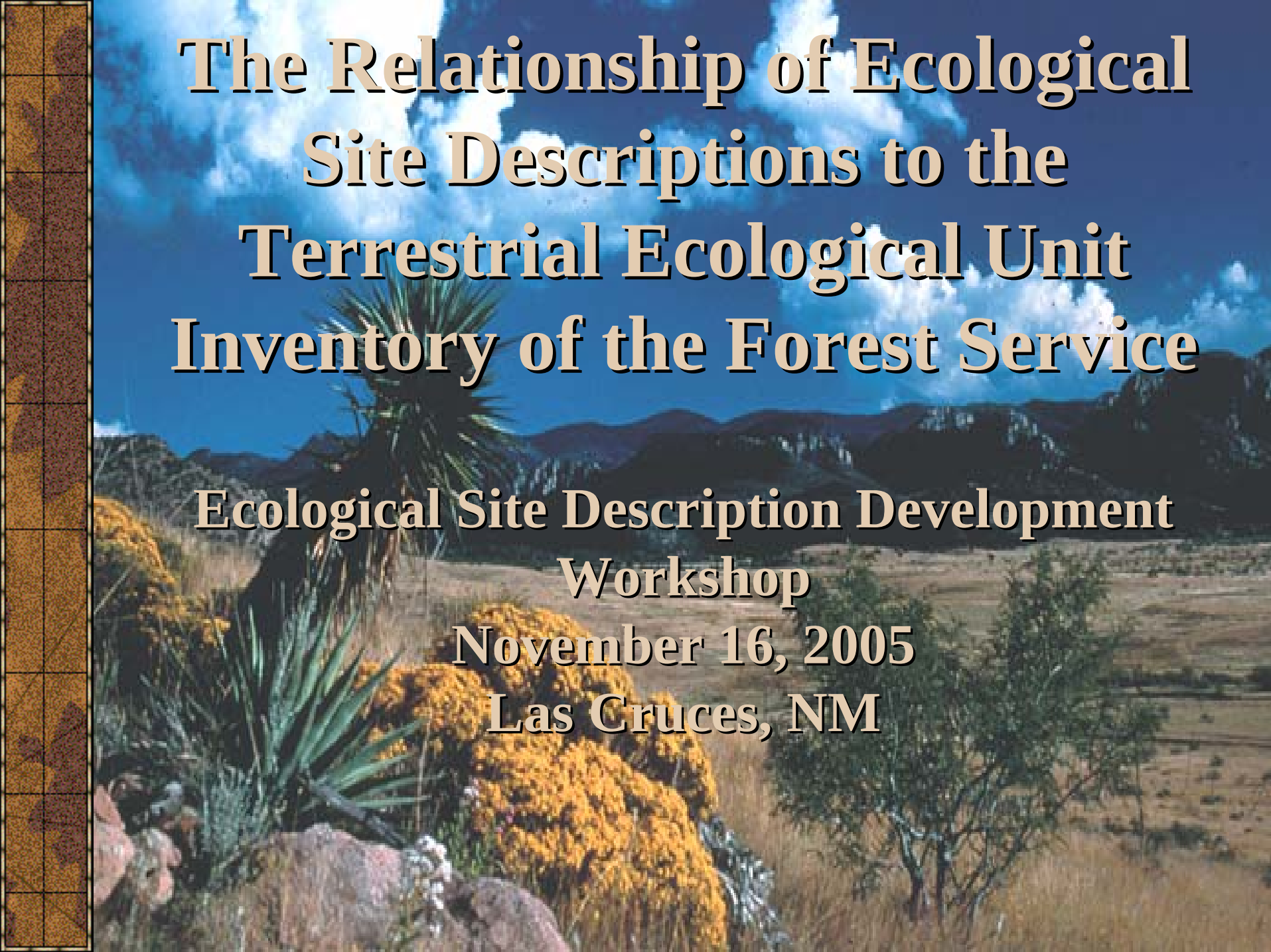
The Relationship of Ecological Site Descriptions to the Terrestrial Ecological Unit Inventory of the Forest Service



Ecological Site Description Development Workshop

November 16, 2005

Las Cruces, NM

Interagency MOU

PURPOSE: '…..establish a Federal Interagency team that will be responsible for developing a standardized method to be utilized by the BLM, FS and NRCS to define, delineate and describe terrestrial ecological sites. The team will cooperatively develop an ecological site manual to document this standardized method.'

Relationships exists…..

- Agency Business Needs
- Terminology
- Classification & Mapping
- Analysis and Interpretation

Business Needs

- **Mutual to Agencies**

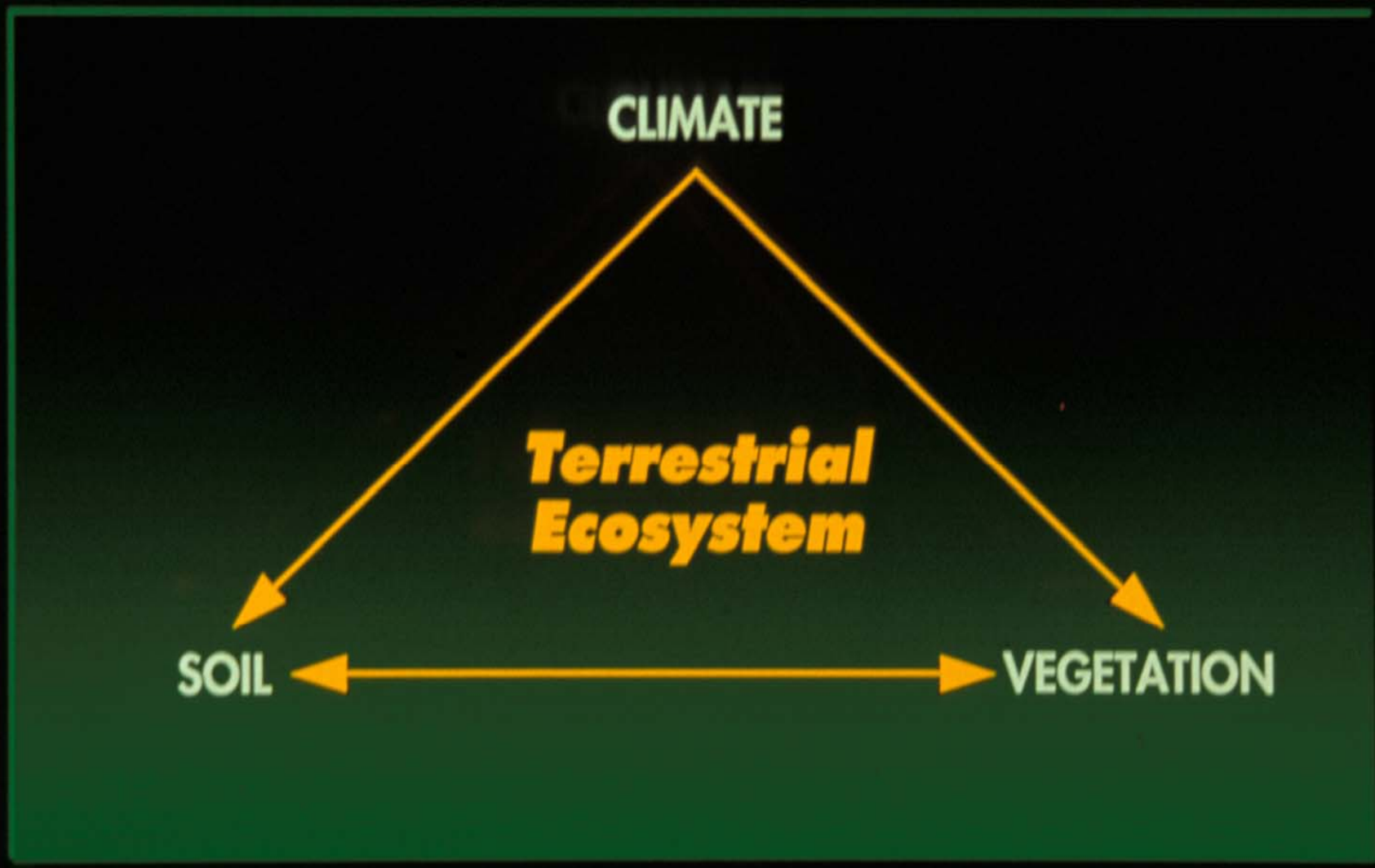
1. **Utilize the best available science**
2. **Stewardship of natural resources**
3. **Conservation planning & decision-making**

- **Exclusive to an Agency**

1. **Policy**
2. **Customer base**
3. **Decision-making processes**
4. **Culture**

Terminology

- Ecological Site vs. Ecological Type
- Soil Map Unit vs. Ecological Unit


CLIMATE
Terrestrial
Ecosystem
SOIL
VEGETATION

Definition USFS

- An ecological type is a category of land with a distinctive combination of landscape elements, that differs from other types in the kind and amount of vegetation it can produce and in its ability to respond to management actions and natural disturbances.

Definition NRCS

- **An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.**

Common Classification Systems

- Soil Taxonomy
- Geology & Geomorphology
- Vegetation (Family, Genus, Species)

Ecological Classification Systems

- Vegetation Classification (NVCS)
- Climate (seasonal distribution)
- Disturbance Regimes (type, frequency, magnitude)

Mapping

- Ecological units are hierarchical
- Ecological sites are scale specific

Analysis and Interpretation

- **Characterizations of ecological components including predictions of suitability, capability, potential and hazards.**
- **Data inputs for predictive and simulation models that contribute decision support systems.**

Integration of TEUI and ESD's

- Cross-walk of basic data elements
- Demonstrate linkages between scale(s).
- Standardize interpretations (e.g.., units of measure)

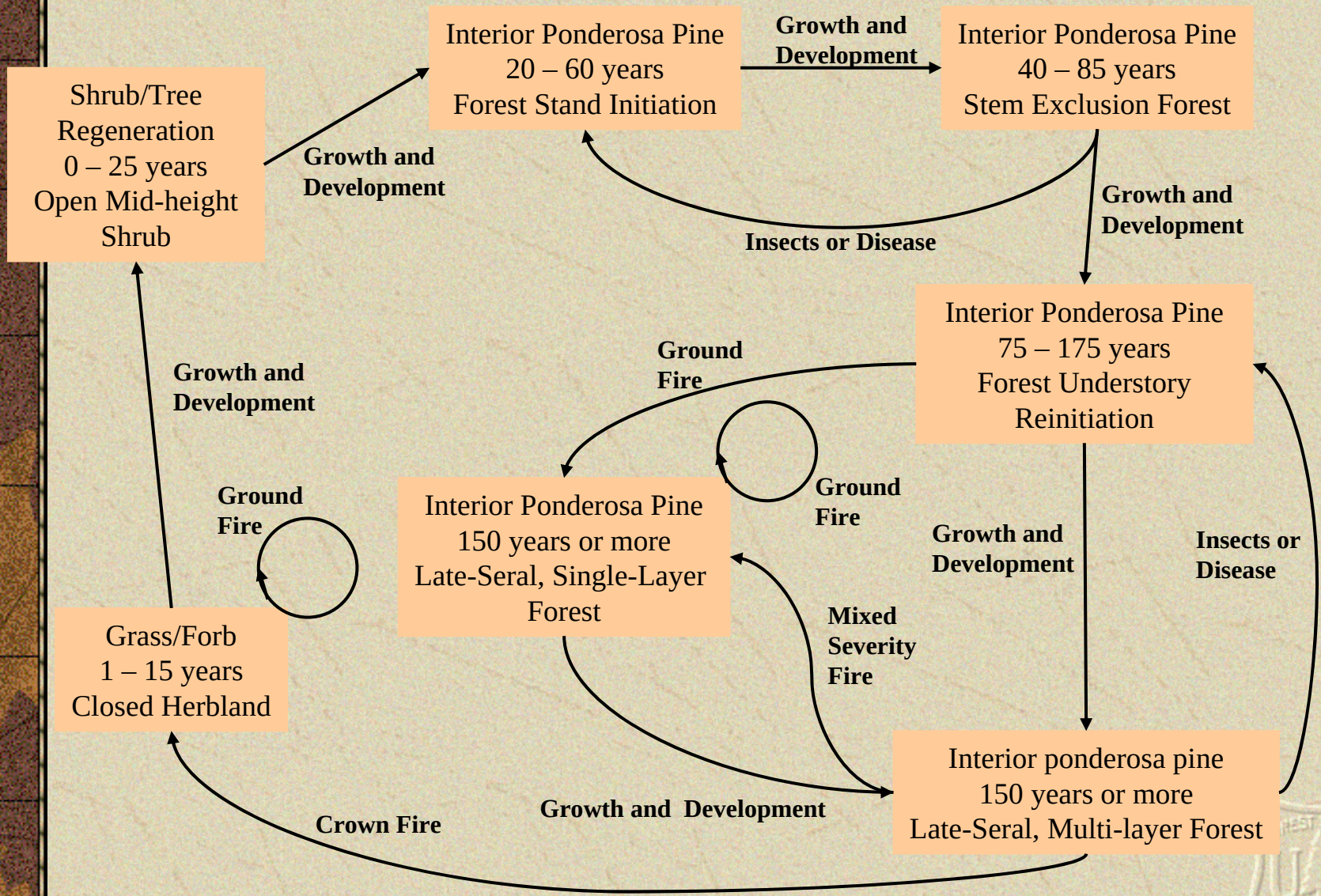
Developing Models of Vegetative Change

State-and-transition ecological models for understanding disturbance-mediated change within and across ecosystem types

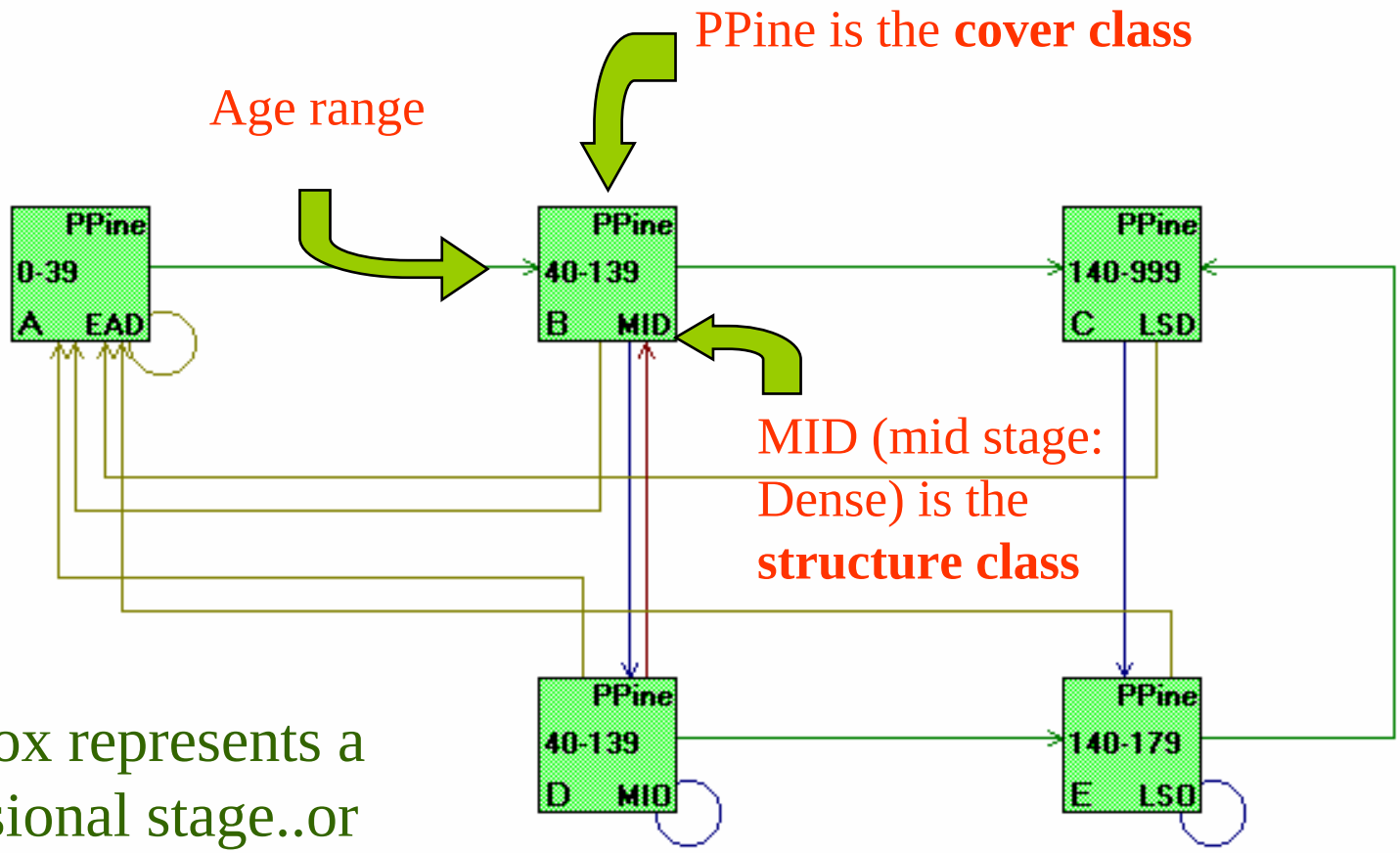
Vegetation Development Dynamics Tool (VDDT)

- Simulates changes in vegetation resulting from management and disturbances.
- Multiple simulations predict a range of possible outcomes.
- Disturbance probabilities may be based on landscape conditions.
- Episodic disturbances can be modeled.
- Easy sensitivity analysis.

Warm, dry ponderosa pine forest

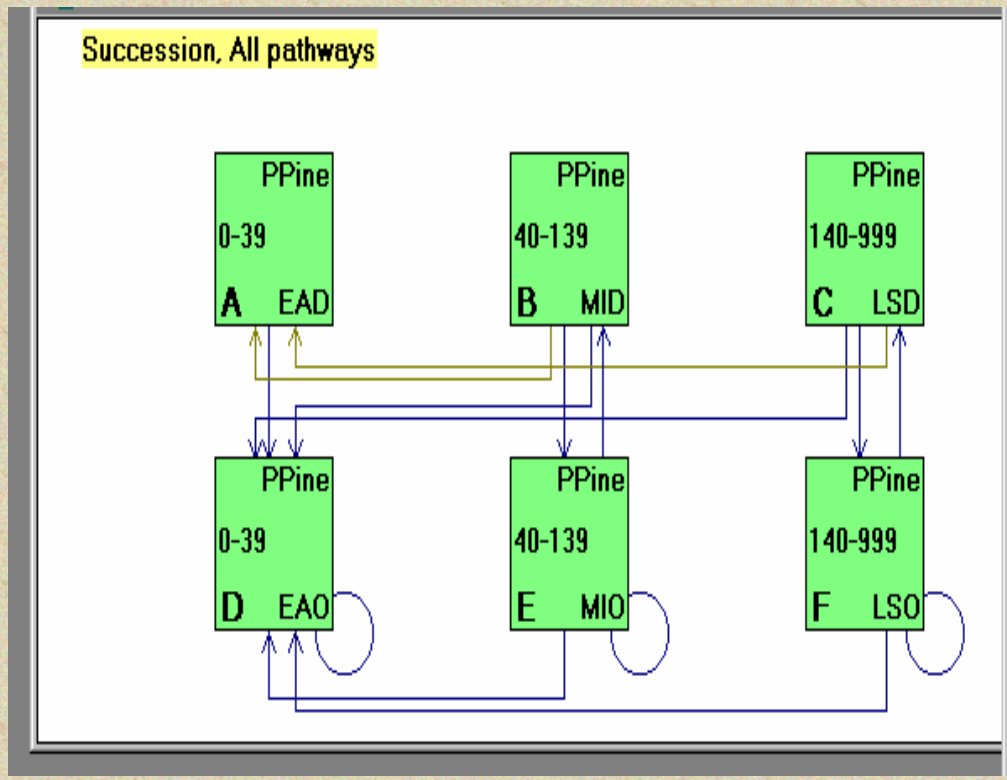


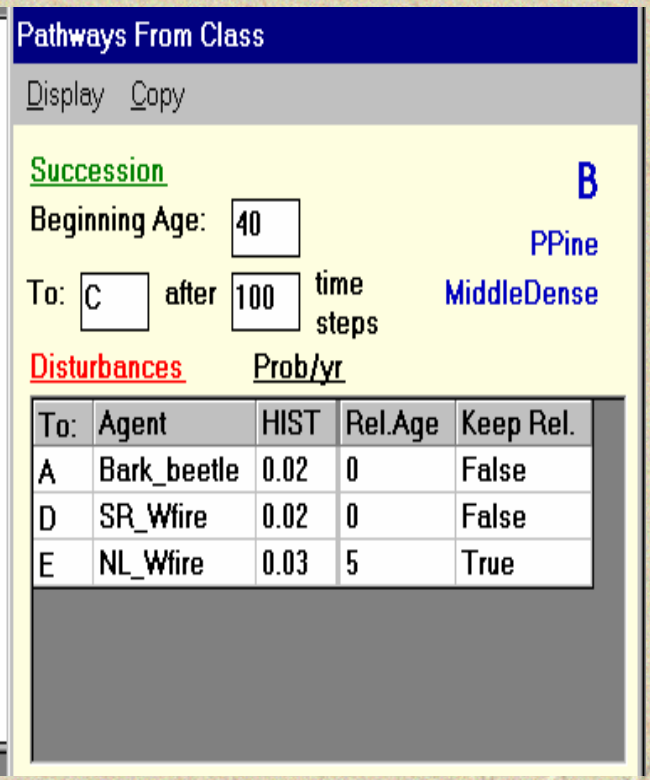
VDDT models vegetation using discrete "states" define by a cover class and a structural stage. States are organized chronologically into a successional pathway diagram (SPD).



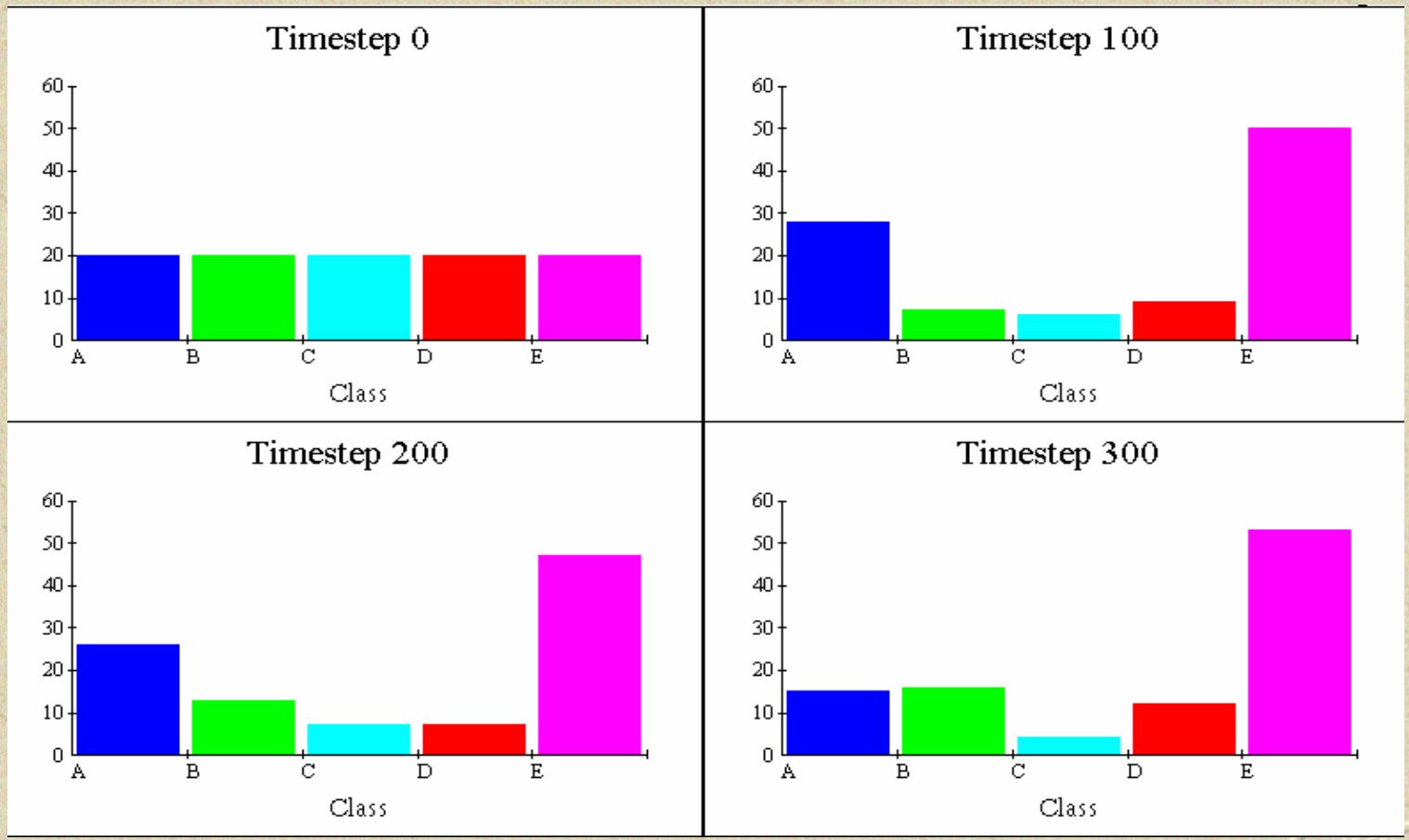
Successional Pathway Diagram

Vegetation also changes states in response to disturbances such as wildfire and bark beetle





Dry PP; Historic fire regime run: Note relative area in class E “Old/Single story”



Percent of pixels in each class for each graph time: all disturbances active