What Data Does ERS Use?

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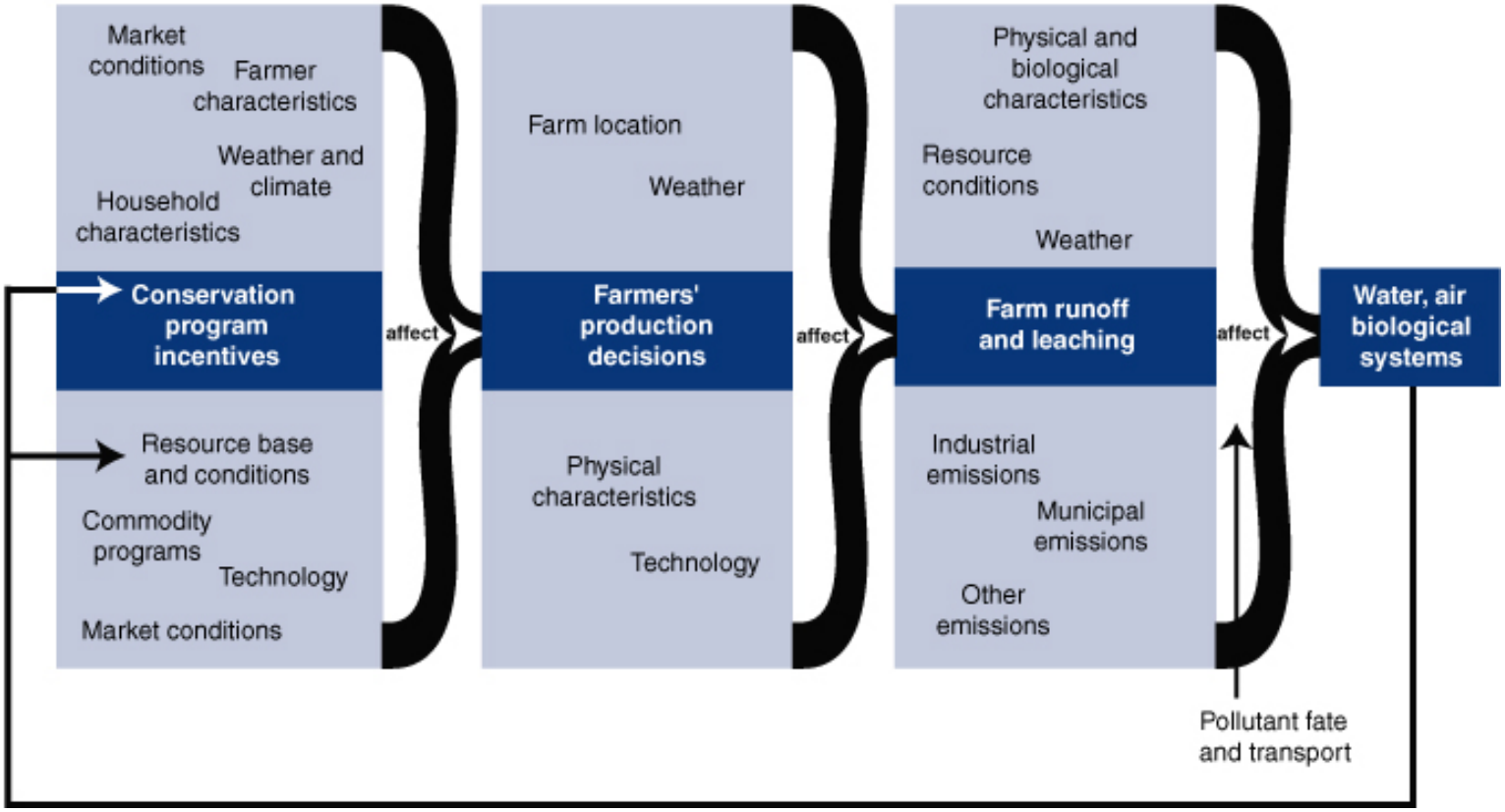
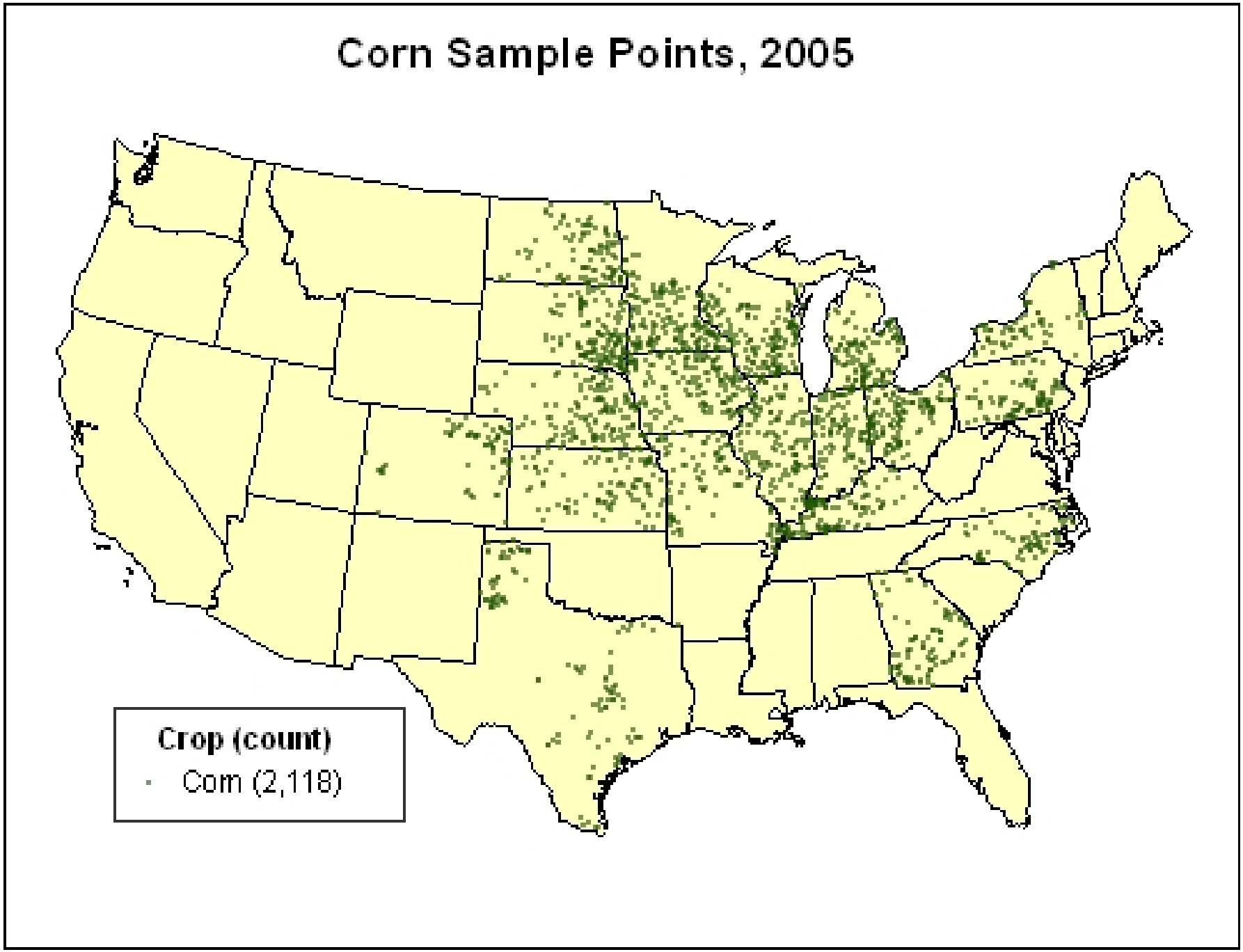
Conservation Complex

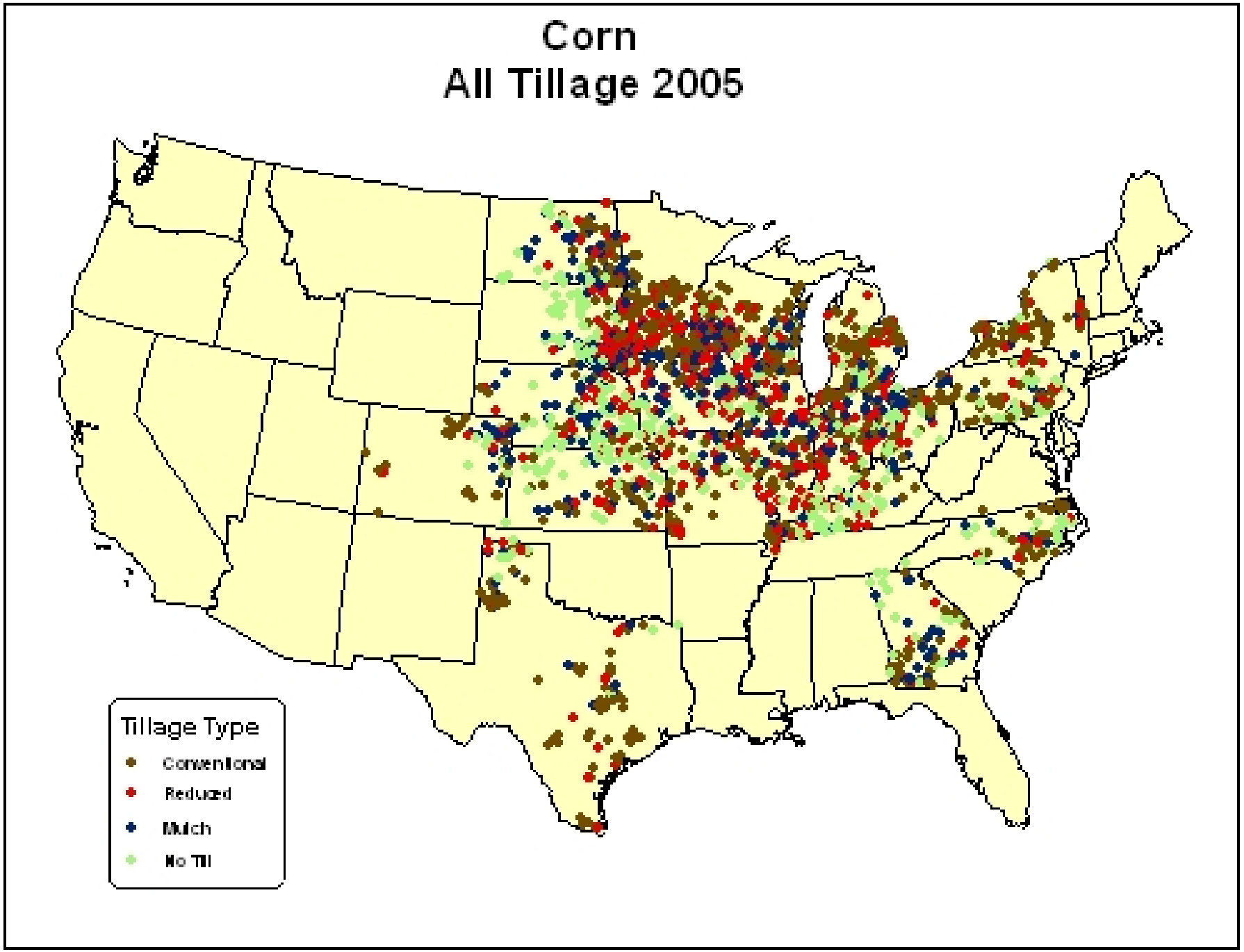
Incentives link to outcomes through a series of complicated interactions



Agricultural Resource Management Survey (ARMS)

- Phase 3 provides information about the farmer and farm enterprise – county level
- Phase 2 provides information about field level management practices
  - Phase 2 has latitude longitude for geo-location but the accuracy is not good
  - Would be nice to link to the Common Land Unit database
    - could identify farm program participation
    - integrate an array of field level bio-physical characteristics

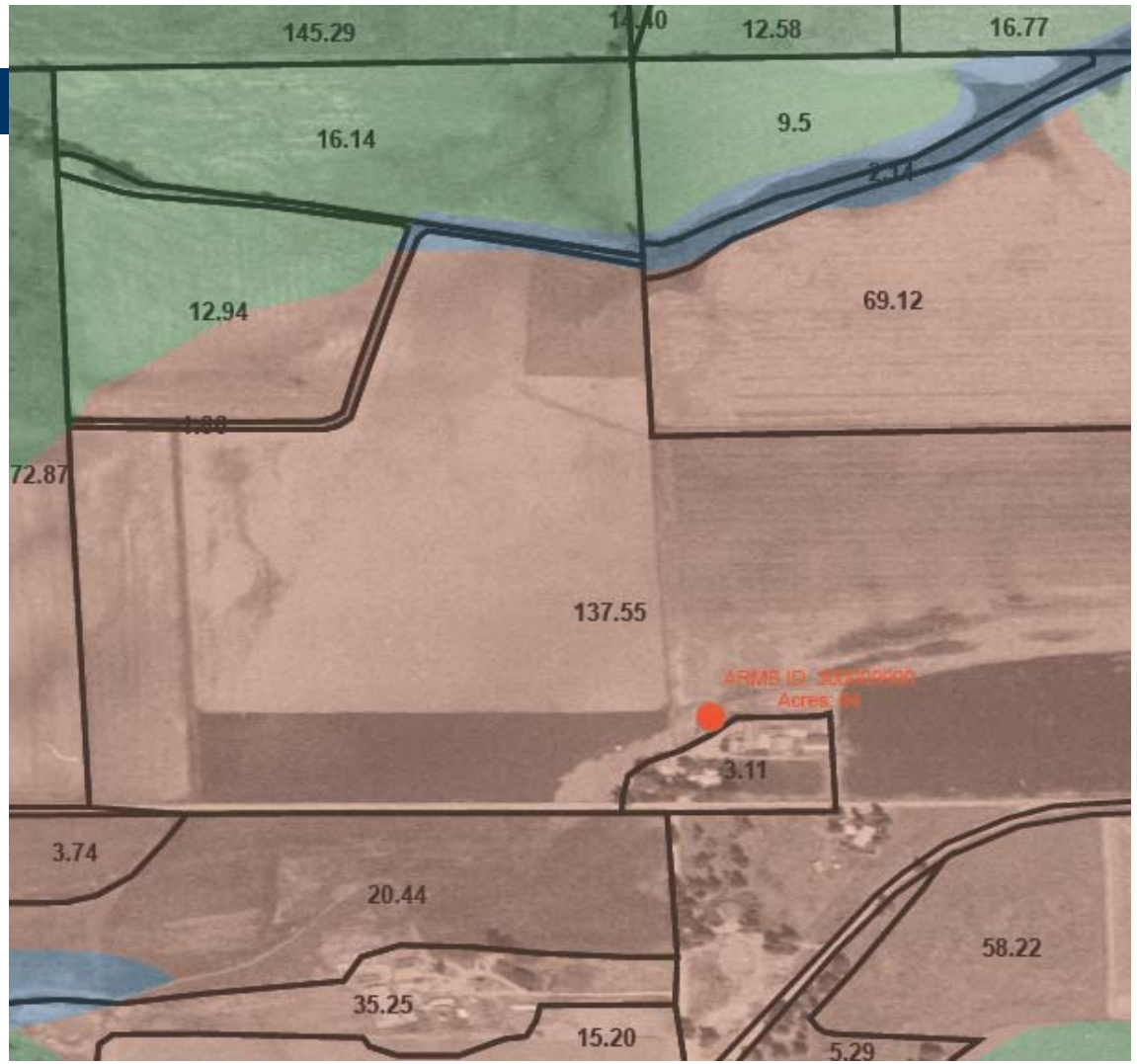

Corn Sample Points, 2005
Crop (count)
Corn (2,118)


Corn
All Tillage 2005
Tillage Type
Conventional
Reduced
Mulch
No Till

FSA's Common Land Unit (CLU)

FSA's effort to digitize all field boundaries in the country.

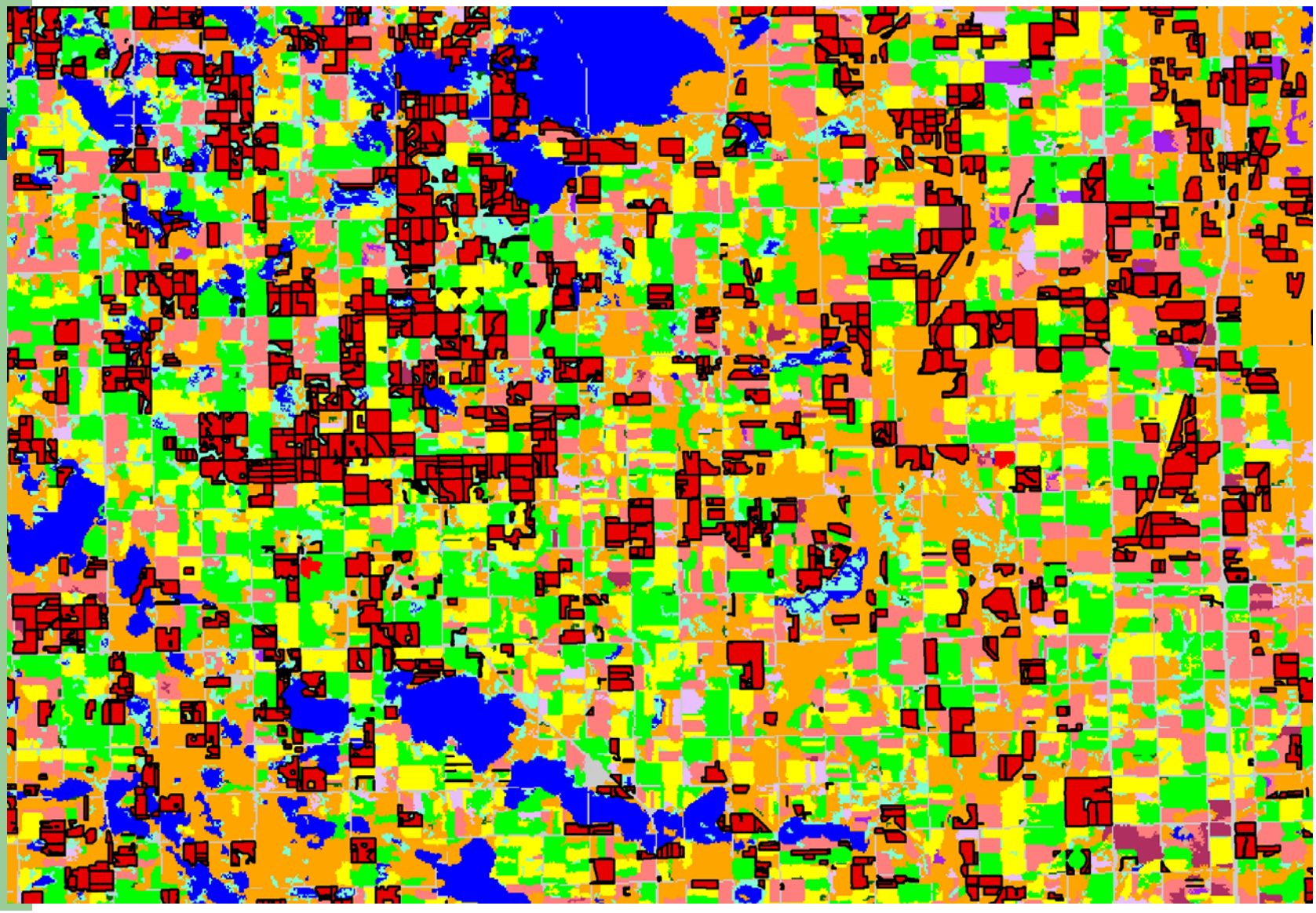
CLU has the potential to provide detailed information land use as well as conservation program participation and impacts



Common Land Unit – CRP layer

- Good locational information – can infer a host of bio-physical characteristics
- May be able to attribute eco-system services ie. CEAP wildlife analysis of breeding birds

Cropland data layer with CLU-CRP

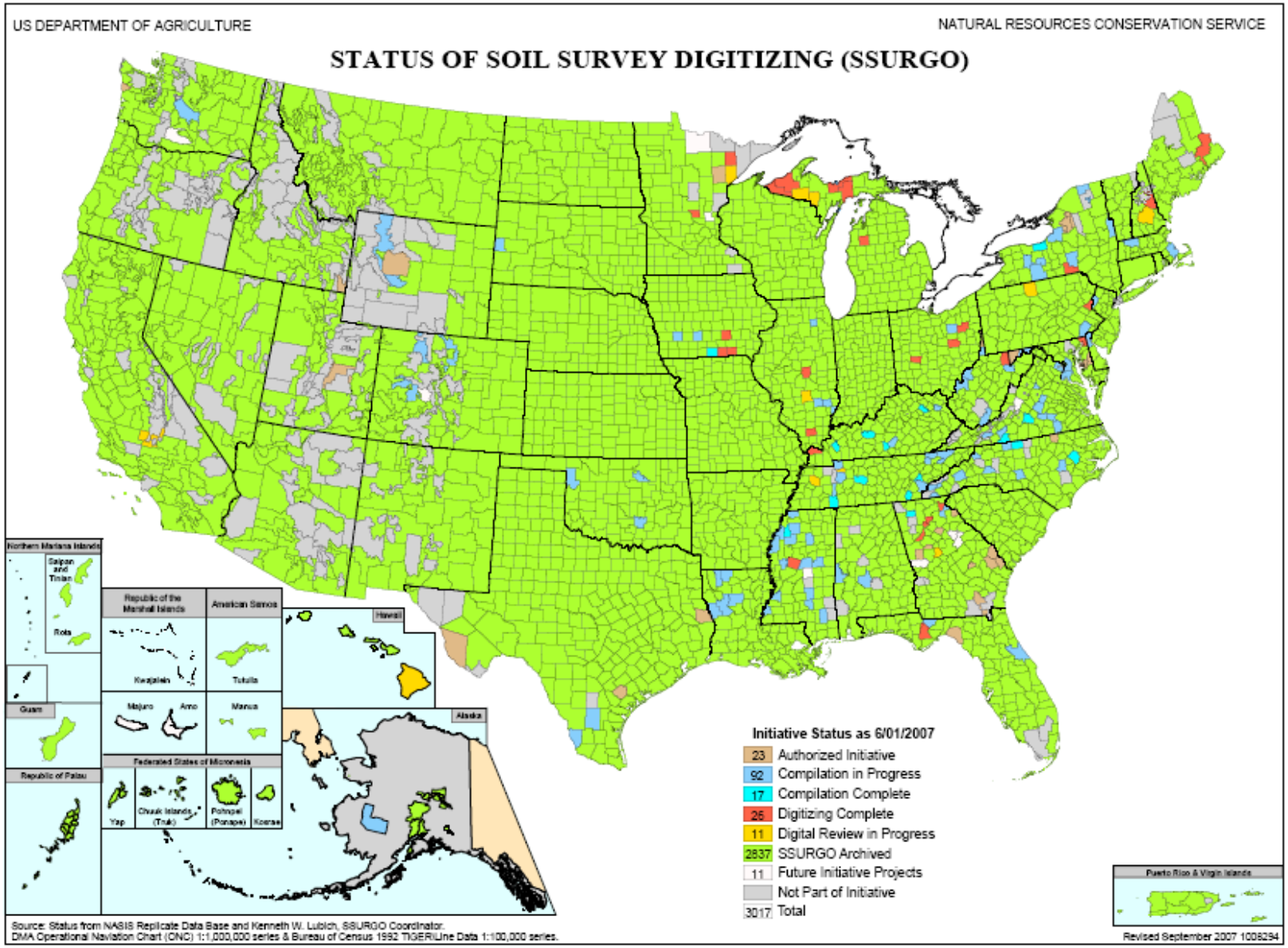


The National Resources Inventory

- ~800,000 sample points, covering all non-federal lands in the US (except AK)
- Survey was administered every 5 years from 1982-1997
- Switched to 1/5th sample annually since 2002
- Collects detailed land use information (crop-specific for ag uses)
- Collects detailed soil information useful for producing estimates of soil erosion
- Collects limited information on conservation practice adoption (yes, no)
- Collects limited information on wetlands (type)
- Collects limited information on tree type
- Collects limited landscape information useful for making various habitat indices

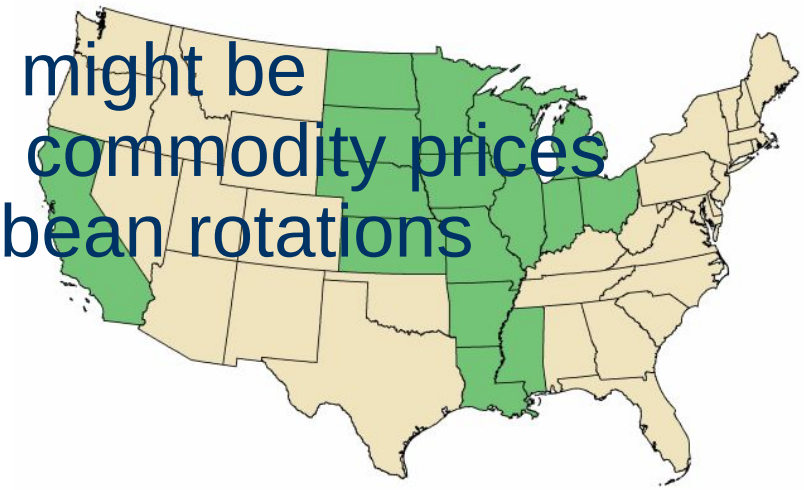
Soils

- Ssurgo and Statsgo databases
  - National scope
  - Ssurgo almost complete
- Provides information about the resource base the farmer has to work with
- Gives us good information on baseline soil quality, productivity, erodibility, permeability…
- Limited information on changes in soil quality (changes in carbon)
- Don’t know what crops are being produced


US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
STATUS OF SOIL SURVEY DIGITIZING (SSURGO)
Initiative Status as 6/01/2007
23 Authorized Initiative
92 Compilation in Progress
17 Compilation Complete
26 Digitizing Complete
11 Digital Review in Progress
2837 SSURGO Archived
11 Future Initiative Projects
Not Part of Initiative
3017 Total
Northern Mariana Islands
Saipan and Tinian
Rota
Guam
Republic of Palau
Republic of the Marshall Islands
Kwajalein
Majuro
Ailinglapalap
American Samoa
Tutuila
Manua
Federated States of Micronesia
Yap
Chuuk Islands (Truk)
Pohnpei (Ponape)
Kosrae
Hawaii
Alaska
Puerto Rico & Virgin Islands
Source: Status from NASIS Replicate Data Base and Kenneth W. Lubich, SSURGO Coordinator.
DMA Operational Navigation Chart (ONC) 1:1,000,000 series & Bureau of Census 1992 TIGER/Line Data 1:100,000 series.
Revised September 2007 1008294

Cropland data layer - NASS

- Details satellite imagery identifying crops focusing mainly on corn, soybeans, cotton and rice… other crops included
- Good coverage of corn belt since 2000
- 56 meter resolution
- Used to see how farmers might be responding to increase in commodity prices continuous corn vs. corn bean rotations



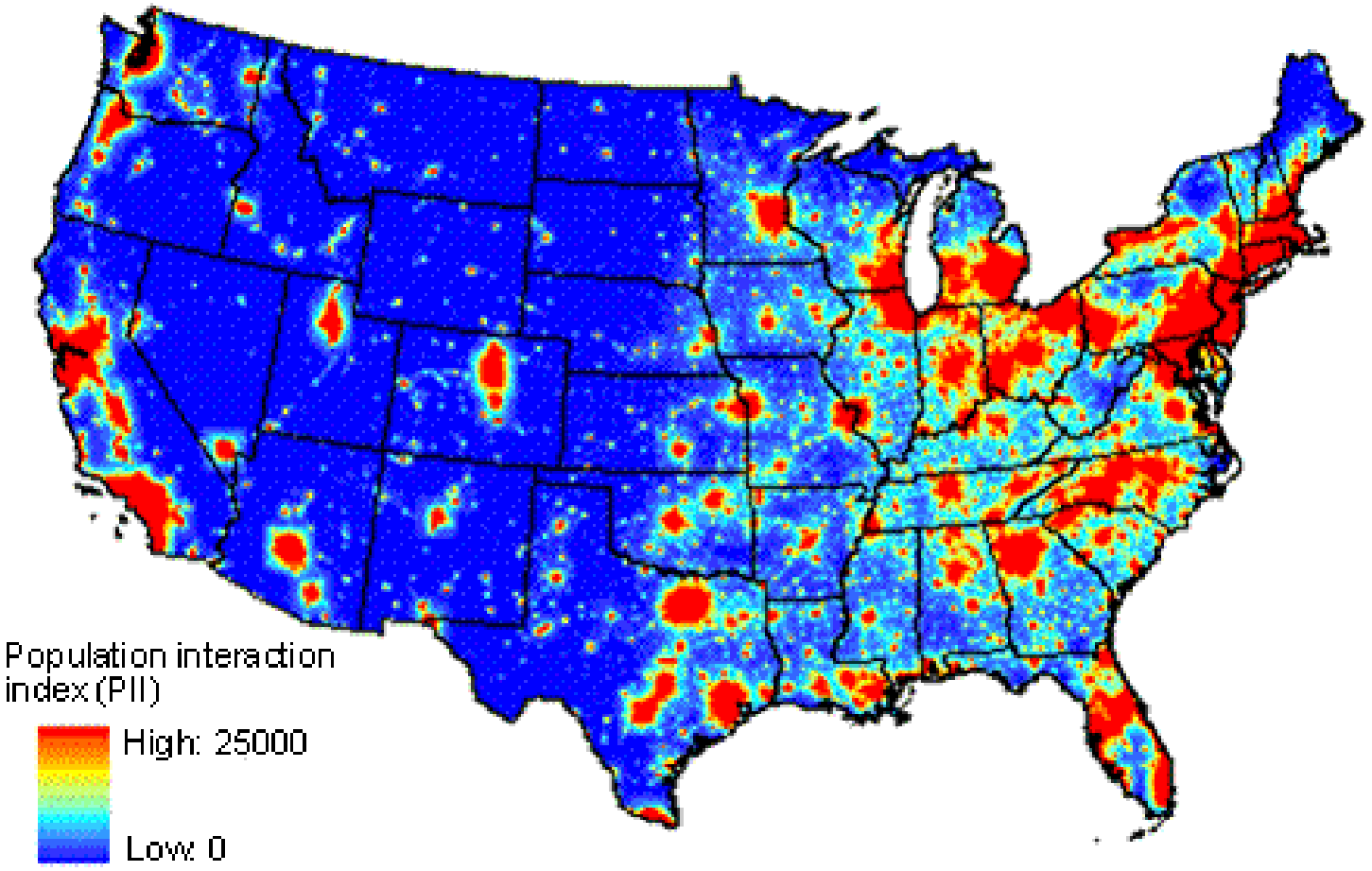
Other dataset ERS uses

- Climate and precipitation data – PRISM, drought monitor, Palmer indices
- Elevation – National elevation database
- Hydrology – National hydrologic database
- Transportation – teleatlas, ORNL multi-model transportation network

ERS Population interaction index

Provides a measure of the influences urban areas have on farming decisions

Population interaction index (PII), 2000

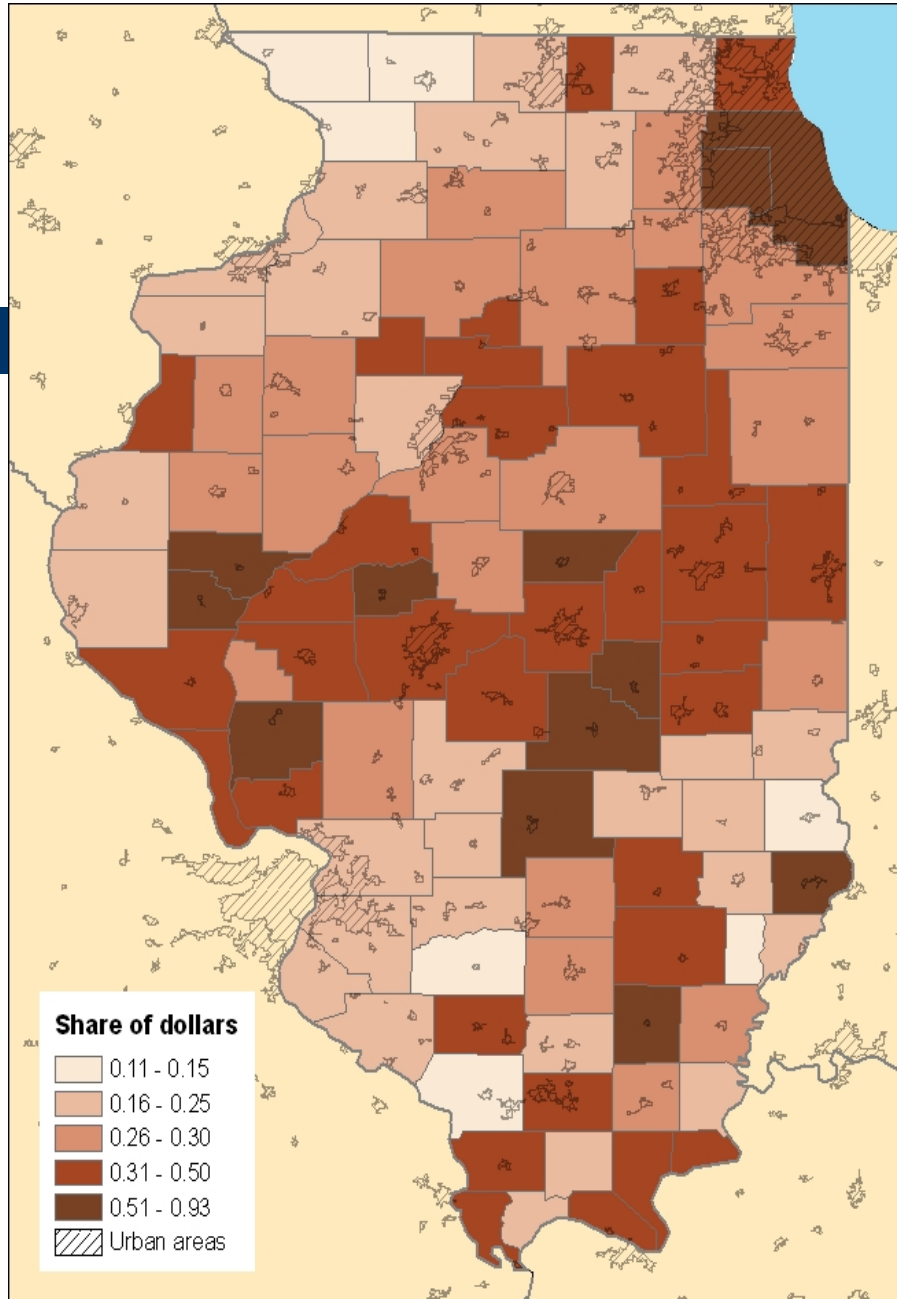


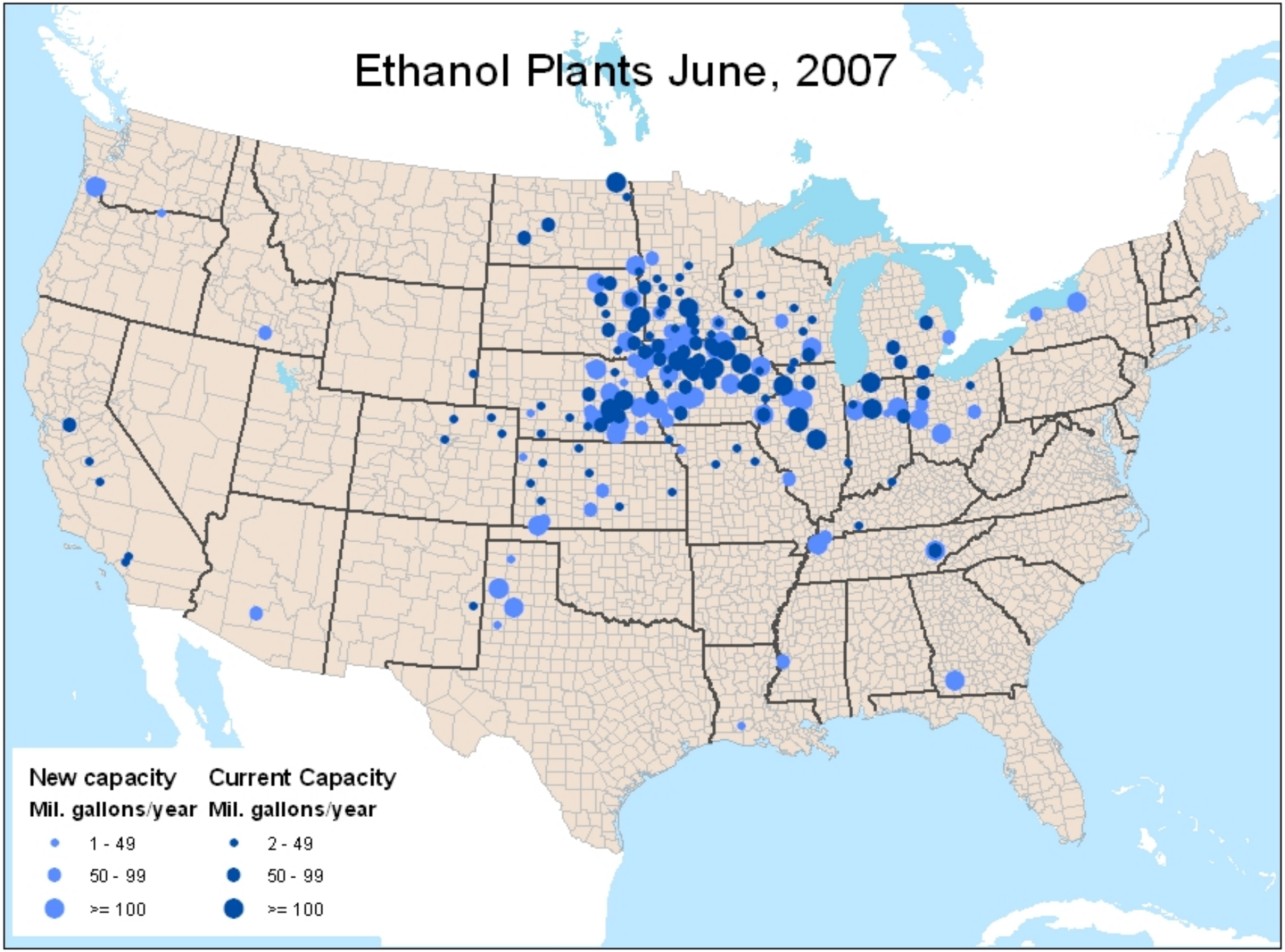
Source: ERS analysis of 2000 census of population block data.

FSA 1614 payments

Can be used to look at absentee landowners

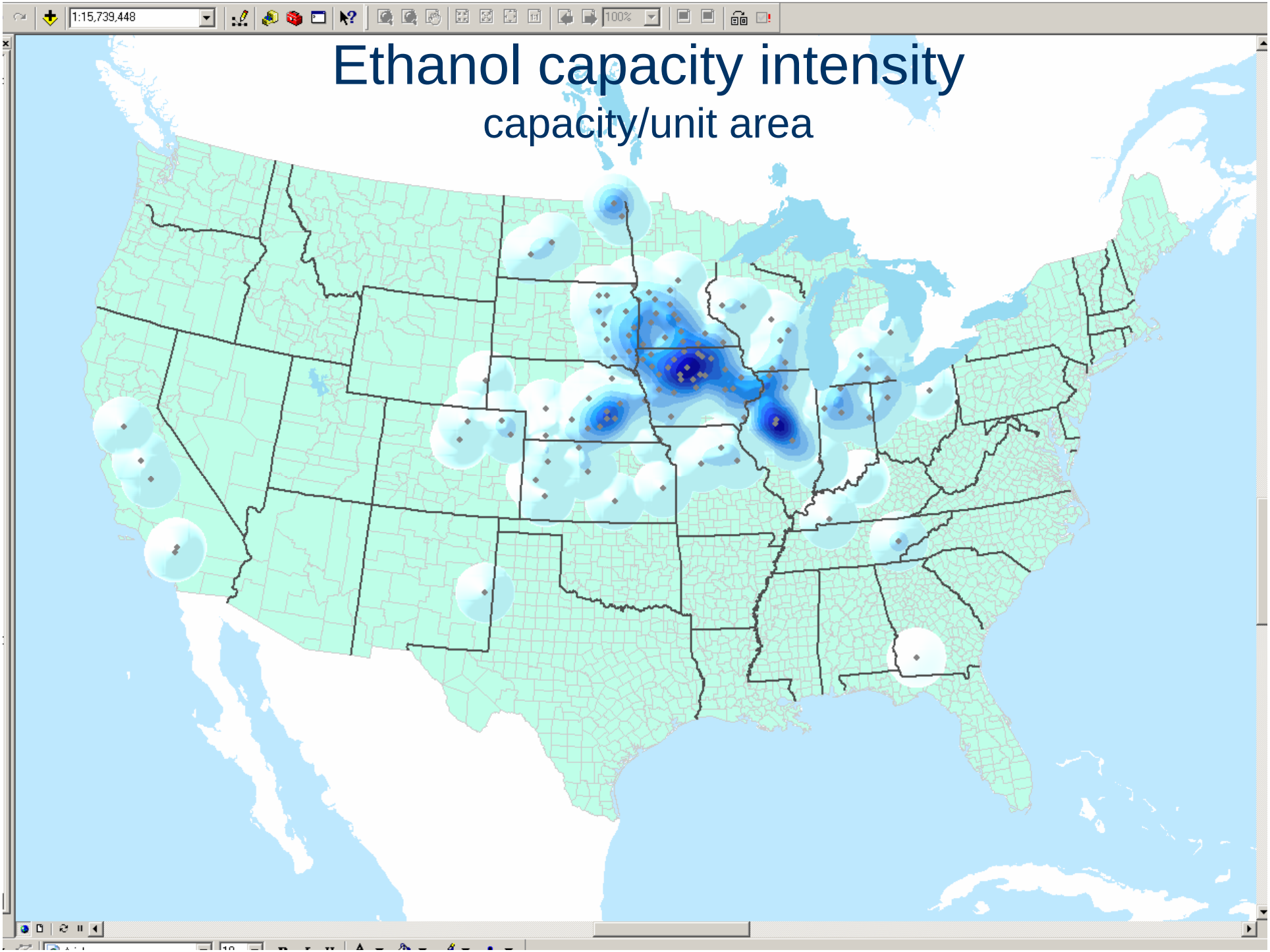
Shares of funds leaving the rural areas




Ethanol Plants June, 2007
New capacity
Mil. gallons/year
1 - 49
50 - 99
>= 100
Current Capacity
Mil. gallons/year
2 - 49
50 - 99
>= 100

Ethanol capacity intensity

capacity/unit area



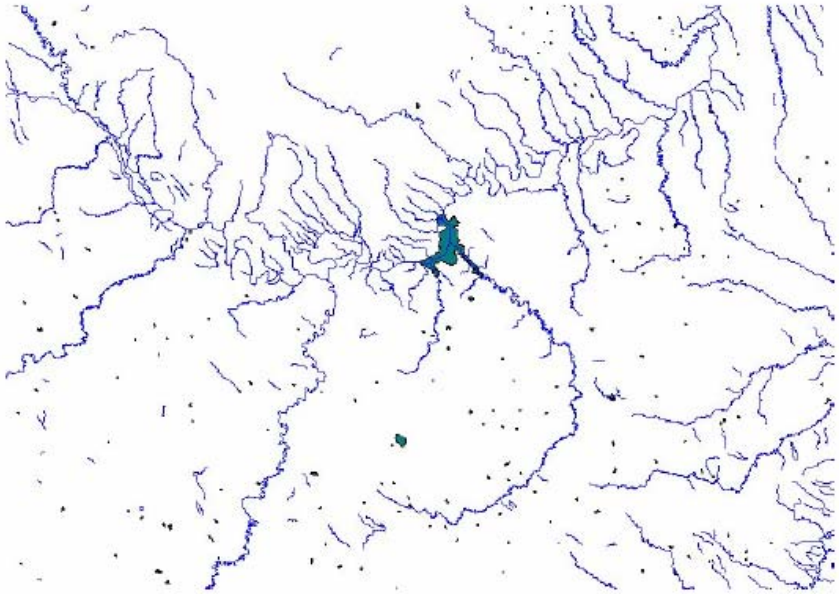
Conclusion

- There are a number of datasets that help use characterize components of the conservation complex
- Most can’t be used directly but through GIS and other means they can be linked to answer a number of conservation questions
- There may be opportunities to enhance current data collection efforts that will make data linkages easier and better

Geo-spatial Biophysical Data at ERS

The National Hydrography Dataset

- Published by USGS
- Geo-spatial data set of linear and polygon water bodies
- Architecture allows modeling of flows through watersheds
- Used by ERS to:
  - Calculate length and area of water bodies by county, watershed
  - Calculate amount of ag. land near water bodies
  - Limited use of network capabilities



Geo-spatial Biophysical Data at ERS

Others

- Breeding Birds Survey
- SSURGO (detailed soils data)
- Climate/Precipitation
- Drought (USDM, Palmer)
- Elevation

Questions

- What determines land-use choices and adoption of conservation programs and practices?
- What are land-use and environmental impacts of agri-environmental policies?

Challenges

- Heterogeneity of land types, individuals, and operations.
  - Selection issues.
- Difficulty in linking data on characteristics of land, farm operator and operation, and program participation.
- Lack of direct data on environmental impacts.

Geo-spatial Biophysical Data at ERS

The Conservation Reserve Program Geo-spatial Data Layer (a derivative of the CLU)

- Geo-spatial boundaries of all CRP parcels
- Easily linkable with CRP contract information from national databases
- FSA currently constructing version 3
- A very new data set
- Only used for CEAP Wildlife Analysis (in conjunction with FSA)

Data

Data Set	Level	Coverage	Land	Operator/ Operation	Program Participation
NRI	Point	Sparse	Yes	No	CRP
Census	Farm	Complete	No	Yes	Limited
ARMS	Farm	Sparser	No	Yes	Better
CRP Contract File	Contract	Participants	Yes	Yes	Yes
USGS	Grid	National	No	No	No
Major Land Uses	State	National	No	No	No
FARM	National	Global	AEZs	No	No