

Valuing Oregon's Forestland For Taxation

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Oregon Department of Revenue Timber Tax Programs



- Mission “*Administer timber tax laws effectively and efficiently*” for the state of Oregon
- Oregon’s Private Forestland
 - 6.2 million acres in western Oregon
 - 2.1 million acres in eastern Oregon

Forestland and Timber Tax Programs Administered BY DOR in Oregon

- **Forestland Program**
 - **Property Tax on 100% of assessed land value**
 - **Market Value with Measure 50 Limitations**
- **Small Tract Forestland Program**
 - Property Tax on 20% of assessed land value
 - Severance tax on harvested timber
 - \$4.00/MBF Western Oregon \$3.12/MBF Eastern Oregon (2005 Rate)
- **Forest Products Harvest Tax**
 - \$2.61/MBF Excise Tax (2006 Rate)

How did We Get Here?

◆ History of Forestland and Timber Taxation

Taxation of Oregon forestland and timber began in 1856, pre-dating statehood and has been controversial and evolving ever since. Major changes have been made in 1929, 1955, 1961, 1977, 1981, 1991, 1999, and 2003. For simplicity, these changes can be grouped together in to three primary periods:

1. Both forestland and standing timber were subject to annual property taxes

- a. 1856 to 1961 (East side)
- b. 1856 to 1977 (West side)
- c. Exceptions; Forest Fee & Yield Tax, adopted in 1929, and the Western Oregon Small Tract Option, adopted in 1961.

How did We Get Here?

◆ History of Forestland and Timber Taxation

2. Timber Severance Tax

- a. 1961 to 1993 (East side)
- b. 1977 to 1993 (West side)
- c. Timber was removed from the annual property tax rolls. As a substitute, the severance tax was initiated to capture the loss in property taxes (5% for Eastern Oregon and 6.5% for Western Oregon).

How did We Get Here?

◆ History of Forestland and Timber Taxation

3. Timber Exempt From Taxation, 100% Land Tax with STF Option

- a. Ballot Measure 5 (November, 1990) set tax rate limit of 1.5%
- b. HB 2438 (1993), exempted timber and established 20/80 land tax
- c. Ballot Measure 50 (1997) set value limit of 3% per year increase
- d. **HB 3575 (1999), phased in a “large owners” program (over 5,000 acres) to 100 percent land tax with no tax at harvest. 20/80 land tax (small owners) and WOSTOT was set to sunset.**
- e. HB 2197 (2003) created alternative “small tract forestland” (STF) option for owners between 10 and 4,999 acres.

How did We Get Here?

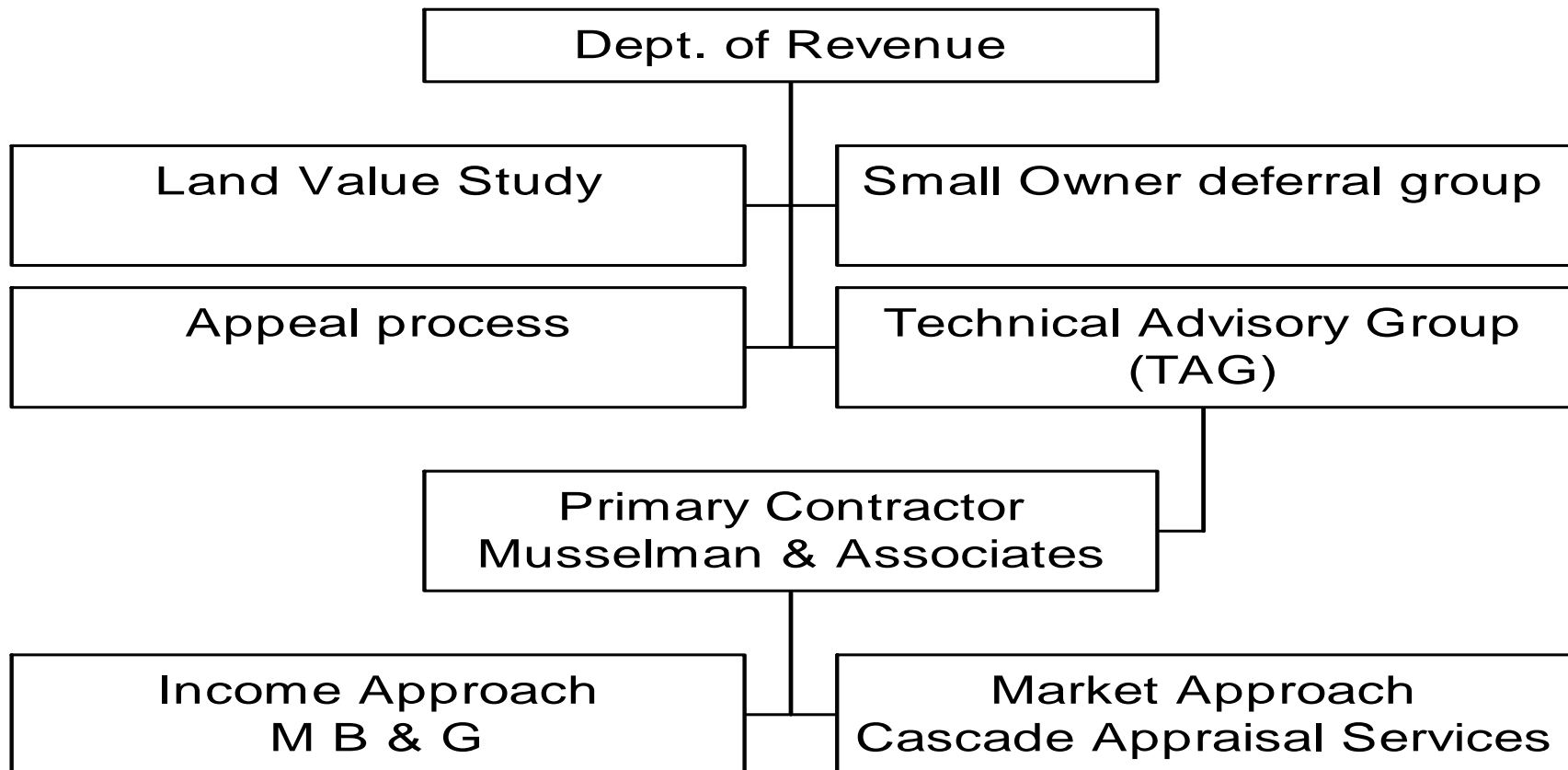
◆ Valuation of Forestland

Target is to develop the value of “Highest & Best Use” Forestland

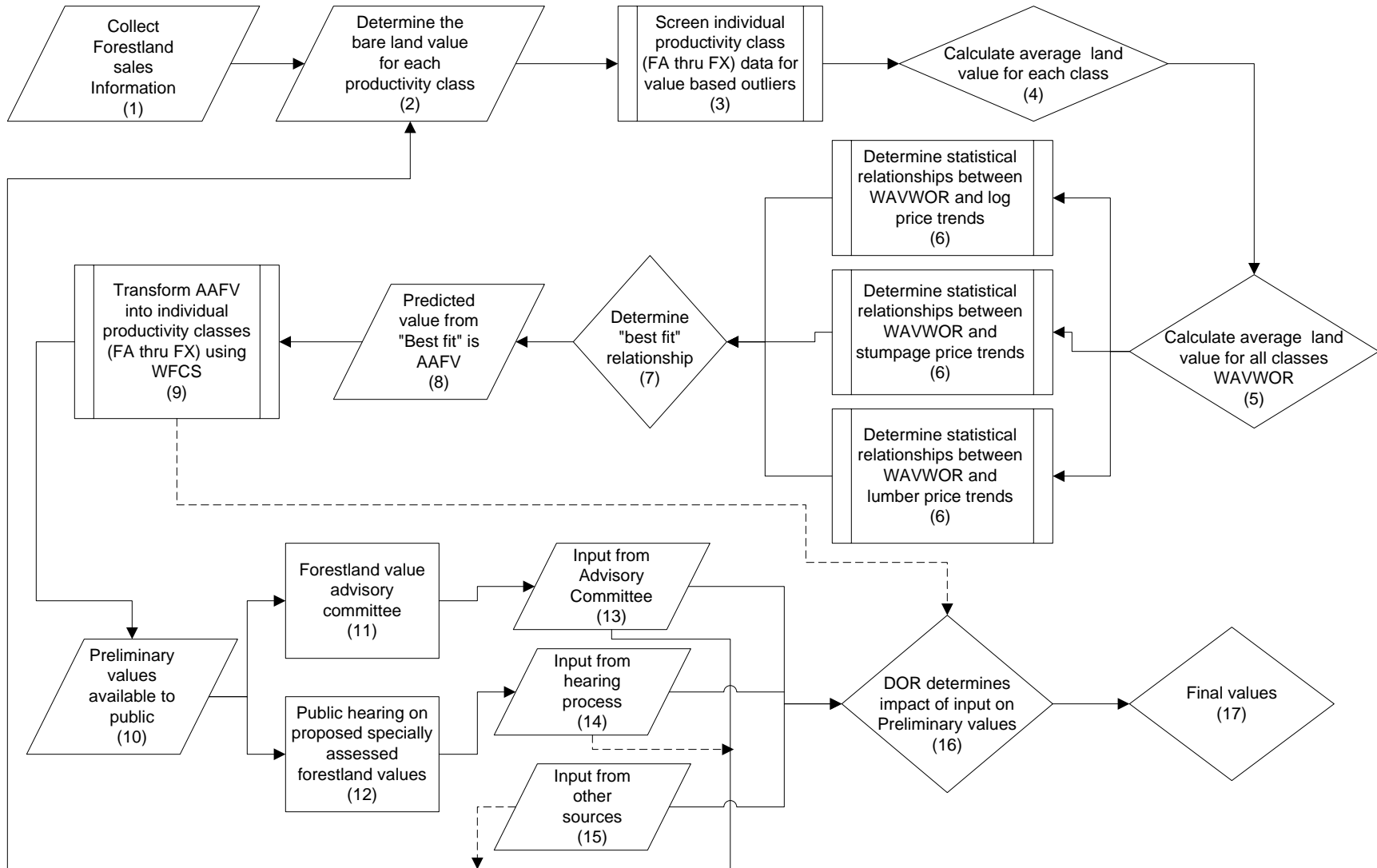
The values used for western Oregon is dependant on a measure of the land’s ability to grow timber -- productivity class

Developing the Current Valuation Process

HB 3575 Working Groups



Western Oregon Forestland Valuation Process



Valuation Process

- Identify Sales Of Highest & Best Use Forestland
- Collect Sales Data and Verify That Sales Do Not Contain Atypical Circumstances Or Cloud The True Price Paid.
- Use Sound Appraisal And Statistical Methods To Determine The Bare Land Value By DOR Productivity Class.

Valuation Process (cont)

- Modeling Approach Using Statistical Analysis To Develop Models For Forecasting Forestland Values For The Coming Year Using Industry Indicators.
- Discounted Cash Flow Analysis To Value Each Class Of Forestland.

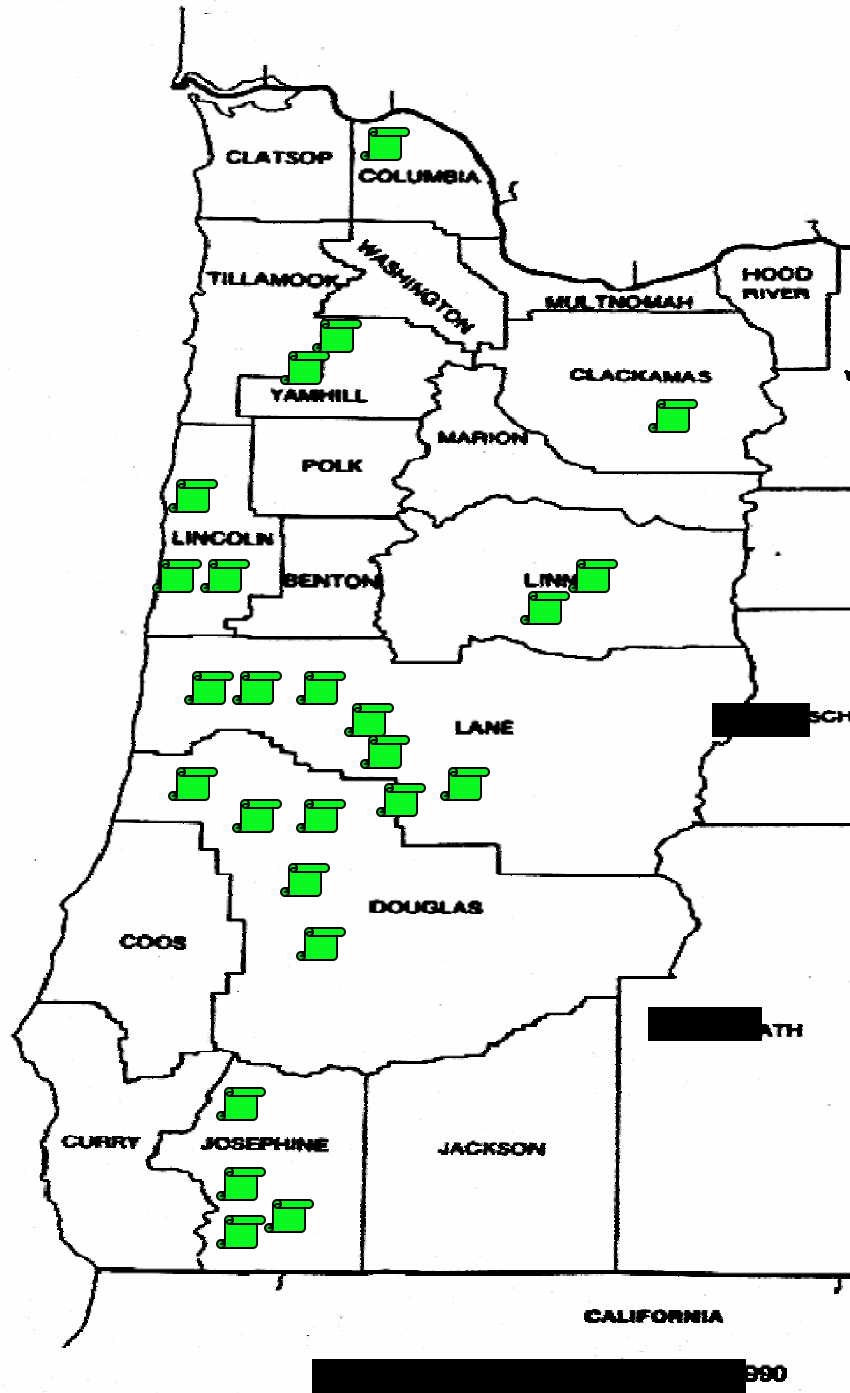
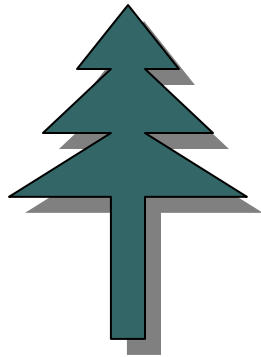
Other Comments On the Appraisal Process

- Appraisers Have Never Met a Ratio They Didn't Like
 - Ratio adjustments made to reduce variation and improve predictability
- Appraisal is An Informed “Opinion” of Value
 - Buyers value bare forestland many different ways
- Valuation For Tax Purposes Is Not a Closed Process
 - Subject to stakeholder input

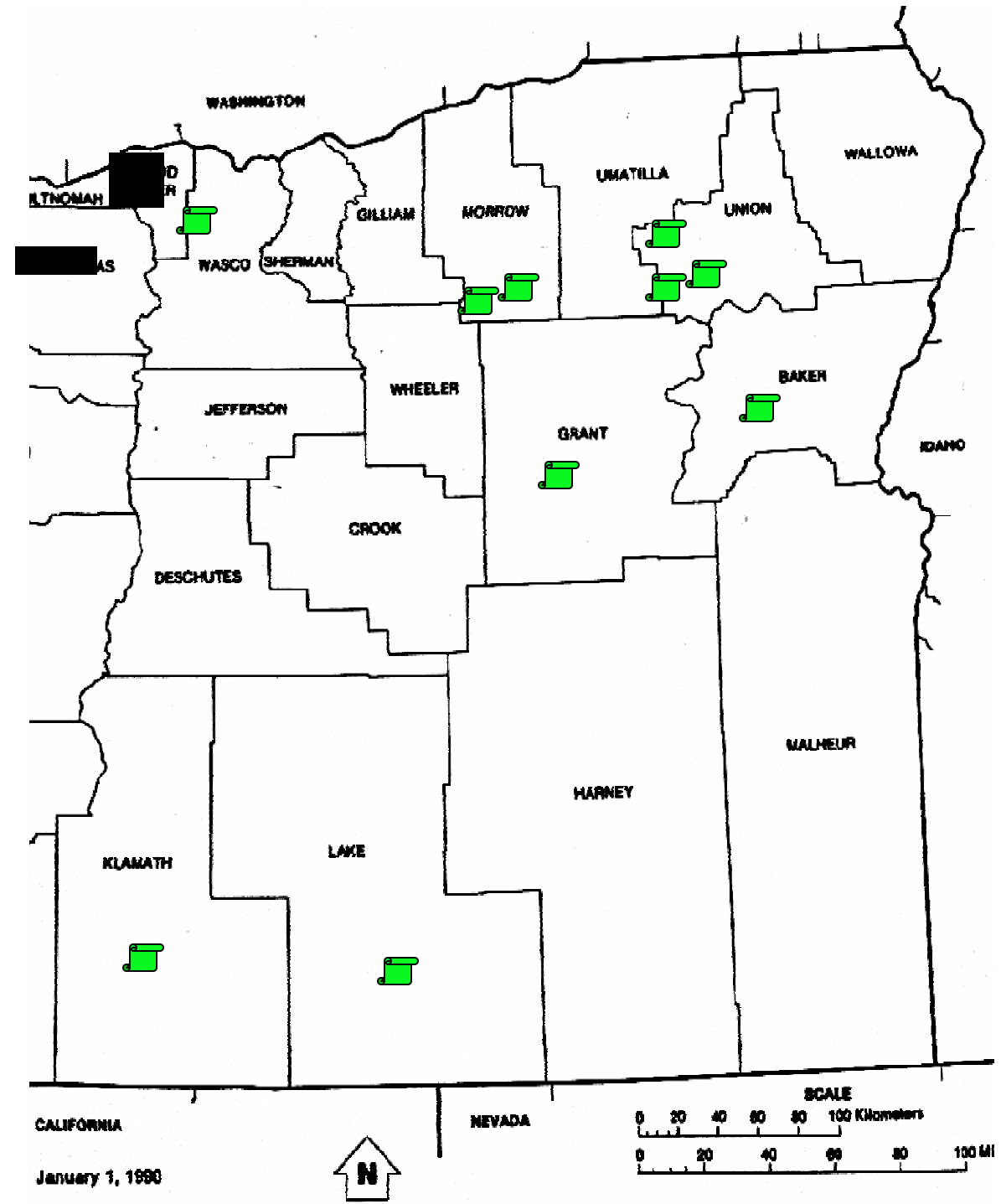
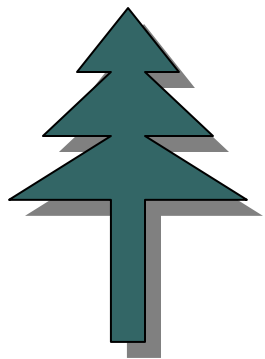
Summary of 2005 Fiscal Year Forestland Valuation Study

- Data Collection And Valuation Done On A Fiscal Year Basis
 - July 1, 2004 to June 30, 2005
- Average Forestland Sale Size In Data Base
 - 500 acres western Oregon
 - 700 acres eastern Oregon

WESTERN OREGON SALES



EASTERN OREGON SALES



2005 Market Study Results

Landowner Type

- **Western Oregon**

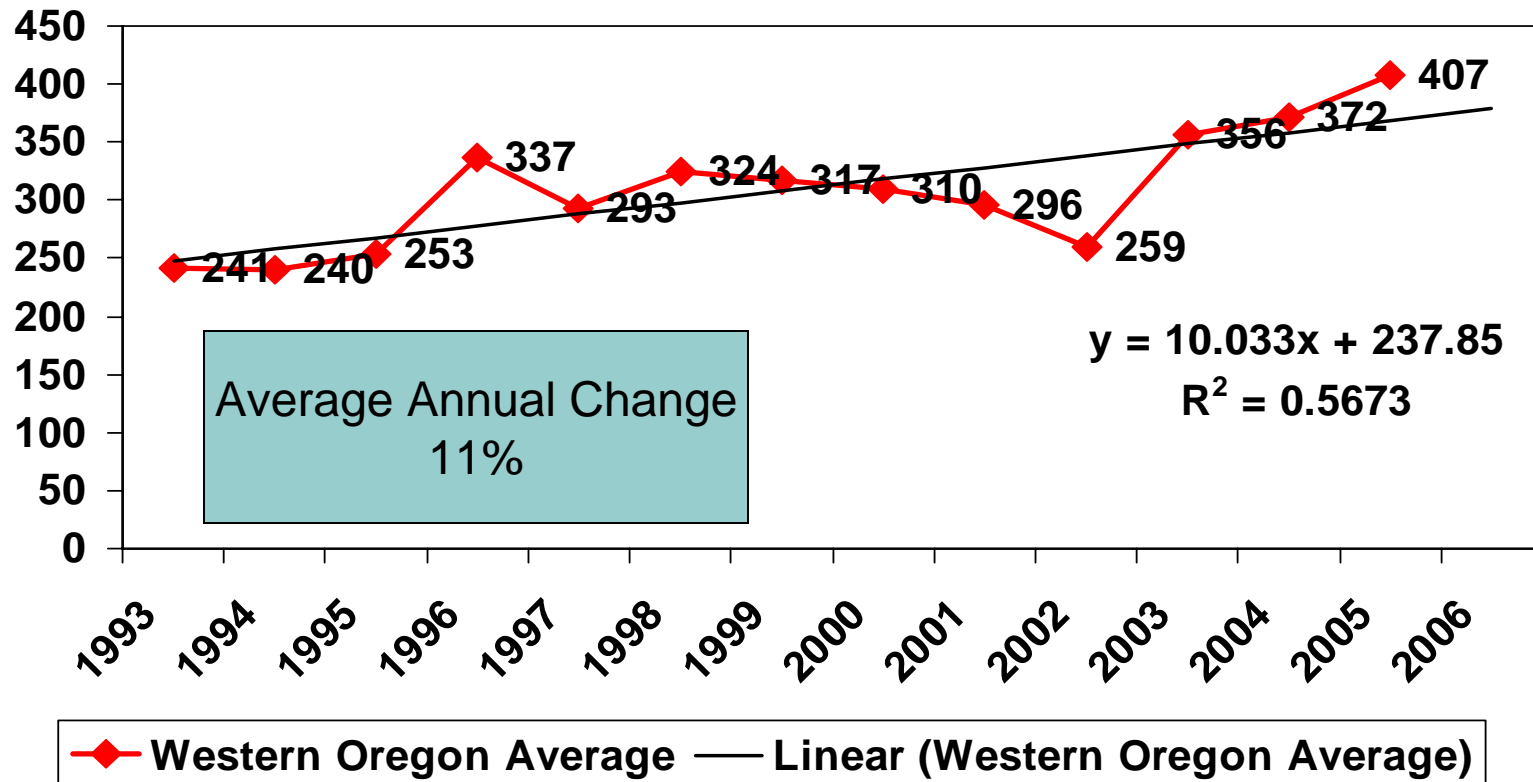
- Small 12 sales
- Large 13 sales
- Total 25 sales

- **Eastern Oregon**

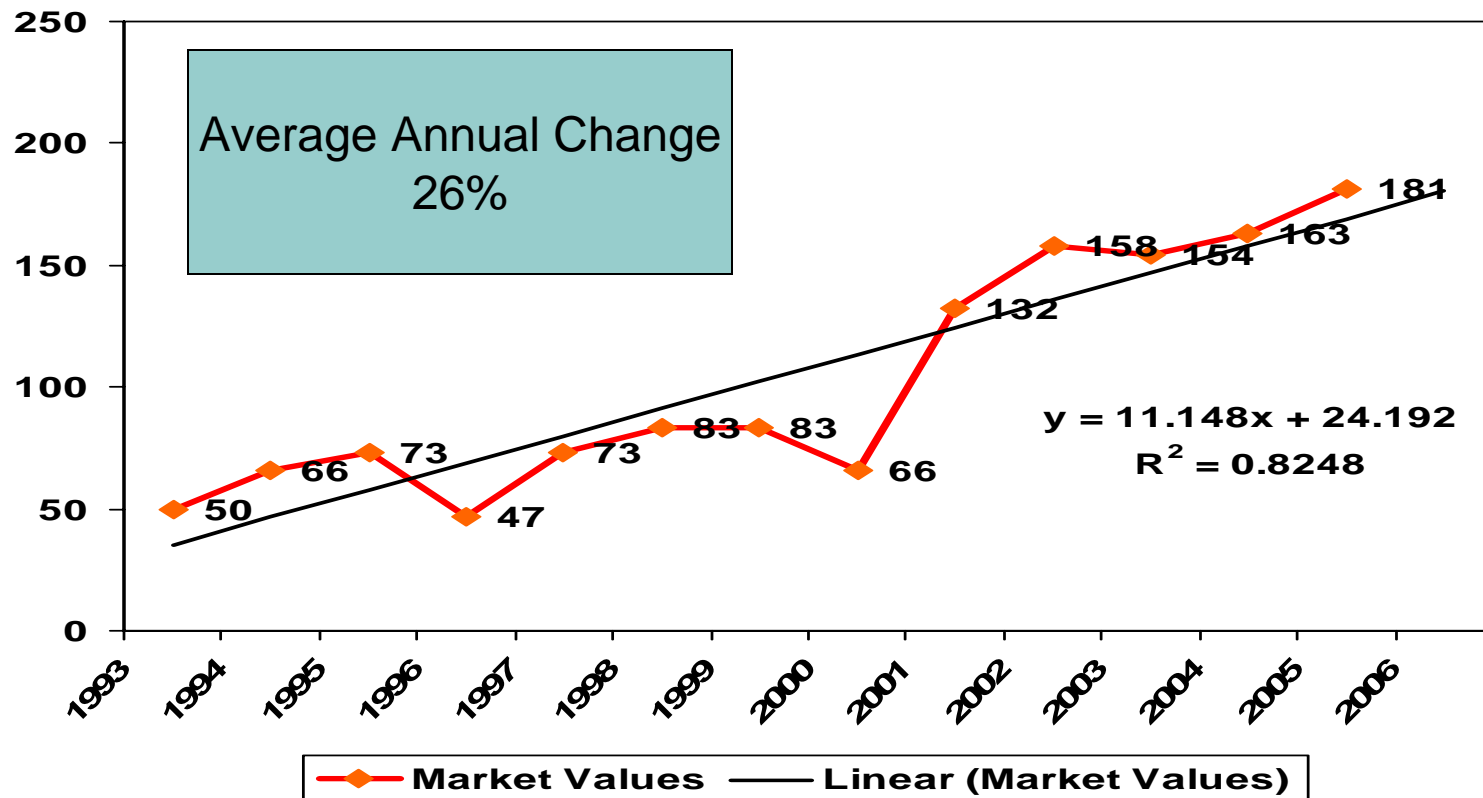
- Small 8 sales
- Large 2 sales
- Total 10 sales

Small = 10 to 5000 Acres
Large=>5000 acres

Western Oregon Bare Forestland Values



Eastern Oregon Bare Forestland Values



Oregon Forestland Values for July 1, 2005 – June 30, 2006

Site Index	DOR Productivity Class	Forestland Value SAV	Assessed Value MSAV	% of all Private Forestland
I+	FA	\$583.00	\$477.40	3.2%
I				
I-				
II+	FB	\$462.00	\$378.74	20.3%
II				
II-	FC	\$388.00	\$317.20	30.2%
III+				
III	FD	\$330.00	\$269.46	17.1%
III-	FE	\$219.00	\$179.29	15.1%
IV+				
IV	FF	\$158.00	\$129.42	10.1%
IV-				
V+	FG	\$67.00	\$24.10	3.5%
V				
V-				
Non-productive	FX	\$6.74	\$6.36	0.5%

Western Oregon Forestland Sales Numbers

Year	Total Forestland Sales	Sales W/ Collected Data	Sales Verified W/ Buyer	Sales Used In Study
2003	1171	192	165	22
2004	1790	235	193	28
2005	1590	164	128	25
Percent	100%	18%	10%	3%

Eastern Oregon Forestland Sales Numbers

Year	Total Forestland Sales	Sales Collected Data	Sales Verified w/ Buyer	Sales Used In Study
2003	80	47	46	11
2004	128	76	65	8
2005	141	46	44	10
Percent		39%	37%	8%

Response of Oregon Forestland Buyers to DOR Sale Verification

Year	Total Sales Needing Verification	Sales Unverified With Buyer	Percentage With No Response
2003	211	43	20%
2004	258	103	40%
2005	172	66	38%

Oregon's Forestland Valuation System

- Voluntary Reporting Program
 - Only as good as the information DOR receives
- All Information Provided to DOR is Confidential (ORS 321.682)
- Mass Appraisal System
 - Averaged values applied across forestland classes

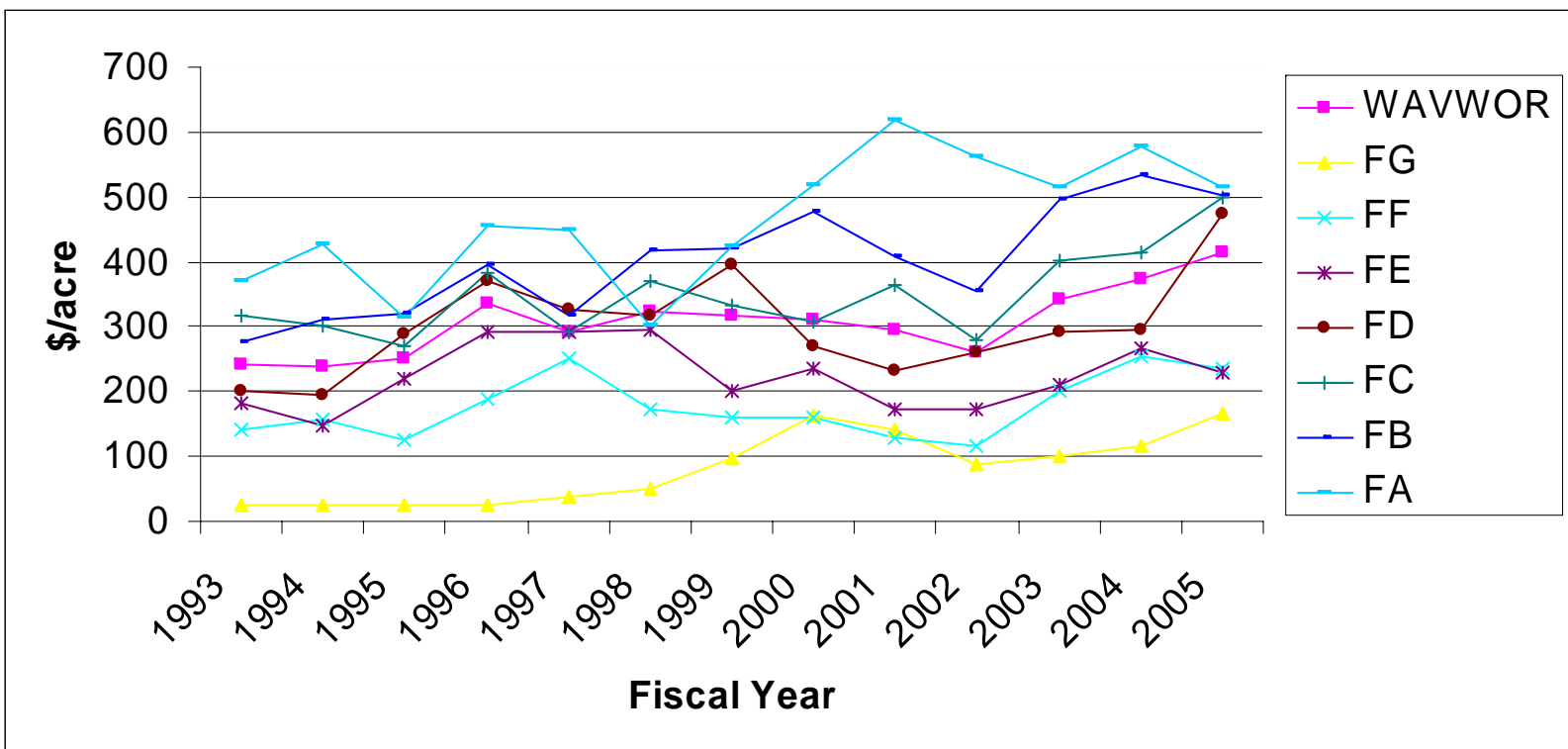
Valuation of Western Oregon Forestland By Site Class

- DOR F Class System
 - Developed in the late 1960's and early 1970's
 - Inventory of all private forestland in western Oregon and assigned a site index to each 40 acres
- Applied To All Private Forestland In WO
 - Designated and H&BU Forestland
 - 6.2 million acres

**West Side Douglas-fir Site Index Summary
Comparing Various Measures of Productivity**

Forest Site Class	King¹ 50 Yr Yr Site Index	McArdle & Meyer² 100 Yr Site Index	Oregon DOR³ Land Class	USDA Productivity Class
I+	150+	206+	FA	1
I	142–149	196–205	FA	(225+ cu. ft.)
I-	136–141	186–195	FA	
II+	130–135	176–185	FB	2
II	122–129	166–175	FB	(224-164 cu. ft.)
II-	116–121	156–165	FC	
III+	110–115	146–155	FC	3
III	102–109	136–145	FD	(163-120 cu. ft.)
III-	96–101	126–135	FE	
IV+	90–95	116–125	FE	4
IV	82–89	106–115	FF	(119-85 cu. ft.)
IV-	76–81	96–105	FF	
V+	70–75	86–95	FG	5
V	56–69	76–85	FG	(84-50 cu. ft.)
V-	50–55	66–75	FG	
NC	<50	<50	FX	6 & 7 (<50 cu. ft.)

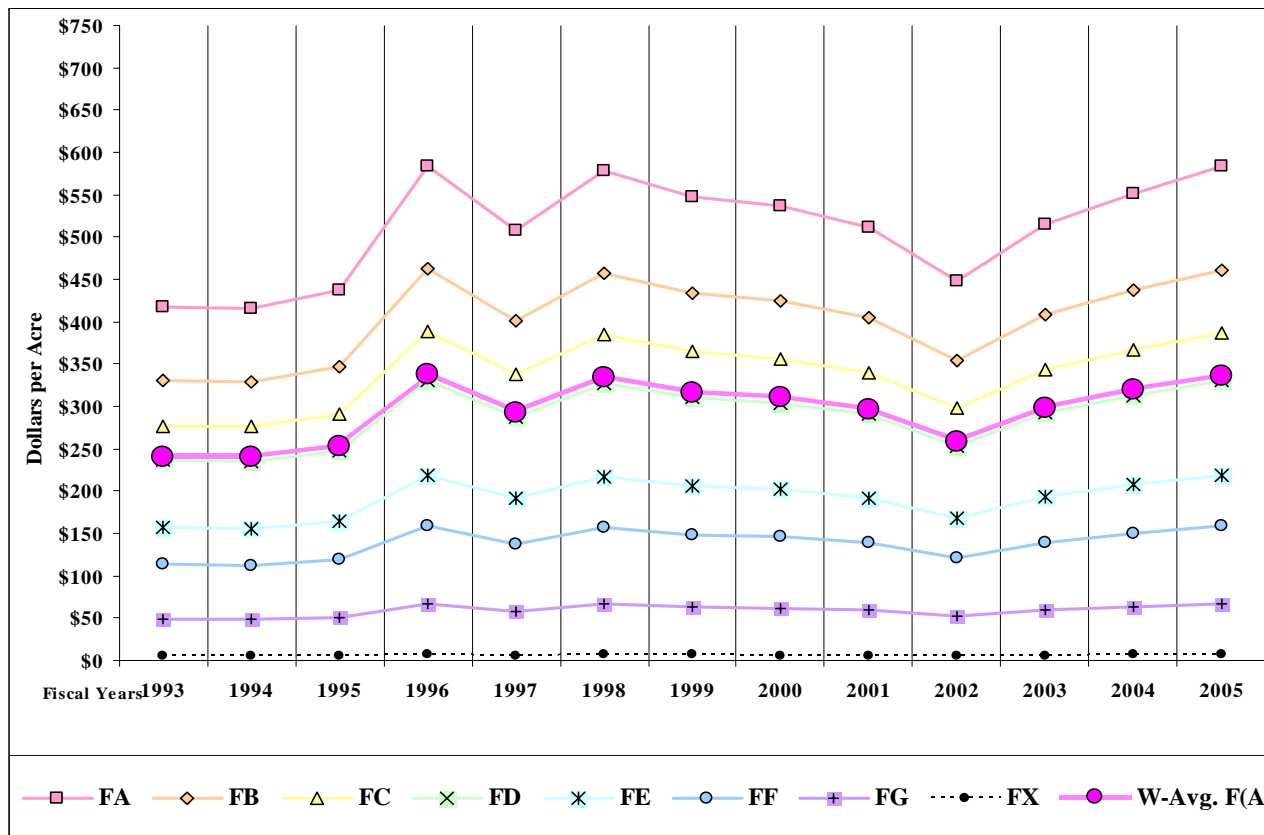
Western Oregon Forestland Class Market Values



Factors Used To Expand From The Average Western Oregon Value to The Site Class Values

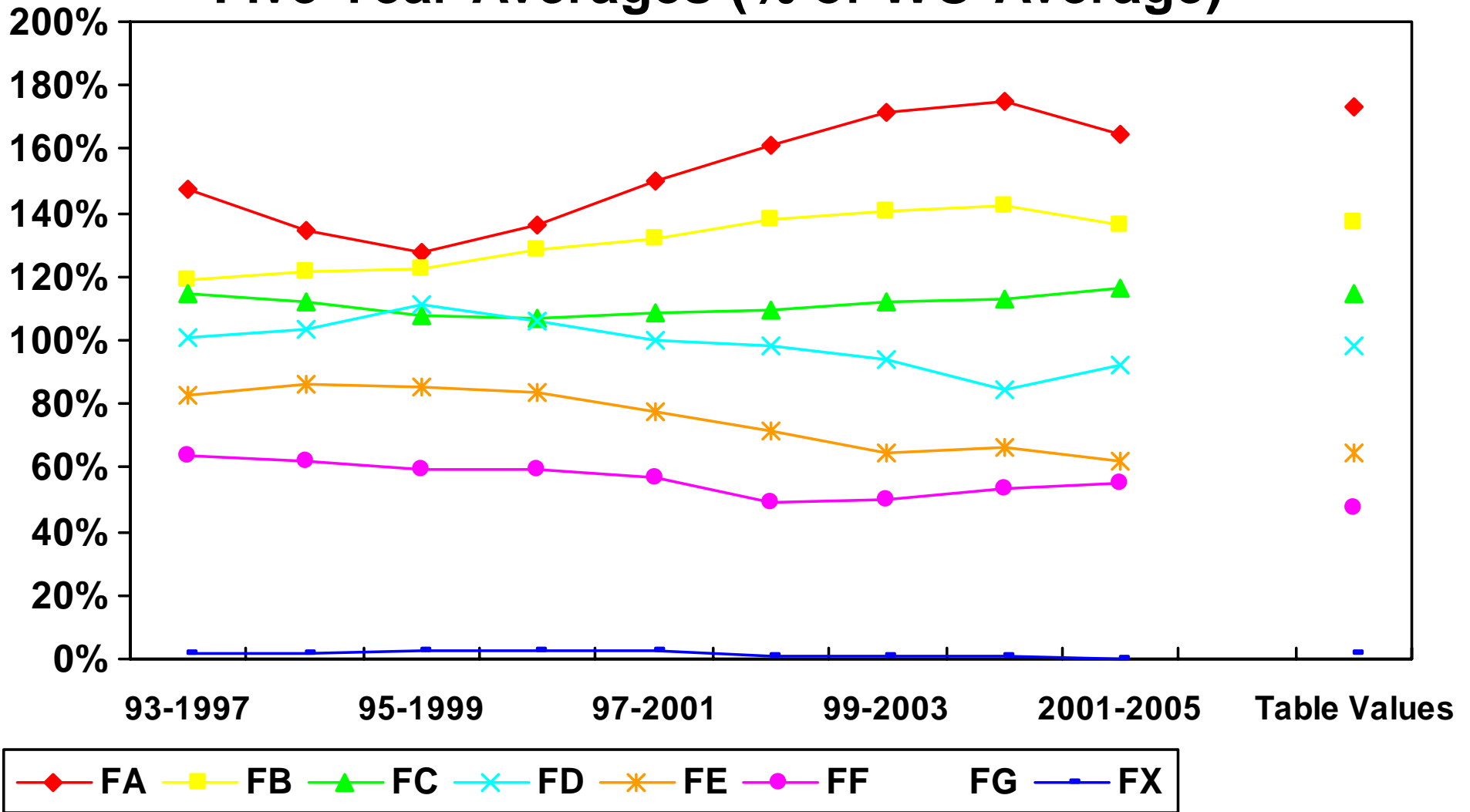
DOR Forestland Class	Expansion Factor (% of average)
FA	173%
FB	137%
FC	115%
FD	98%
FE	65%
FF	47%
FG	20%

Western Oregon Forestland Class Valuation



Review of F Class Spread

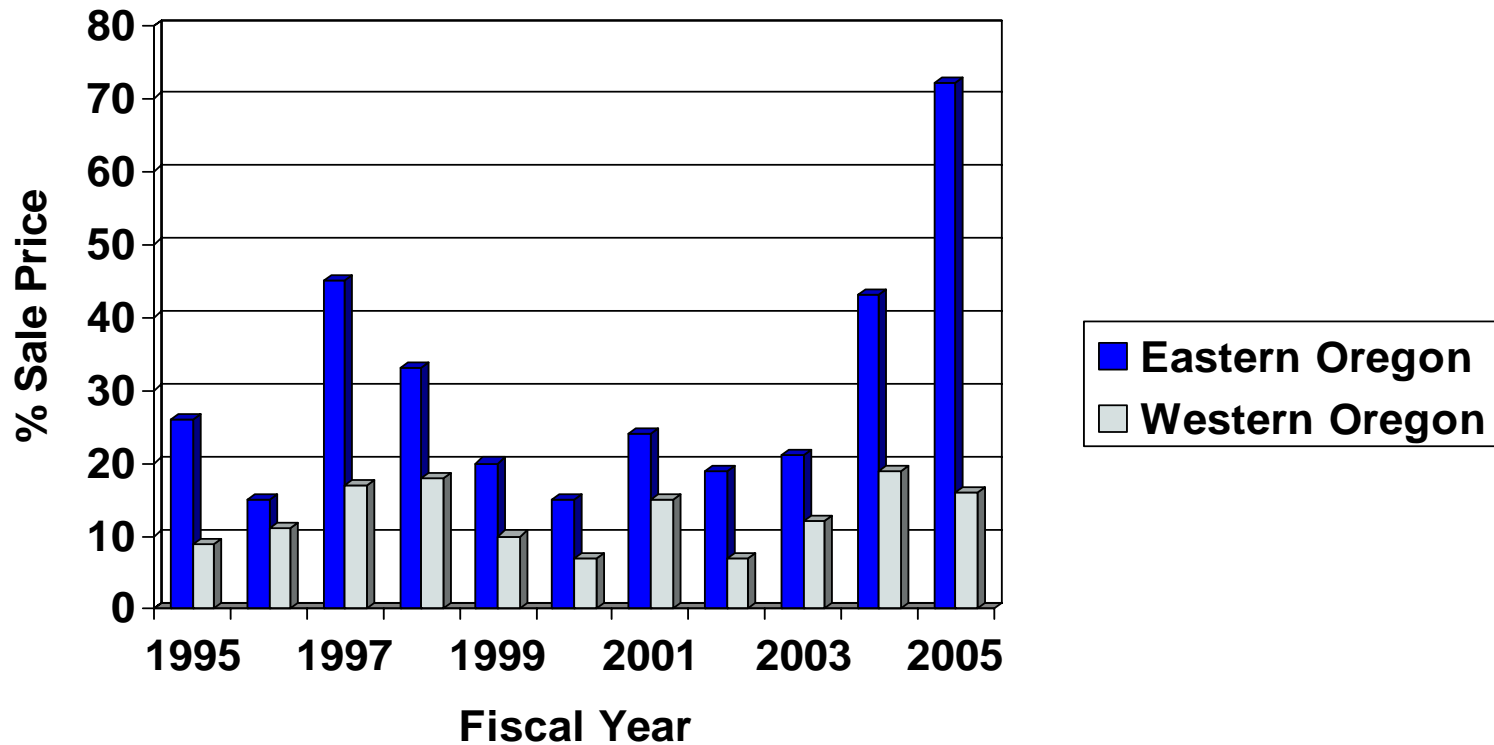
Five Year Averages (% of WO Average)



Land Value as Percentage of Total Sale Price

	Year	2004	2005
● Western Oregon		19%	16%
● Eastern Oregon		43%	72%

Percent of Sale Price Allocated To Bare Land Value



Modeling Approach for Forestland Values

- **Why?**

- Sales data for only a part of the FY can be collected

- **How?**

- Regression analysis using 30 different indicators and lags up to four years
- Test all combinations of indicators using stepwise and best subsets procedures to find maximum r-squared
- Analyze models for goodness of fit, statistical significance, residual distribution and economic relevance

- **Where?**

- Models done for Western Oregon average forestland values and Eastern Oregon forestland values

Western Oregon Model

- **Model:**

- **WAVWOR = 767**
 - + 0.328* LL Composite Log Price**
 - 8.81 * PPI Logging Costs**
 - + 1013.2 * Western Housing Starts**

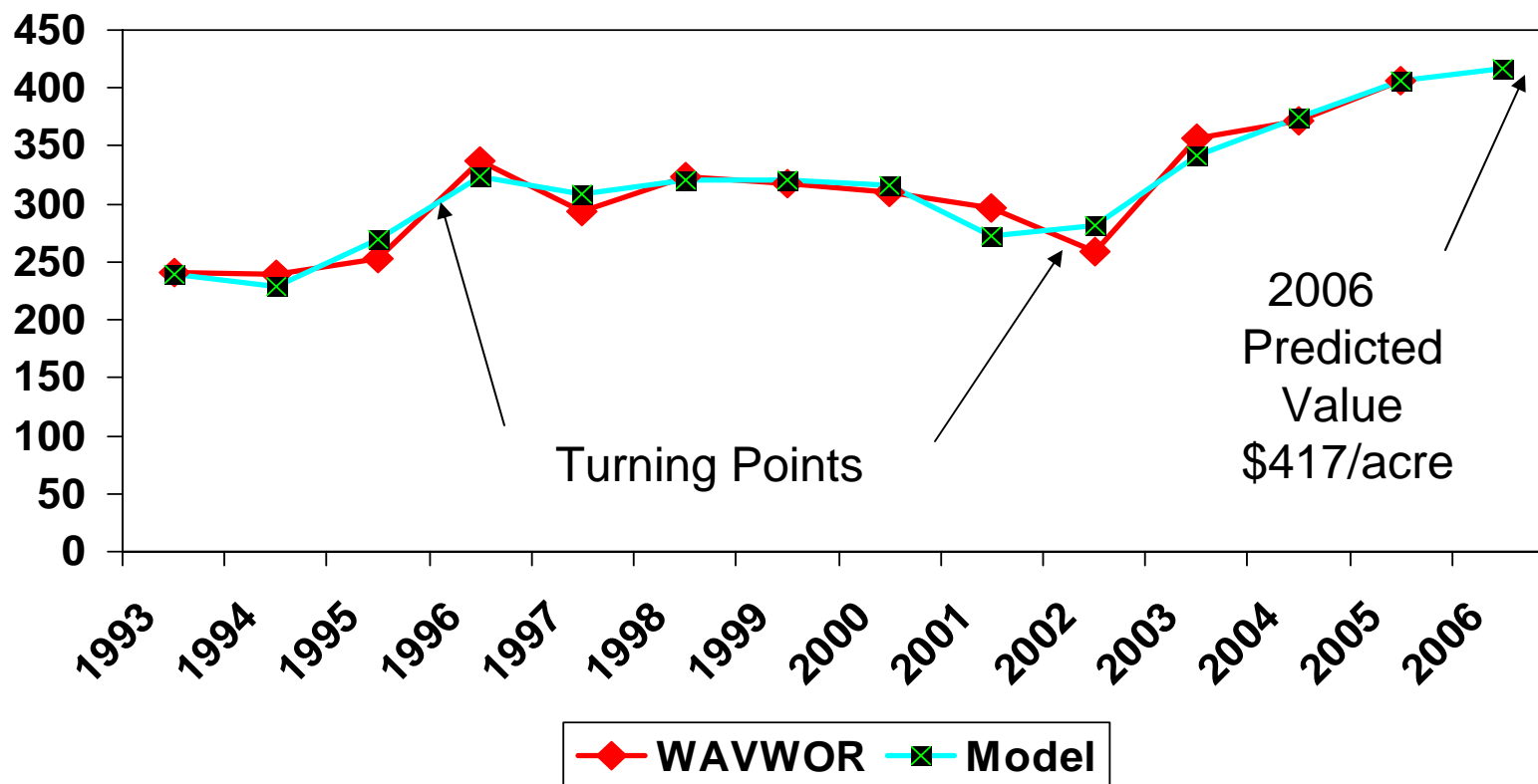
-2006 Weighted Average Western Oregon = \$417/acre

-R-squared = 93.4%

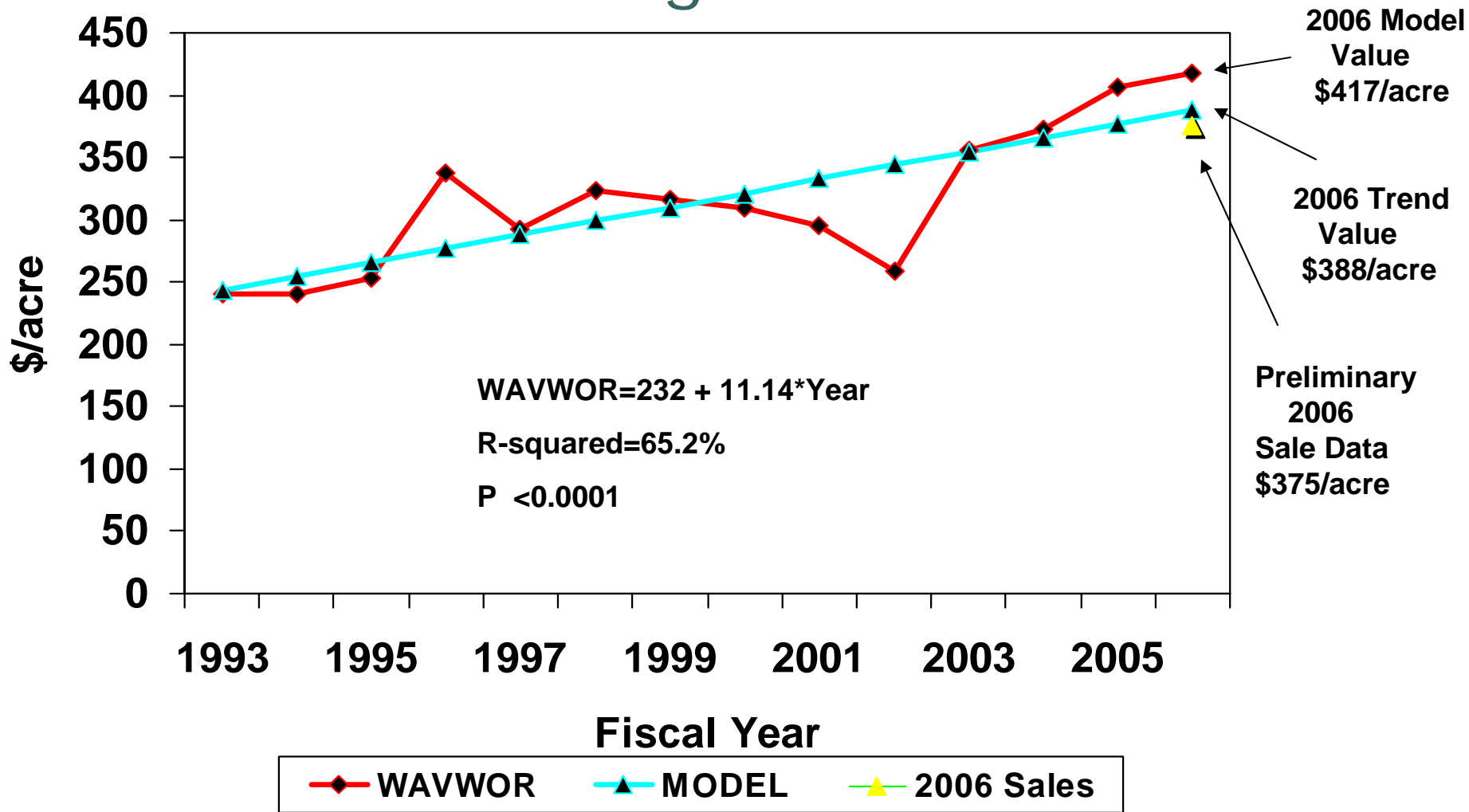
-All predictors are significant $p < 0.0001$

-95% Prediction limits +/- 11%

Western Oregon Model



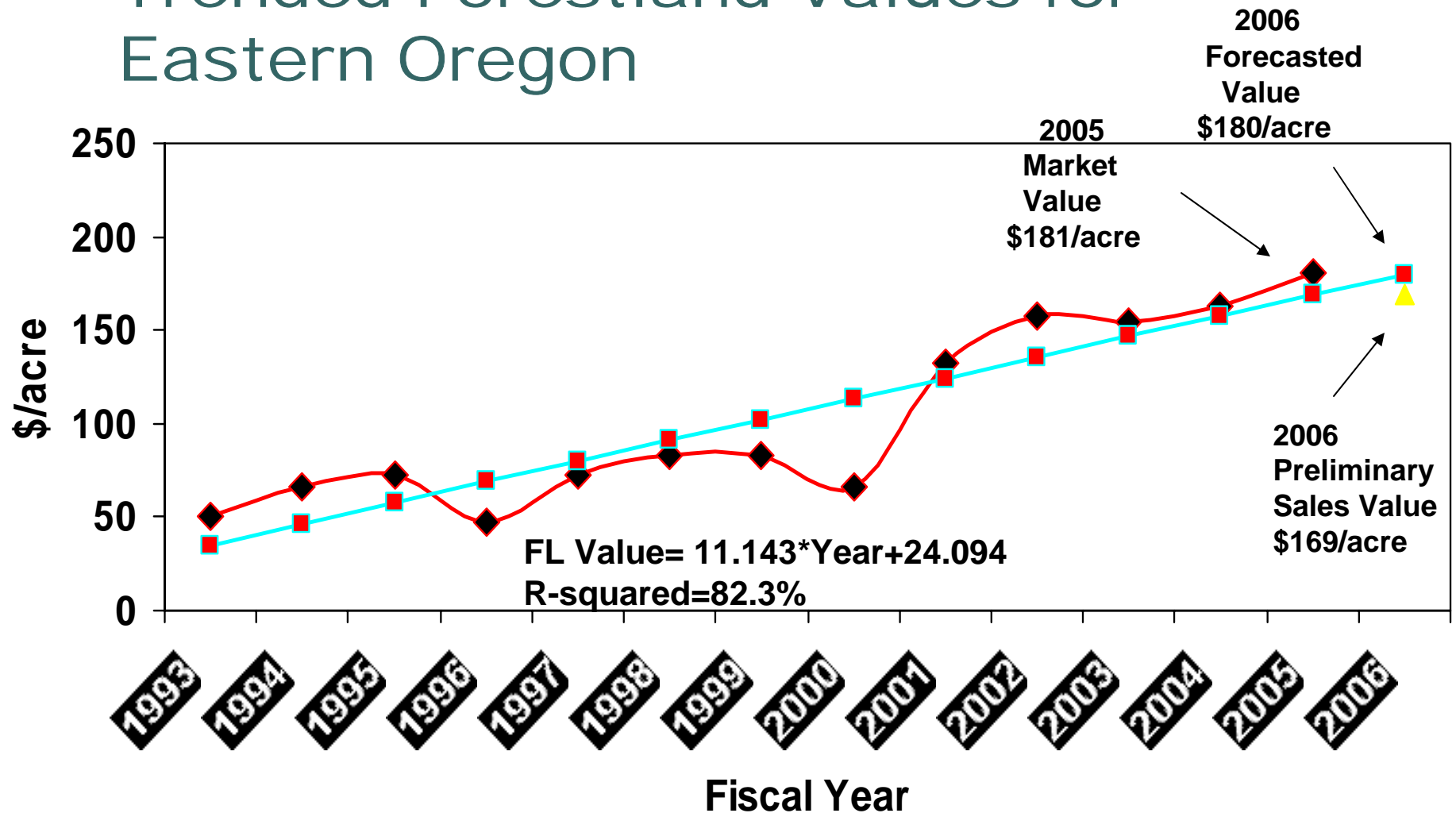
Weighted Average Forestland Values for Western Oregon



Eastern Oregon Models

- Poor Correlation With Most Of The Primary Forest Industry Indicators
- Negative Correlation With Pine And Douglas Fir Log and Lumber Prices
- Best Model Showed Negative Correlation With Natural Resource Employment And Ponderosa Pine Lumber Price

Trended Forestland Values for Eastern Oregon



◆ Market Average
 ■ Trend Line
 ▲ Prelim. Market

Eastern Oregon Forestland Values

- Is There Highest and Best Use Forestland In Eastern Oregon?
 - Negative soil expectation value
- Current Market Value For Bare Eastern Oregon Forestland is \$181/acre but...
- Are There Other Values Imbedded in The Land Allocation?

Eastern Oregon Forestland Valuation

- DOR Adjusts the Current Market Value to Better Reflect Highest and Best Use Forestland
 - Citizens advisory committee solution
- \$87/acre in 2005 to \$93/acre in 2006
 - Use the market rate of increase and apply to the land values set in 2003

Alternative Methods of Valuing Eastern Oregon Forestland

- Tie Eastern Oregon Values to Lower Site Class Western Oregon Values
 - Poor correlation between eastern Oregon and southwest Oregon values (FF and FG classes)
- Model Eastern Oregon Values Using Time And Size Of Sale As Predictive Variables
 - Significant predictors but few large acreage sales in data base

Eastern Oregon Forestland Valuation Model Using Time & Size of Sale as Predictor Variables

Fiscal Year	40 Acre Sale	160 Acre Sale	5120 Acre Sale
2002	\$123/acre	\$122/acre	\$76/acre
2003	\$129/acre	\$128/acre	\$83/acre
2004	\$136/acre	\$135/acre	\$89/acre
2005	\$143/acre	\$141/acre	\$96/acre

Thank you

More Information on Oregon's Forestland and
Timber Tax Programs can be found at:

http://egov.oregon.gov/DOR/TIMBER/forest_values.shtml