Comments Regarding the National Resources Inventory (NRI)

- Purpose of the NRI
- Structure and Features of NRI
- Reactions; Comments
The National Resources Inventory (NRI)

- Developed by USDA in the 1970’s to assess status, condition, and trend of soil, water, and related resources

[1972, 1977 legislative mandates]

- Many features make it suitable to evaluate and assist in development of U.S. agri-environmental policy
Information from NRI has been used to assist development of agri-environmental policy since 1980’s:

- Provisions of 1985 Farm Bill based on NRI
- All subsequent Farm Bills
  - Identify areas where conservation initiatives and resources should be focused
  - Evaluate effectiveness of past legislation and conservation programs
National Resources Inventory [NRI]

- Captures data on land cover and use, soils, soil erosion, wetlands, habitat diversity, selected conservation practices, & related resource attributes -- at 800,000 scientifically selected sample sites
- **Purpose:** To provide support for
  - *Agricultural* and *Environmental Policy Development and Program Implementation*
## Evolution of the NRI

<table>
<thead>
<tr>
<th>Category</th>
<th>Years</th>
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<tr>
<td>Conservation Needs</td>
<td>1934, 1945</td>
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<td>1958, 1967</td>
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<td>Inventory</td>
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<td>National Resources</td>
<td>1977, 1982</td>
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<td>Inventory</td>
<td>1987, 1992</td>
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<td>Foundation NRI</td>
<td>1997</td>
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<td>Special Studies</td>
<td>1975</td>
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<td>Annual NRI [PI and on-site]</td>
<td>2005 - 2010</td>
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Why Consider these 30 Different Surveys

- Much has been learned over these several decades [and 30 surveys]
  - Statistical/survey methodologies
  - Data collection methodology
  - Needs of data users; analytical methods

- These studies must fit together and give consistent data/results; if not:
  - Waste taxpayers money
  - Waste efforts of conservationists/scientists
  - Future efforts will be discredited
    - By scientists, special interest groups, policy analysts, policy makers
NRI is “Soil-Based”

- Interpretations made from a “soils perspective”, for example: land condition, or wetland determinations
- Use of soil attributes very important in analysis and assessment [NRI and NRCS soils data bases are “linked”]
Modeling with NRI Data

- Estimate changes in C-stock for current land use & mgmt.
- Use physical process models to simulate effects of Conservation Practices/Systems
  - Example: NRI/CEAP Cropland Assessment
  - Supports numerous of “What if?” scenarios
- Issues dealing with Rural Land conversions
- Loss of Crop Productivity due to Soil Erosion
- Forestry Programs: Converting erodible cropland to trees
- Wetlands Programs
  - Potential restoration programs and locations
  - Economic effect of relaxing restrictions [to Agriculture]
- Development of Rules/Reg’s for Farm Bill Programs
  - Development of HEL and CRP concepts in 1980’s
  - Development of 25% rule for CRP eligible land, by county
NRI Modeling

NRI survey structure → simulation framework
- Sample sites = “representative fields”
- Linked data used to impute values
- Predict outcomes
- NRI weights - estimates of distribution, extent of predicted conditions
Comments

- “Longitudinal Survey” approach is necessary
  - “Panel Survey” where sampling units are revisited periodically
  - Much more powerful
  - Provides information on *Dynamics* of change

- NRI utilizes Area Sampling approach
  - Cannot use farms, fields, & ownership units because they can change dramatically over time [also difficult to define]

- NRI collects data in manner that allows “What if?”
- NRI moved from 5-year cycle after 1997 to the annual inventory approach
Monitoring

• Much more powerful to use Longitudinal Survey” techniques
  - i.e., do “Panel Survey” where same sample units are revisited periodically

• Power of paired observations
  - Acreage of wetlands, 1997
    • 111.2 mil Acres [+/- 1.2 mil. Acres]
  - Change in wetland acres, 1992 - 1997
    • - 163,000 [+/- 63,000 acres]

• Also have more information on dynamics, etc. of the changes [e.g., what are the characteristics of the lost wetlands vs. newly created wetlands]
Discussion

- Use of site-specific data vs. aggregated – for models
- NRI is soil-based
- Use of Models is necessary
- NRI is land/resource based – not enterprise based
- Issues not discussed
  - Economics
  - Alignment between field and models
  - Emerging issue – ethanol production
Annual NRI

- **NRI 5-Year Cycles**
- **In 2000 - NRCS converted NRI from 5-year inventory cycle to a continuous/annual inventory process**
- **Annual NRI design - each year**
  - Photo-Interpretation: 73,000 sample segments
  - Field/On-site Methods: 5,000 - 8,000 samples.
Scientific Responsibility

- Rigorous scientific sample survey
- Strict quality assurance protocols
- Scientifically sound reporting
  - USDA/OMB Quality of Information Guidelines
  - NRI data release standards
OMB/USDA Guidelines

- Addresses statistical information
- Affects all NRCS
- Agency stands behind data and information
- Process to retract, fix flawed information