NATIONAL COMMISSION on SCIENCE for SUSTAINABLE FORESTRY

A Program Conducted by the
National Council on Science for the Environment "NCSE"

DORIS DUKE CHARITABLE FOUNDATION

NATIONAL FOREST FOUNDATION

The David and Lucile Packard Foundation

SURDNA FOUNDATION

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Figure 1

NCSSF Role Linking Science and Management Needs

The Commission

Science Capabilities

- Ann Bartuska - USFS
- Joyce Berry - CSU
- Norm Christensen** - Duke
- John Gordon* - Yale
- Al Lucier- NCASI
- David Perry - OSU/UHI
- Ron Pulliam - UGA
- Hal Salwasser*** - OSU

Stakeholder Needs

- Greg Aplet - Wilderness Soc.
- Jim Brown – ODF
- Bruce Cabarle - WWF
- Nils Christoffersen - WR
- Sharon Haines - IP
- Al Sample - Pinchot Inst.
- Tom Thompson – USFS
- Scott Wallinger - MWV

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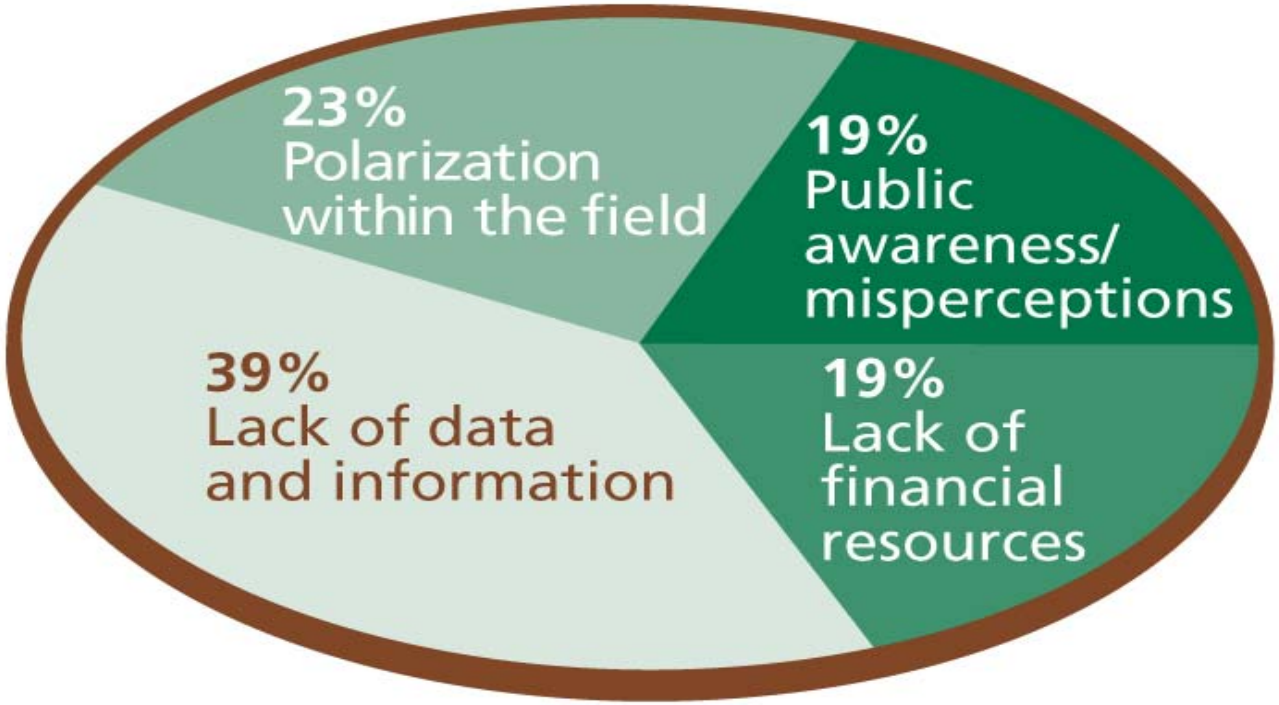
Chris Bernabo – NCSSF Program Director

*** Chair 2000-2001; ** Chair 2002-2003; *** Chair 2003-2005**

Figure 2

Obstacles to Sustainable Forestry



Source:
NCSSF–NFF Users' Needs Workshops 2003

NCSSF Projects – 2001-2004

Fundamentals

- State-of-science review (R)
- User needs, product utility (W)
- Biodiversity in forest planning (S)
- Biodiversity indicators (A)
- Ecosystem function indicators (A)
- Conservation theories and field validation (B)
- Relative risk assessment (B)
- Conservation at multiple scales (A)
- Forest purposes in context (C)

Historical Influences

- Native American land uses (B)
- European settlement land uses (B)
- 20th century forest management (A)
- Non-native invasive species (A)
- Non-wood forest products (A)
- Management and ownership (B)

Managing for Resilience and Productivity

- Public values and attitudes (C)
- Biodiversity and wood-production forestry (C)
- Fire, forest “health,” biodiversity (S,C)
- Hydrology, water, biodiversity (A)
- Managing non-native invasive species (C)
- Old growth forest diversity (C)
- Risk management (B)
- Ecological restoration (A,C)
- Fragmentation effects (A)
- Decision support systems (A,C)
- Conservation incentives for private, non-industrial forests (C)
- Monitoring protocols (C)
- Global wood market effects on forests (C)

NCSSF Findings

Multi-scale context for biodiversity

Stands to landscapes, ecosystem legacies, mgmt. variations, fragments

Disturbance dynamics shape diversity

Fire, invasive species, land uses, weather/geologic events, climate change: future range of variation (FRV) needed

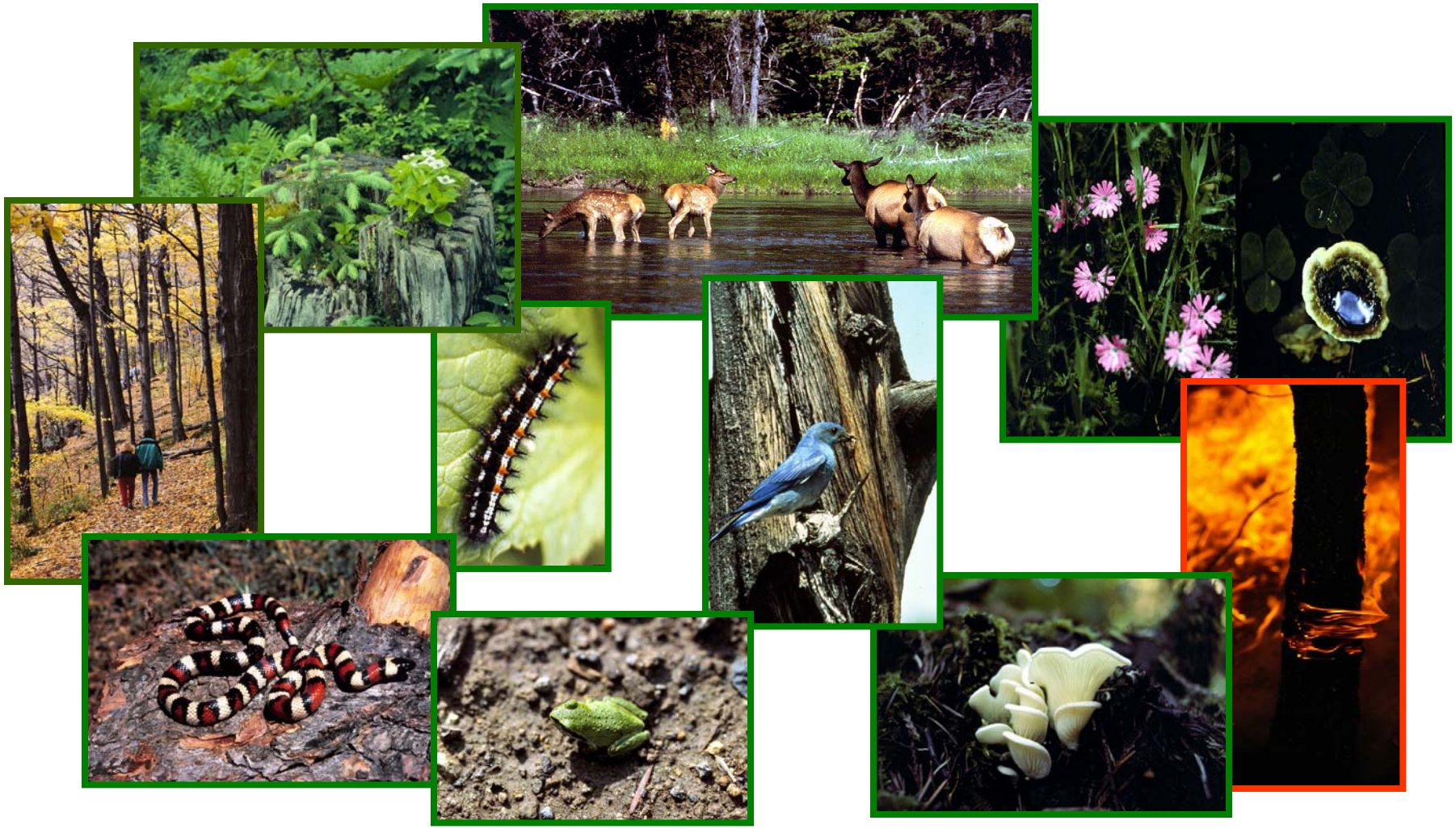
Indicators are essential

Biodiversity is intractable w/o indicators to represent values/goals; selection criteria, stakeholder process being tested

Adaptive management is key to success

Constant change, adaptive problem solving tools, management as experiments to test theories

Biodiversity



Biodiversity and Scale

- Conservation knowledge and policies must span multiple scales in space and time
- Ecosystem “legacies” influence diversity
- Forest fragments support reduced biodiversity but rarely act like “islands”
- Strategies must be place and time specific – no universal generalities

Disturbance

Disturbance Dynamics Key

- Past range of disturbances useful but limited utility because of legacies and future changes
- Fire is major shaper of forest biodiversity at multiple scales
- Invasive species can cause radical ecosystem changes; require interdisciplinary strategies
- Disturbance variation is connected to climate change, human land uses, management

Indicators

Match Indicators to Values, Goals

- Biodiversity is too complex to address without use of indicators
- No universal set of core indicators
- Clear objectives essential for indicator selection; they represent different diversity values
- Structured, participatory process developed for indicator selection and use
- Indicators serve different purposes
- SFM needs to rethink how it has used indicators

Adaptive Management

Adaptive Management

- Sustainability is NOT possible without continual adaptation
- Biodiversity conservation requires traditional forestry plus more
- NTFP impacts poorly understood
- Ready, open access to information, decision support systems key to successful adaptation
- Conservation theories need adaptive management for field validation

Work in Progress

NCSSF Ongoing Work

- Public biodiversity awareness, attitudes and values
- Post-fire management and biodiversity – 3 regions
- Science basis for biodiversity standards & practices
- Guidelines for participatory monitoring
- Curriculum for non-timber forest products training
- Incentives for private forest owners – non-industrial
- Old growth strategies – PNW, NE & SE
- Impacts of global wood markets on forest biodiversity
- Planted forests and biodiversity
- Non-native invasive species management strategies
- Conservation planning and biodiversity
- Field trials of indicator selection protocol

NCSSF 2005 New Work

Emphasis on Delivering Results:

- Design “hand off” process for 2007
- Applications workshops for users
- Illustrated implementation guide book
- Applications of ecosystem functions scorecard
- Indicators system field pilots
- HRV update to FRV approach
- Adaptive mgmt. implementation
- Economics of SFM practices

Questions or Comments?