Ecological Sites:
A New Endeavor for Soil Survey

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Overview

- Brief History of Ecological Sites in NRCS
- Ecological Site Definitions and Concepts
- Goal's for Soil Survey
- New Approach for Cropland

Ecological Sites in NRCS

- In 1997, the Ecological site concept was introduced into NRCS manuals and handbooks
  - Initial acceptance was slow
  - No national strategy for development
- In 2009, Chief White approved a Decision Memo to:
  - Accelerate development of ESDs
  - Improve quality and standardization of ESDs developed
  - Joint effort between S&T and SS&RA

Ecological Site - Definition

A conceptual division of the landscape that is defined as a distinctive kind of land based on:

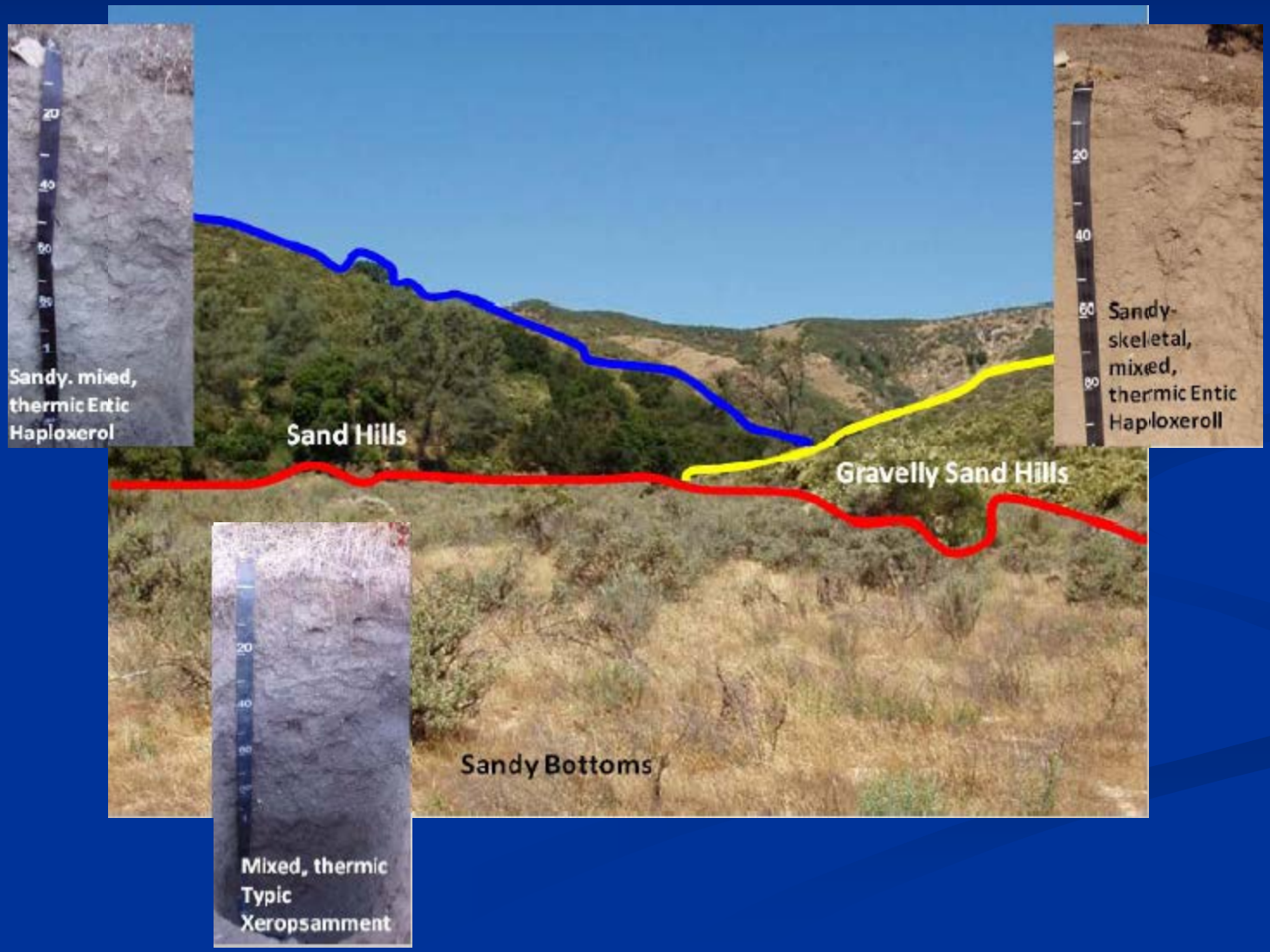
•recurring soil, landform, geological, and climatic characteristics that

•differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation, and

•in its ability to respond similarly to management actions and natural disturbances.

- Interagency ESD Handbook, 2012

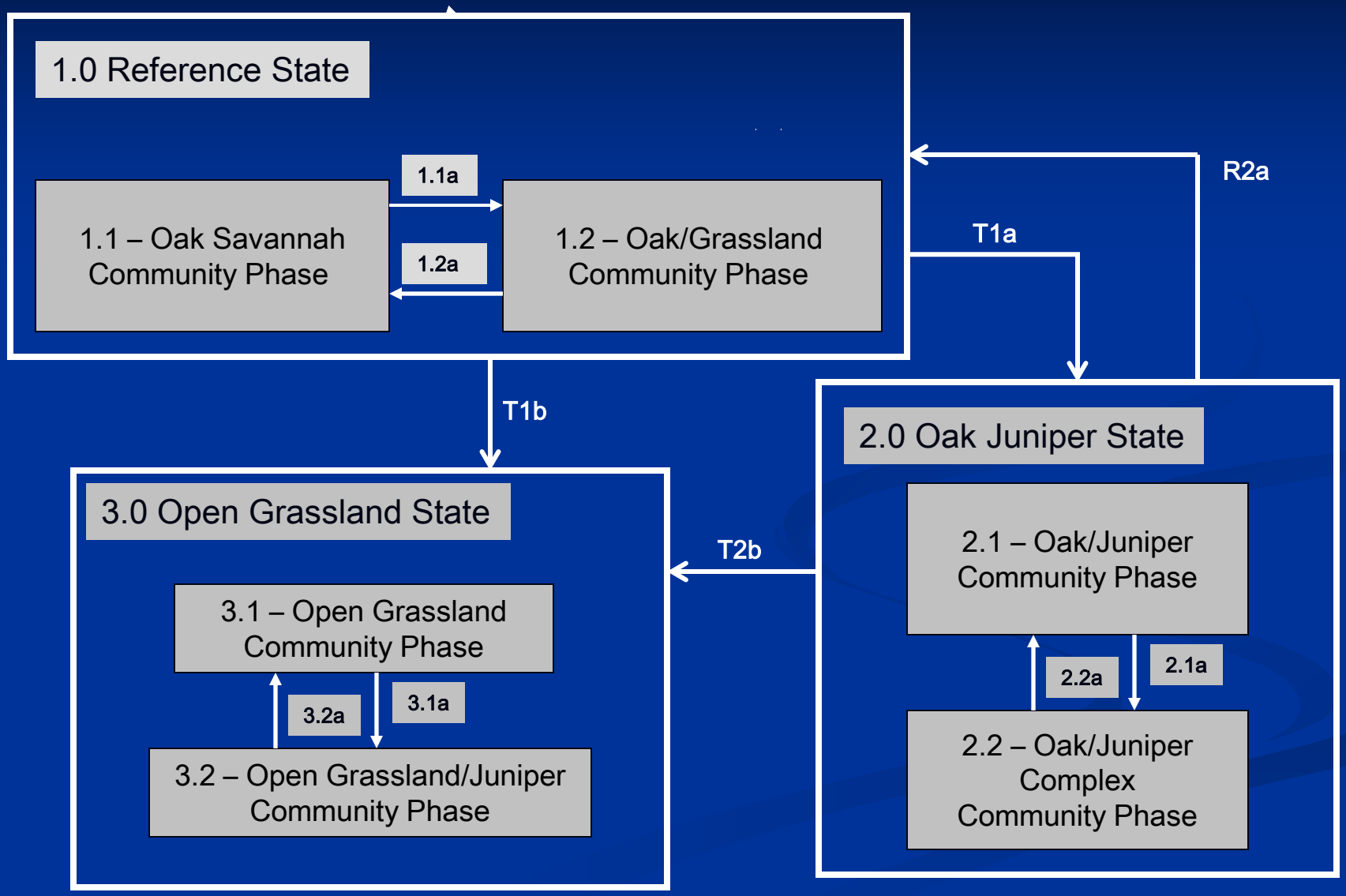
Distinctive Type of Land



Response to Management and Disturbance

- Herbivory
- Fire
- Drought
- Invasive Species
- Cropping System

Deep Redland ES – MLRA 81C



Why are ESDs useful?

- Help predict the outcomes of major natural disturbances
- Provide a roadmap for restoration
- Support agency initiatives
  - Longleaf Pine
  - Sage Grouse
- Provide *management interpretations* (wildlife, grazing, wood products, hydrology, invasive plant control, etc.)
- Serve as a tool for conservation planning

ES Acceleration:
Still hiring some positions

- Many new staff…
  - National Coordination @ 5 (+ 2)
    - National Leader & 4 ESD Discipline Specialists at NSSC (+ 2 SQ specialists)
  - Quality Assurance @ 6
    - MLRA Regional Offices (1 MO QA Spec/2 MO's)
  - MLRA ES Specialists @ ~ 50
    - MLRA SS Offices

Total = approx. 60 FTE's

Main ES Projects and Priorities

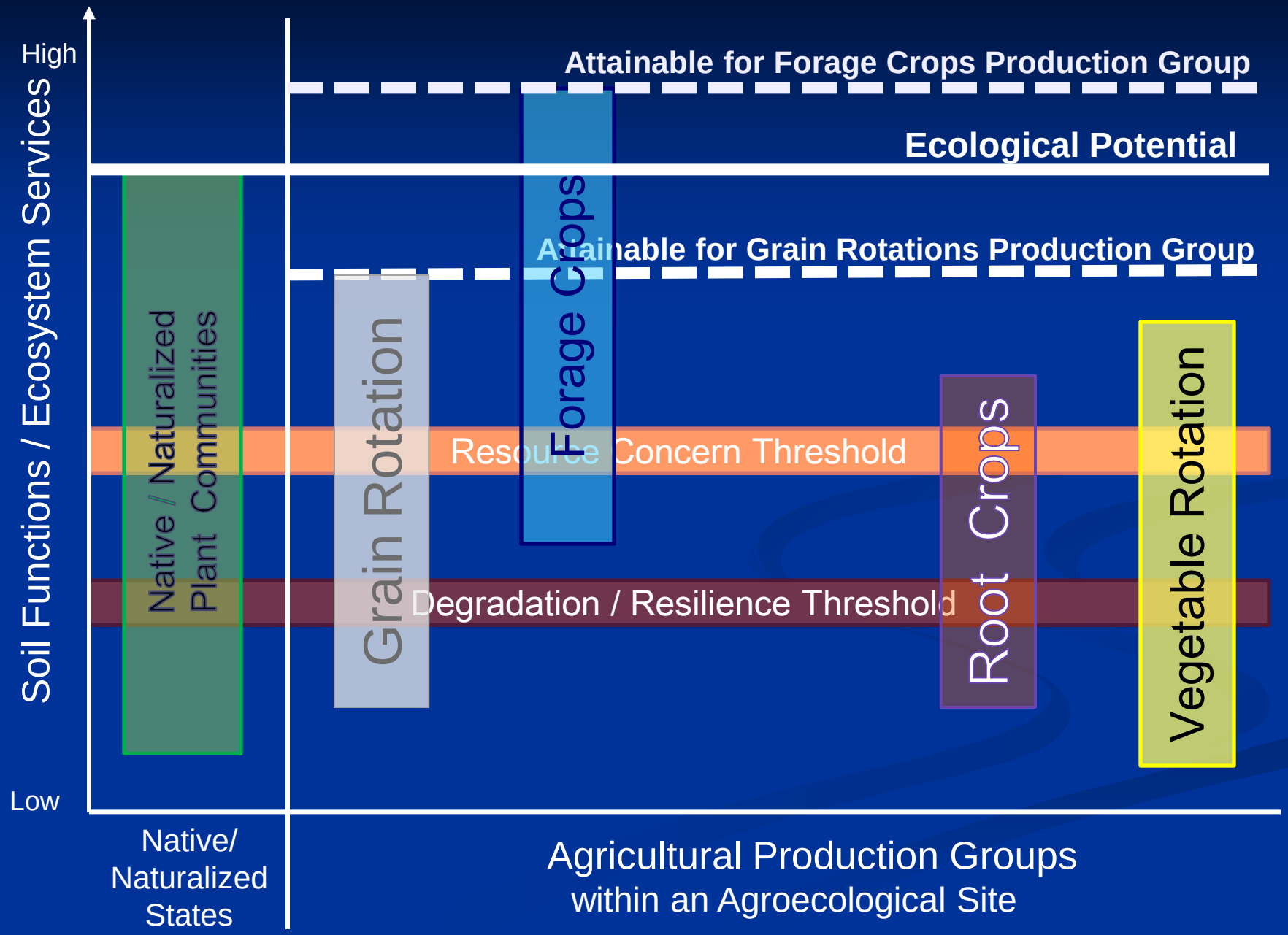
- ES Policy and Standards
- New Database Requirements
- Spatial Hierarchies (interagency)
- Training for Eastern and Central US
- ES for Additional Land Types
  - Crop and pasture
  - Riparian
  - Wetlands

Working Definition of a *Agroecological* Site

An *agroecological site* is a distinctive kind of land based on:

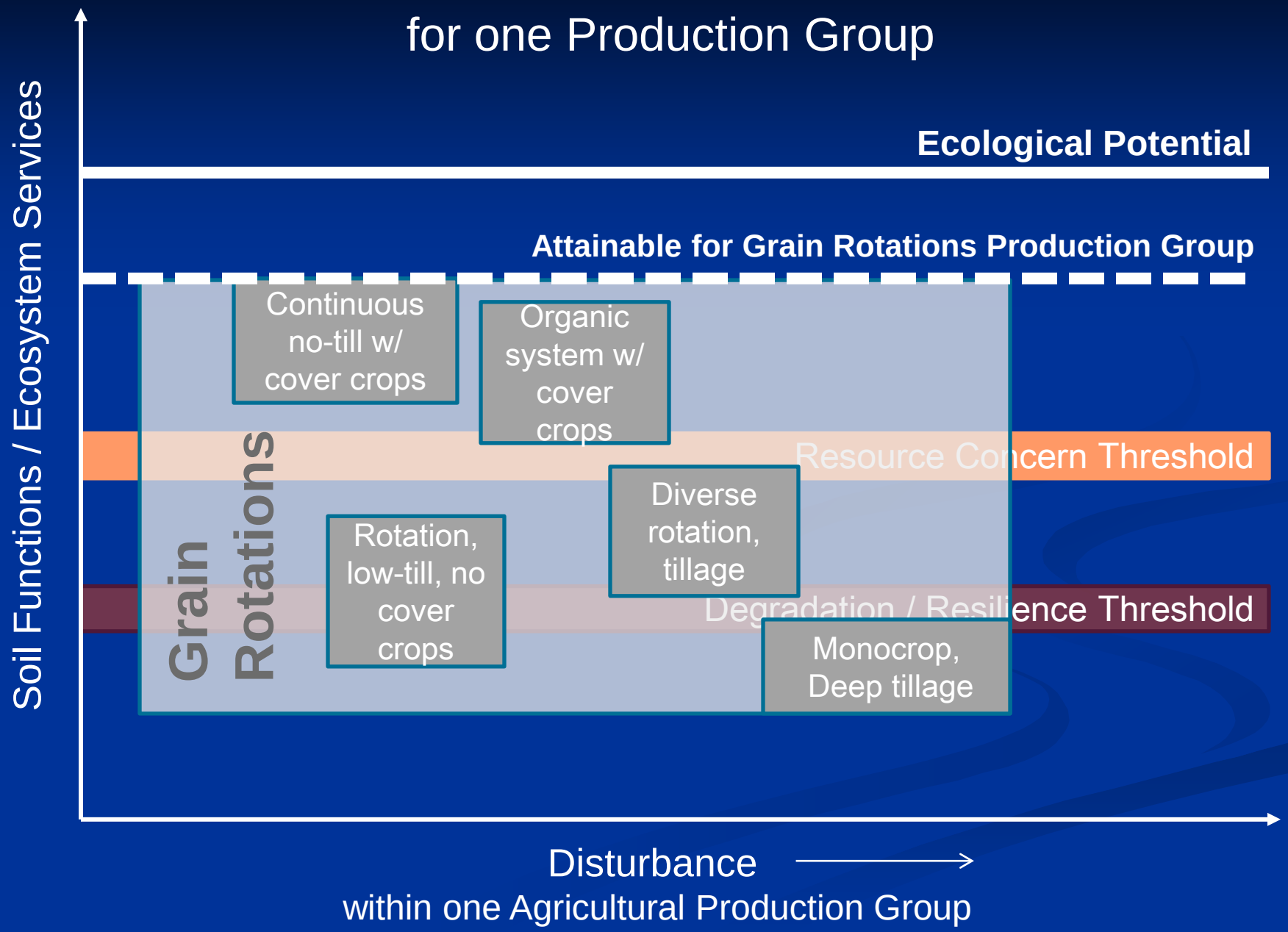
- recurring soil, landform, geological, and climatic characteristics that differs from other kinds of land
- in its potential to support distinctive ranges of soil functions (as indicated by dynamic soil properties), and
- in its ability to respond similarly to management actions and natural disturbances.

Land Management Optimization (LMO)



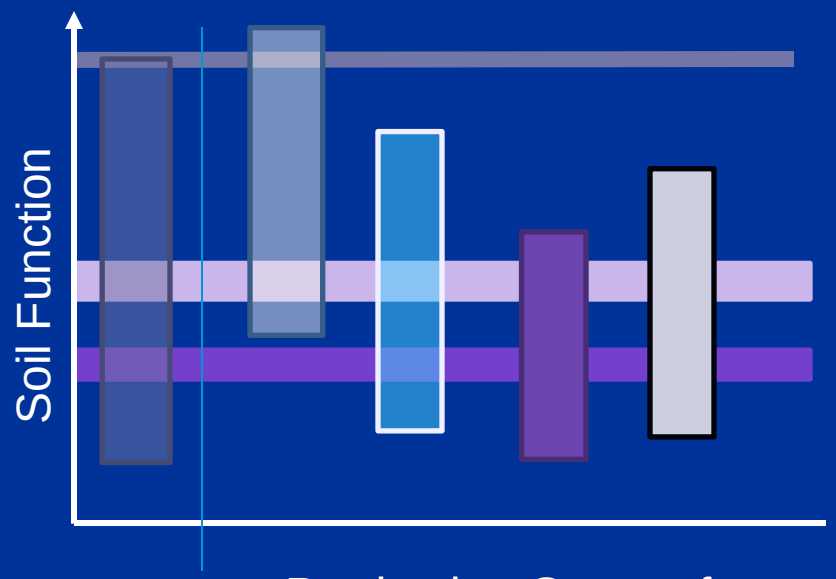
Land Management Optimization

for one Production Group



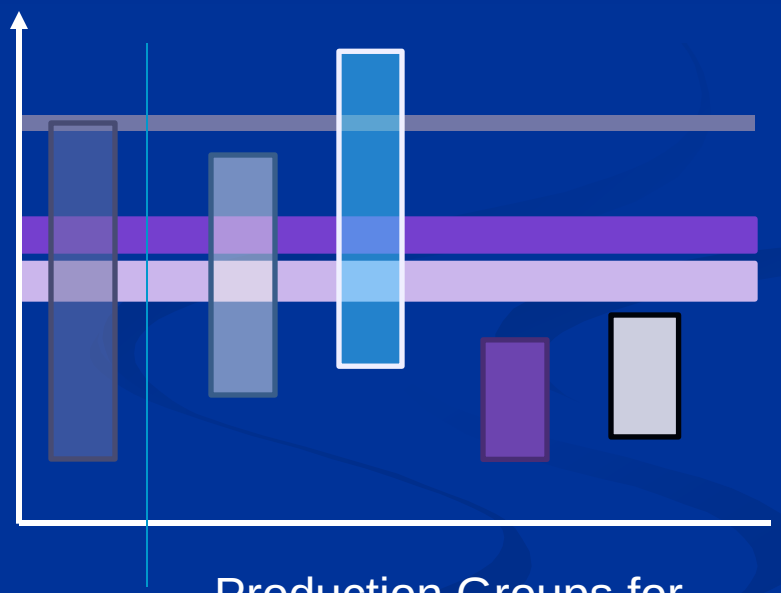
Differences in Potentials and Thresholds among Agroecological Sites

Land Management Optimization Models for 2 Agroecological Sites



Production Groups for

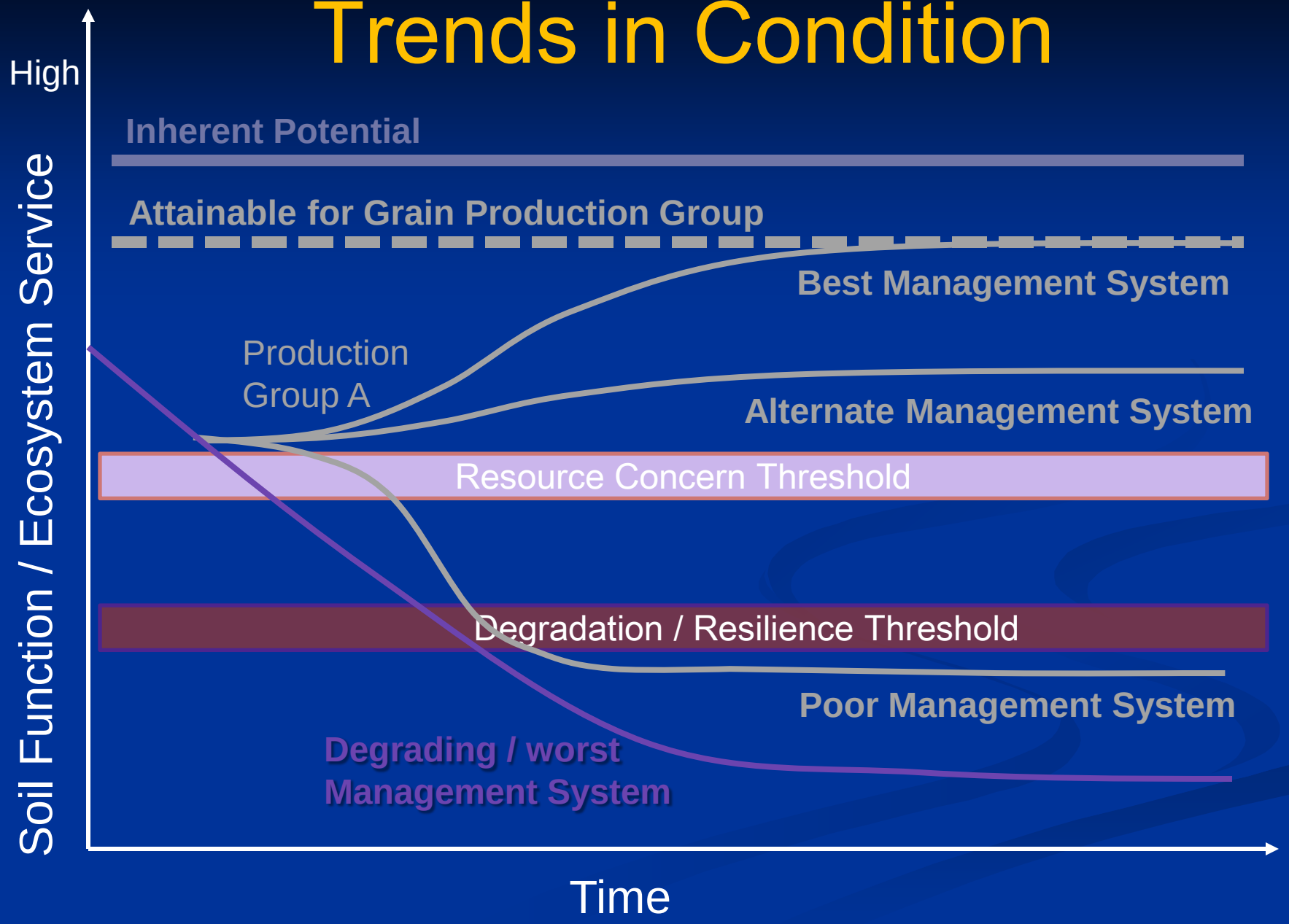
Agroecological Site A



Production Groups for

Agroecological Site B

Trends in Condition



Synergies of this Approach

- Marriage of dynamic soil properties with ESDs
- The same (or subset) of soils data will be collected for NRI, ARS CEAP, CDSI, native ESDs
- Applicable on a variety of land uses, especially highly managed lands
- Will provide data to calibrate/validate models
- Eventually models, will be able to fill in gaps
- Need collaborators to make this work!!

Additional Reasons for New Committee

- The Steering Committee for National Cooperative Soil Survey approved a new standing committee for ESDs and DSPs:

Soil and Ecosystem Dynamics

- The use of DSPs in Crop ESD necessitates consideration of both at once
- Please join the other Regions in adopting this new standing committee

Questions, Comments, Want to get involved?

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