Trends in Northern Spotted Owl Habitat on Federal Lands

- NSO Habitat Threats Cited in 1990
  - ***Harvesting of habitat***
  - ***Vulnerability to natural disturbances –*** *uncharacteristic stand-replacement fire*
  - ***Coordination of conservation measures on non-federal lands***

- An evaluation of the current habitat trends assessments

- Confidence in conclusions from the available information

- Assessment of habitat trends related threats to Northern Spotted Owl conservation

Threats to NSO: Habitat harvest as seen in 1990

(USDI 1990, NSO Status Review)

Two-thirds of suitable habitat had been removed since 1950

"The fundamental issue surrounding the status of the northern spotted owl is one of habitat loss."

Timber harvest on public lands (Federal) was projected to continue at 1-2% annually. (USDI 1990, NSO Status Review)

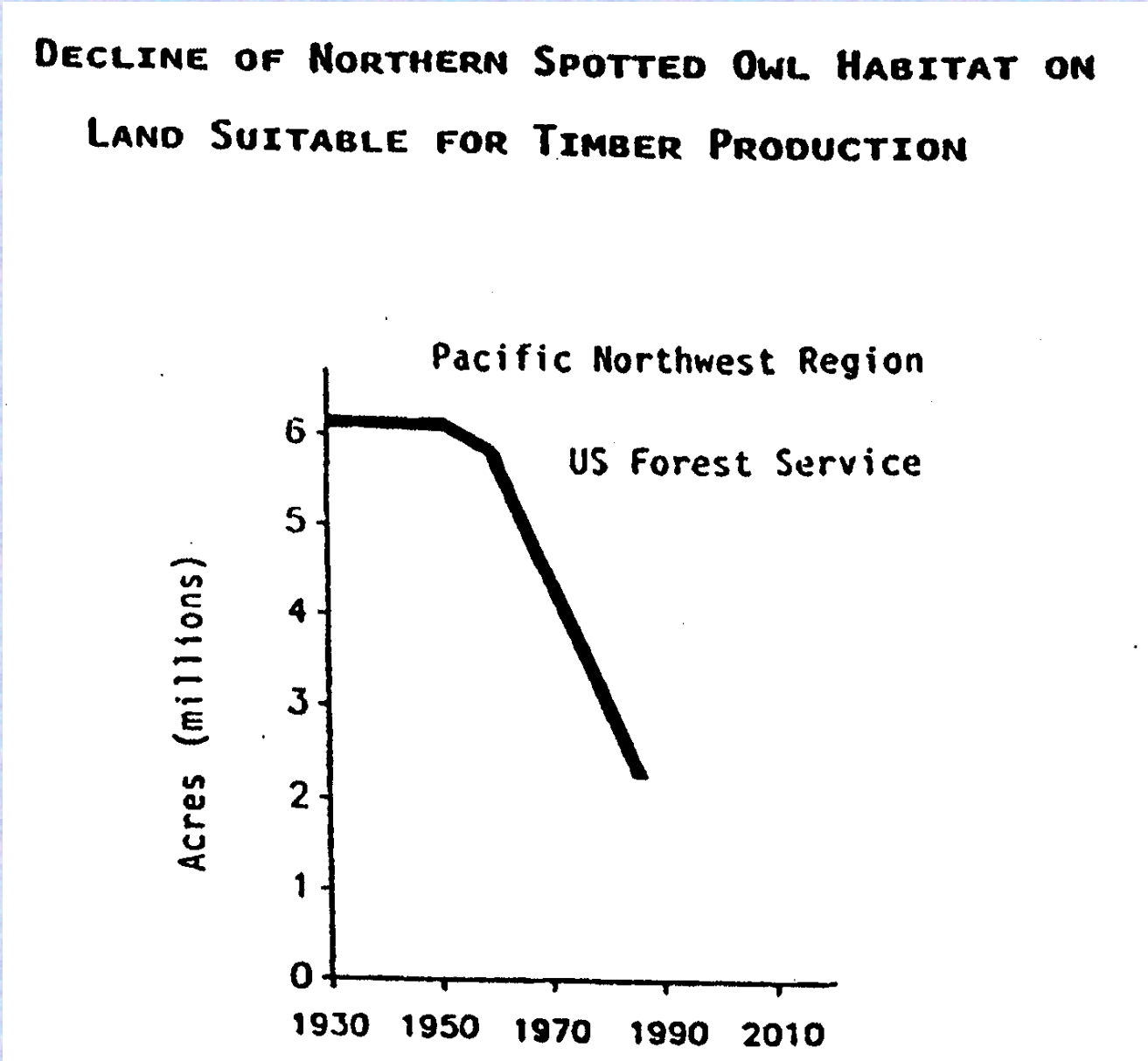
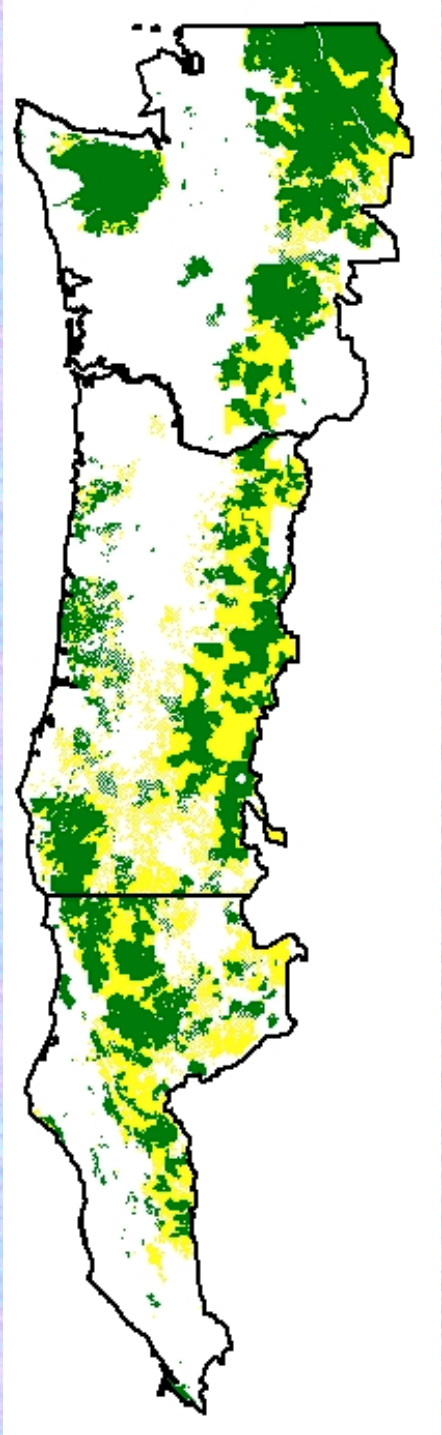


Fig 1.1 Decline in acreage of unprotected suitable NSO habitat... (1990 Status Review)



Available information for determining trends in suitable (Nesting, Roosting and Foraging) NSO habitat

First you need a baseline to which a comparison can be made

Then track changes via
- Remote sensing
- Harvest records
- Project level assessments of habitat impact

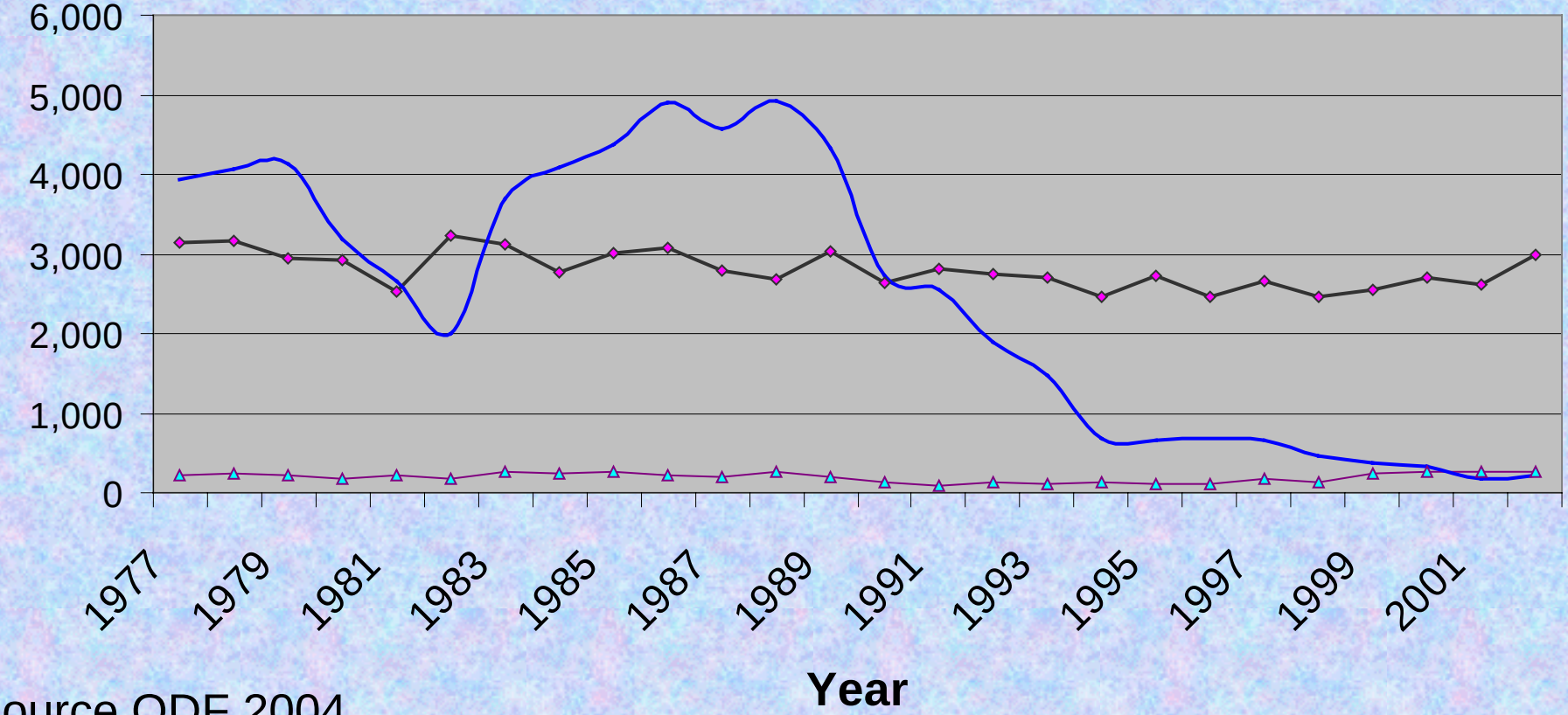
NWFP Reserves NWFP Matrix

Trends in Forest Disturbance (annual rates) From Remote Sensing Studies

	Periods	Public Land	Private Land	Total Land	Reference
Klamath-Siskiyou	**1972-1992**	**- 0.25**	**- 0.42**	**- 0.53**	**Staus et al. 2002**
Rogue Basin	**1972-1992**	**- 0.36**	**- 0.46**		**Staus et al. 2002**
Klamath Basin	**1972-1992**	**- 0.48**	**- 0.96**		**Staus et al. 2002**
Central Cascades, OR	**1972-1988**	**- 1.20**	**- 3.90**		**Spies et al. 1994**
Western Oregon	**1972-1995**			**-0.9**	**Cohen et al 2003**
Tillamook Basin, OR	**1972-1992**			**- 1.00**	**Strittholt and Frost 1995**
Hoh River Basin, WA	**1975-1991**	**- 1.47**	**- 3.45**		**Turner et al. 1996**

Spatially explicit, not range-wide, not habitat specific, various levels of verification, give up accuracy for consistency, the IVMP holds great promise

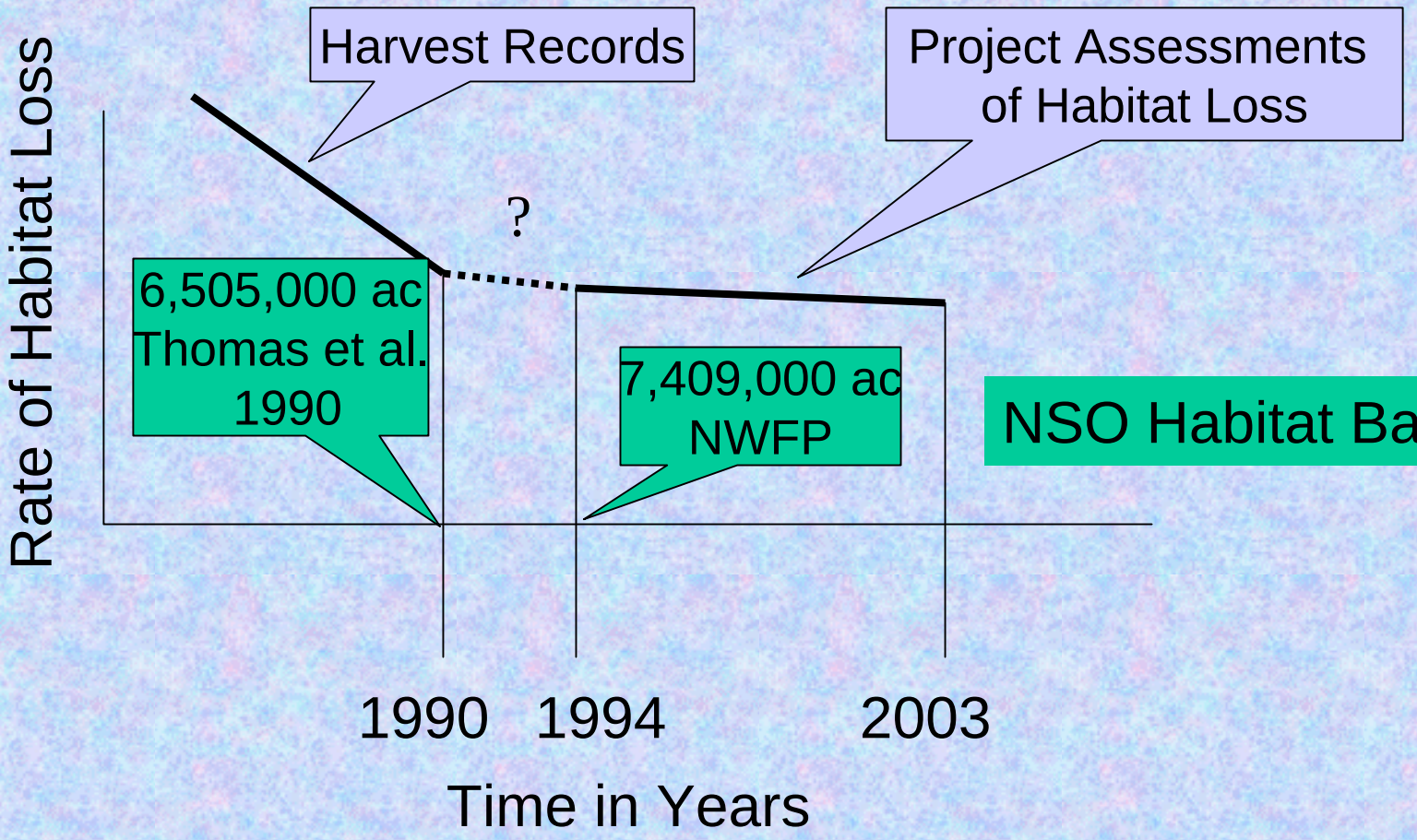
Oregon Timber Harvest
(Million board feet)



Source ODF 2004

Not specific to habitat, activities are difficult to separate, very general

Assessment of Project Impacts on NSO Habitat through Federal Consultations (Biological Assessments, Section 7)



Estimated Rates of NSO Habitat Change on Federal Lands 1994-2003

(*Based on project consultations and local estimates of natural disturbance*)

Cause of Habitat Removal	Management (acres)	Natural Disturbance (acres)	Total
Acres Removed	155,999	224,041 (75% Fire) (67% Biscuit fire)	380,040
1994-2003 Rate	-2.11%	-3.03%	-5.14%
Annual Rate	-.23%	-.34%	-.57%

Source USFWS, 2004

Biscuit fire within natural range of variation, however unnatural fuel accumulations E. Cascades & some of Klamath at high risk

Trends in *Annual* Habitat Change From *Management Activities* on Federal Lands in the Range of the NSO (*no baseline for natural disturbance*)

	Listing Document		Current Estimates
Management agency and state	Pre-listing period (~1981 to1990)	Anticipated rates (~1991 to2000)	Calculated rates (1994 to 2003)
FS in WA and OR	-1.5%	-1%	-0.21%
FS in CA	Not reported	-0.6%	-0.14%
BLM in OR	-3%	-3%	-0.52%
Total annual rate and acres		-1% (67,500)	-0.24% (16,905)

Source USFWS, 2004

Evaluation of Data on Habitat Trends on Federal Lands

- Habitat losses calculated by the USFWS are conservative and reasonable approximations

- We believe these data overestimate habitat losses; the magnitude of the bias cannot be determined

- The reliability of the data is difficult to interpret (adjustments to consultation data, compiling natural disturbance assessments)

- Assessments are limited by data quality

- However, the risk associated with these estimates being wrong is low

Evaluation of Data on Habitat Trends on Federal Lands *(Continued)*

- Habitat removal resulting from *management activities* is probably estimated with the *greatest accuracy*

- Habitat changes resulting from *natural disturbance* events are probably *less accurate*

- Habitat development predictions +0.8% per year are plausible, but not validated

- Future habitat trends analysis of all forested lands could provide valuable insight to the continued conservation role of non-federal lands

Major Sources of Uncertainty for the Current Assessment of NSO Habitat Change

- Discrepancies between the NW Forest Plan baseline and local baselines- NWFP baseline still best available

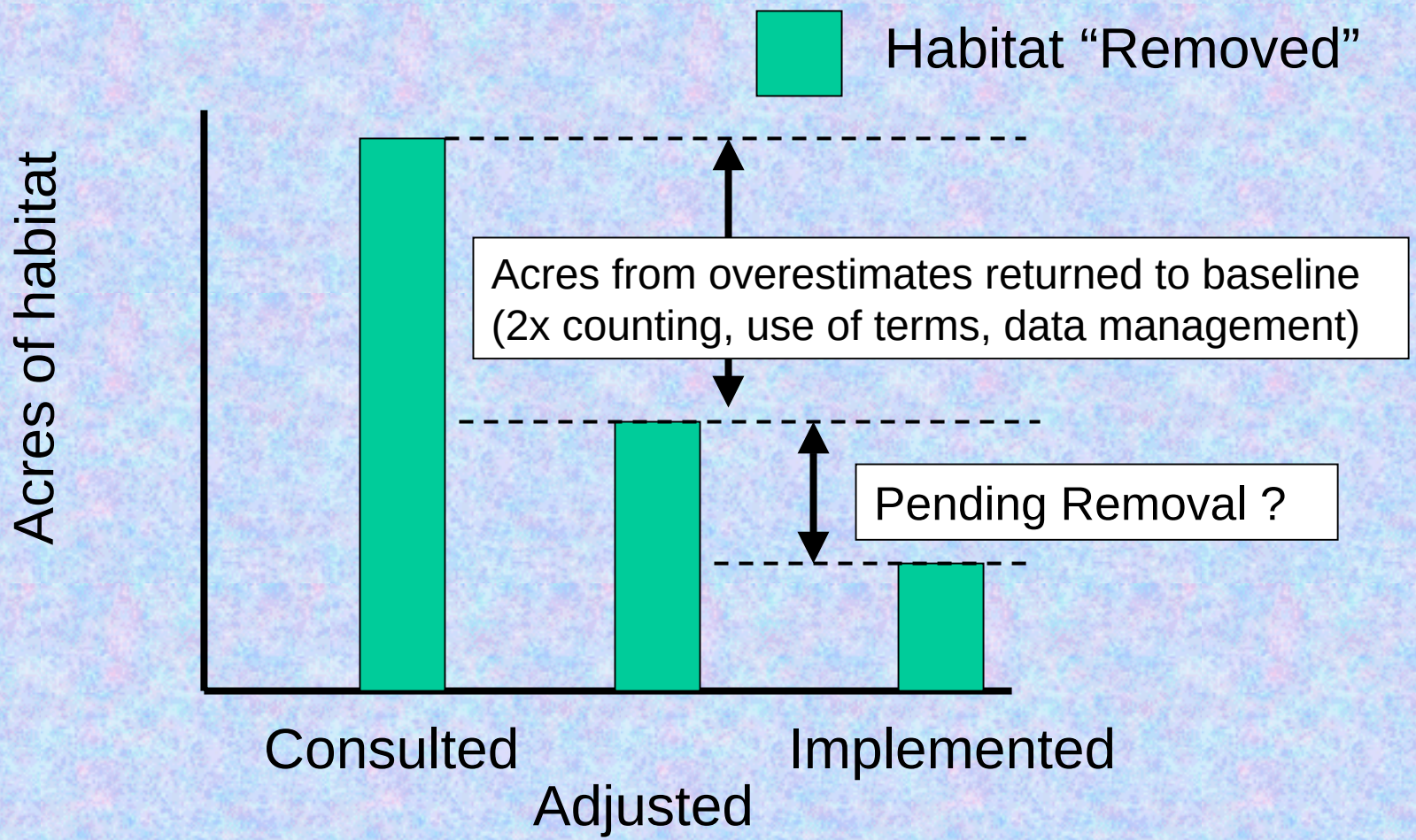
- Difficulties in tracking natural disturbances - effect of fire generally overestimated

- Habitat development projections - lack of validation

- Habitat change from the consultation database- overestimates can not be quantified

Sources of Uncertainty - *Consultation Database*

Estimates of Management Impacts on NSO Habitat Consolidated From Project Consultations



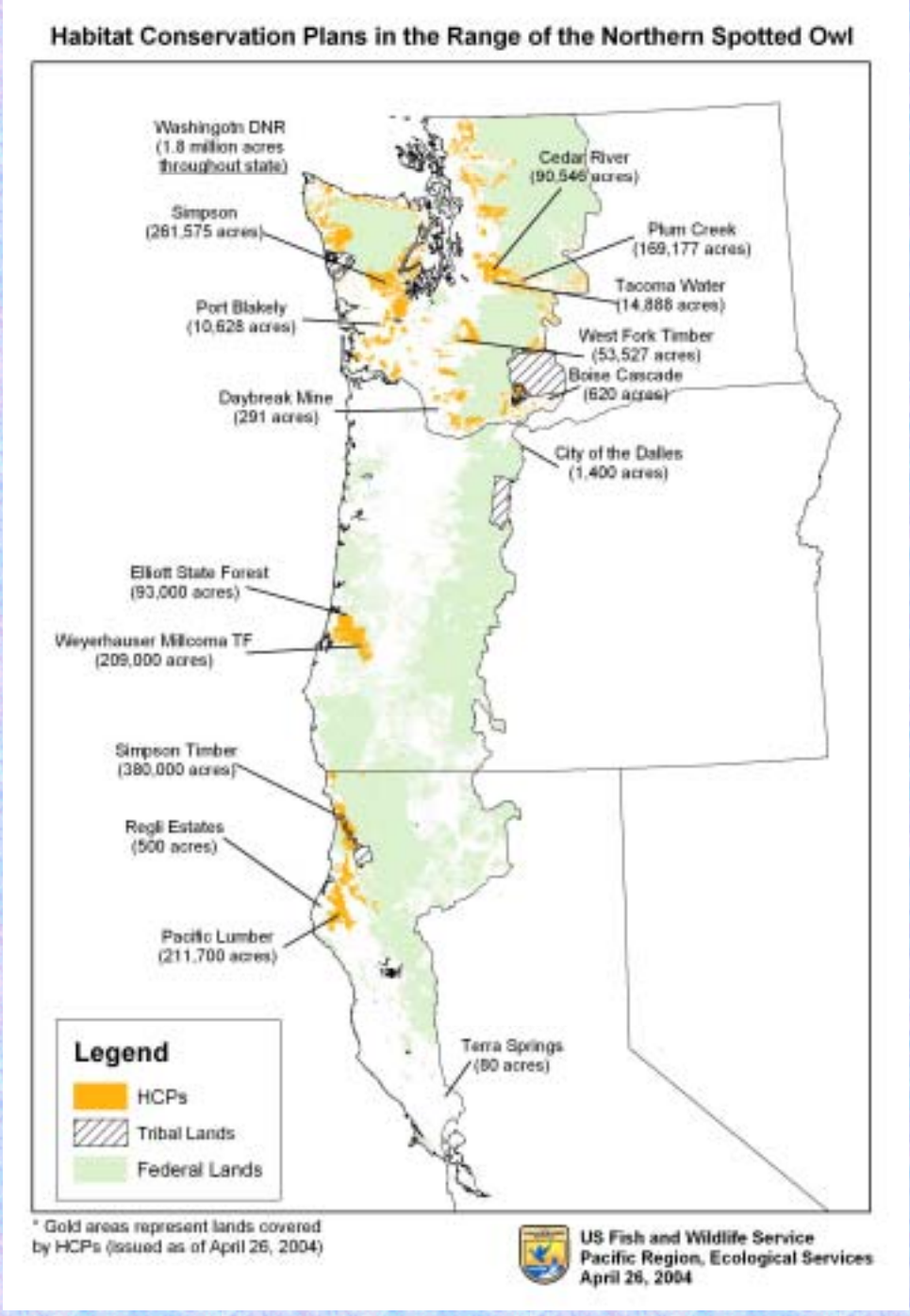
Conclusions: Federal Land Habitat Trends

- Estimates of habitat trends are range-wide ***approximations***
- There is ***considerable uncertainty*** surrounding all habitat trend estimates
- Habitat loss is likely ***overestimated***
- Rates of habitat loss are ***consistently below anticipated*** *from 1990 listing (and NWFP)*

Lack of Coordinated Conservation Measures to Assure the Continued Existence of Habitat on Non-federal Lands

(1990 NSO Status review)

- Data are insufficient to determine the rate of change on non-federal lands
- However, two major changes have occurred since 1990
  - -Increased State Forest Practices regulations
  - -Emergence of Habitat Conservation Plans



Considerable Non-federal lands are now managed under Habitat Conservation Plans that contribute to NSO conservation

Washington	1,952,000
Oregon	303,000
California	594,000
Total	**~2,849,000**

Changes in Habitat Trend Threats on Federal Lands from 1990

Habitat Trend	**1990 Threat**	**2004 Threat**
Habitat Harvest	Moderate/Severe	***Decreased***- rate of loss below anticipated
Natural Disturbance	Significant in some areas	Same Or ***Increased***- many LSRs remain susceptible to catastrophic fire
Non-Federal Lands	No assurance	***Increased Assurance***- new State Forest Practice Rules and HCPs

Future Information Needs

- Develop a range-wide, spatially explicit database to track changes in forest condition from individual management activities and natural disturbance.

- Establish a new baseline that can cross ownership lines

- Improved ability to track and validate habitat suitability and include newly developed habitat in estimates of habitat trends

- Investigate remote sensing methodologies to describe habitat condition

- Ways to implement management to ensure the persistence of the NWFP reserve system.