

Nonfederal Forest Dynamics: Forest Structure and Timber Harvest

K. Norman Johnson





April 20, 2005

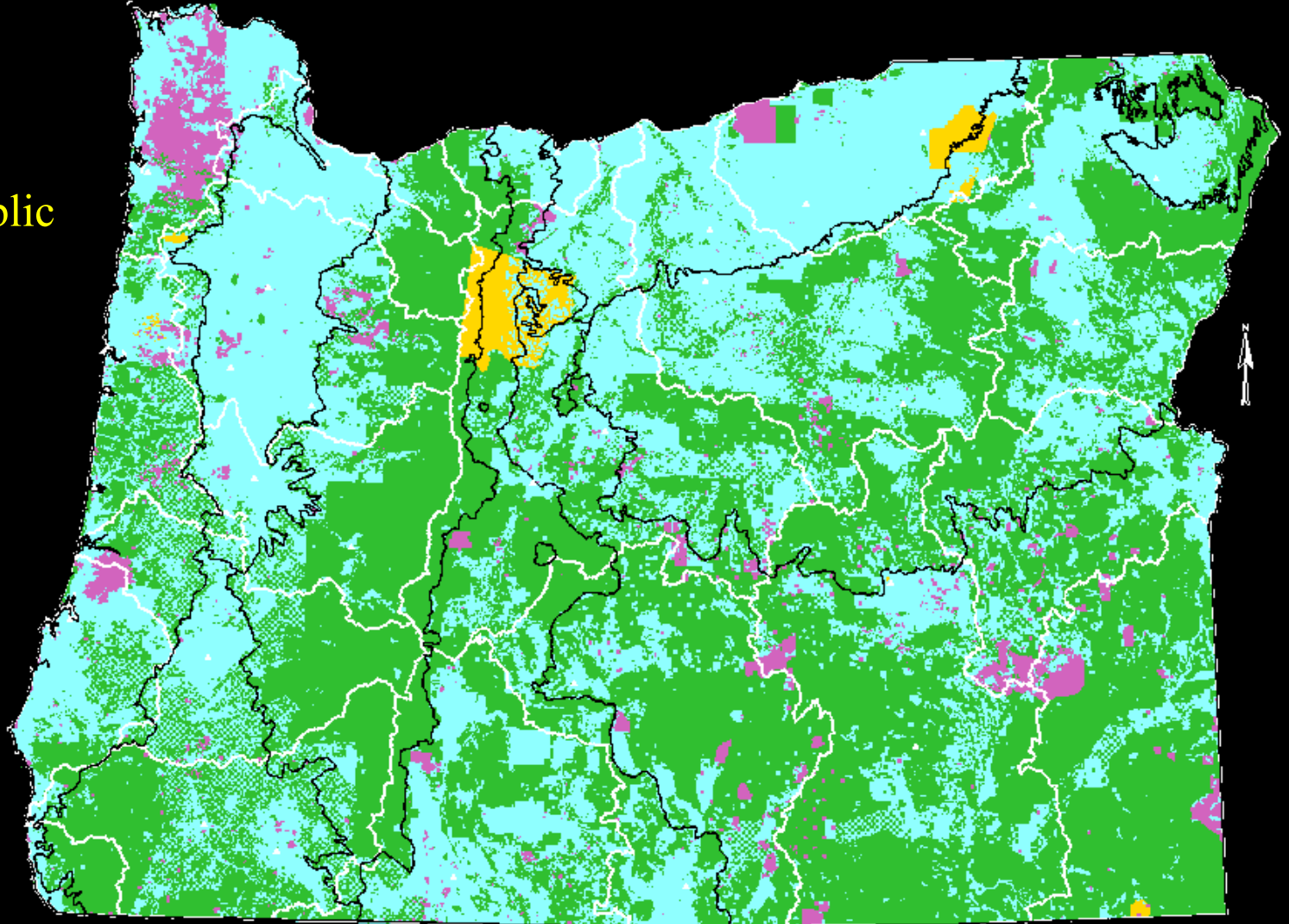
Components

(human drivers of landscape change)

- Effects of development on forest available for management
- Public policy framework (legal requirements and policies that direct/constrain mgt.)
- Likely behavior of managers within public policy framework

Land Ownership

-  Federal
-  Indian
-  State & Other Public
-  Private



0 10 20 30 40 50 60



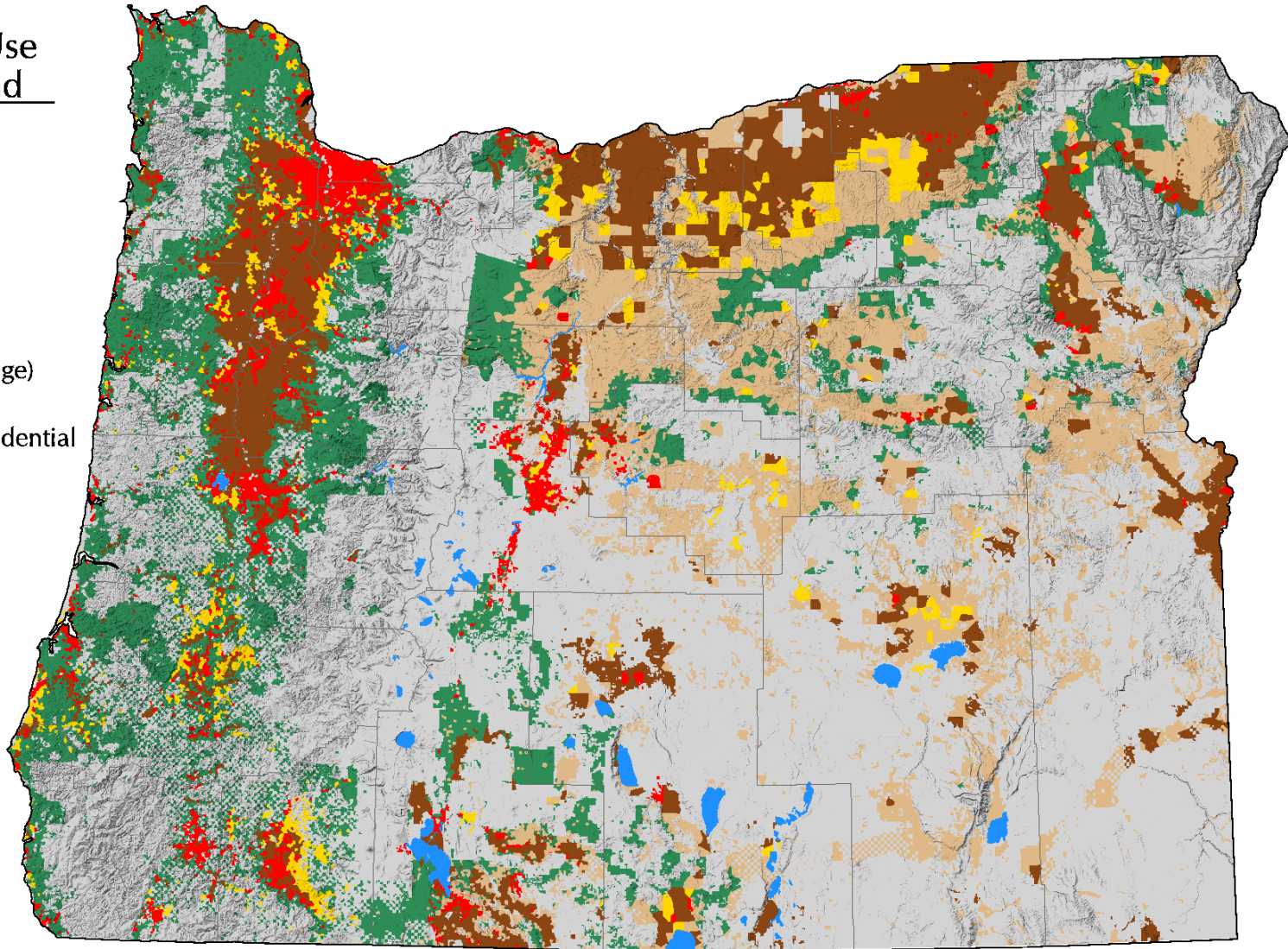
Miles

Development





General Land Use On Private Land

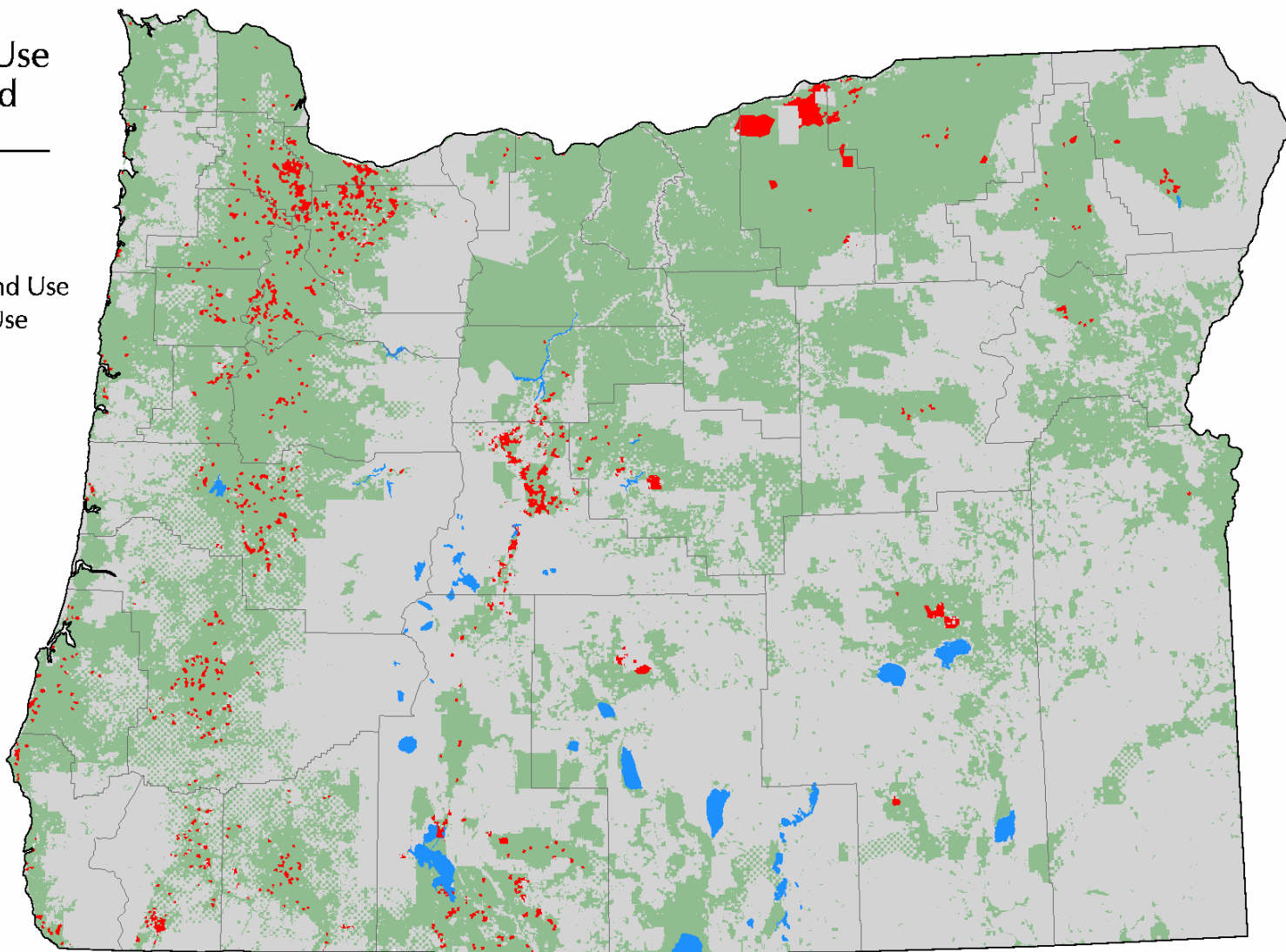
- Forest
- Range
- Mixed
(Forest, Ag, Range)
- Agriculture
- Low Density Residential
and Urban

- Public Land
Forest Service
BLM
State
- Water



Change in Land Use On Private Land 1974 - 2000

-  No Change in Land Use
-  Change in Land Use
-  Public Land
-  Water



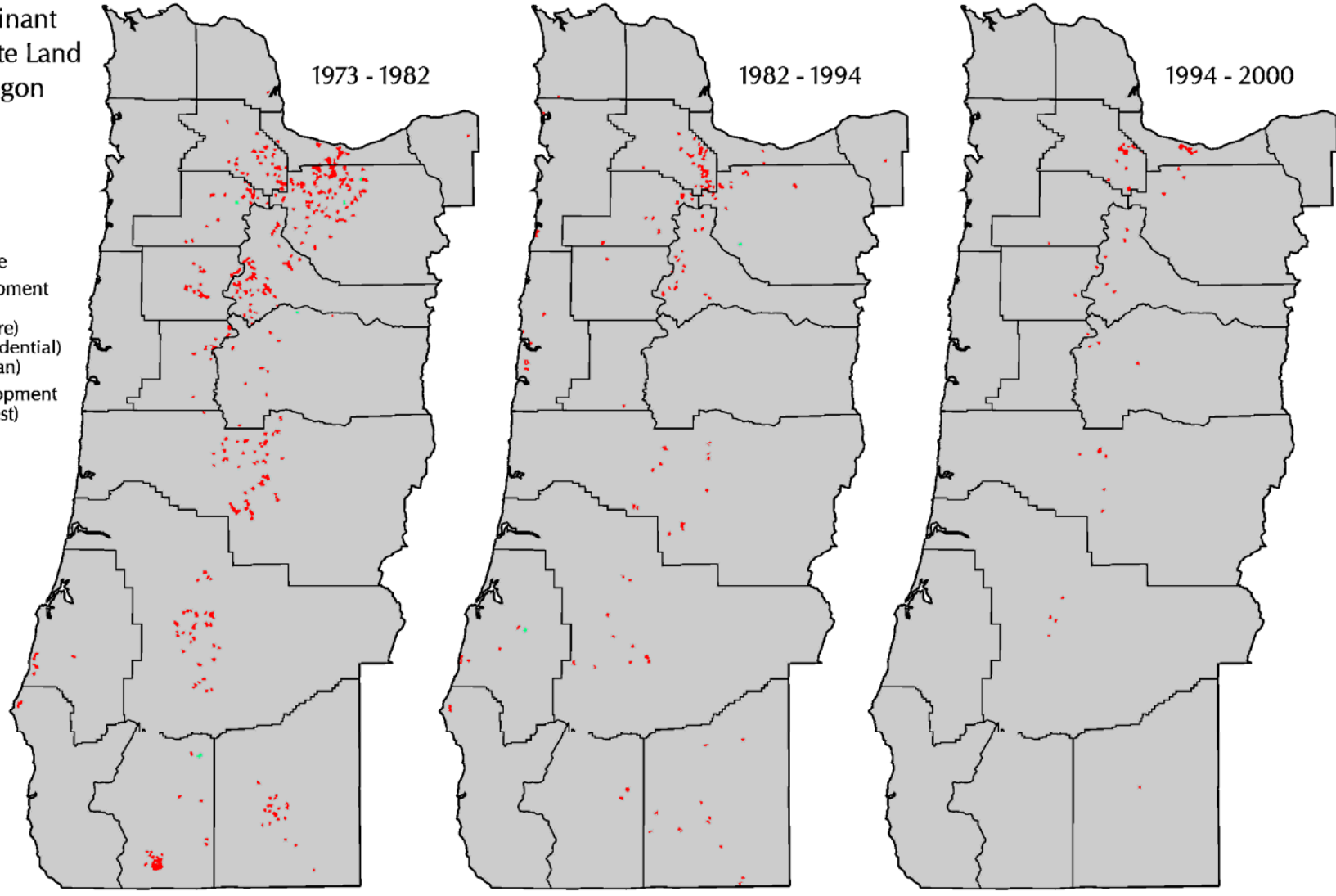
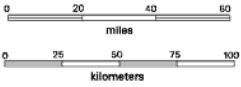
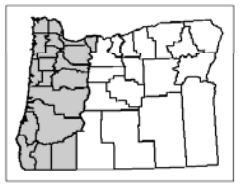
Change in Dominant Land Use on Private Land in Western Oregon

1973 - 1982

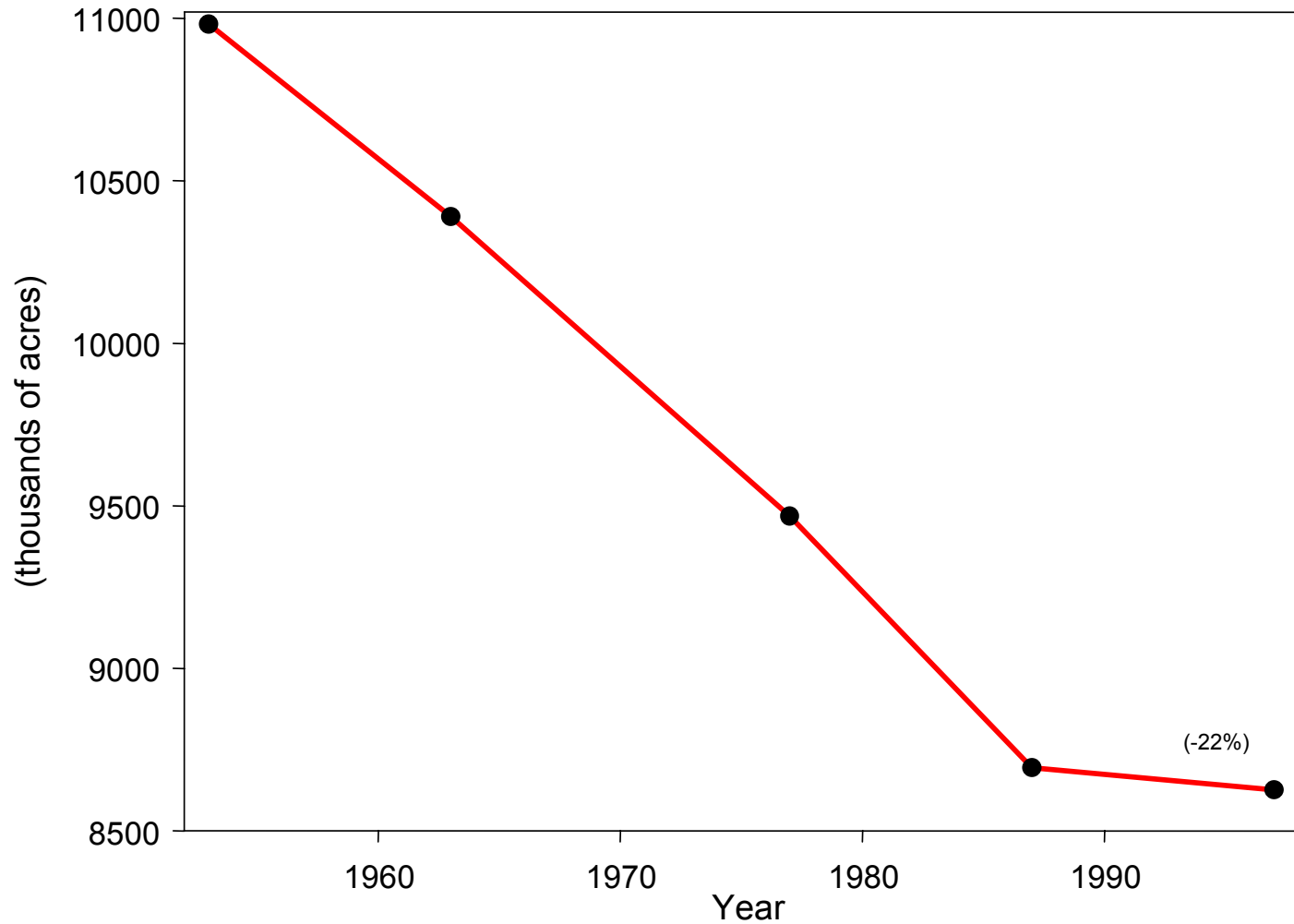
1982 - 1994

1994 - 2000

- No Change in Dominant Land Use
- Increase in Development (Forest to Mixed) (Forest to Agriculture) (Residential to Urban)
- Decrease in Development (Agriculture to Forest)



Change in Private Timberland Area in Oregon, 1953-1997



Oregon Measure 37

Governments must pay owners, or forgo enforcement, when land use restrictions reduce property value

Exceptions:

- **public nuisance**
- **public health and safety**
- **compliance with federal law**

Oregon Measure 37

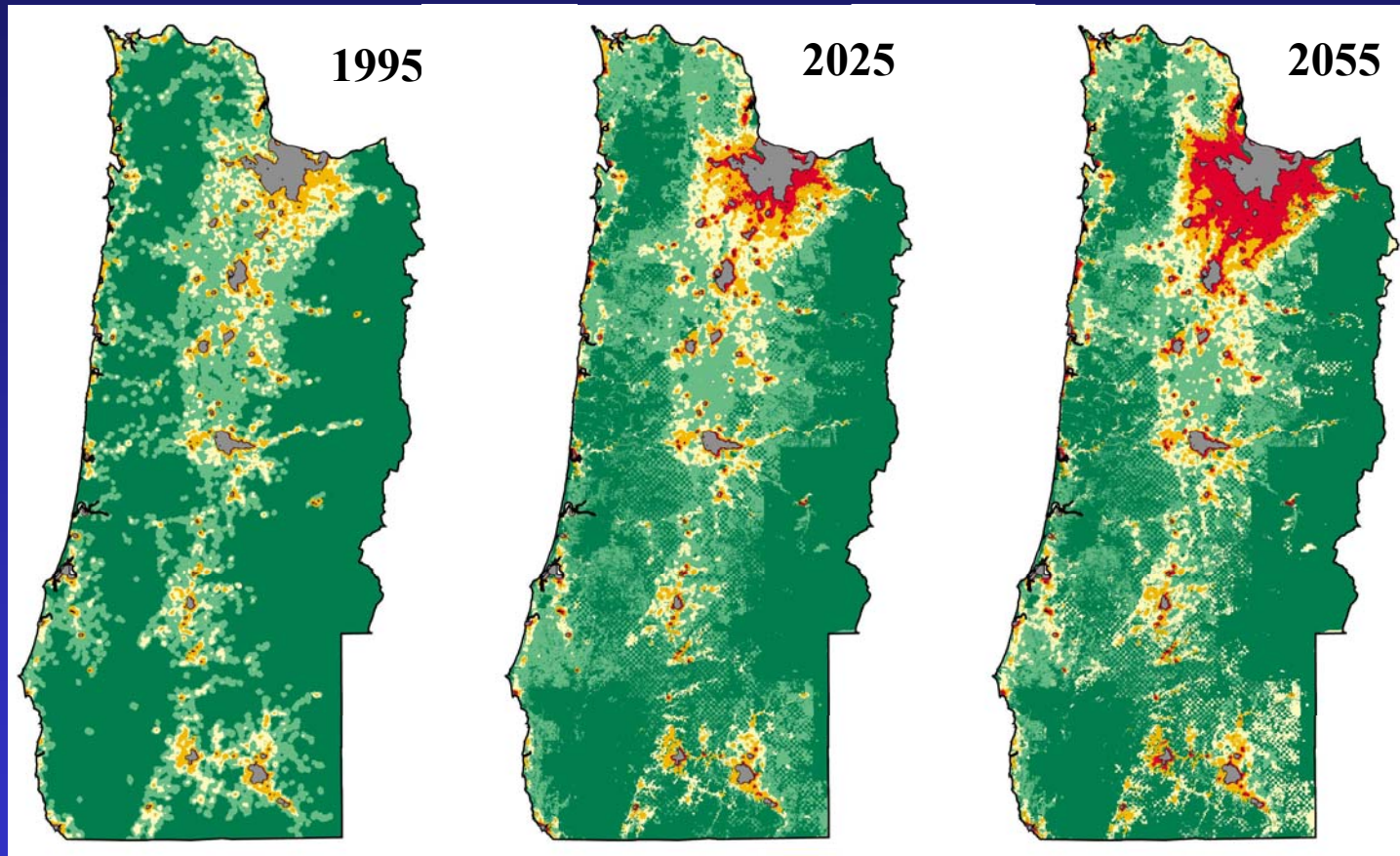
Implications for private forests:

- Long-time owners (pre 1975) can develop land (20% of farm/forest)

Need for compliance with FPA regs unclear

- Future FPA regulations must key to public nuisance, health and safety, or enforcement of federal law (CWA, CAA, ESA)

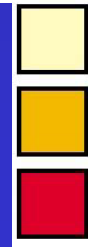
Projected Development (Kline et al 2003)



Buildings per
square kilometer

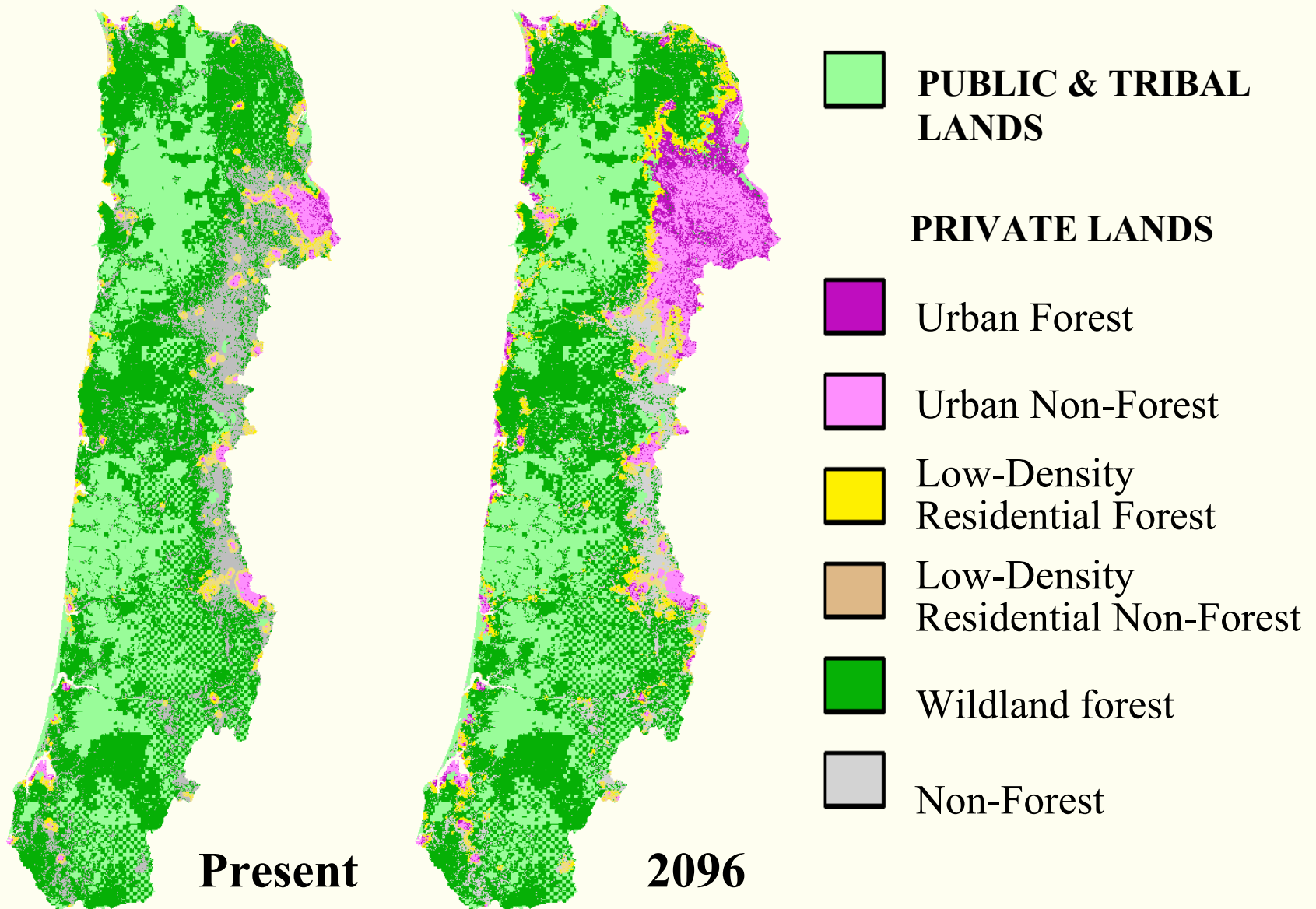


0
1-7

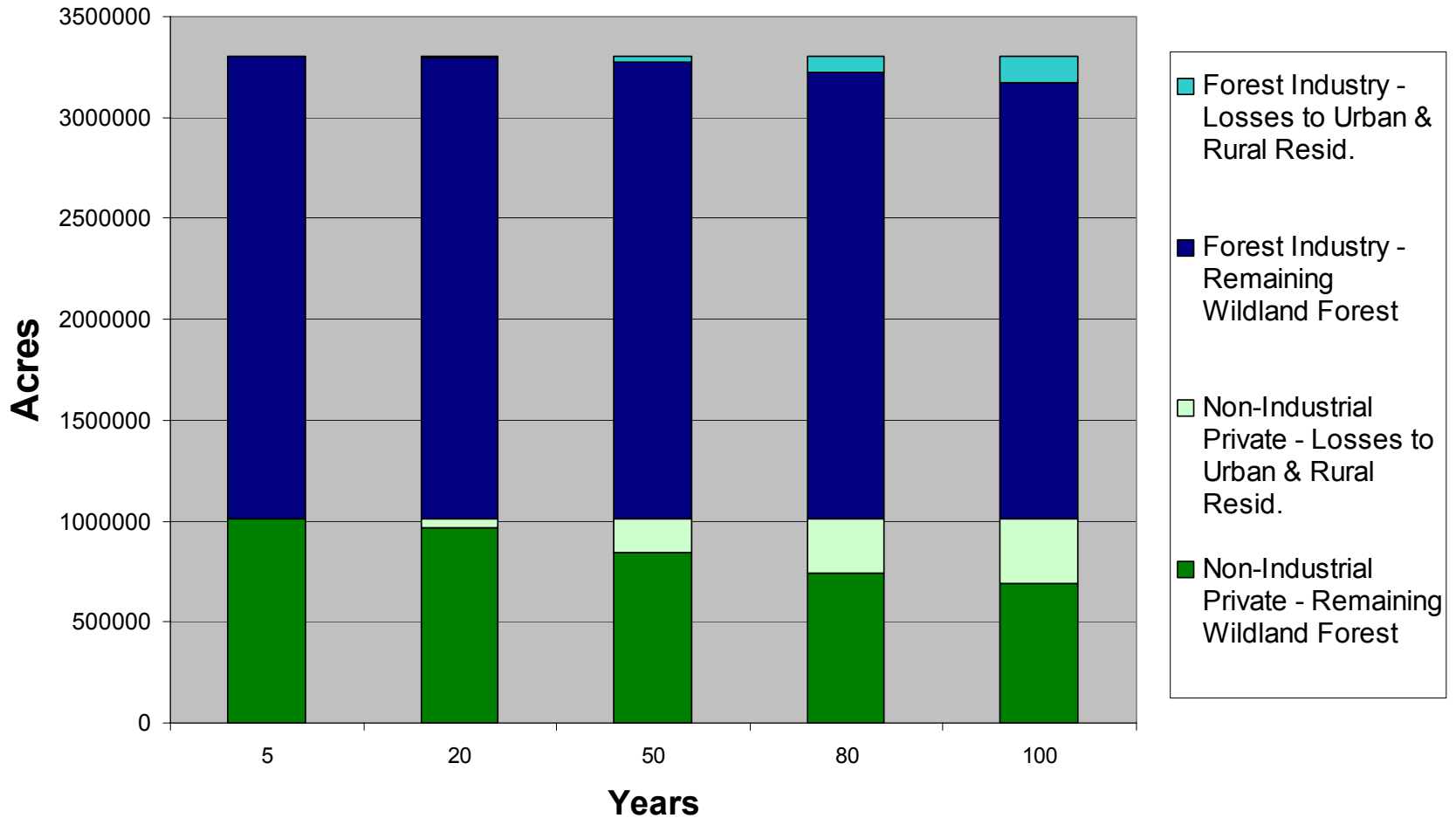


8 - 24
25 - 250 (low density)
> 250 (urban)

Land Development



Simulated Land Use on Private Wildland Forest Over the Next 100 Years



Land Development

Development over the next 50 years should leave intact a large majority of private forests. Still, significant development is projected around Portland, in the Willamette Valley, and around East Cascade towns.

Land Development

Unknowns

- 1) Potential “speckling” of homes through remaining wildland forest and how that speckling will affect commercial forestry
- 2) Attitude of Timber Management Investment Organizations (TMIOs), that increasingly own industrial forest, toward development

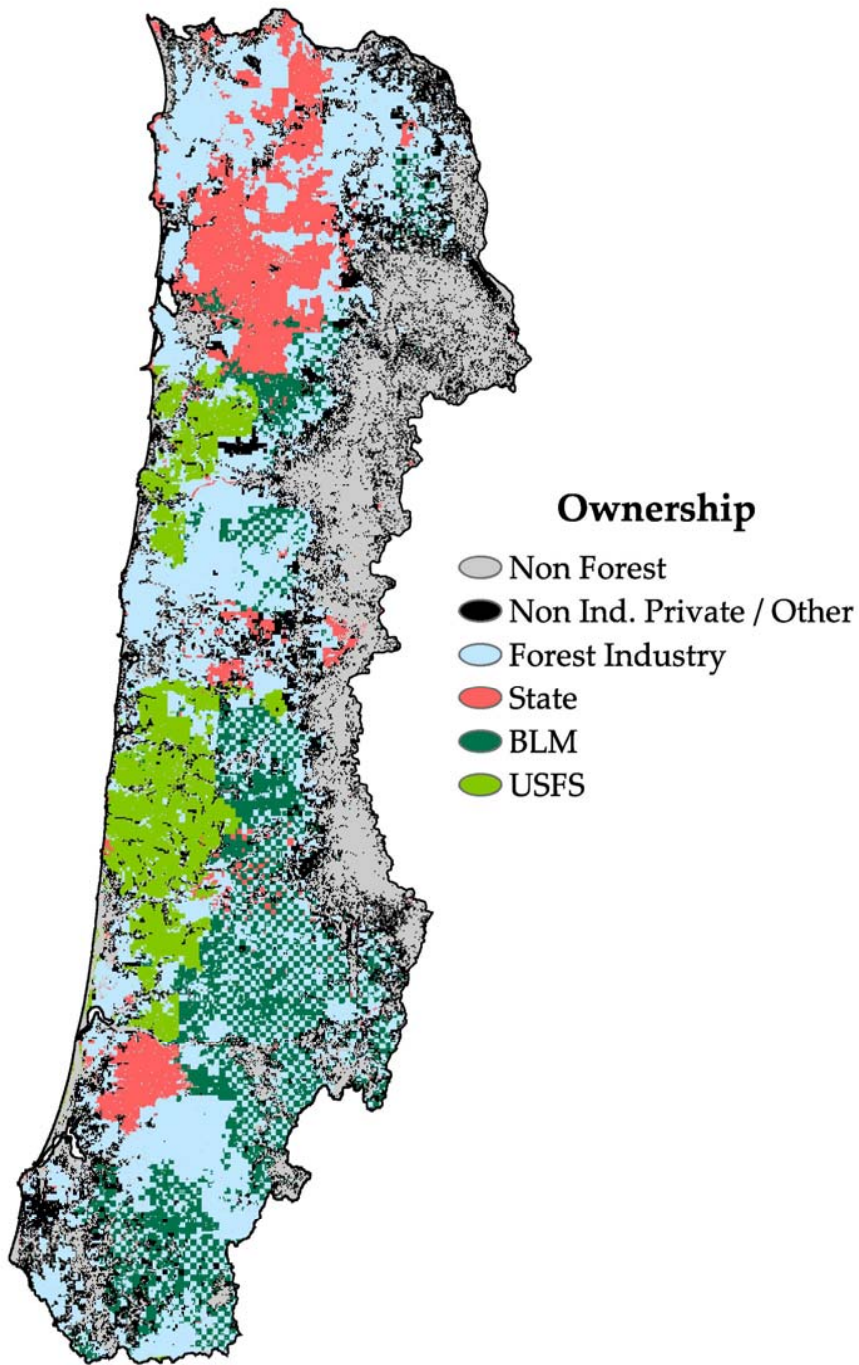
Public Policy Framework

- Northwest Forest Plan (federal)
- State plans
- Tribal and county plans
- Limits on private actions





Public Policy Framework

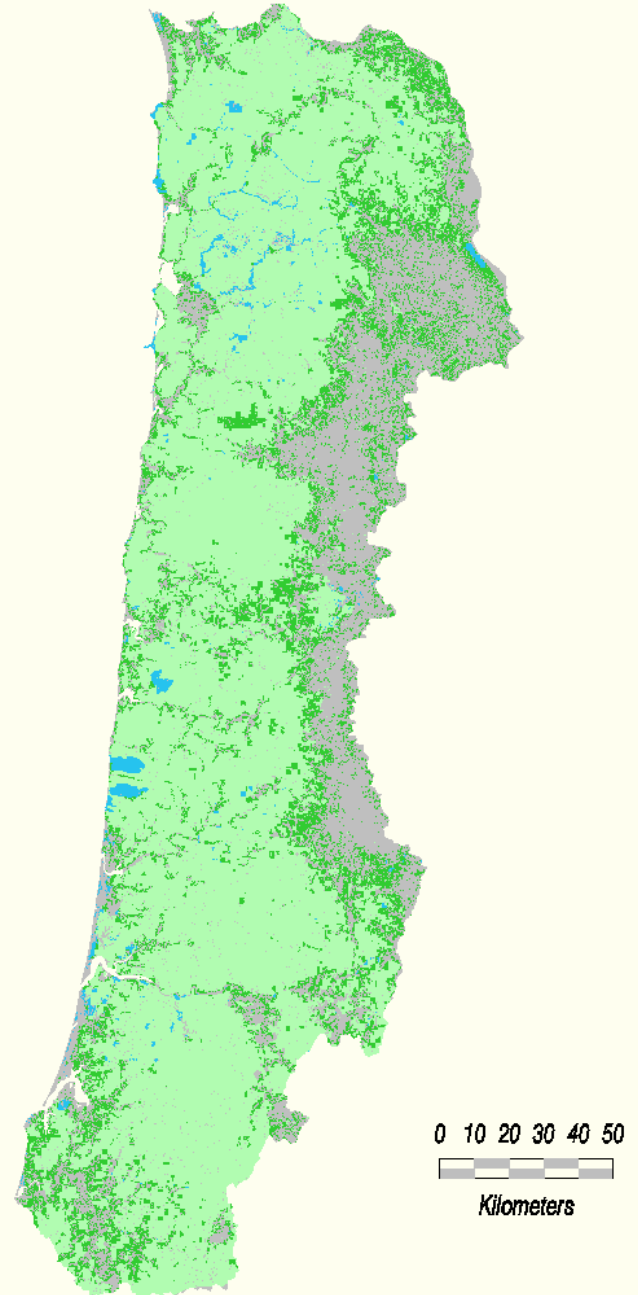
- Limits on private actions
 - Forest Practice Rules for private lands-
Riparian management areas
“free to grow” plantations
wildlife leave trees
clearcut size limits
BMPs
 - Habitat Conservation Plans
 - Take guidance

Ownership Types 1996

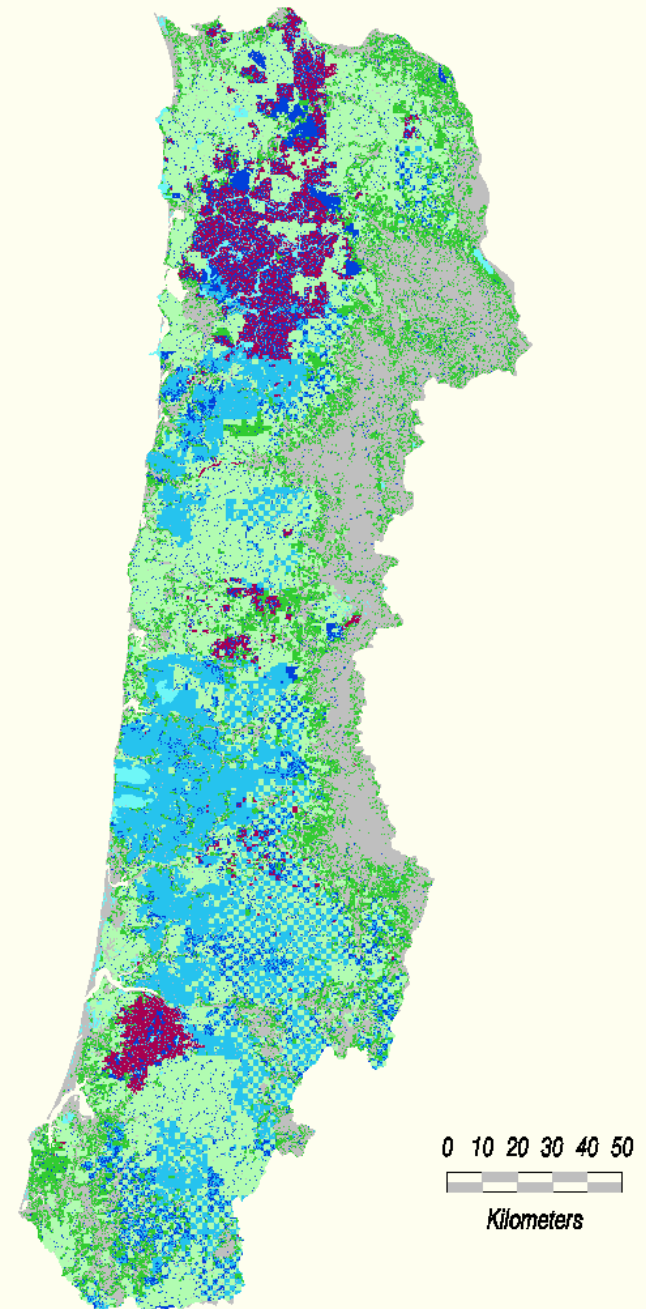


Management Emphasis 1975

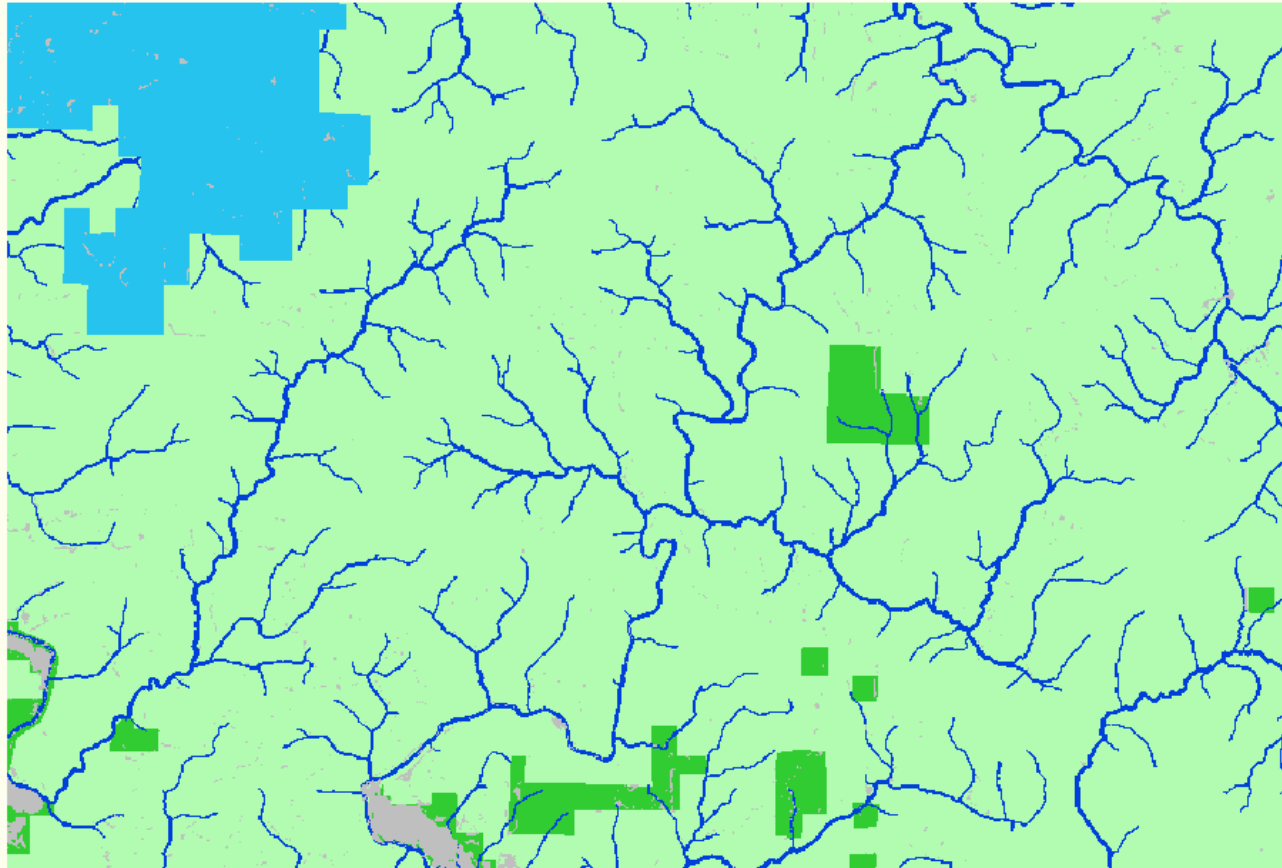
-  *Non-forest*
-  *No harvest*
-  *Timber prod. under
envir. consts.*
-  *Timber prod. & other
obj. under envir. consts.*



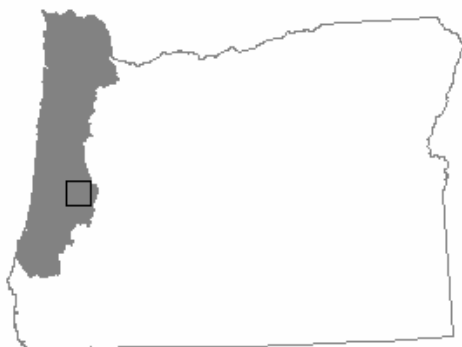
Management Emphasis 2001



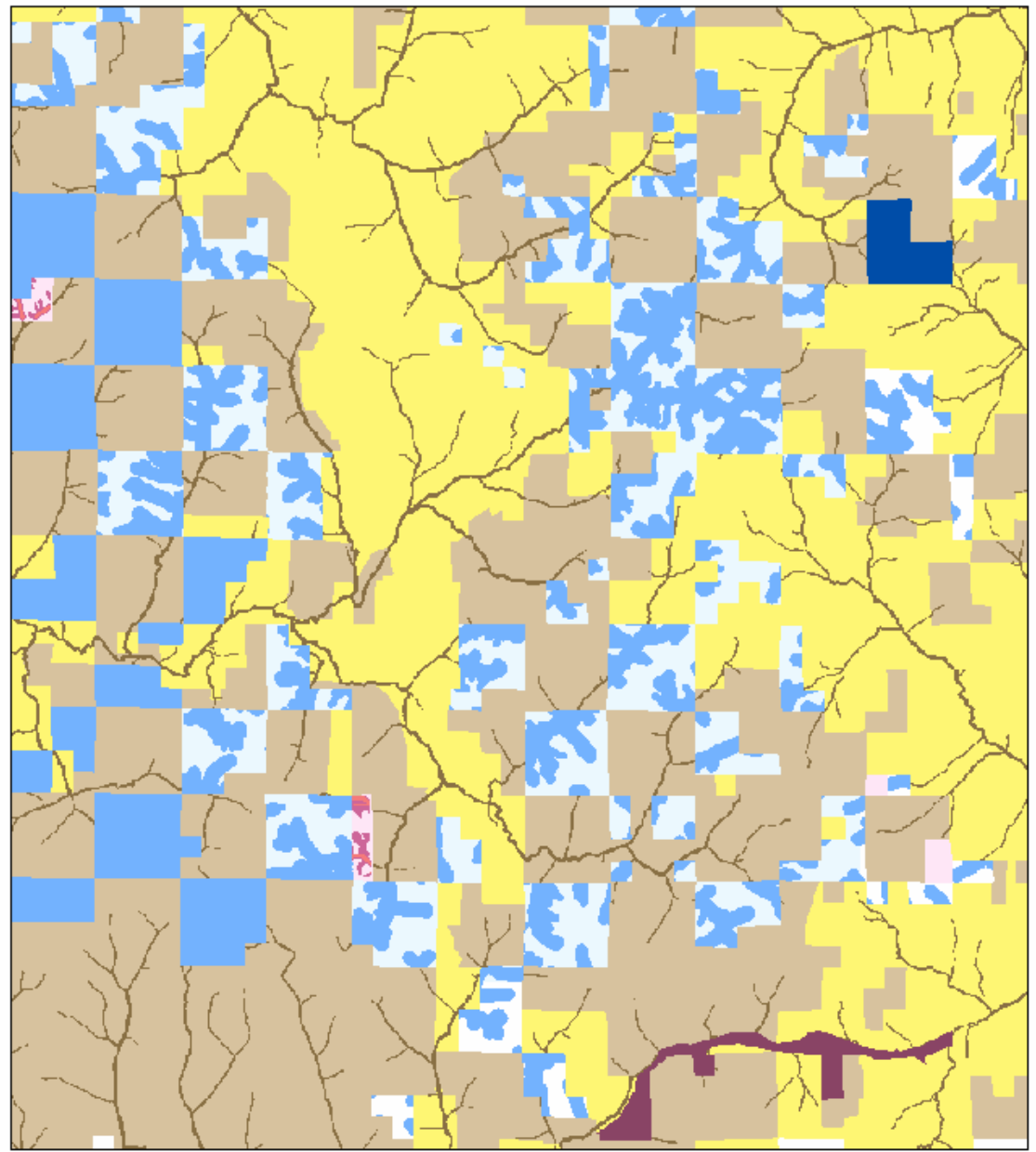
Riparian Management Areas on Private Land



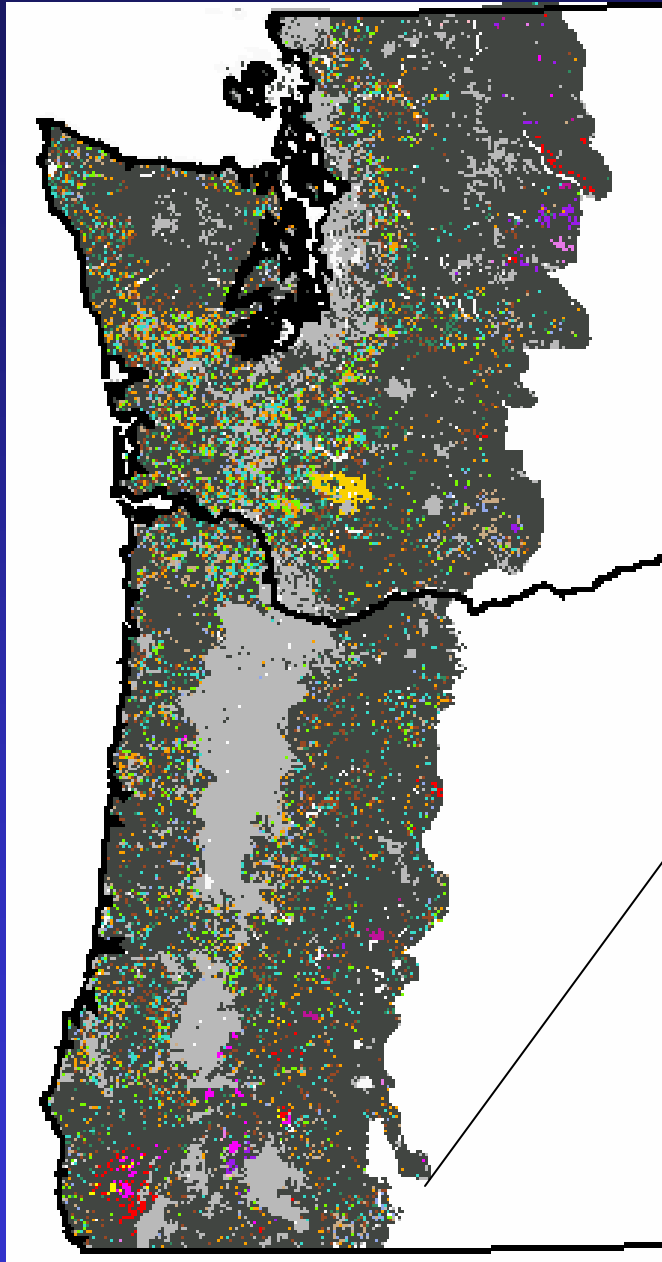
0 1 2 3
Kilometers



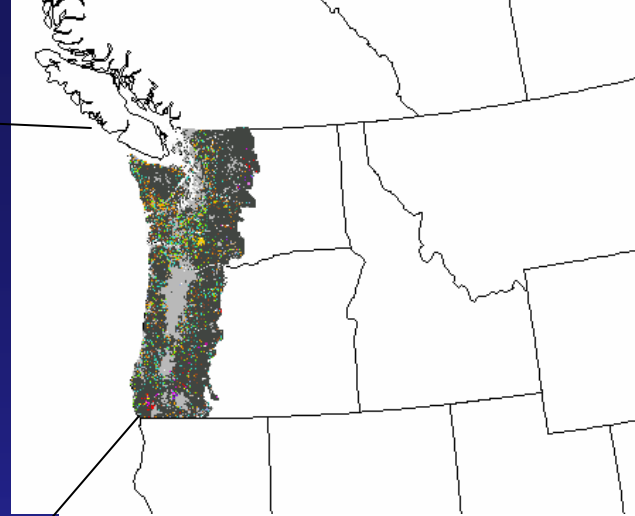
- Private NIP
- Private FI
- Private buffer
- BLM withdrawn
- BLM LSR/riparian
- BLM matrix
- BLM adaptive management
- State non-ODF
- ODF matrix
- ODF thin
- ODF withdrawn
- ODF focused
- ODF special stewardship



Recent Harvest



Washington

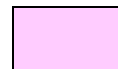


Oregon

Source:
Healey et
al., 2005

Fires

Harvests



1972-1977



1977-1984



1984-1988



1988-1992



1992-1996



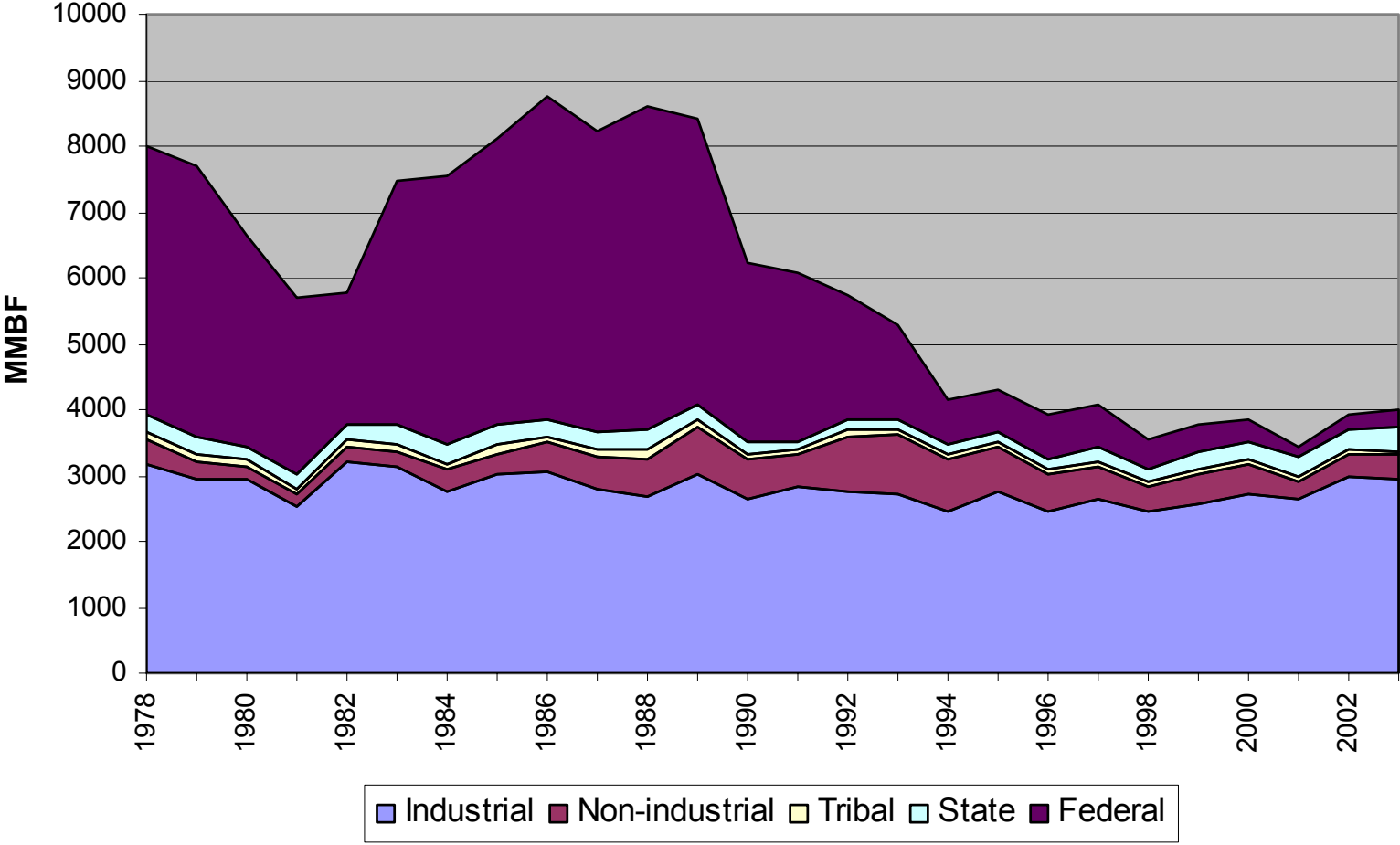
1996-2000



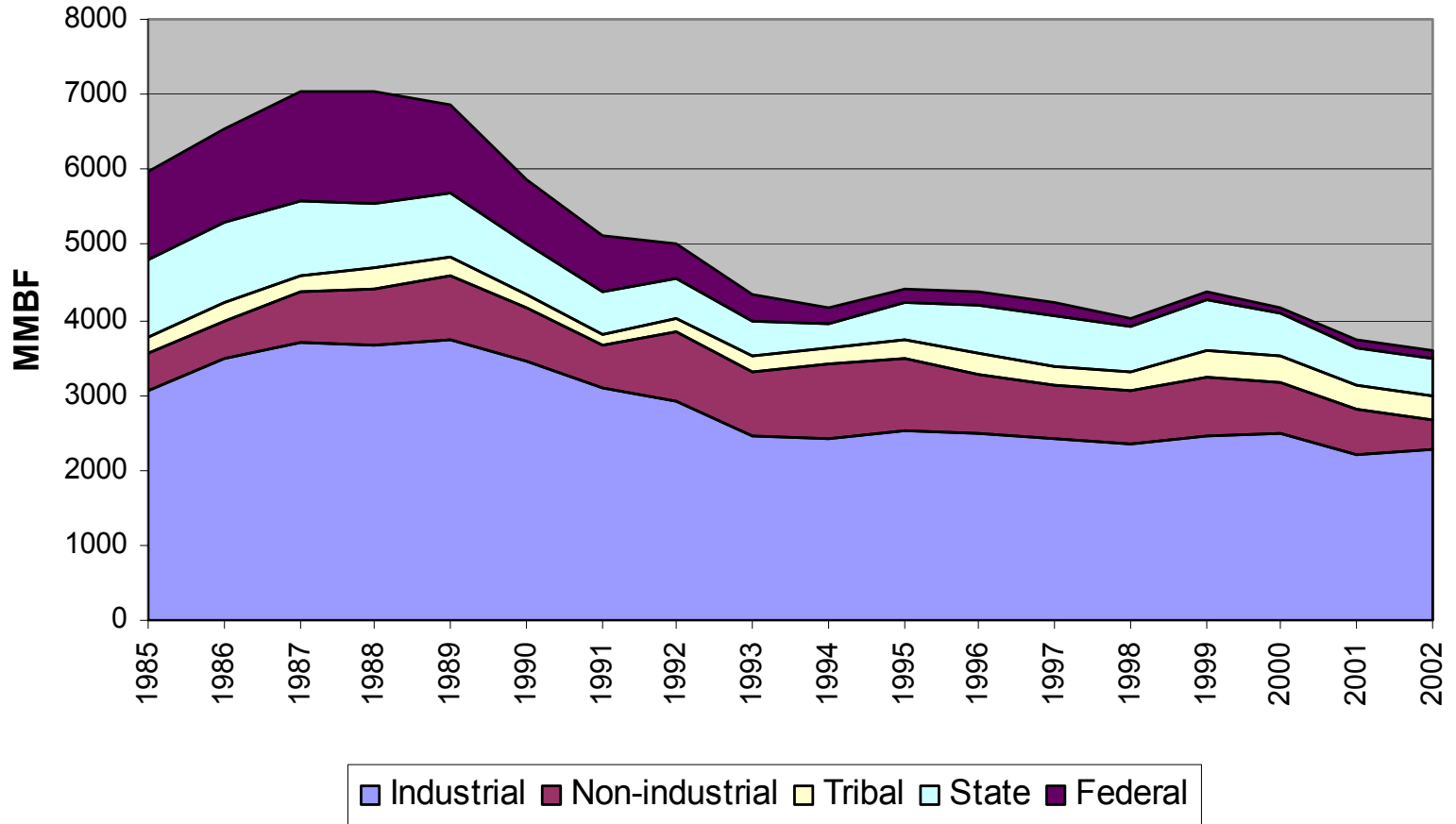
2000-2002



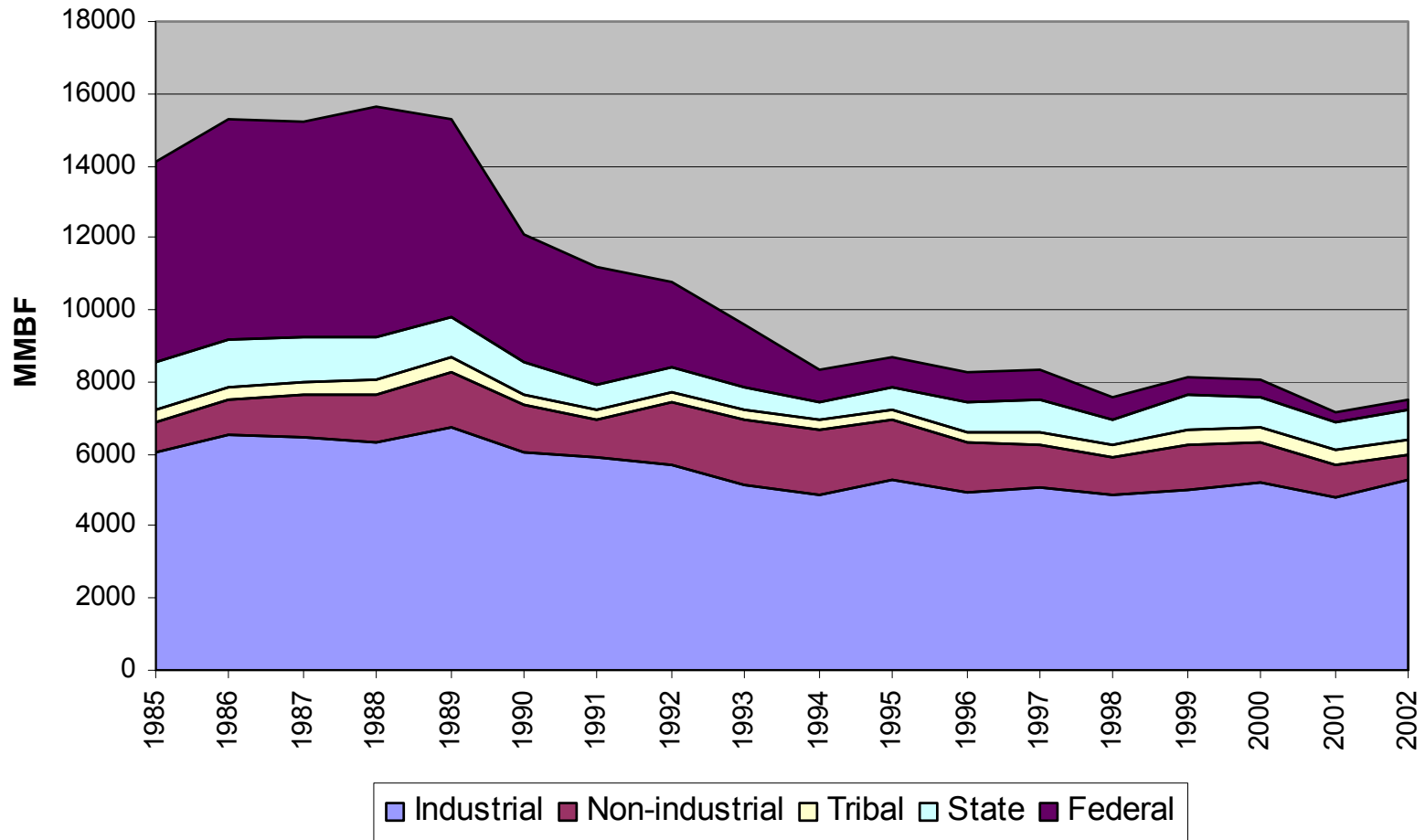
Oregon Harvest



Washington Harvest

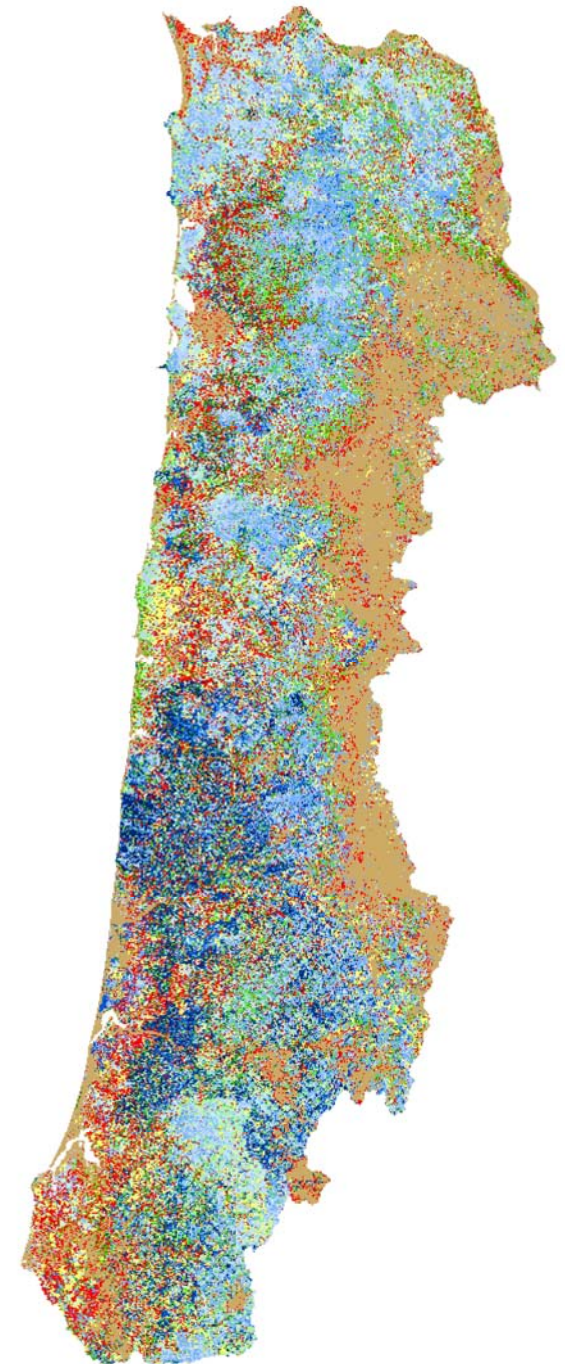


Oregon and Washington Harvest

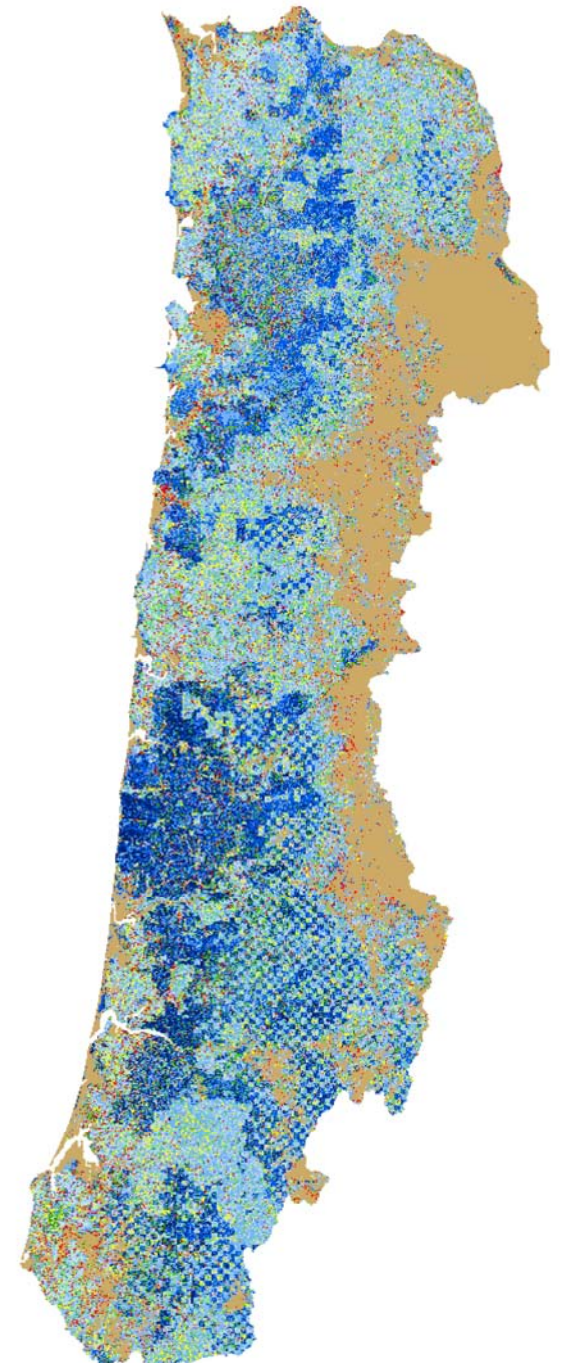


**Simulation of Future
Activity and Vegetation
(CLAMS)**

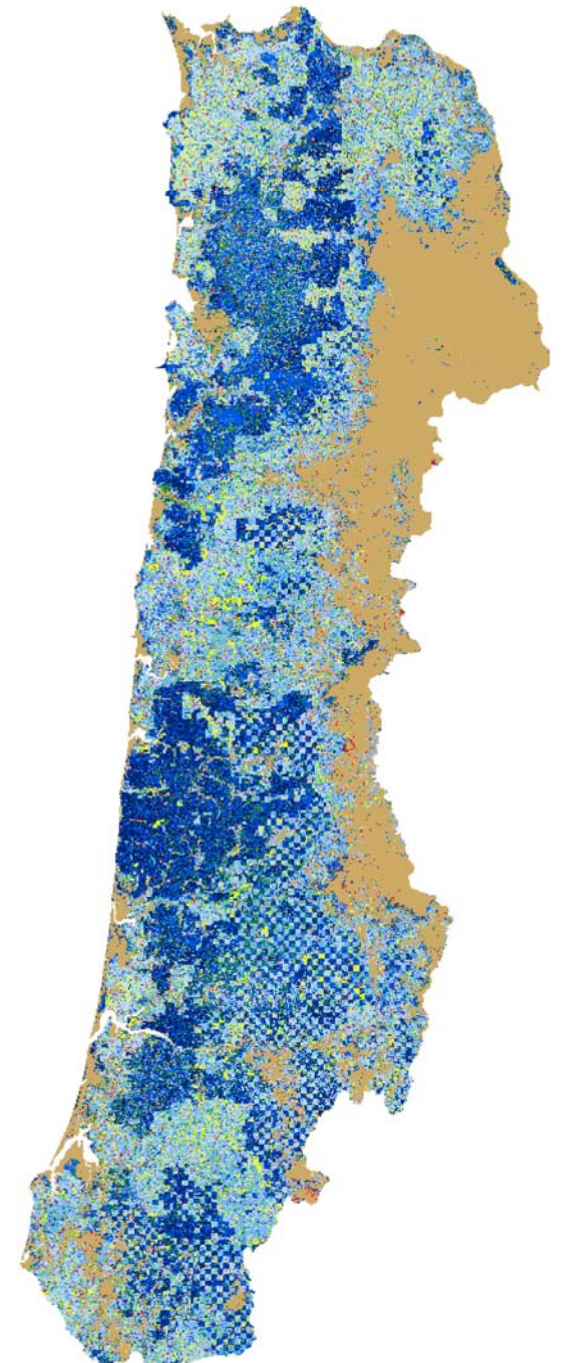
Vegetation Classes 1996 – Initial Period Base Policy



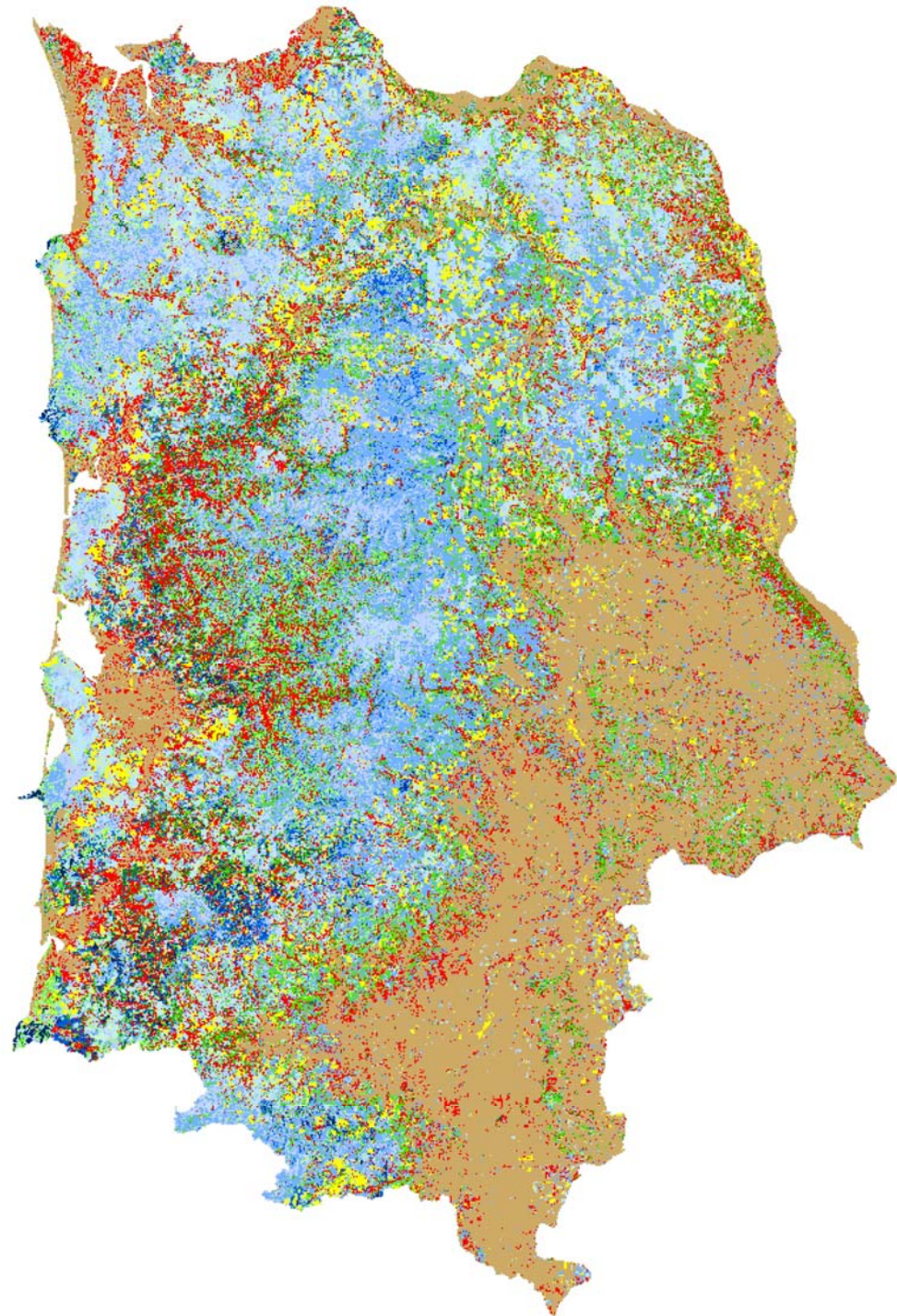
Vegetation Classes 2046 – Projected Base Policy



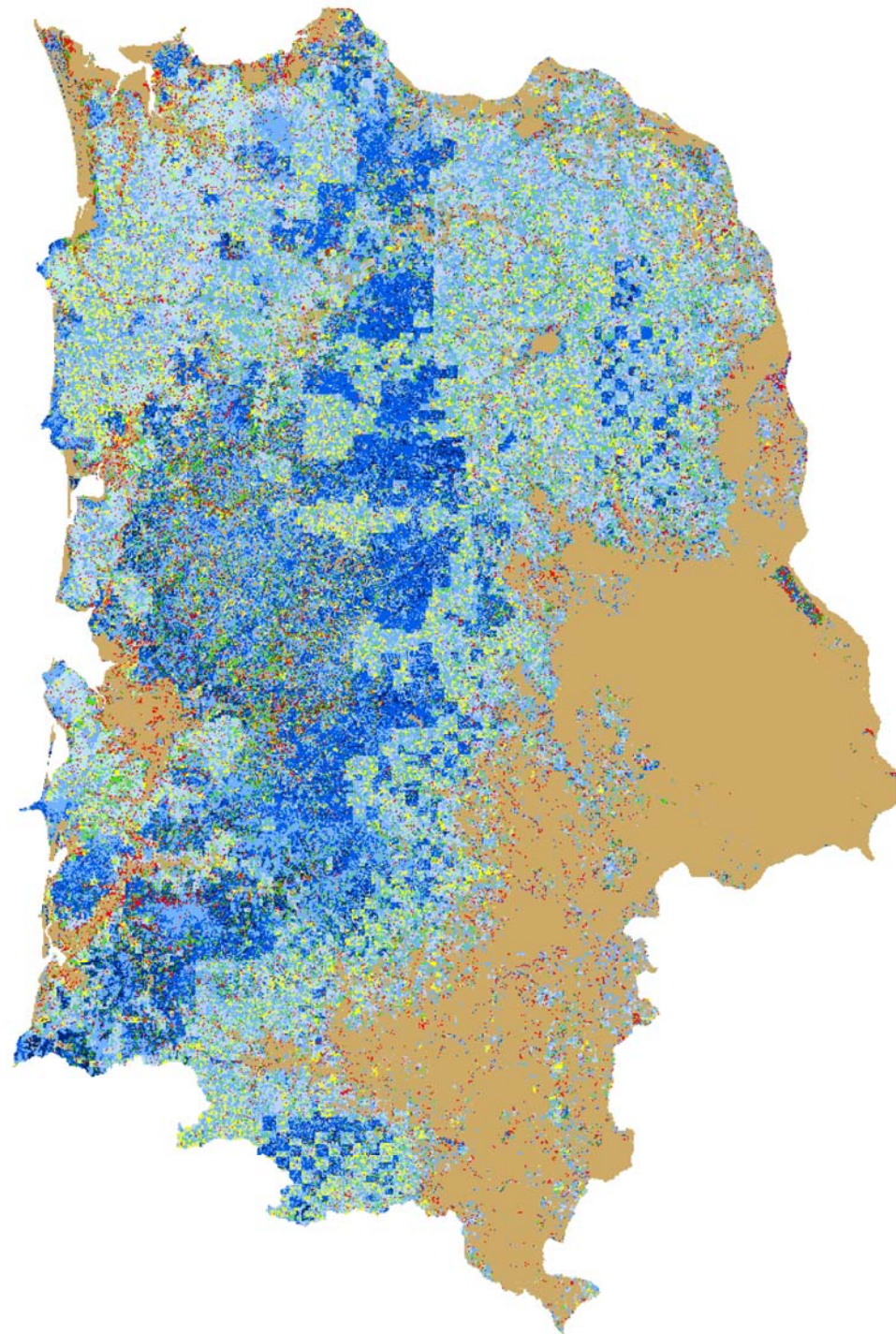
Vegetation Classes 2096 – Projected Base Policy



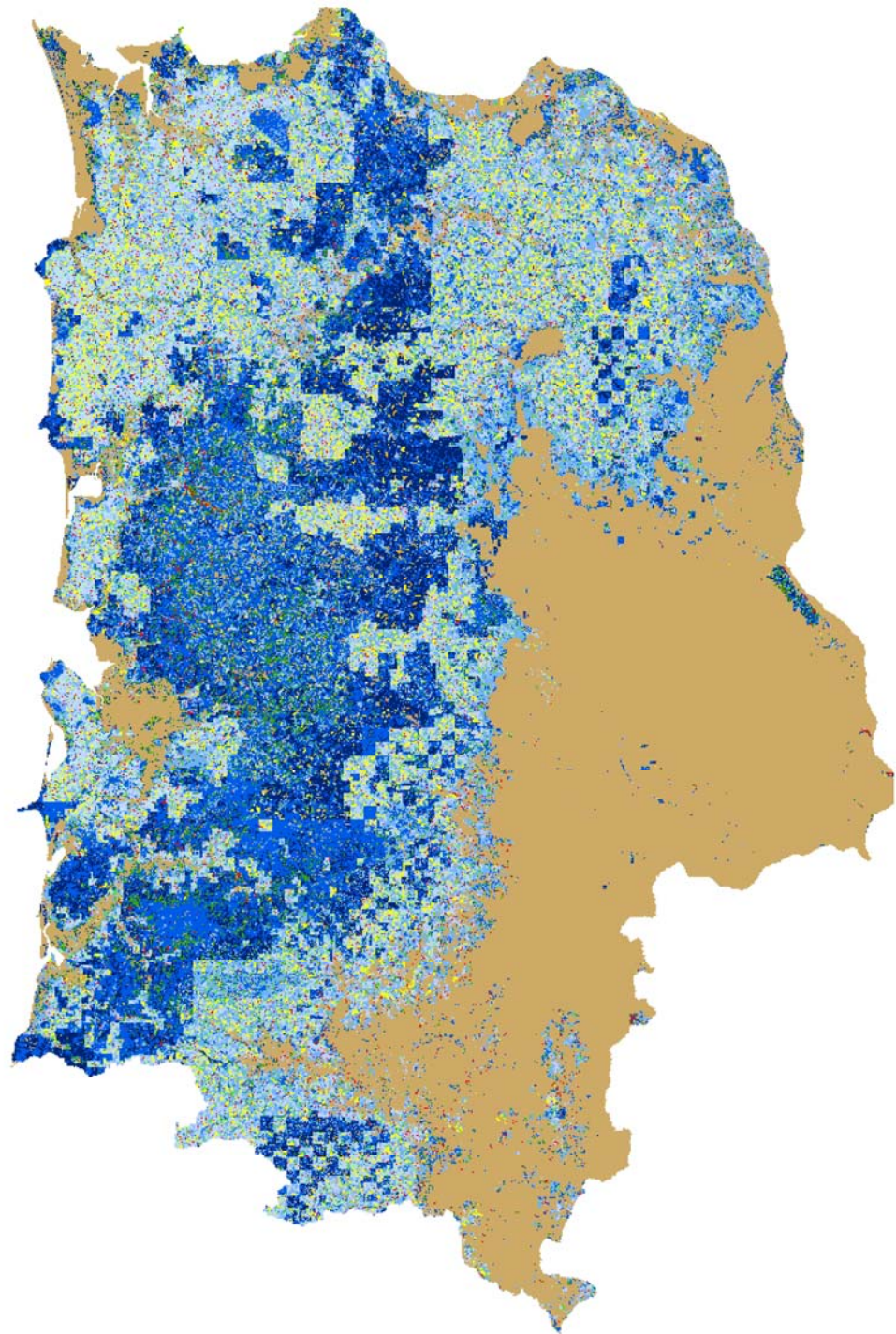
Vegetation Classes 1996 – Initial Period Base Policy



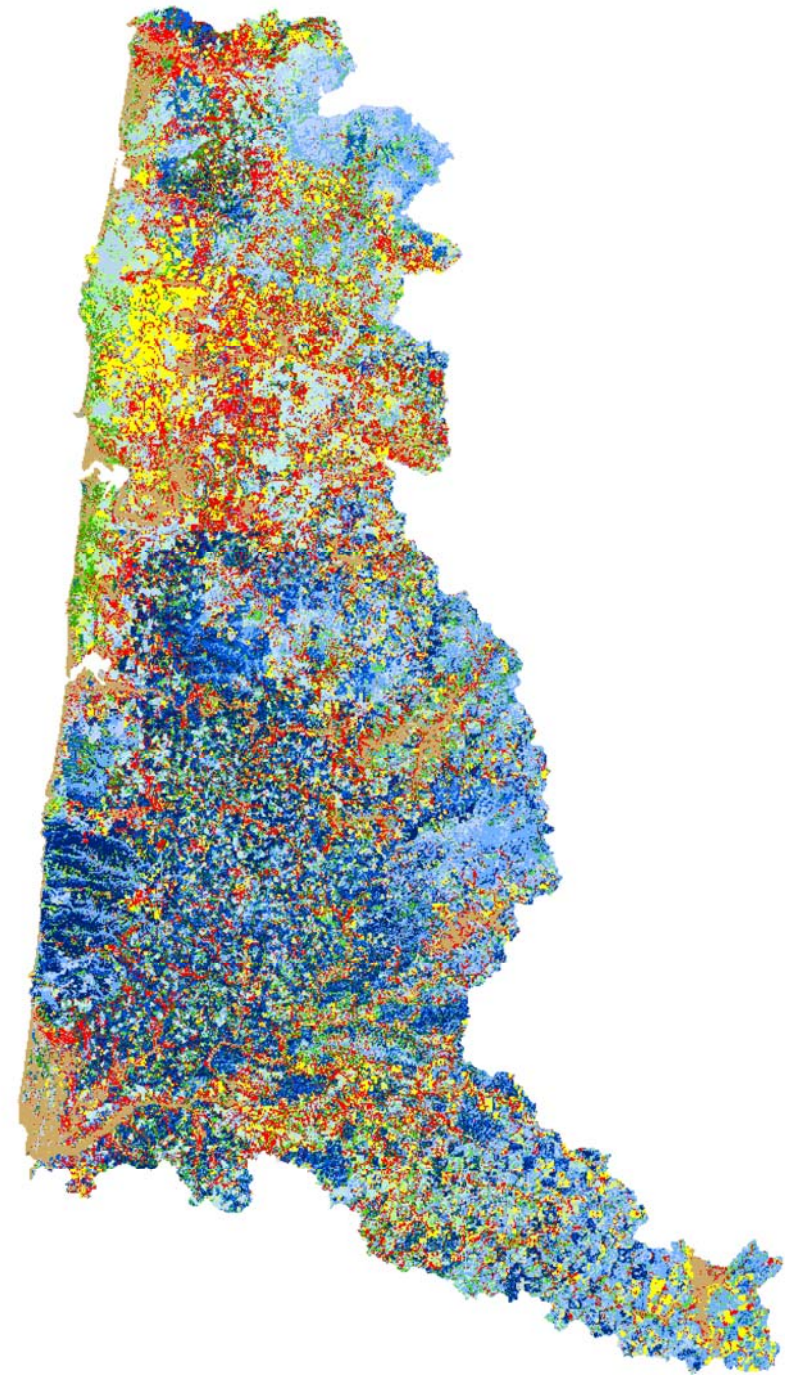
Vegetation Classes 2046 – Projected Base Policy



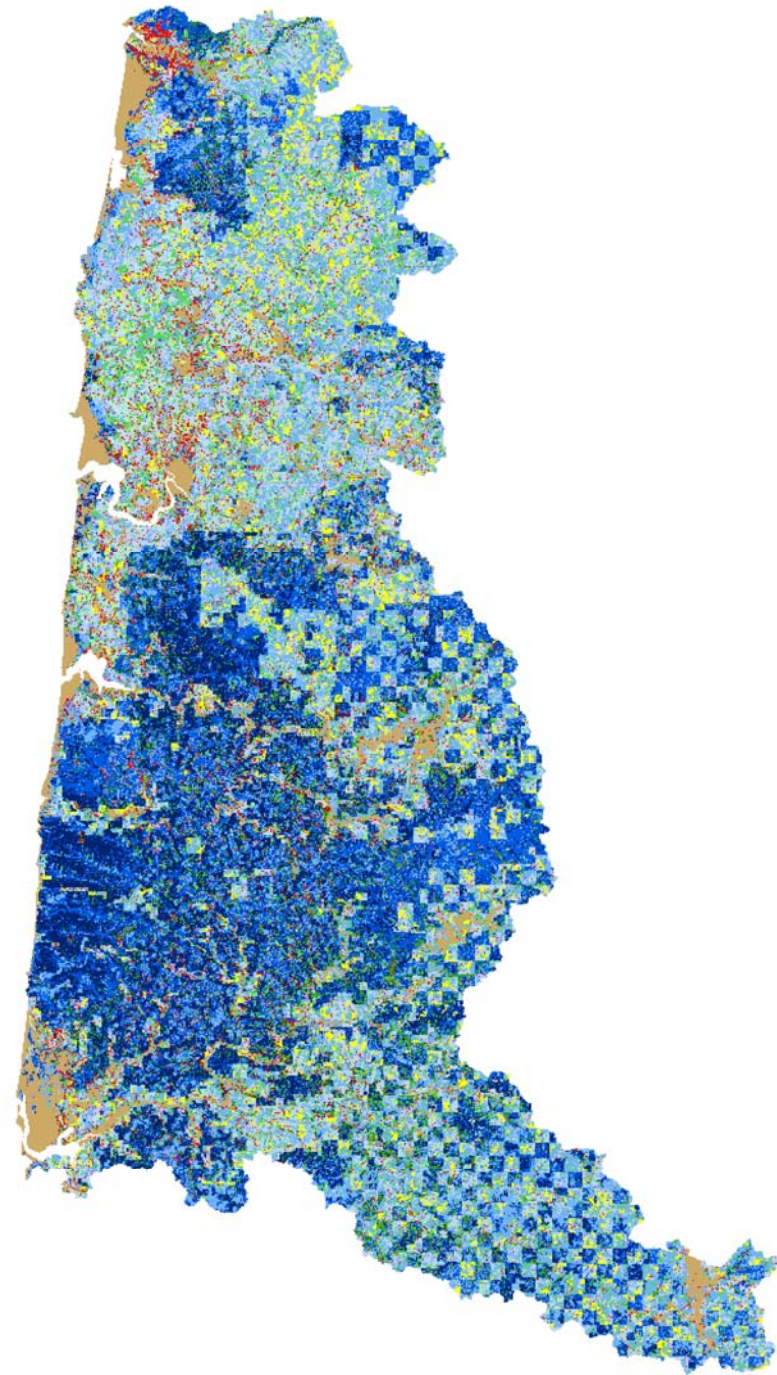
Vegetation Classes 2096 – Projected Base Policy



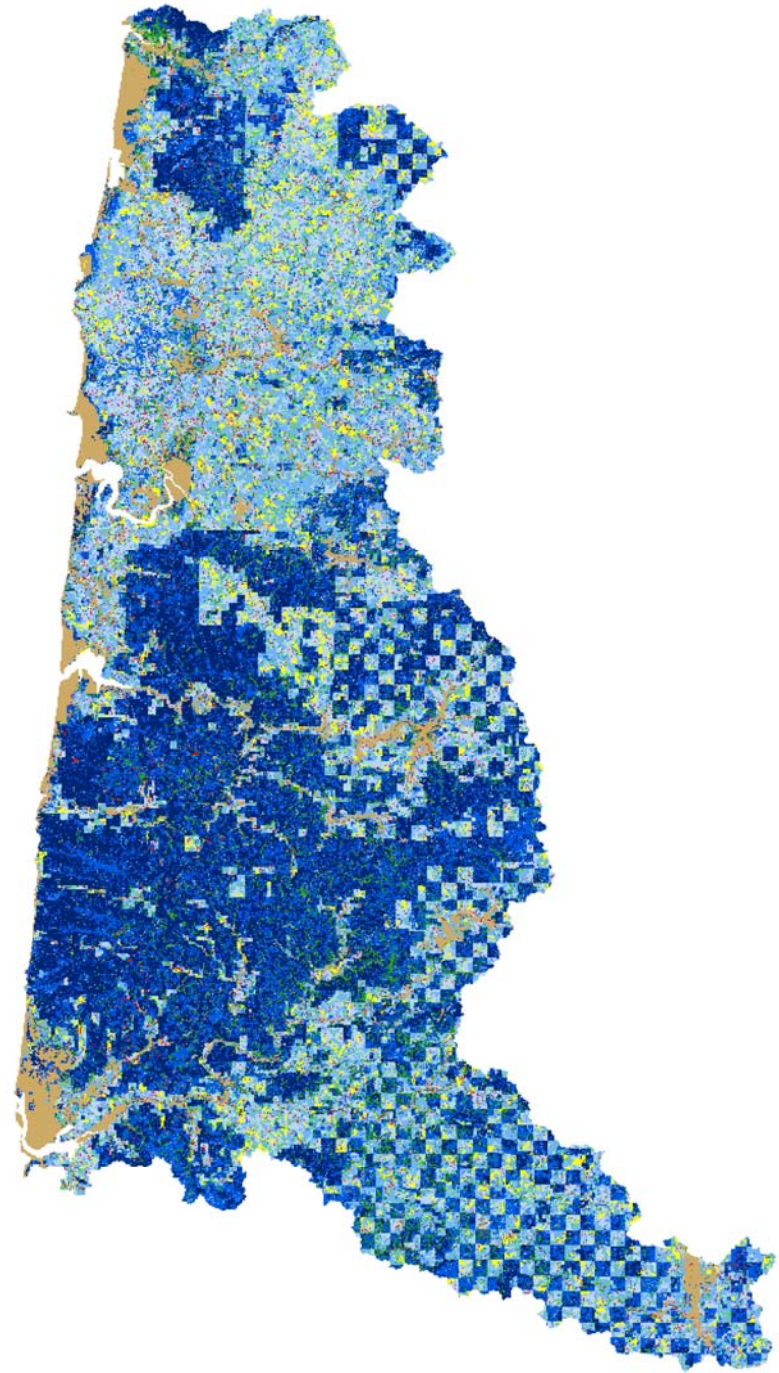
Vegetation Classes 1996 – Initial Period Base Policy



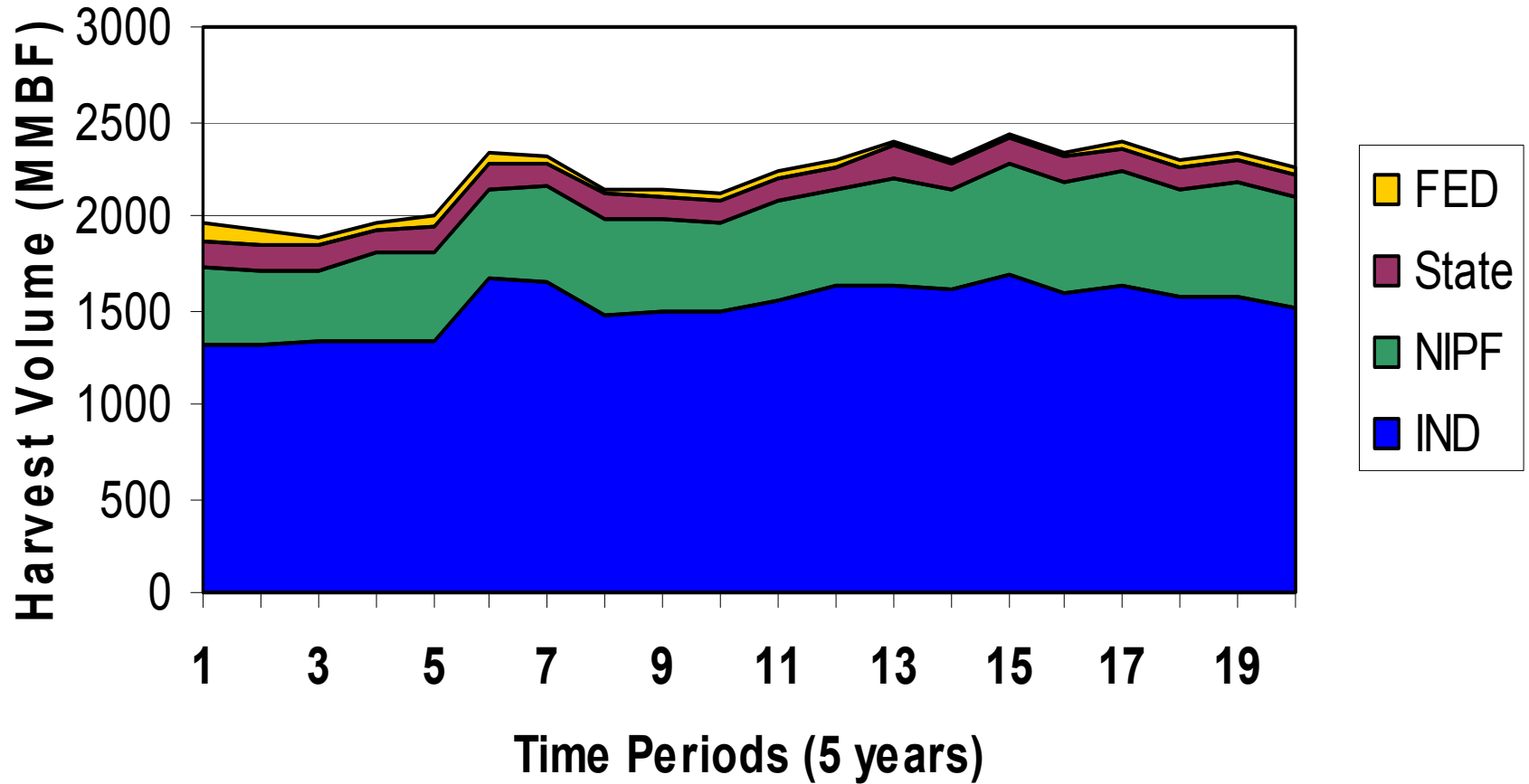
Vegetation Classes 2046 – Projected Base Policy



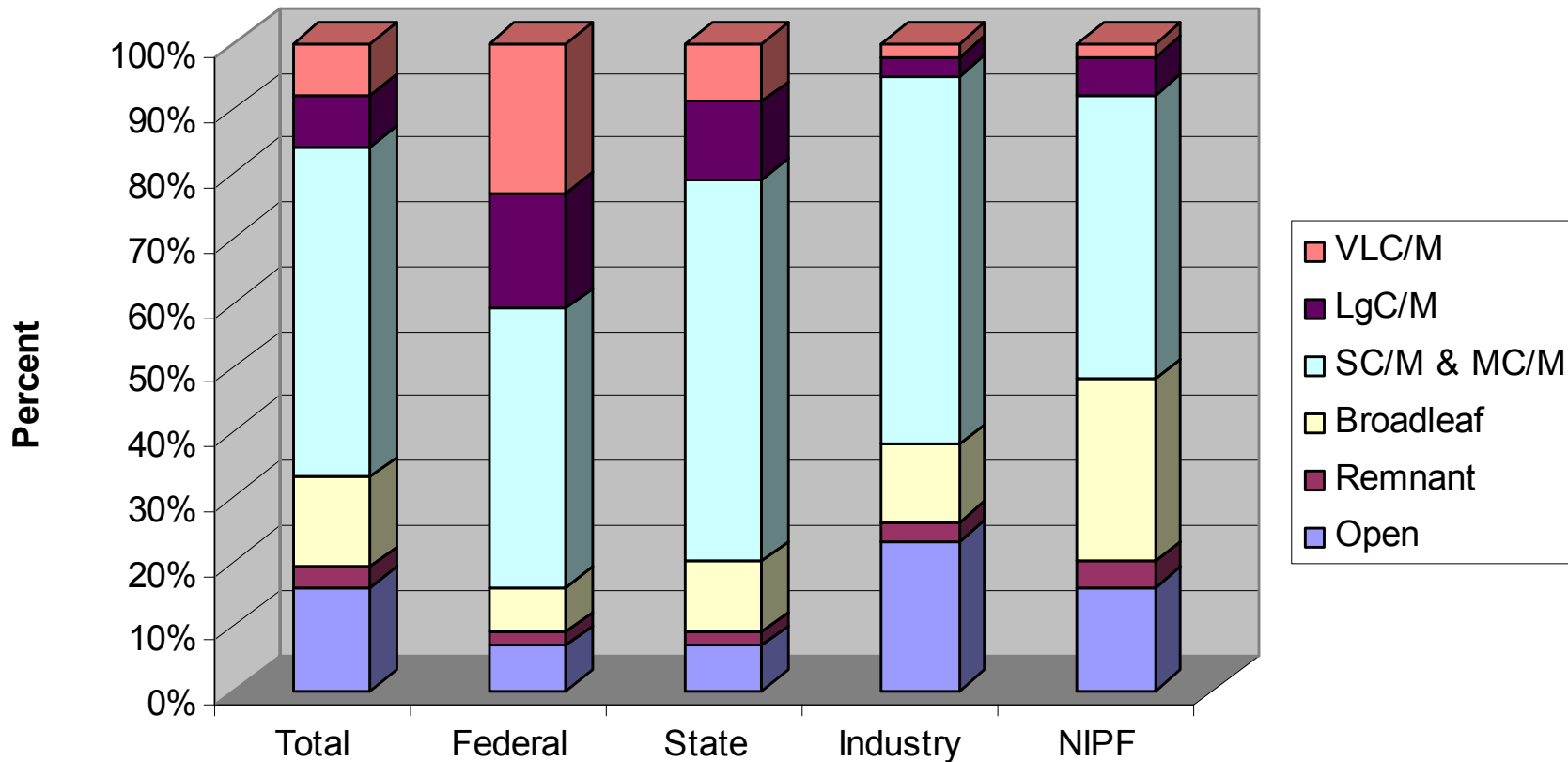
Vegetation Classes 2096 – Projected Base Policy



Annual Harvest Volume by Owner Base Policy

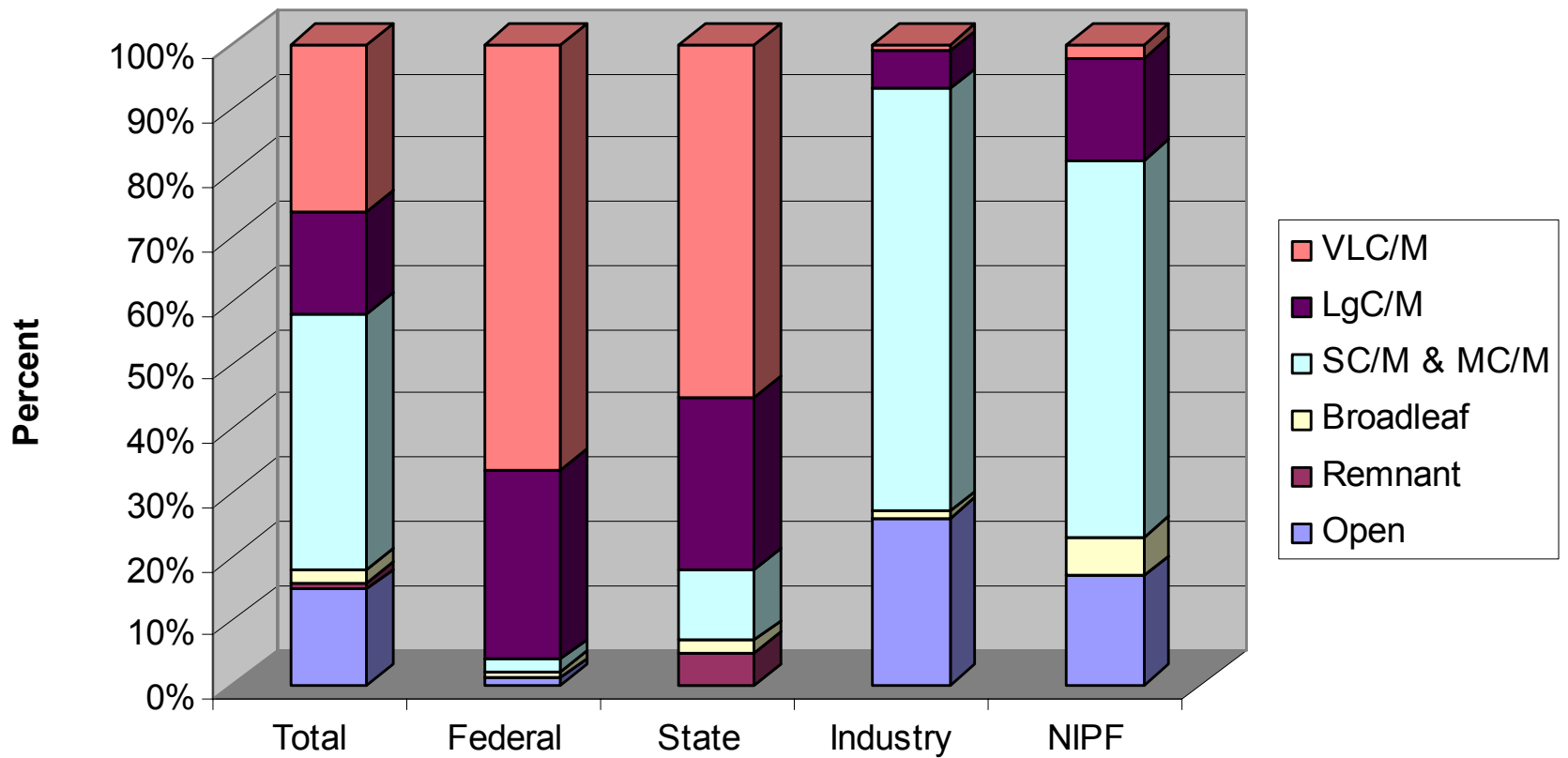


Current (1996) vegetative condition in the forests of the Coastal Province of Oregon





Projected (2096) vegetative condition in the forests of the Coastal Province of Oregon



Recent Developments

Forest Policy

- **Proposed Habitat Conservation Plan for aquatic species on non-federal ownerships in Washington**
- **Certification**

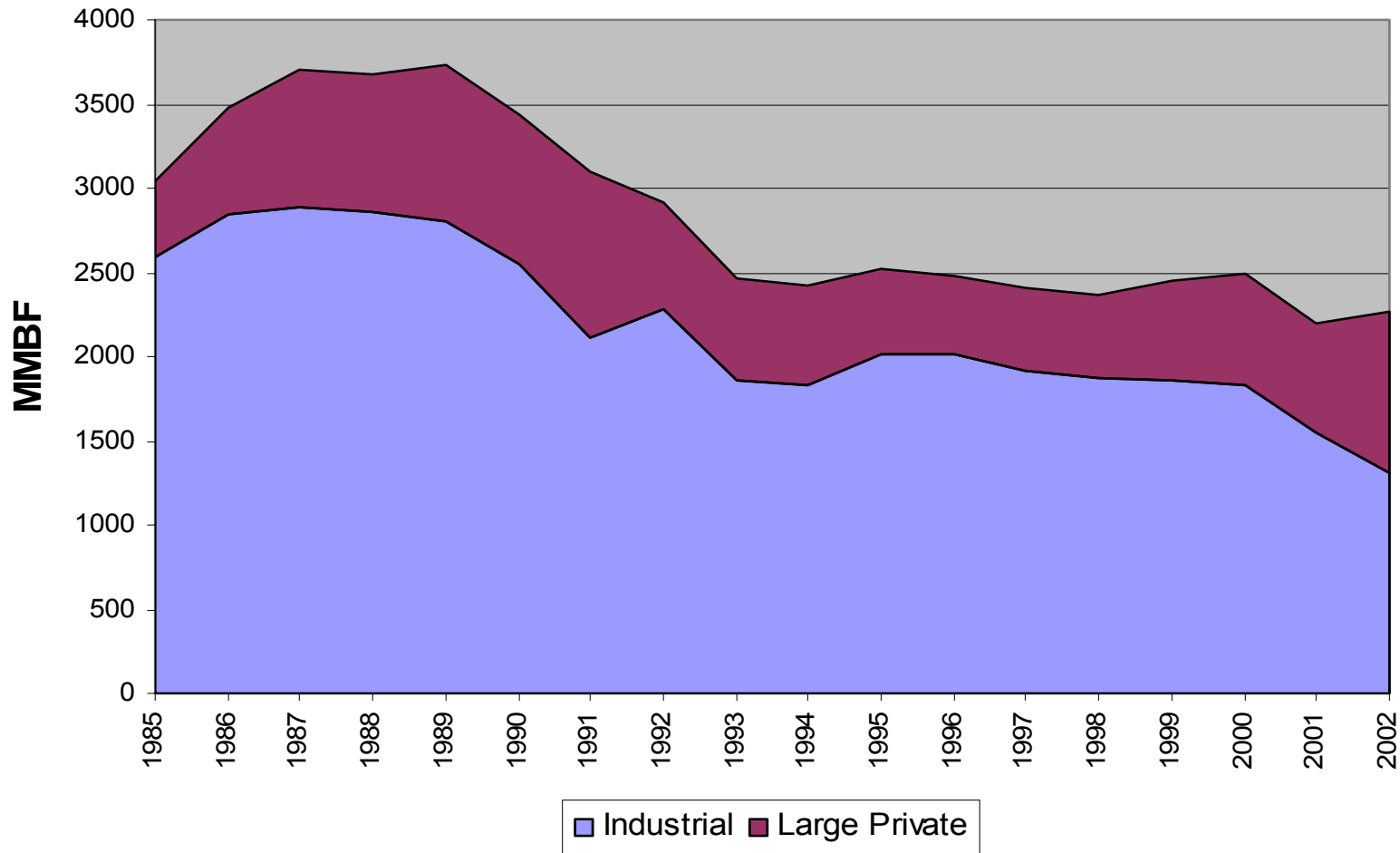
Globalization of wood product markets

- **Increased softwood imports from Canada (nearterm) and Oceania (longterm).**
- **Realization that forest investments might yield a high return elsewhere creates a new performance standard for industrial forests here.**

Ownership

- **Rise of timber management investment firms (TIMOs)**
- **Consolidation within the remaining forest industry**

Washington Harvest



Price Expectations

- **Loss of premium for large second growth logs**
- **Projections of flat real prices instead of historical steady increase**

Implications (westside): Forest industry/large private

- **Large ownerships—increasing focus on economic return from timberlands**
 - **Develop lands near cities and towns or scenic areas?**
 - **More rapid harvest of mature stock?**
 - **Intensively managed plantations (clearcutting) on NPV rotations of 35-45 years**
 - **Moving investments to other parts of the world that yield a higher return**

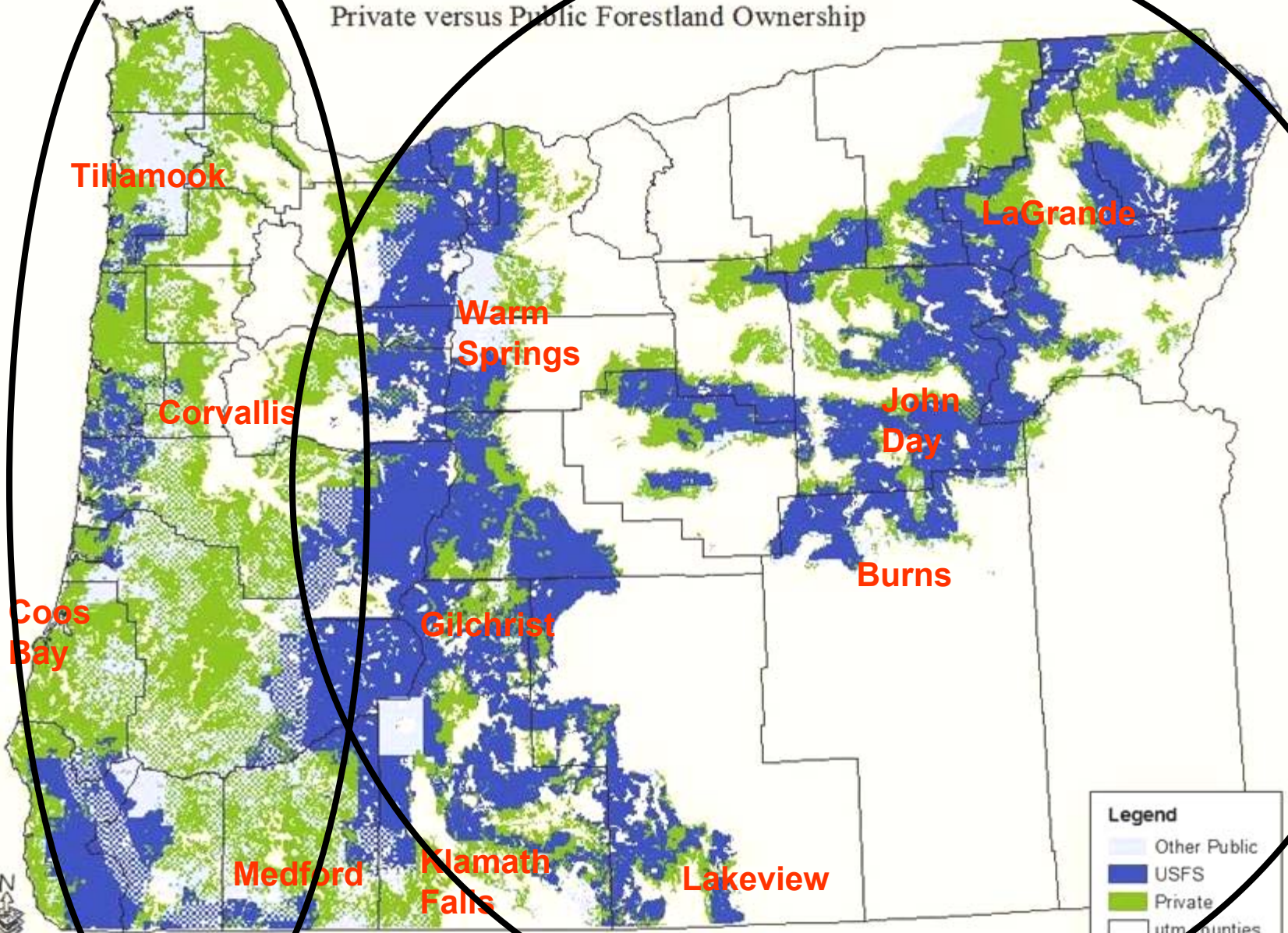
Implications (westside): Family forests (small private)

- **Combination partial cutting and small patch cutting/ young stand diversity limited by FPA rules**
- **Small private- more variability in rotation age, but relatively little late-successional forest**

Eastern Oregon

- **Low productivity**
- **Relatively heavy recent harvest on industry land**
- **Shift from industry land to nonindustrial**
- **Tremendous reduction in milling capacity**

Private versus Public Forestland Ownership

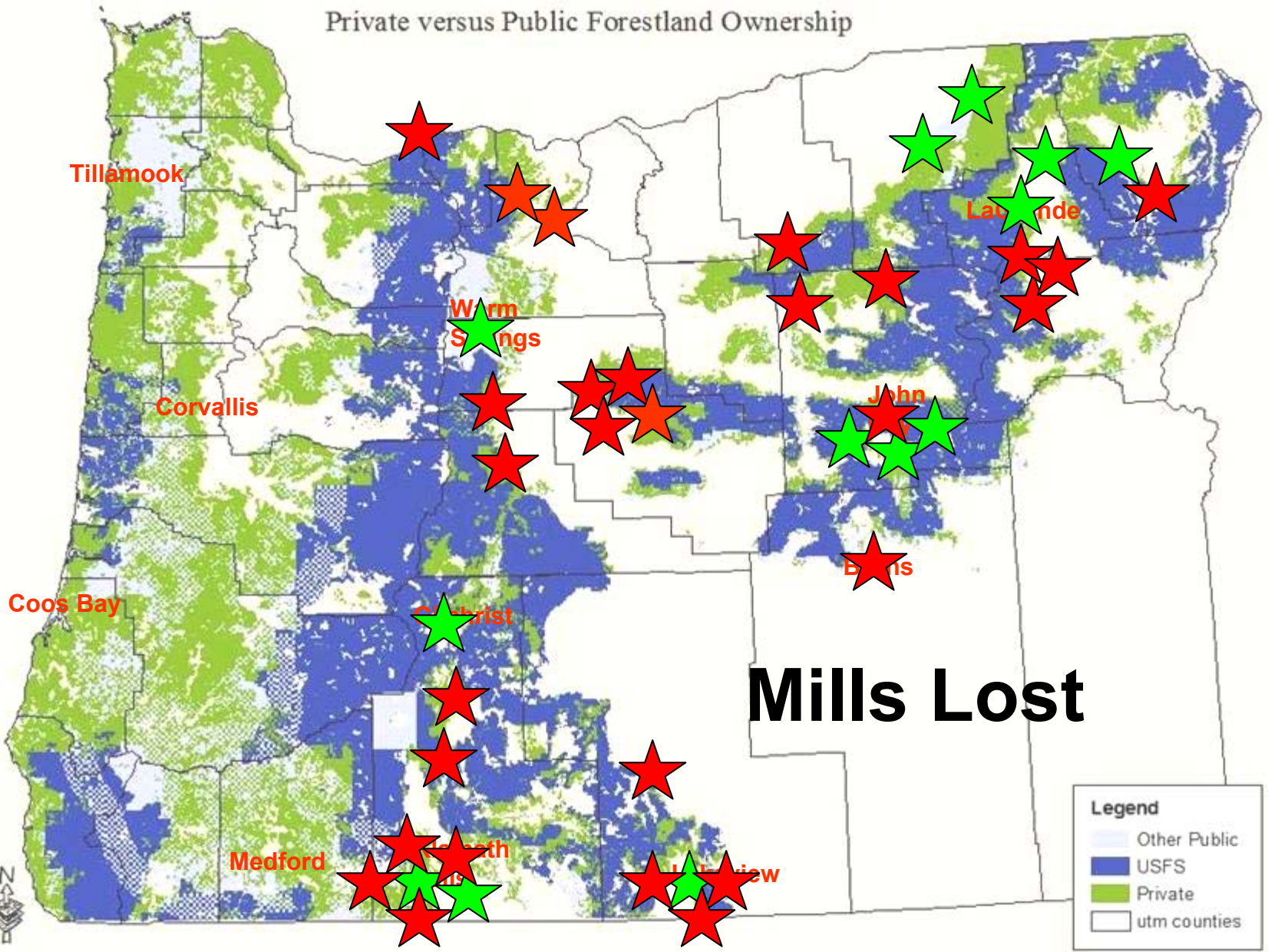


Legend

- Other Public
- USFS
- Private
- utm counties



Private versus Public Forestland Ownership



Tillamook

La Grange

Warm Springs

Corvallis

John Day

Boonville

Coos Bay

Christiansburg

Mills Lost

Medford

North Bend

Umpqua

Legend

- Other Public
- USFS
- Private
- utm counties



Implications (Eastside)

- **Continued development pressure**
- **Lower harvests in the next few decades from industry**
- **Milling capacity dependent on steady, reliable federal harvest**

Implications for federal forest management

- **Federal lands have turned from inward looking to outward looking**
- **Seek their niche in contributing to ecological, economic, and social sustainability**

The federal forest niche: ecological

- **Ecological**
 - **Late successional forest**
 - **Diverse early seral?**
 - **High quality aquatic conditions**
 - **Moderating cumulative watershed effects**

The federal forest niche: economic and social

- **Providing the backbone of resource conservation so that other owners can achieve their goals with a minimum of regulation and uncertainty**
- **Sustaining an industry in eastern Oregon to help achieve density reduction goals**
- **Demonstrating how to integrate all facets of sustainability in managing forests.**