

**Data task group  
Conservation Committee  
Republican River Compact Settlement  
November 7, 2003 Draft**

**A. General types of relevant data available**

1. Potential data sources

- a. NRI – Terraces/Tillage
- b. SURGO, data base - Small reservoirs

Website: <http://www.dnr.state.ne.us/databank/ssurgo2.html>

Metadata: <http://www.dnr.state.ne.us/databank/ssurgo/ssurgo.html>

Description: This data set is a digital soil survey and generally is the most detailed level of soil geographic data developed by the National Cooperative Soil Survey. The information was prepared by digitizing maps, by compiling information onto a planimetric correct base and digitizing, or by revising digitized maps using remotely sensed and other information

- c. Digital Orthoquads

Website: <http://www.dnr.state.ne.us/databank/coq.html>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/doq99\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/doq99_doc.html)

Description: A digital ortho-photograph is a digital image of an aerial photograph with image distortion removed, and corrected for aircraft pitch, yaw and altitude, landscape relief, and camera lens (optic correction) orientation. These DOQs are developed from 1999 NAPP flight coverage flown under the National Aerial Photography Program. The aerial photographs are exposed using 10-inch wide film at 20,000 feet above land surface, with 6 inch focal length camera, resulting in 1:40,000 scale image.

- d. State Inventory of Dams

Website: <http://nrcnt3.dnr.state.ne.us/Dams/index.aspx>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/dams\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/dams_doc.html)

Description: The dams inventory database includes all dams which have minimum height of 6 feet and exceed a storage capacity of 50 acre feet, or have minimum height of 25 feet and exceed a storage capacity of 15 acre feet or have a "high" or "significant" hazard classification. The data also describes the type of dam, the completion date, the dam height and length, the county the dam is located in and various other informative data. This data can also be retrieved by county, owner, dam identification number, township and range or varies other purposes.

- e. RRCA Model: Input and output data
- f. CTIC – Tillage
- g. Satellite/Aerial Photos

Website: <http://www.dnr.state.ne.us/otherresources/landsat.html>

Metadata: <http://www.dnr.state.ne.us/databank/metadata/landsat.html>

Description: The idea of a civilian Earth resources satellite was conceived in the Department of Interior in the mid-1960's. The National Aeronautics and Space Administration (NASA) embarked on an initiative to develop and launch the first Earth monitoring satellite to meet the needs of resource managers and Earth scientists. The USGS entered into a partnership with NASA in the early 1970's to assume responsibility for the archive management and distribution

of Landsat data products.

## 2. Non-Federal Reservoirs data needs

### a. Surface area of reservoirs

Description: Nebraska Department of Natural Resources Databank website query engine of dam safety program dam inventory. Source file is a Microsoft Access Dam Inventory Database.

Website: <http://dnrdata.dnr.state.ne.us/Dams/Search.aspx?mode=county>

### b. Reservoir Volume

Description: Nebraska Department of Natural Resources Databank website query engine of dam safety program dam inventory. Source file is a Microsoft Access Dam Inventory Database.

Website: <http://dnrdata.dnr.state.ne.us/Dams/Search.aspx?mode=county>

### c. Reservoir type (use)

Description: Reservoirs with a surface water storage permit can be queried at the following website address. Owners are not required to get a water right if they don't intend to irrigate from them. Other reservoirs would be used for erosion control and stock watering etc.

Website: <http://dnrdata.dnr.state.ne.us/SWR/MainSearch.aspx?mode=division>

### d. Condition of reservoir (% silted in, breached, etc.)

Description: Dams that meet the criteria for inclusion in our Dam Safety Program will be inspected periodically. Inspection notes would contain breach information and may contain notes on siltation, and dry condition at time of inspection.

### e. Reservoir location

Description: The safety of dams inventory database is ported to an ESRI ArcView shapefile every weekday evening. Location accuracy was reviewed and improved in 2003.

Website: <http://dnrdata.dnr.state.ne.us/Dams/damsutm.zip>

Website: [http://dnrdata.dnr.state.ne.us/Dams/dams\\_Stateplane.zip](http://dnrdata.dnr.state.ne.us/Dams/dams_Stateplane.zip)

Description: Digitized areas with contour and terraced areas in Nebraska portion of basin. Hand digitized interpretation of land cover patterns as visible on digital aerial photography.  
Source: Compact Disk with ESRI format data.

### f. Contributing Drainage Area

Description: Nebraska Department of Natural Resources Databank website query engine of dam safety program dam inventory. Source file is a Microsoft Access Dam Inventory Database.

Website: <http://dnrdata.dnr.state.ne.us/Dams/Search.aspx?mode=county>

### g. Date Reservoir Constructed/retired

Website: <http://nrcnt3.dnr.state.ne.us/Canal/Reservoir/index.asp>

Metadata: <http://www.dnr.state.ne.us/databank/metadata/reservoir.html>

Description: The reservoir storage database can be retrieved by station ID number, county or station name to tell how much water storage occurred at a particular time during the day, end of month or end of year in table format.

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### 3. Land Terraces data needs

#### a. Surface area of land terrace

Description: Digitized areas with contour and terraced areas in Nebraska portion of basin. Hand digitized interpretation of land cover patterns as visible on digital aerial photography.

Source: Compact Disk with ESRI format data.

#### b. Land terrace type

#### c. Condition of Terrace (% silted in, replaced with sprinkler irrigation, etc)

#### d. Land terrace location

#### e. Contributing Drainage Area

#### f. Date Terrace Constructed/retired or replaced with sprinkler irrigation.

### 4. Soil Characteristics

#### a. Permeability

#### b. Hydrologic group

#### c. Soil water holding capacity

Website: <http://nrcnt3.dnr.state.ne.us/Soils/soil.asp>

Website: [ftp://linux1.dnr.state.ne.us/pub/data/state/smud\\_1st.txt](ftp://linux1.dnr.state.ne.us/pub/data/state/smud_1st.txt)

Description: Soil Mapping Units Interpretative Records data can be retrieved by physical and chemical and engineering properties of soils, water features, crop yield, and other soil characteristics and interpretations.

### 5. Geologic Characteristics

#### a. Presence and distribution of aquitards or aquicludes

### 6. Drainage Characteristics

#### a. Slope Percent or Degree

#### b. Slope Length

#### c. Topographic characteristics

Website: <http://www.dnr.state.ne.us/databank/dem.html>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/dem10\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/dem10_doc.html)

Description: A **Digital Elevation Model (DEM)** is a sampled array of elevations for a number of ground positions referenced horizontally and are usually spaced at regular intervals. The DEMs are produced in 7.5 minute quadrangle units which correspond to USGS 7.5 topographic maps with contour lines spaced at 10 feet interval and drawn to 1:24,000 scale. The level-2, 30-meter interval, DEMs are elevation data generated from hypsography (contours) Digital line graphs (DLGs) that have been processed or smoothed for consistency and edited to remove identifiable systematic errors

### 7. Streamflow Records

#### a. Total stream flow

#### b. Baseflow

#### c. Surface Flow (non-baseflow)

Website: <http://nrcnt3.dnr.state.ne.us/Canal/CanalIndex.asp>

Metadata: <http://www.dnr.state.ne.us/databank/metadata/canals.html>

Website: <http://nrcnt3.dnr.state.ne.us/Canal/Stream/index.asp>

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Metadata: [http://www.dnr.state.ne.us/databank/metadata/strmflow\\_usgs.html](http://www.dnr.state.ne.us/databank/metadata/strmflow_usgs.html)

Description: The streams and canals database can be retrieved by station ID number, county or station name to tell how much streamflow occurred in a monthly, daily, or annual time period in table format.

Website: <http://nrcnt3.dnr.state.ne.us/peakvalue/peakindex.asp>

Metadata: <http://www.dnr.state.ne.us/databank/metadata/peakflow.html>

Description: The peak flow database can be retrieved by station ID number, county or station name to state the maximum streamflow was in annual time period in table format for a gaging station.

## 8. Precipitation

- a. Amount
- b. Timing
- c. Frequency
- d. Intensity
- e. Location

Website: <http://nrcnt3.dnr.state.ne.us/PrecipHourly/index.asp>

Website: <http://nrcnt3.dnr.state.ne.us/PrecipHourly/index.asp>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/rain\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/rain_doc.html)

Description: The precipitation database can be retrieved by station ID number, county or station name to tell how much rainfall occurred in a monthly, daily, or hourly time period. The precipitation database is monthly, daily and hourly data in table format.

Website: <http://nrcnt3.dnr.state.ne.us/Snow/index.asp>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/snow\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/snow_doc.html)

Description: The snowfall database can be retrieved by station ID number, county or station name to tell how much snowfall occurred in a monthly or daily time period. The snowfall database is monthly or daily data in table format.

## 9. Evaporation/Evapotranspiration

- a. Climatic data
- b. Pan Evap
- c. RRCA Model

Website: <http://nrcnt3.dnr.state.ne.us/Evap/index.asp>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/evap\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/evap_doc.html)

Description: The evaporation database can be retrieved by station ID number, county or station name to tell how much evaporation occurred in a monthly or daily time period. The evaporation database is monthly or daily data in table format.

## 10. Landuse / Landcover

- a. Past Cropping Patterns
- b. Current Cropping Patterns
- c. Future Cropping Patterns
- d. Tillage practices

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Website: <http://nrcnt3.dnr.state.ne.us/SpatialK/LandUse/index.aspx>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/land\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/land_doc.html)

Description: The digitized landuse survey data is a digital product of the unrectified aerial photographs of Nebraska. The field data was obtained by Consolidated Farms Service Agency and was digitized by the Nebraska Department of Natural Resources. It is based on 8 acre cell size and each county contains on the average 20 different landuse symbols.

## **B. Basin wide data availability and assessment of accuracy and precision of that data**

1. RRCA Model (data has been verified and accepted)
2. Sampling and Ground Truthing
3. Statistical tests
4. Missing data will need to be addressed (fill in holes)

## **C. Data standards**

## **D. Additional data needs**

### Soil Erosion C-Factor

Website: <http://nrcnt3.dnr.state.ne.us/SpatialK/CFactor/index.aspx>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/cfct\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/cfct_doc.html)

Description: The C-factor is the cropping and management factor expressed as a ratio of soil loss under a specific cropping and management system to the soil loss under a clean-till, continuous fallow system. The raster data: The digitized c-factor survey data is a digital product of the unrectified aerial photographs of Nebraska. The field data was obtained by Consolidated Farms Service Agency and was digitized by the Nebraska Department of Natural Resources

### Soil Erosion P-Factor

Website: <http://nrcnt3.dnr.state.ne.us/SpatialK/PFactor/index.aspx>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/pfct\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/pfct_doc.html)

Description: The P-Factor is the erosion control practice factor expressed as a ratio of soil loss with contouring, strip cropping or terracing to soil loss with straight row up-and down farming. For raster data: The digitized p-factor survey data is a digital product of the unrectified aerial photographs of Nebraska. The field data was obtained by Consolidated Farms Service Agency and was digitized by the Nebraska Department of Natural Resources.

### Registered Groundwater Wells

Website: <http://nrcnt3.dnr.state.ne.us/wellssql/default.asp>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/well\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/well_doc.html)

Description: Current Nebraska Statues require that all new water wells be registered with the Nebraska Department of Natural Resources within 30 days of completion of the well, except test holes in existence for 10 days or less, dewatering wells with intened use of 90 days or less, domestic or livestock wells completed prior to September 9, 1993, and soil vapor monitoring wells.

### Surface Water Rights

Website: <http://nrcnt3.dnr.state.ne.us/SWR/index.aspx>

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Description: The Department has jurisdiction over all matters pertaining to surface water, rights for storage, irrigation, power, manufacturing, instream flows and other beneficial uses. This includes the distribution of available supply during times of water shortages and adjudication of established water rights. Any person who wishes to divert and use the waters of a natural stream or lake must first get a permit or water right from the Department.

#### Hydrologic Units & Streams

Website: <http://www.dnr.state.ne.us/databank/hydro.html>

Metadata: [http://www.dnr.state.ne.us/databank/metadata/hydu\\_doc.html](http://www.dnr.state.ne.us/databank/metadata/hydu_doc.html)

Description: The DNR in cooperation with NRCS, USGS, DEQ and NGP delineated and computerized the boundaries of drainage areas that formed the basic hydrologic units needed for water resources planning and other uses. These basic hydrologic units were designed so they could be aggregated to many combinations of watershed or river basins. They have been integrated into the NRC's computer data systems so they are available to all with the facilities to access the Natural Resources Data Bank.

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**Data task group  
Conservation Committee  
Republican River Compact Settlement  
October 2, 2003 Draft**

**A. General types of relevant data available**

1. Potential data sources

a. NRI – Terraces/Tillage

Description: A statistically based sample of land use and natural resource conditions and trends on U.S. nonfederal lands.

Source: USDA/NRCS

Website: <http://www.nrcs.usda.gov/technical/NRI/>

Contacts: NE = Wayne Vanek, Doug Garrison. KS = Larry Kuder. CO = Kelly Pace

b. SURGO data base - Small reservoirs

USDA/NRCS Soils Website: <http://soils.usda.gov/>

c. Digital Orthroquads

Source: USDA Aerial Photo Field Office (APFO)

Website: <http://apfonet.apfo.usda.gov/imagerystatus.html>

d. State Inventory of Dams

Source: USDA/NRCS Dams Inventory

Description: There are a set of rules NRCS follows for which dams are inventoried found in the NRCS Engineering Field Manual, Chapter 5, page NE 5-23L. Here is a summary:

- Built with NRCS technical and/or financial assistance
- All Class B&C hazard
- Class A hazard more than 6 ft high and 50 ac-ft or more storage
- Class A hazard more than 25 ft high and 15 ac-ft or more storage

e. RRCA Model: Input and output data

f. CTIC – Tillage

Description: The Conservation Technology Information Center (CTIC) is a national, nonprofit public-private partnership working to promote soil and water quality and equip agriculture with affordable, integrated management solutions.

Website:

<http://www.ctic.purdue.edu/CTIC/CRM.html>

NRCS State Contacts:

NE – Tim Schaaf 402-362-5700

KS - Bud Davis 785-823-4552

CO - Jim Sharkoff 720-544-2812

g. Satellite/Aerial Photos

Historic Aerial Photos.

Source: USDA Aerial Photo Field Office (APFO)

Webstie: <http://apfonet.apfo.usda.gov/>

Source: UN-L Conservation and Survey Division (1930s to present) Nebraska Only.

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Website: <http://csd.unl.edu/csd.htm> (Contact the Maps/Publication Desk/Room)

## 2. Non-Federal Reservoirs data needs

See Dams Inventory

- a. Surface area of reservoirs
- b. Reservoir Volume
- c. Reservoir type (use)
- d. Condition of reservoir (% silted in, breached, etc.)
- e. Reservoir location
- f. Contributing Drainage Area
- g. Date Reservoir Constructed/retired

## 3. Land Terraces data needs

Source: USDA/NRCS

Description: electronic Field Office Technical Guide (eFOTG). Technical guides are the primary scientific references for NRCS. They contain technical information about the conservation of soil, water, air, and related plant and animal resources. This site includes links to many NRCS Technical Sources.

eFOTG Website: <http://www.nrcs.usda.gov/technical/efotg/>

- a. Surface area of land terrace
- b. Land terrace type
- c. Condition of Terrace (% silted in, replaced with sprinkler irrigation, etc)
- d. Land terrace location
- e. Contributing Drainage Area
- f. Date Terrace Constructed/retired or replaced with sprinkler irrigation.

## 4. Soil Characteristics

(See additional info on Data Gateway or NRCS Soils website: <http://soils.usda.gov/>)

- a. Permeability
- b. Hydrologic group
- c. Soil water holding capacity

## 5. Geologic Characteristics

- a. Presence and distribution of aquitards or aquicludes

Source: UN-L Conservation and Survey Division

Geologic GIS Data Sets for Nebraska Only

<http://csd.unl.edu/csd/specials/gisdata.html>

## 6. Drainage Characteristics

- a. Slope Percent or Degree
- b. Slope Length
- c. Topographic characteristics

Source: UN-L Conservation and Survey Division or NE DNR



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## DEM/Topographic GIS Data Sets for Nebraska Only

### Websites:

<http://www.nrc.state.ne.us/databank/spat.html>

<http://csd.unl.edu/csd/specials/gisdata.html>

## 7. Streamflow Records

(See # 8) also data available at NE DNR website.

- a. Total stream flow
- b. Baseflow
- c. Surface Flow (non-baseflow)

## 8. Precipitation

USDA/NRCS National Water and Climate Center

Website: <http://www.wcc.nrcs.usda.gov/>

Climate Data Description: The climate data currently used in Conservation Planning are generally observed by the National Weather Service (NWS) Cooperative Network. This nationwide network currently consists of nearly 8,000 active climatic stations. Observations at cooperative stations are performed by private citizens, institutions (such as utilities and television stations), or state and federal agencies. The digital record of these observations is called the Summary of Day (TD-3200).

Climate Data Website: <http://www.wcc.nrcs.usda.gov/climate/>

Water Related Data:

Water Supply Forecasting Website: <http://www.wcc.nrcs.usda.gov/wsf/>

Stream Flow Website: <http://www.wcc.nrcs.usda.gov/wsf/wsf-strmflow-data.html>

Precipitation Data including Historic: <http://www.wcc.nrcs.usda.gov/wsf/wsf-precip.html>

Snow Pack: <http://www.wcc.nrcs.usda.gov/snowcourse/sc-snowpack.html>

Reservoirs: <http://www.wcc.nrcs.usda.gov/wsf/wsf-reservoir.html>

PRISM (Parameter-elevation Regressions on Independent Slopes Model)

<http://www.ncgc.nrcs.usda.gov/branch/gdb/products/climate/index.html>

- a. Amount
- b. Timing
- c. Frequency
- d. Intensity
- e. Location

## 9. Evaporation/Evapotranspiration

(See #8)

- a. Climatic data
- b. Pan Evap
- c. RRCA Model

## 10. Landuse / Landcover

(See additional info on Data Gateway)

- a. Past Cropping Patterns
- b. Current Cropping Patterns
- c. Future Cropping Patterns

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d. Tillage practices

**B. Basin wide data availability and assessment of accuracy and precision of that data**

1. RRCA Model (data has been verified and accepted)
2. Sampling and Ground Truthing
3. Statistical tests
4. Missing data will need to be addressed (fill in holes)

**C. Data standards**

**D. Additional data needs**

USDA Geospatial Data Gateway Description: The Geospatial Data Gateway provides One Stop Shopping for natural resources or environmental data at anytime, from anywhere, to anyone. Allows you to choose your area of interest, browse and select data from our catalog, customize the format, and have it downloaded or shipped on CD.

Website: <http://lighthouse.nrcs.usda.gov/gateway/gatewayhome.html>

USDA/FSA Common Land Unit (CLU) Description: A Common Land Unit (CLU) is the smallest unit of land that has a permanent, contiguous boundary, a common land cover and land management, a common owner and a common producer association.

A CLU is delineated from permanent features such as fence lines, roads, and or waterways. This requirement minimizes the number of changes that will be required in the CLU boundary.

Currently, all Service Center Agencies maintain a wide array of information related to land units. This information is fragmented among paper documents and computer systems. All this scattered information related to CLU's can be consolidated.

CLUs are currently being digitized to produce a CLU data layer. Digitizing involves using GIS to draw border lines on top of the original orthophotograph, calculate the area of the polygon and attach elements of data, such as a label or a field number or a record identifier, to this polygon shape. For Service Centers, these polygons will represent CLU boundary lines.

Each CLU defined in the GIS database will be automatically identified and tracked, for national purposes, with an ID number assigned by the automated system.

This ID is not visible to the user, but can be accessed when needed. The ID is a computer-generated number that is a combination of the longitude and latitude coordinates of the CLU center point and this ID will be unique to the Nation and will never be reused.

CLU Status Websites:

[http://fsagis.usda.gov/fsagis/programs/clu/clu\\_dig\\_status.cfm](http://fsagis.usda.gov/fsagis/programs/clu/clu_dig_status.cfm)

<http://apfonet.apfo.usda.gov/statusmaps/clustat.pdf>

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f. CTIC – Tillage

Description: The Conservation Technology Information Center (CTIC) is a national, nonprofit public-private partnership working to promote soil and water quality and equip agriculture with affordable, integrated management solutions.

Website:

<http://www.ctic.purdue.edu/CTIC/CRM.html>

NRCS State Contacts:

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Source: USDA/NRCS

Description: electronic Field Office Technical Guide (eFOTG). Technical guides are the primary scientific references for NRCS. They contain technical information about the conservation of soil, water, air; and related plant and animal resources. This site includes links to many NRCS Technical Sources.

eFOTG Website: <http://www.nrcs.usda.gov/technical/efotg/>

- a. Surface area of land terrace
- b. Land terrace type
- c. Condition of Terrace (% silted in, replaced with sprinkler irrigation, etc)
- d. Land terrace location
- e. Contributing Drainage Area
- f. Date Terrace Constructed/retired or replaced with sprinkler irrigation.

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(See additional info on Data Gateway or NRCS Soils website: <http://soils.usda.gov/>)

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Water Related Data:

Water Supply Forecasting Website: <http://www.wcc.nrcs.usda.gov/wsf/>

Stream Flow Website: <http://www.wcc.nrcs.usda.gov/wsf/wsf-strmflow-data.html>

Precipitation Data including Historic: <http://www.wcc.nrcs.usda.gov/wsf/wsf-precip.html>

Snow Pack: <http://www.wcc.nrcs.usda.gov/snowcourse/sc-snowpack.html>

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**C. Data standards**

**D. Additional data needs**

USDA Geospatial Data Gateway Description: The Geospatial Data Gateway provides One Stop Shopping for natural resources or environmental data at anytime, from anywhere, to anyone. Allows you to choose your area of interest, browse and select data from our catalog, customize the format, and have it downloaded or shipped on CD.

Website: <http://lighthouse.nrcs.usda.gov/gateway/gatewayhome.html>

USDA/FSA Common Land Unit (CLU) Description: A Common Land Unit (CLU) is the smallest unit of land that has a permanent, contiguous boundary, a common land cover and land management, a common owner and a common producer association.

A CLU is delineated from permanent features such as fence lines, roads, and or waterways. This requirement minimizes the number of changes that will be required in the CLU boundary.

Currently, all Service Center Agencies maintain a wide array of information related to land units. This information is fragmented among paper documents and computer systems. All this scattered information related to CLU's can be consolidated.

CLUs are currently being digitized to produce a CLU data layer. Digitizing involves using GIS to draw border lines on top of the original orthophotograph, calculate the area of the polygon and attach elements of data, such as a label or a field number or a record identifier, to this polygon shape. For Service Centers, these polygons will represent CLU boundary lines.

Each CLU defined in the GIS database will be automatically identified and tracked, for national purposes, with an ID number assigned by the automated system.

This ID is not visible to the user, but can be accessed when needed. The ID is a computer-generated number that is a combination of the longitude and latitude coordinates of the CLU center point and this ID will be unique to the Nation and will never be reused.

CLU Status Websites:

[http://fsagis.usda.gov/fsagis/programs/clu/clu\\_dig\\_status.cfm](http://fsagis.usda.gov/fsagis/programs/clu/clu_dig_status.cfm)

<http://apfonet.apfo.usda.gov/statusmaps/clustat.pdf>