



*N*ational
*C*ooperative
*S*oil
*S*urvey

2007 NCSS Conference

US Forest Service Perspectives



Topics

Why NCSS is Important

Current Projects

NCSS Importance For The Future





NCSS Importance to the Forest Service

- Healthy Soils = Sustainable Lands
 - Ecological Diversity, Water Quality
 - Partnerships
 - Databases and the “Brain Drain”
 - NRCS Web Soil Survey & TEUI
 - Management Effectiveness
- 



Current Projects

- Long Term Soil Productivity
 - Acid Deposition Research
 - Mississippi River Bottomland Restoration
 - Burned Area Emergency Rehabilitation
 - Sustainability Linkage
- 



Current Projects

- Long Term Soil Productivity
 - Acid Deposition Research
 - Mississippi River Bottomland Restoration
 - Burned Area Emergency Rehabilitation
 - Sustainability Linkage
- 



LTSP Sites



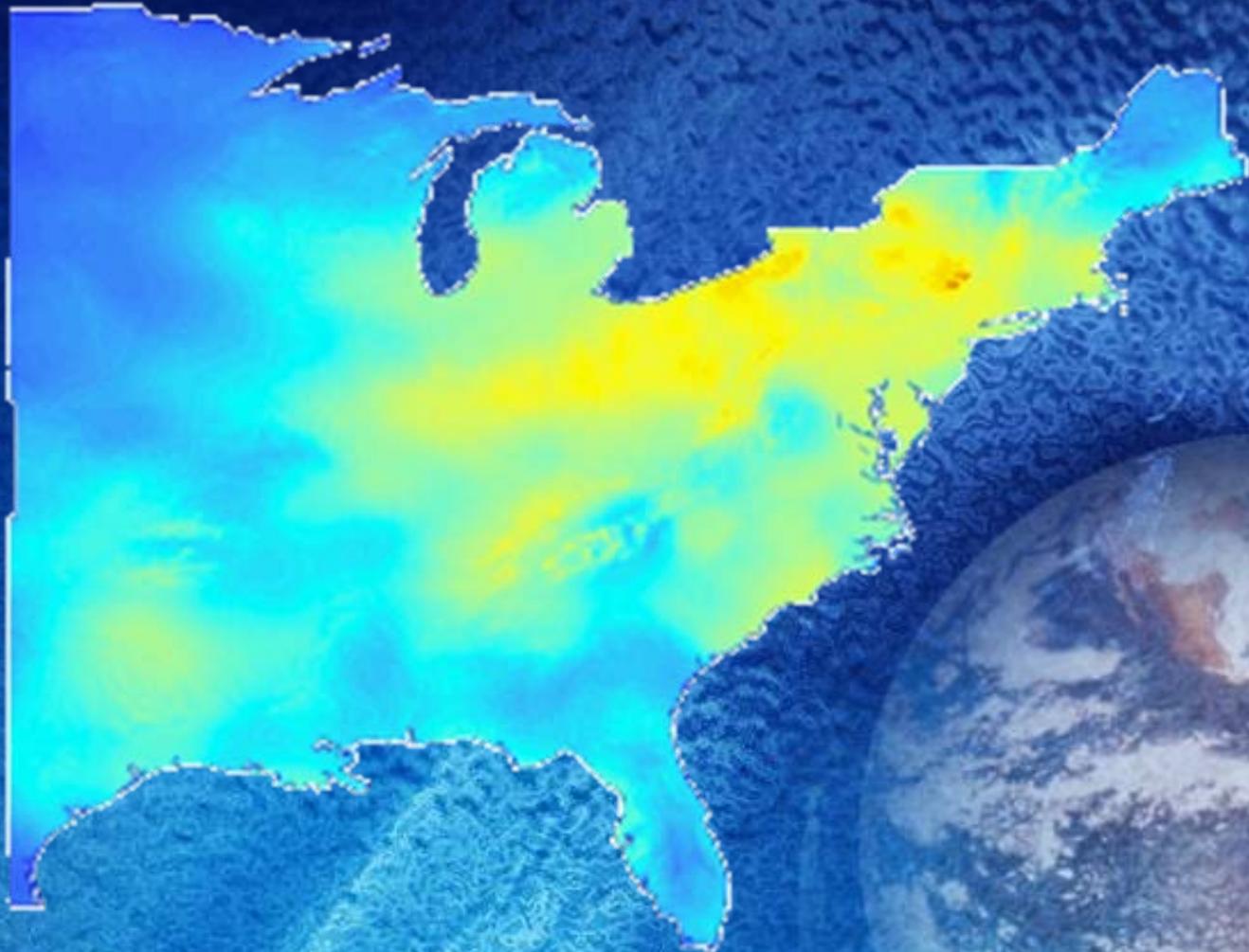


Current Projects

- Long Term Soil Productivity
 - Acid Deposition Research
 - Mississippi River Bottomland Restoration
 - Burned Area Emergency Rehabilitation
 - Sustainability Linkage
- 



Area of Acid Deposition





Current Projects

- Long Term Soil Productivity
 - Acid Deposition Research
 - Mississippi River Bottomland Restoration
 - Burned Area Emergency Rehabilitation
 - Sustainability Linkage
- 





Current Projects

- Long Term Soil Productivity
 - Acid Deposition Research
 - Mississippi River Bottomland Restoration
 - Burned Area Emergency Rehabilitation
 - Sustainability Linkage
- 



The Ham Lake Fire

May 2007

70,000 acres



Current Projects

- Long Term Soil Productivity
 - Acid Deposition Research
 - Mississippi River Bottomland Restoration
 - Burned Area Emergency Rehabilitation
 - Sustainability Linkage
- 



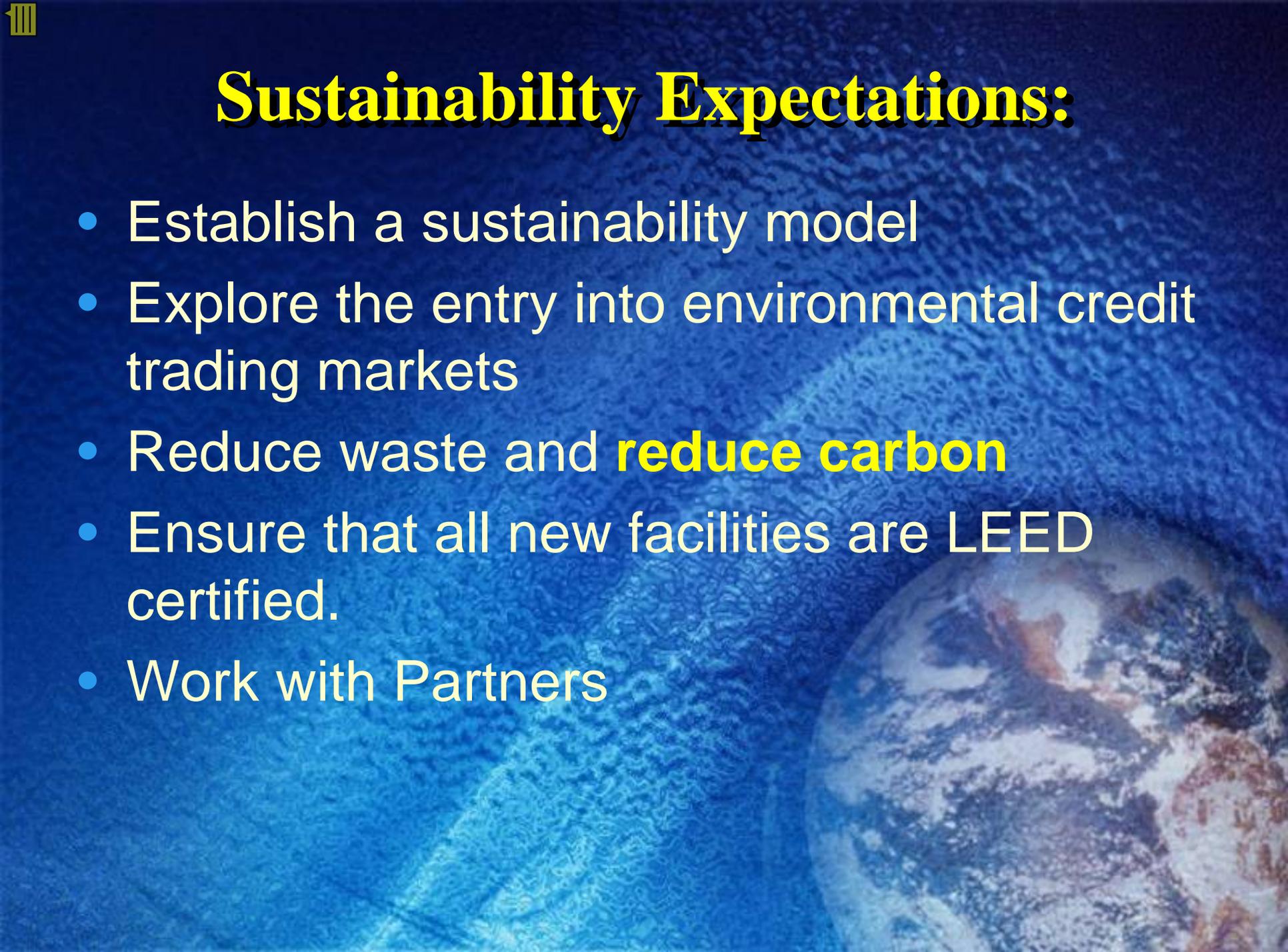
New Requirements

- Executive Orders 13101, 13123, 13148, 13149, 13150, 13221
- Energy Policy Act of 2005
- OMB Performance Scorecards
- President's Conservation Memo 2005
- New Executive Order 1/24/07



Forest Service Strategic Plan

- Become a model of sustainable operations that achieves a carbon neutral footprint on the environment and contributes to the market for renewable resources.
- Implement purchasing and contracting programs that help minimize energy consumption in the workplace and field.



Sustainability Expectations:

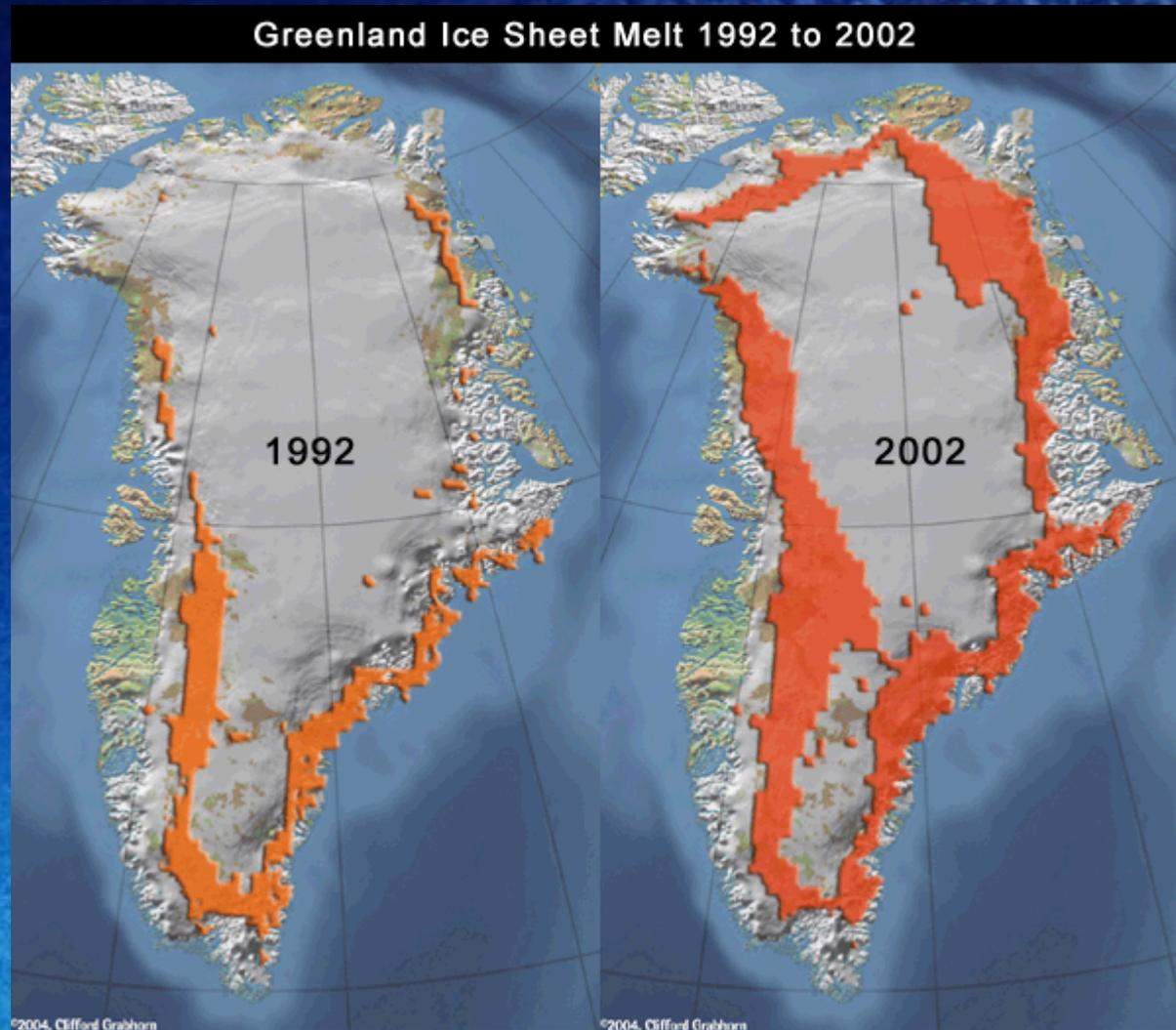
- Establish a sustainability model
- Explore the entry into environmental credit trading markets
- Reduce waste and **reduce carbon**
- Ensure that all new facilities are LEED certified.
- Work with Partners



NCSS Importance for the Future

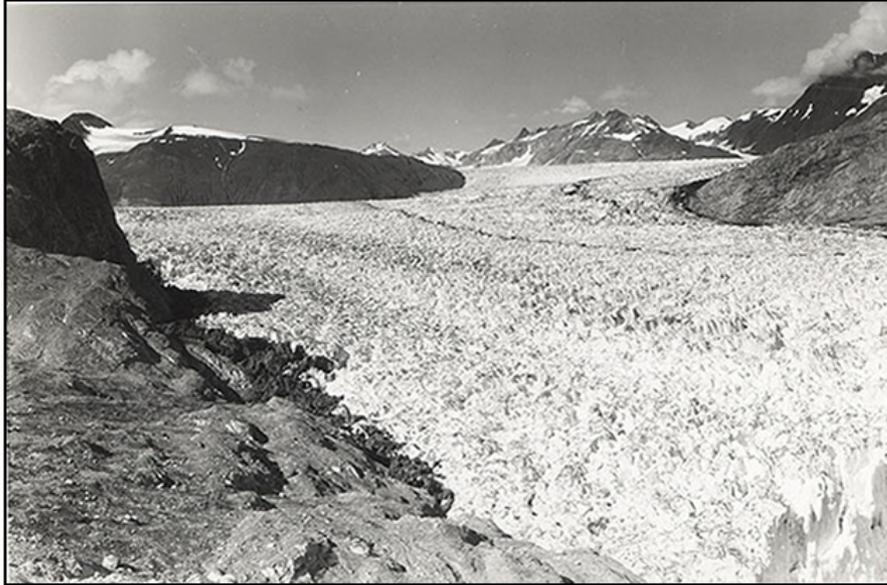
- Soils Role in Climate Change
- 

Why is climate change a problem?



Source: Environment Canada (The Canadian EPA)

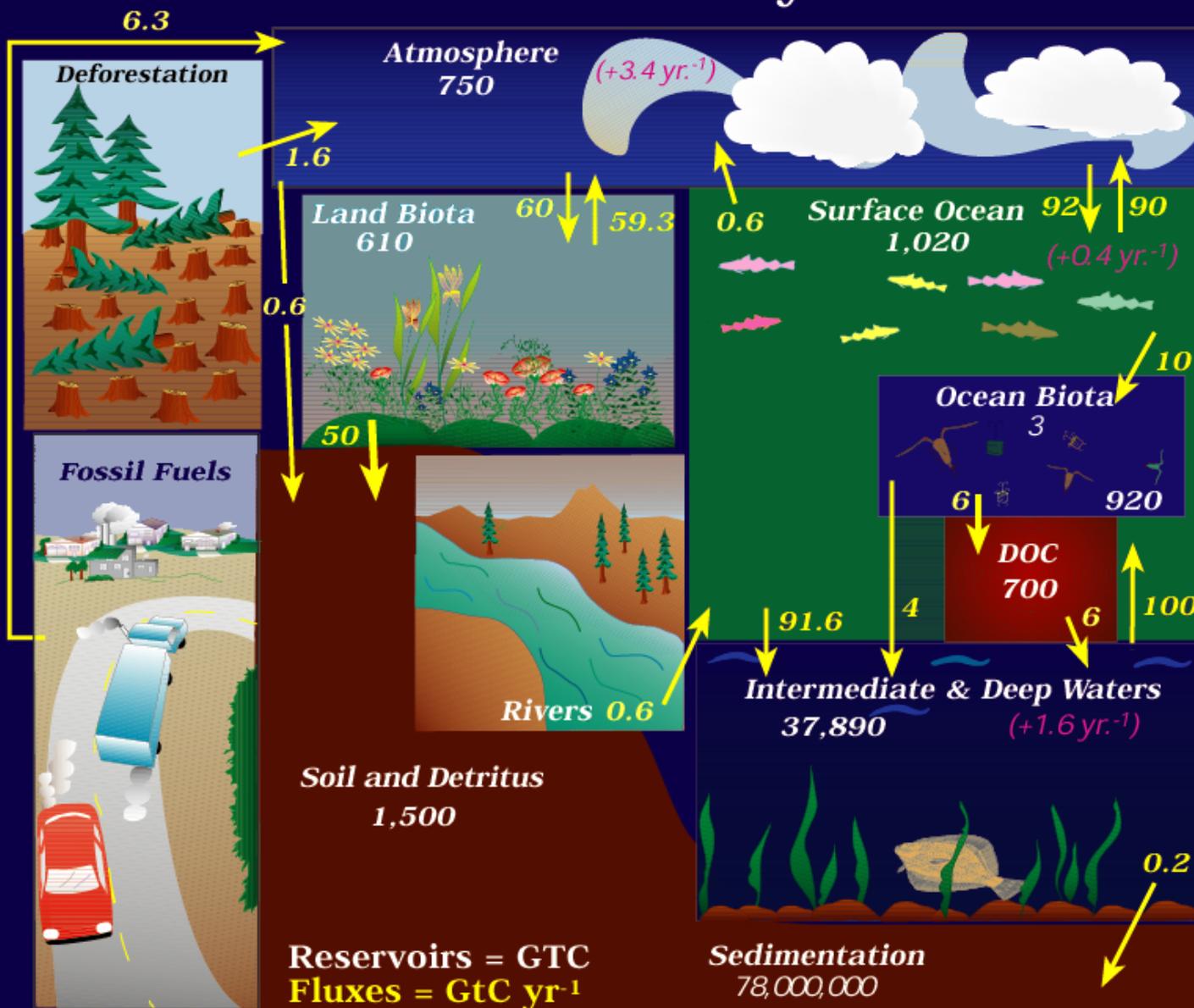
Yes it is warmer!



Muir Glacier, change from 1941 to 2004

Photo posted at the National Snow and Ice Data Center www.nsidc.org

Global Carbon Cycle



Land Use and Soil Carbon Change

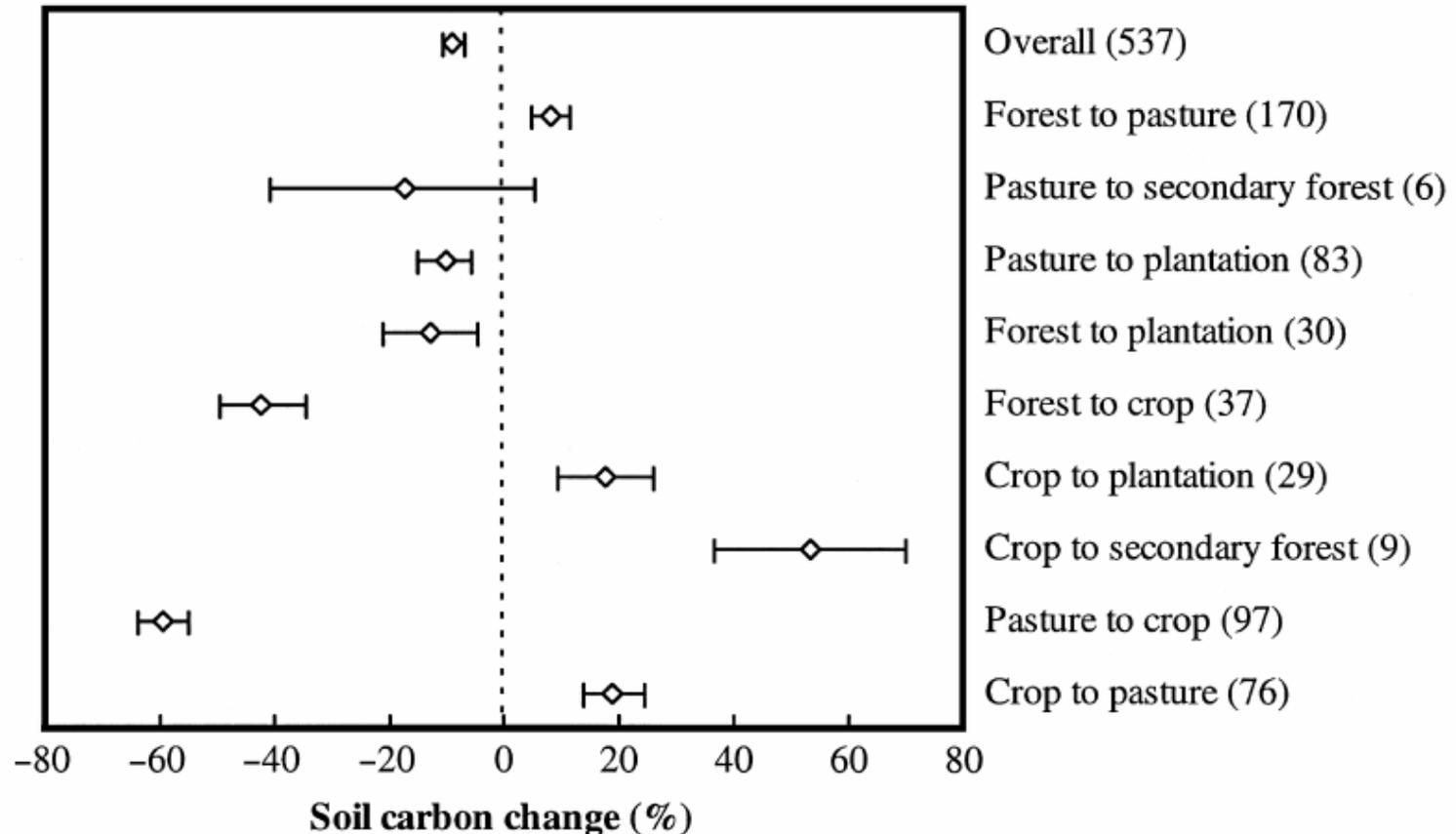


Fig. 1 Soil carbon response to various land use changes (95% confidence intervals are shown and numbers of observations are in parentheses).

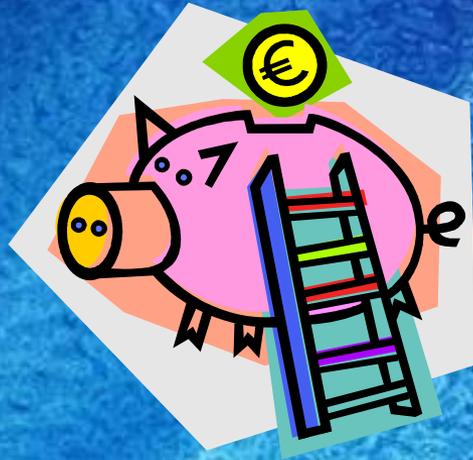


NCSS Importance for the Future

- Soils Role in Climate Change
 - The Economic Value of Soil
- 

Valuation of Greenhouse Gases

- What is a Carbon Financial Instrument?
- Cap & Trade Systems?
- The Marketplace?



Carbon Financial Instruments (CFI)

An Example from the Chicago Climate Exchange (CCX)

- All major greenhouse gases (GHG) are converted to carbon dioxide equivalent and may be traded in a cap and trade marketplace
- One CFI = 100 metric tons of carbon dioxide equivalent
- **Cap** the GHG emissions of Exchange members, place them on a **reduction schedule** and **trade** CFIs to achieve efficient reductions.



How to earn Carbon Financial Instruments?

Earn them through Exchange Offsets! (XO)

1. Exchange Emission Reductions (XER)
2. Renewable Energy Production (XRE)
3. Exchange Methane Offsets (XMO)
4. Exchange Soil Offsets (XSO)
5. Exchange Forestry Offsets (XFO)



Exchange Soil Offsets (XSO)

- May be earned by converting tilled cropland to no till cropland (0.5 tons/acre) or grassland (0.75 tons/acre) depending on soil type and location.
- There may be opportunities in newly acquired agricultural lands: restoration to grassland.
- Opportunities for USDA to promote conservation tillage to private farmers and earn extra income.
- Verifiers designated by Exchange are required to inspect these projects

Exchange Soil Offsets (XSO)

- Real world example project: Midewin Tallgrass Prairie is converting tilled cropland to no-till pasture. This sequesters:

$(0.75 \text{ tons/acre/year}) \times (200 \text{ acres}) = 150 \text{ tons}$

$150 \text{ tons of CO}_2 = 1.5 \text{ CFIs} = \$450 \text{ to } \$600/\text{year}$

Thus, soil condition and treatment now has a market value!

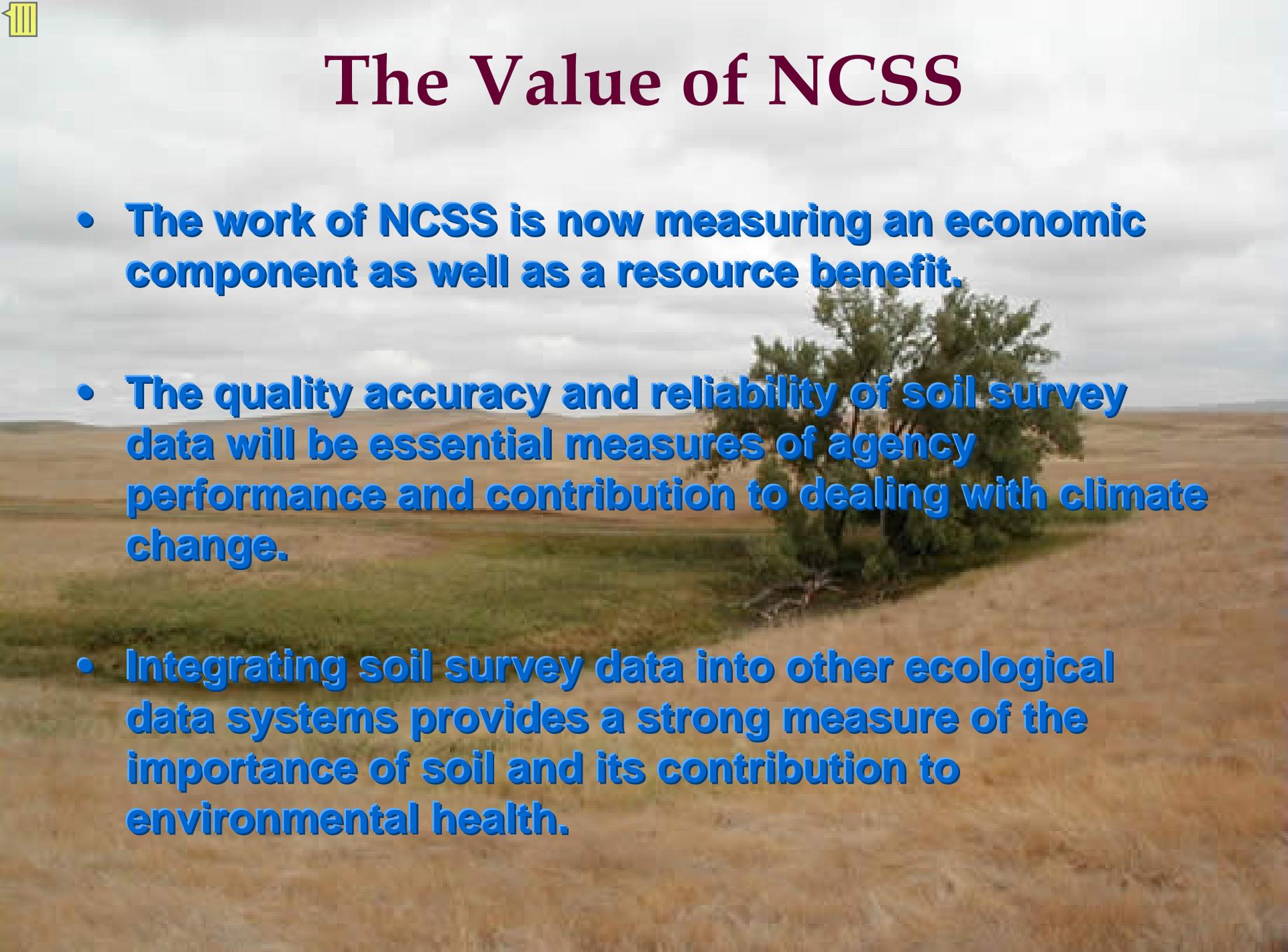


NCSS Importance for the Future

- Soil Role in Climate Change
 - The Economic Value of Soil
 - Bottom Line
- 



The Value of NCSS

- **The work of NCSS is now measuring an economic component as well as a resource benefit.**
 - **The quality accuracy and reliability of soil survey data will be essential measures of agency performance and contribution to dealing with climate change.**
 - **Integrating soil survey data into other ecological data systems provides a strong measure of the importance of soil and its contribution to environmental health.**
- 



Questions?