Plumas NF: Feather River RD	5-yr = 104.15 mmbf
	<ul style="list-style-type: none"> Unlevel supply from year to year
gT = 20,937	<ul style="list-style-type: none"> <4" = <1% (.4375 mmbf) >4"-7" = 4% (3.75 mmbf) <7" = 0% (0 mmbf)
S = 27,987	<ul style="list-style-type: none"> >7"-9" = 4% (4.35 mmbf) >9"-12" = 23% (23.637 mmbf) >7"-12" = 0% (0 mmbf)
L = 71,975	<ul style="list-style-type: none"> >12" = 69% (71.975 mmbf)

- ✓ *unlevel supply*
- ✓ *dramatic volume variations*
- ✓ *higher investor risk*

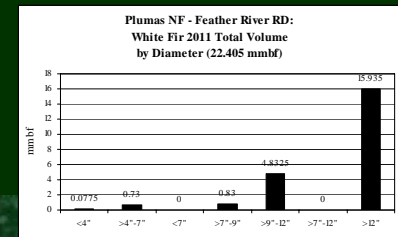
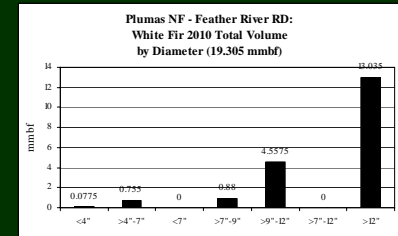
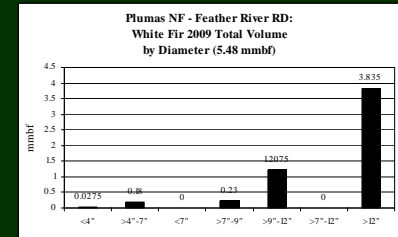
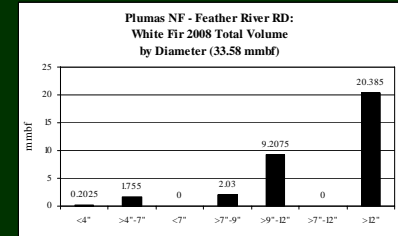
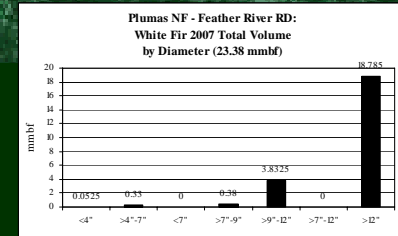
'07 = 23.38 mmbf

'08 = 33.58 mmbf

'09 = 5.48 mmbf

'10 = 19.3 mmbf

'11 = 22.4 mmbf



SO . . . with CROP, we're able to look at:

- performance between different public agencies to identify needed coordination of supply; and
- performance between ranger districts in a single NF to see where coordination of supply offering might be needed.

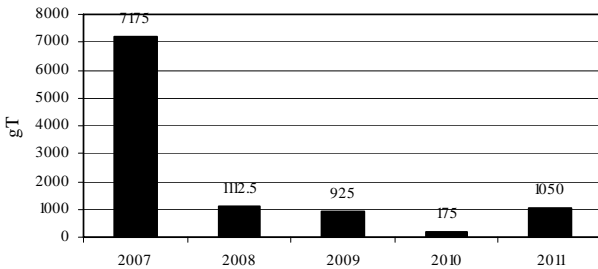
Let's take a look ...

Tahoe Region CROP

White Fir: Plumas NF- 3 RDs - biomass offerings

Beckwourth RD

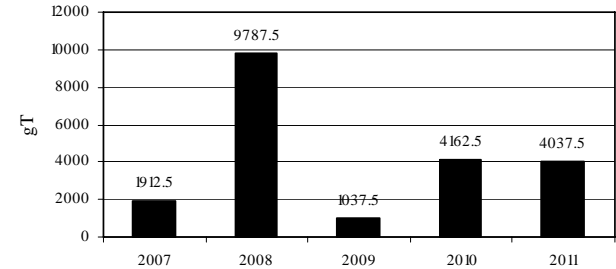
Plumas NF - Beckwourth RD: White Fir
Total 5-yr Biomass (up to 7" dbh)
by Specie (10,437 gT)



11%

Feather River RD

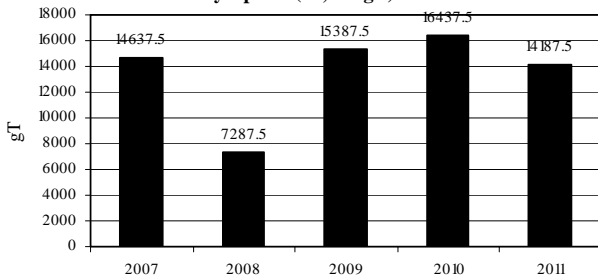
Plumas NF - Feather River RD: White Fir
Total 5-yr Biomass (up to 7" dbh)
by Specie (20,937 gT)



21%

Mt. Hough RD

Plumas NF - Mt. Hough RD: White Fir
Total 5-yr Biomass (up to 7" dbh)
by Specie (67,937 gT)



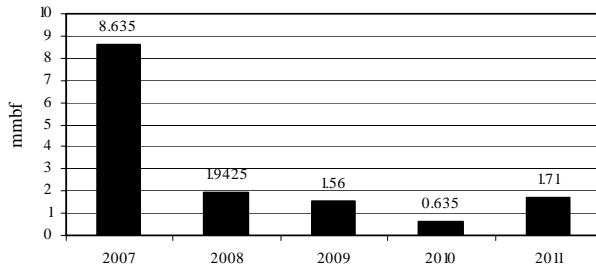
68%

Fairly leveled 5-year supply in only one RD.

White Fir: Plumas NF – 3 RDs – small log offerings

Beckwourth RD

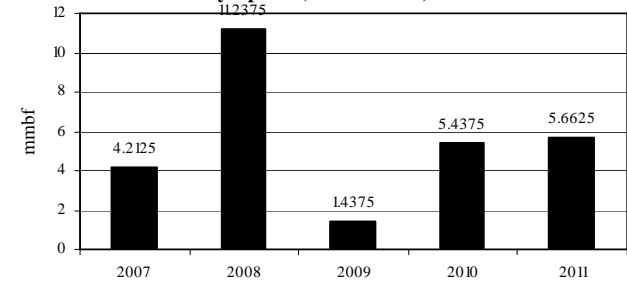
Plumas NF - Beckwourth RD: White Fir
Total 5-yr Small Log (>7"-12" dbh)
by Specie (14.482 mmbf)



11%

Feather River RD

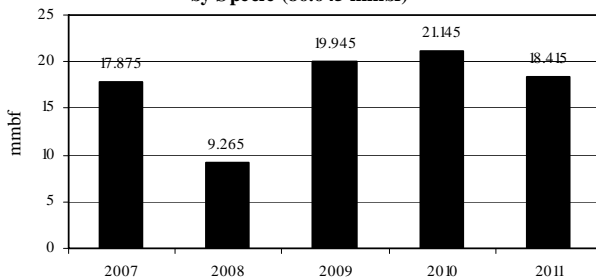
Plumas NF - Feather River RD: White Fir
Total 5-yr Small Log (>7"-12" dbh)
by Specie (27.987 mmbf)



22%

Mt. Hough RD

Plumas NF - Mt. Hough RD: White Fir
Total 5-yr Small Log (>7"-12" dbh)
by Specie (86.645 mmbf)



67%

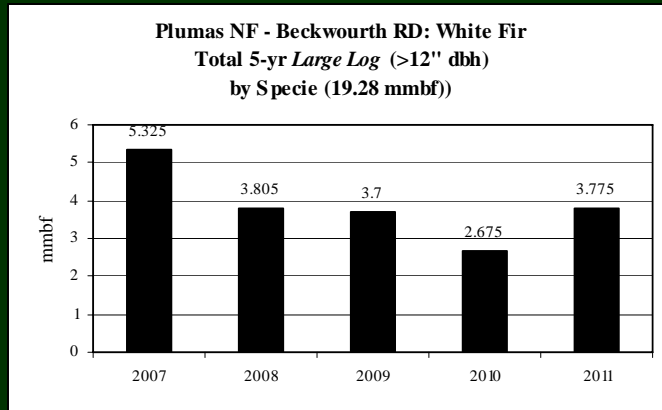
Only one RD with fairly leveled supply.

Tahoe Region CROP

White Fir: Plumas NF - 3 RDs - large log offerings

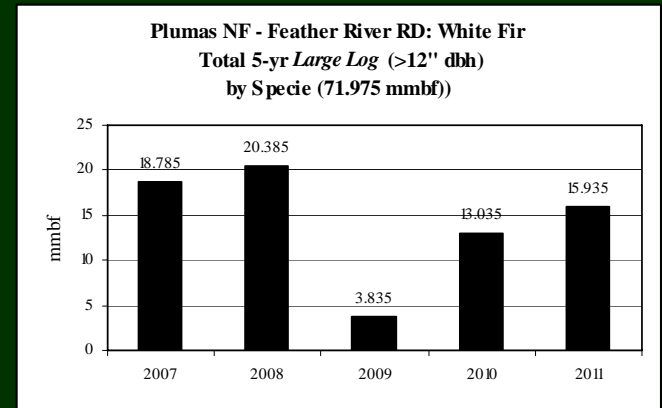
Beckwourth RD

12%



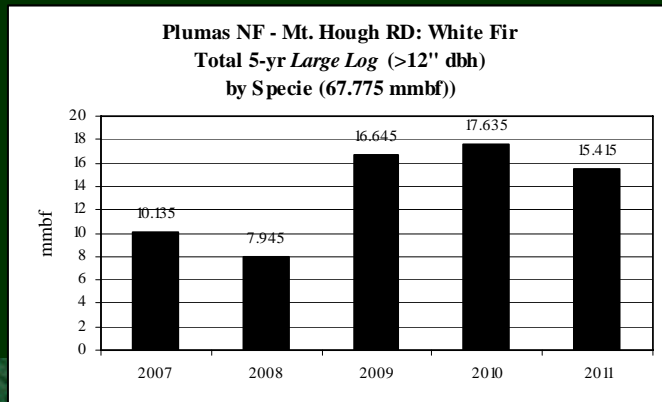
Feather River RD

45%



Mt. Hough RD

43%



2 out of 3 RD's provide fairly levelized supply for all five years.



Let's look at species Summary Sheets for the other top Tahoe Region CROP species . . .

Tahoe Region CROP

Tahoe Region: Ponderosa Pine/Jeffrey Pine CROP offering/removal '07 - '11
 (gT = 118,346 / S = 112,099 mmbf / L = 129 mmbf)
 (264.769 mmbf)

ROM # PP/Jef P 1

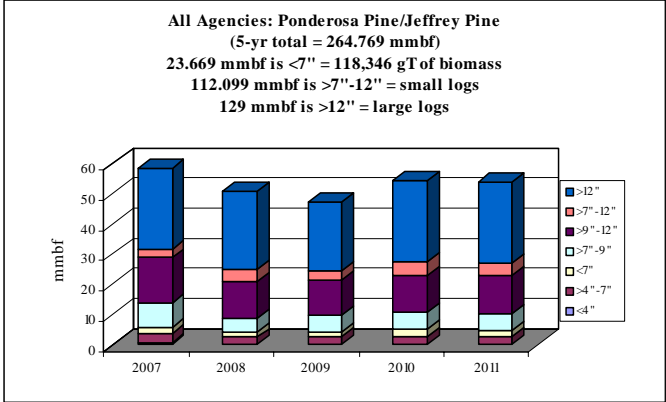
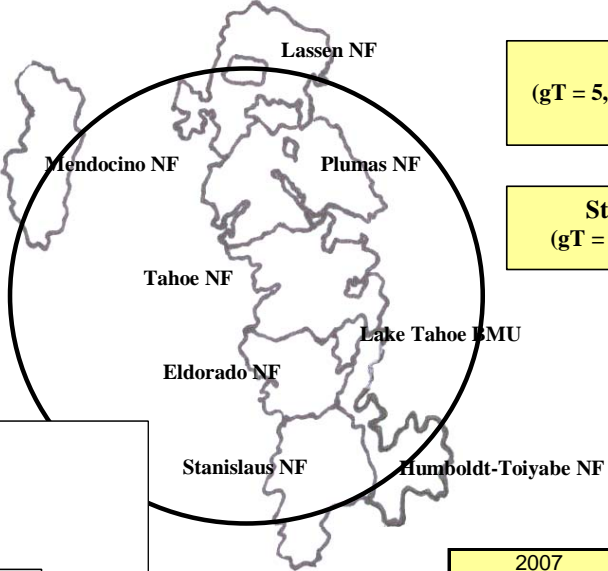
gT = green tons (up to 7" dbh)
 S = small log mmbf (>7"-12" dbh)
 L = large log mmbf (>12" dbh)

***Plumas NF: 3 RDs - 36%**
 (gT = 34,992 / S = 36,876 / L = 50.215)
**A portion of volume may be removed but not available for public offering.*

Tahoe NF: 4 RDs - 23%
 (gT = 27,210 / S = 27,868 / L = 26.74)

***Lassen NF - 22%**
 (gT = 5,909 / S = 28,366 / L = 29.548)
** No data available by RD.*

Stanislaus NF: 3 RDs - 19%
 (gT = 50,234 / S = 18,988 / L = 22.497)



	gT	mmbf	
	Biomass	Small Log	Large Log
2007	27570.413	25.98718243	26.73906503
2008	21257.413	20.81078243	25.68846503
2009	20511.913	20.35668243	22.96806503
2010	25504.413	22.47928243	26.78846503
2011	23501.913	22.46468243	26.81656503
Totals	118346.07	112.0986121	129.0006252
%	9%	42%	49%
mmbf	23.669213		

264.7684503

Tahoe Region CROP

Tahoe Region: White Fir/Red Fir CROP offering/removal '07 - '11
 (gT = 105,721 / S = 68.159 mmbf / L = 88.798 mmbf)
 (178.102 mmbf)

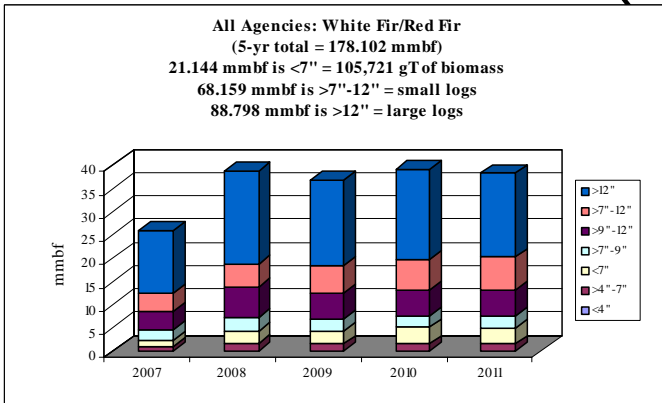
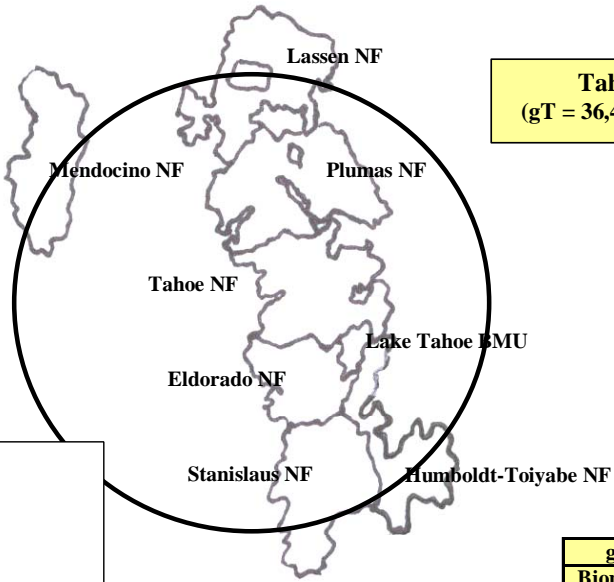
ROM # WF/RF 1

gT = green tons (up to 7" dbh)
 S = small log mmbf (>7"-12" dbh)
 L = large log mmbf (>12" dbh)

Lake Tahoe BMU - 10%
 (gT = 0 / S = 5.26 / L = 12.27)

Tahoe NF: 4 RDs - 42%
 (gT = 36,425 / S = 34.588 / L = 33.677)

Stanislaus NF: 3 RDs - 48%
 (gT = 69,296 / S = 28.311 / L = 42.851)



	gT	mmbf	
	Biomass	Small Log	Large Log
2007	11591.5	10.2355	13.457
2008	21269.5	14.3276	19.9434
2009	21987.5	13.9275	18.213
2010	25537.5	14.5709	19.1991
2011	25335	15.0975	17.986
Totals	105721	68.159	88.7985
%	12%	38%	50%
mmbf	21.1442		

178.1017

Tahoe Region CROP

Tahoe Region: **Douglas Fir CROP** offering/removal '07 - '11
 (gT = 75,346 / S = 65.009 mmbf / L = 74.287 mmbf)
 (154.366 mmbf)

ROM # DF 1

gT = green tons (up to 7" dbh)
 S = small log mmbf (>7"-12" dbh)
 L = large log mmbf (>12" dbh)

UC COF - 1%
 (gT = 62 / S = .101 / L = 1.764)

***Plumas NF: 3 RDs - 50%**
 (gT = 26,232 / S = 31.412 / L = 40.026)
**A portion of volume may be removed but not available for public offering.*

Mendocino NF: 3 RDs -11%
 (gT = 1,680 / S = 4.754 / L = 12.228)

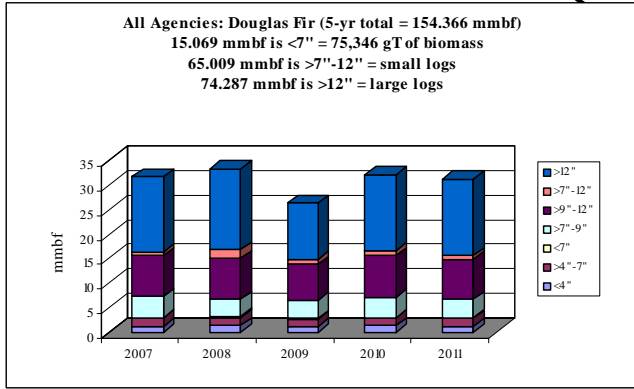
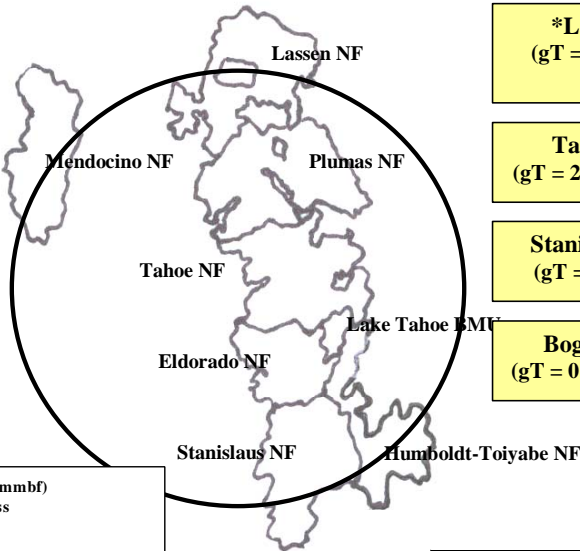
Eldorado NF: 4 RDs -15%
 (gT = 43,200 / S = 11.58 / L = 3.57)

***Lassen NF: RDs - 17%**
 (gT = 0 / S = 14.13 / L = 11.562)
** No data available by RD.*

Tahoe NF: 1 RD - 4%
 (gT = 2,956 / S = 2.42 / L = 2.764)

Stanislaus NF: 2 RDs - <1%
 (gT = 1,215 / S = .488 / L = .57)

Boggs Mtn SF - 1%
 (gT = 0 / S = .123 / L = 1.803)



	mmbf		
	gT Biomass	Small Log	Large Log
2007	15287.18	13.2098514	15.36379635
2008	16197.68	13.54621371	16.40748849
2009	14026.18	11.98974951	11.49922549
2010	15291.18	13.63204951	15.36092549
2011	14543.68	12.63154951	15.65572549
Totals	75345.9	65.00941364	74.28716131
%	10%	42%	48%
mmbf	15.06918		

154.365755



How levelized will the supply be for key species?

Let's take a look . . .

Tahoe Region CROP

		gT Biomass		Small Logs		Large Logs	
		yes	no	yes	no	yes	no
<i>White fir</i>	(32%)		✓	R			✓
<i>PP/Jef P</i>	(17%)		✓	R		R	
<i>WF/RF</i>	(12%)	R		R		R	
<i>Douglas fir</i>	(10%)	R		✓		R	
<i>Ponderosa pine</i>	(6%)	R		R		R	
<i>Incense cedar</i>	(6%)		✓	R		R	
<i>Red fir</i>	(5%)	✓		R		R	
<i>Other conifers</i>	(4%)		✓	R			✓
<i>Sugar pine</i>	(4%)	R		R		R	
<i>Jeffrey pine</i>	(1%)		✓	✓		R	
<i>Lodgepole pine</i>	(1%)	R		✓		R	
<i>Tan oak</i>	(1%)		✓		✓		✓
<i>Black oak</i>	(<1%)	✓		✓		✓	
<i>Pinyon pine</i>	(<1%)	✓		✓		✓	
<i>Giant sequoia</i>	(<1%)	✓			✓		✓
<i>Madrone</i>	(<1%)	✓		✓		✓	
<i>Western Juniper</i>	(<1%)	NA			✓	NA	

Levelized supply for five years?

(R = relatively)

Not a bad picture, overall!

But . . .

Looking at the White Fir (32% of total CROP volume) . . .

- ✓ There will be an unlevel supply of green tonnage biomass that will impact 25% of the total biomass volume over the next 5 years.
- ✓ There will be a level supply of small logs in this specie that will positively impact 34% of the total CROP small log supply, but . . .
- ✓ There will be an unlevel supply of large logs, that will impact over 30% of the total 5-yr volume.

Here's how it looks on an agency-by-agency basis . . .

Levelized annual supply from key suppliers (white fir)? (Total 5-yr volume)

<i>R = relatively</i>		<u>White Fir</u> (487 mmbf; includes gT)		
		yes	no	Comments
<i>Plumas. NF</i>	(63% of 5-yr vol.)			
	Beckwourth		✓	Drop of 10 mmbf between '07 & '08
	Mt. Hough		✓	Annual volume differences range from 4 mmbf to 21 mmbf
	Feather River		✓	Annual volume differences range from 10 mmbf to 28 mmbf
<i>Eldorado NF</i>	(7% of 5-yr vol.)			
	Georgetown	✓		2.1 mmbf/yr
	Placerville	✓		2.1 mmbf/yr
	Pacific	✓		1.4 mmbf/yr
	Amador	✓		1.4 mmbf/yr
<i>Lassen NF</i>	(26% of 5-yr vol.)	✓		25.6 mmbf/yr

Overall . . . *better coordination of resource, particularly in the white fir offering for biomass & large log stratum*s, will likely be preferred to help:

- **Reduce investor risk**
- **Increase purchaser confidence**
- **Achieve fuel load reduction goals**
- **Achieve forest restoration goals**

**Potential additional wood biomass in
Tahoe CROP landscape:**

<i>In CROP landscape</i>	<i># of counties in CROP</i>	<i>Acres in CROP</i>	<i>Estimated biomass prunings/yr (gT)</i>
Vineyards	23	145,032	362,580
Walnuts	20	133,511	100,133
Almonds	16	157,020	unable to obtain
Dried Plums	14	59,047	unable to obtain



What about NEPA?
It's important to know!

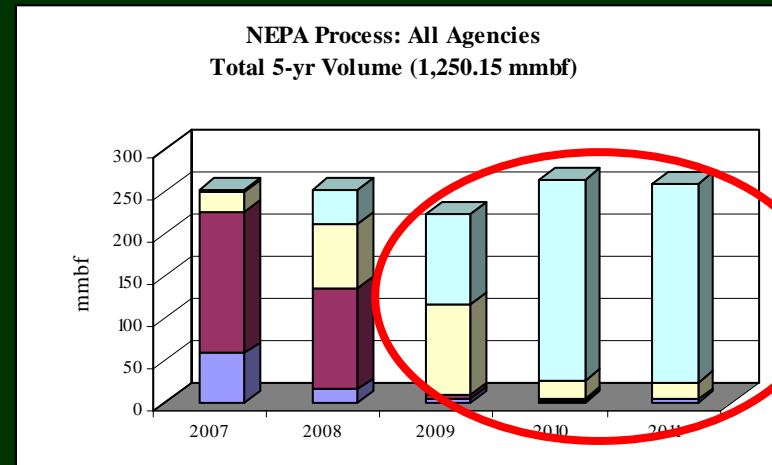
... here's how it looks

NEPA Picture for CROP Landscape

All NF lands:
 81% of 5-yr total = (1,250.15 mmbf; includes gT as mmbf)



	<i>mmbf</i>	<i>% of total</i>
<i>Approved</i>	87.506	7%
<i>In process</i>	293.008	23%
<i>Just started</i>	249.337	20%
<i>Not started</i>	620.299	50%



50% of CROP resource offering not started in the NEPA process! High risk scenario!



. . . but story best told on agency-by-agency basis.

NEPA Risk Rating

1 Lowest	2 Low	3 Medium	4 <i>High</i>	5 <i>Highest</i>
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For low risk rating, 3 key desired attributes:

- ✓ Volume *approved* in first 2 years, followed by *in-process*.
- ✓ Consistency in supply; no dramatic gaps from year to year (eg: *approved/not started/in-process*).
- ✓ Overall – no major emphasis on *just started* or *not started*.



NEPA risk rating summary in Tahoe CROP landscape:

	mmbf affected (includes gT)	% of 5-yr total
lowest	0	0%
low	7.55	1%
medium	50.65	4%
high	474.68	38%
highest	717	57%

*95% in high
risk designation*

NEPA Risk Rating Summary:

Plumas NF	Total 5-yr volume	NEPA Risk Rating
Beckwourth	77.5 mmbf	<i>highest</i>
Mt. Hough	286.2 mmbf	<i>highest</i>
Feather River	211 mmbf	<i>highest</i>

Eldorado NF	Total 5-yr volume	NEPA Risk Rating
Georgetown	59.6 mmbf	<i>high</i>
Placerville	59.6 mmbf	<i>high</i>
Pacific	39.7 mmbf	<i>high</i>
Amador	39.7 mmbf	<i>high</i>

NEPA Risk Rating Summary:

Stanislaus NF	Total 5-yr volume	NEPA Risk Rating
Mi-Wok	51.2 mmbf	<i>highest</i>
Calaveras	90.9 mmbf	<i>highest</i>
Summit	35.34 mmbf	<i>high</i>

Tahoe NF	Total 5-yr volume	NEPA Risk Rating
Yuba River	52.5 mmbf	<i>high</i>
American River	50 mmbf	<i>high</i>
Sierraville	50 mmbf	<i>high</i>
Truckee	5 mmbf	<i>low</i>

NEPA Risk Rating Summary:

Lake Tahoe BMU	Total 5-yr volume	NEPA Risk Rating
Lake Tahoe BMU	87.49 mmbf	<i>high</i>

Mendocino NF	Total 5-yr volume	NEPA Risk Rating
Grindstone	19.4 mmbf	<i>medium</i>
Upper Lake/Covelo	15.5 mmbf	<i>medium</i>

NEPA Risk Rating Summary:

Humboldt-Toiyabe NF	Total 5-yr volume	NEPA Risk Rating
Carson	12.87 mmbf	<i>medium</i>
Bridgeport	2.55 mmbf	<i>low</i>

NV BLM	Total 5-yr volume	NEPA Risk Rating	CA BLM	Total 5-yr volume	NEPA Risk Rating
NV BLM	2.88 mmbf	<i>medium</i>	Eagle Lake	.2 mmbf	<i>highest</i>
			Folsom	,75 mmbf	<i>high</i>

What about road access to supply? Here's who is affected . . .

Agency	5-yr total volume	Affected by No Current Road Access		
	mmbf	mmbf	% of total volume with no road access	Species affected
Plumas NF	574.7	15.0745	3%	Douglas fir, white fir, sugar pine, ponderosa pine/juniper, red fir, incense cedar, lodgepole pine, tan oak
Lake Tahoe BMU	87.49	44.91	51%	other conifers

Conclusions for the Tahoe Region CROP an interesting picture for investors . . .

➤ The NEPA risk for all offerings likely trumps all other analyses factors, with **70%** of the anticipated 5-yr. volume in a **not started** or **just started** NEPA phase. This is quite high compared to almost all other CROP project landscapes across the US, with the NE as the exception.

CROP location	NEPA Phase : % of 5-yr volume <u>not started</u> or <u>just started</u>
Colorado	20%
Northeastern	79%
S. Utah	49%
S. Oregon	34%
New Mexico	30%
Mississippi	25%
S. Carolina – 1	10%
S. Carolina – 2	12%

From a *biomass* (<7") perspective:

- Although work may be needed to levelize the biomass (<7" material) offering off of public forestlands – there appears sufficient annual volume from these suppliers alone to consider development of a small-scale (13 MW) power plant that would require ~160,000 gT of biomass/yr. It is also likely that the amount of biomass offering detailed in this CROP evaluation may be notably underestimated.

From a *biomass* (<7") perspective:

- Annual woody biomass volume derived from prunings from vineyards, orchards, etc. within the Tahoe CROP landscape may substantially help levelize biomass offering from public forestlands. Over 360,000 tons of vineyard prunings and over 100,000 tons of walnut prunings per year are estimated. Prunings from other orchard crops including plums, peaches, nectarines, and almonds could also contribute to the woody biomass offering in the CROP landscape.

From a solid wood perspective:

- With over 130 mmbf/yr. of small logs proposed to be offered in the CROP landscape, the opportunity to consider construction of a dedicated small log processing facility within the region may be timely. Equally important is volume to be offered within the 9"-12" diameter range of the small log stratum where better lumber grade can be realized: 58% of total volume.

- The offering of logs >12" dbh per year will also be welcomed in the region, but a dip in 2009 offering of ~20 mmbf may suggest focusing better on levelizing supply over the five-year period.

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