

# NRCS Efforts in Developing and Utilizing State and Transition Models

# PROGRESS

- 50+ years vs. < 10 years
- Joel's questions vs. Sam's questions
- Ecological Site Descriptions are being developed
  - Repository of Knowledge
  - S&T models
  - Ecological dynamics (Dave's Presentation)
  - Rangeland Health Reference Sheets  
(numbers Sam!!)

# ECOLOGICAL SYSTEM DYNAMICS

## competing paradigms

CLEMENTS (1916)

DYKSTERHIUS (1949, 1958)

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climatic climax endpoint

change

linear

deterministic

disturbance unimportant

competition important

VON BERTALANFFY 1968

HOLLING 1973

MAY 1977

WESTOBY et al 1989

STRINGHAM et al 2003

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multiple steady states

change

nonlinear

disturbance important

competition-less important

thresholds



# NRCS Efforts in Development

- National Range and Pasture Handbook 1997
  - Chapter 3 section 1
- Ecological Site Information System (ESIS)
  - Ecological Site Description (ESD)

# NRCS Efforts in Development

- Workshops, symposia etc.
  - Logan, UT – 2000
  - Reno, NV – 2000
  - SRM Annual and Section meetings
  - SWCS Annual meetings
  - Las Cruces, NM – 2005
  - Grand Junction, CO – 2006
  - Corvallis, OR – 2006
- Publications

# NRCS Efforts in Development

- Development of Ecological Site Descriptions
  - S&T Models
  - Ecological Dynamics
  - Rangeland Health Reference Sheet
- Texas
  - TAMU and others involved in describing models
- New Mexico
  - With BLM using ARS
- Northern Plains
  - Regional coordination and teams describing site and models

# NRCS Efforts in Development

- Contracts with private and/or university
  - ID, MT, NV, TX, UT
- Dedicated NRCS staff positions
  - AZ, CA, HI, ID, MT, NM, NV, UT, WY
- MOU with NRCS, BLM & FS for the development a standardized method to define, delineate and describe terrestrial ecological sites
- NCSS integration of dynamic soil properties tied to states

# NRCS Efforts in Utilizing

- National Inventory
  - NRI and FIA
- Integrated into NEDC training
- Conservation Planning
  - Understanding Ecological Site Dynamics
    - Explaining why things happen or don't happen
    - Will changes be sustainable, or what actions needed to ensure
    - Why some actions worked sometimes and not other times
    - Predict change



# Efforts in Utilizing

- NGO's
- Private Consultants
- Other agencies (Federal and State)

# NEEDS

- Discussion and debate of concepts
- Scientific testing of concepts
- Science based methodologies for development of ecological site specific models
- Management actions and models must fit with process based models