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)
DYKSTERHUIS (1949, 1958)

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

multiple steady states
change
nonlinear
disturbance important
competition-less important
thresholds

Brown & Tugel 2001
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