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**GEOECOLOGY:
A County-Level Environmental
Data Base for the
Conterminous United States**

R. J. Olson
C. J. Emerson
M. K. Nungesser

ENVIRONMENTAL SCIENCES DIVISION
Publication No. 1537

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DEPARTMENT OF ENERGY

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GEOECOLOGY: A COUNTY-LEVEL ENVIRONMENTAL DATA BASE
FOR THE CONTERMINOUS UNITED STATES¹

R. J. Olson, C. J. Emerson², and M. K. Nungesser

ENVIRONMENTAL SCIENCES DIVISION
Publication No. 1537

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¹Work sponsored by the Department of Energy, Assistant Secretary for Environment, Office of Environmental Assessments, Regional Impacts Division.

²Computer Sciences Division, Union Carbide Corporation Nuclear Division.

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Oak Ridge, Tennessee 37830
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Appendix A describes each data set including "Compilers" - those individuals associated with digitizing, compiling, editing, or other aspects of data set creation. The authors acknowledge these contributions and the willingness of investigators to share data files through the Geoecology Data Base. Users have helped to ensure quality control and have provided useful suggestions for improving and expanding the Data Base. These individuals are credited for their contributions. Thus, the Geoecology Data Base, as reflected by this document, is the product of numerous named and unnamed individuals over the past six years. However, the Geoecology Project staff assumes responsibility for errors, omissions, or inconsistencies in the report. We also thank Natalie Millemann for her editorial assistance in the preparation of this document. Individuals associated with the contents and development of the Geoecology Data Base include, but are not limited to, the following:

Environmental Sciences Division, ORNL

R. M. Anderson	L. K. Mann
T. J. Blasing	V. G. Myers
R. L. Burgess	J. S. Olson
H. R. Delcourt	W. M. Post
F. G. Goff*	R. K. Schreiber*
S. D. Hicks*	R. A. Strand
J. L. Joness*	C. S. Tucker
C. T. Kelsey*	J. A. Watts
J. T. Kitchings	D. C. West
J. M. Klopatek	

Computer Sciences Division, UCCND

B. D. Murphy	R. L. Stephenson
D. L. Wilson	

Energy Division, ORNL

A. S. Loeb	A. H. Voelker

Other Contributors

C. E. Calef, Brookhaven National Laboratory
P. A. Delcourt, University of Tennessee
E. Kaplan, Brookhaven National Laboratory
D. Merrill, Lawrence Berkeley Laboratory
J. Nagy, Brookhaven National Laboratory
C. A. Roswell, University of Maryland
T. Webb, III, Brown University

* Not currently affiliated with ORNL.

ABSTRACT

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The Geoecology Data Base represents a unique compilation of computerized environmental data for research and development needs. Environmental assessment and planning for energy development require rapid access to data at appropriate spatial and temporal scales. In the Environmental Sciences Division (ESD) at Oak Ridge National Laboratory (ORNL), we have developed an integrated data base of diverse environmental resource information from extant sources. Data are stored at the county level of resolution for the conterminous United States with some data available for subcounty units within larger, more diverse eastern counties. The Geoecology Data Base contains selected data on terrain and soils, water resources, forestry, vegetation, agriculture, land use, wildlife, air quality, climate, natural areas, and endangered species. Basic files on human population are also included to complement the environmental files. Data are stored in metric-SI units. The Geoecology Data Base is currently fulfilling diverse ongoing research needs while it is being expanded and updated as needs and new data are identified.

This report is both a documentation and a "user's guide" to the Geoecology Data Base. It describes the Data Base design, illustrates applications, provides examples of accessing the Data Base, and gives general information on the data set contents. Appendix A documents each of the over 100 data sets including source of the data, spatial and temporal characteristics, variable names and labels, and, for many data sets, sample graphic or tabular materials generated from the data. An index of the 1000 variable names and labels is given in Appendix B. Appendix C lists FIPS codes, names, sizes, and centroids of the states, counties, and subcounty units used in the Data Base.

The Geoecology Data Base can be accessed in either batch or interactive modes utilizing the ORNL/IBM computer system. The Geoecology Project uses the Statistical Analysis System (SAS) for data storage, retrieval, and analysis. If the user knows SAS, the Data Base can be accessed with the information provided by this report. Maps and graphics are generated from the Data Base by using independent computer programs.

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I. INTRODUCTION AND SCOPE

A. Geoecology Data Base

The Geoecology Data Base represents a unique compilation of computerized environmental data for research and development needs. Environmental assessment and planning for energy development require rapid access to data at appropriate spatial and temporal scales. In the Environmental Sciences Division (ESD) at Oak Ridge National Laboratory (ORNL), we have developed an integrated data base of diverse environmental resource information from extant sources. Data are stored at the county level of resolution for the conterminous United States with some data available for subcounty units within larger, more diverse eastern counties. The Geoecology Data Base contains selected data on terrain and soils, water resources, forestry, vegetation, agriculture, land use, wildlife, air quality, climate, natural areas, and endangered species. Basic files on human population are also included to complement the environmental files. Data are stored in metric-SI units. The Geoecology Data Base is currently fulfilling diverse ongoing research needs while it is being expanded and updated as needs and new data are identified (Olson et al. 1980).

The Geoecology Data Base was designed to meet the needs of regional environmental studies (Olson and Goff 1977). The prime consideration was to create a flexible, user oriented system which could be developed, utilized, and upgraded with minimal costs. The need to easily overlay thematic data stored for common spatial units for use in regional models was established during the National Science Foundation-funded International Biological Program (Fig. I.1) (Burgess and Kern 1973). The UPGRADE system, which has been developed by the Council on Environmental Quality (1980), includes a county-level Integrated Data Base designed similar to the Geoecology Data Base. The data base design considered anticipated applications, available data management systems, spatial and temporal requirements, and data availability. Factors which influenced the design are discussed below while subsequent sections in the report present details on aspects of the current system.

Research applications of the Geoecology Data Base most often involve large geographic areas and are concerned with assessing long-term changes in ecosystems related to aggregated effects of man's activities. Such studies require the capability to (1) investigate single parameters over broad geographic areas, (2) integrate data on various aspects of the environment, or (3) examine in detail all environmental resources of a specific area. By storing data

Figure I.1. Geoecology Data Base Concept (Burgess and Kern 1973).

in a standardized computer format for common spatial cells and temporal periods, the Geoecology Data Base permits quick response to these varied requirements.

The computer storage, analysis, and display aspects of the Geoecology Data Base were determined primarily by what was both readily available and user-oriented. Data considered initially included: arrays of county statistics, rectangular gridded data, polygonal thematic maps, and isoline thematic maps. Considering these data types, available software, and spatial resolution requirements, a "county cell" file structure was selected. The Statistical Analysis System - SAS (Barr et al. 1979) was selected to provide file management and statistical analysis (Olson and Strand 1978), with separate programs providing graphical display capabilities. Computerized geographic information systems have undergone significant evolution during the past decade. Integrated systems are currently available to

accommodate analysis and display of mixed cell and polygonal data structures. A potential enhancement to the Geocology Data Base would be the transition to a geographic information system to provide more efficient and flexible cartographic display and analysis capabilities.

The selection of an appropriate spatial scale was a major concern of the initial data base design. A spatial hierarchy was defined to serve as a framework in organizing and analyzing data at various scales. Table I.1 shows the levels within the hierarchy in terms of metric, geodetic, and geopolitical units (Olson et al. 1977). In general, the appropriate spatial cell size for studying regions at one level in the hierarchy is the next lower level. Most anticipated studies were "macro-region" in size so counties were an appropriate cell size for storage and analysis.

Table I.1. Spatial Hierarchies of Regions Illustrated by Typical Geopolitical Units and Rectangular Cell Sizes

Level	Area km ²	Metric side-km	Geodetic side	Map scales
R1 - World	10 ⁸	10000	90°	Smaller scale
R2 - Mega region				1:20,000,000
R3 - Macro region	10 ⁶	1000	10°	1:2,000,000
R4 - Meso region				1:200,000
R5 - Micro region	10 ⁴	100	1°	1:20,000
R6 - Macro site				1:2,000
	10 ²	10	7 1/2'	
	10 ⁰	1	30"	
	10 ⁻²	0.1	3.75"	Larger scale

Counties can serve as building blocks to aggregate data into larger cells for "mega-region" studies. They can be used to access more detailed information by serving as pointers to data files not stored in the Geoecology Data Base. For example, county-level forestry data within the Data Base can be used to point to counties with white pine; this county list can then be used to more efficiently extract subcounty location data of white pine from the detailed Continuous Forest Inventory plot tapes. In addition, spatial filters can be used to disaggregate county data to more detailed levels. If one parameter is available at a subcounty level (e.g., soils) then statistical relationships can be established to allocate other parameters to that subcounty level (e.g., vegetation-soil associations).

Some advantages of county units are: (1) they are well-established and quite permanent geopolitical units; (2) large amounts of environmental data are readily available as county statistics; (3) counties are relatively uniform in size in the east; (4) county cells are an appropriate level of resolution for regional studies; (5) county governments are often responsible for implementing policy; and (6) county boundaries are available in computerized form for mapping. Disadvantages include: (1) occasionally names or boundaries change; (2) large and heterogeneous counties occur (primarily in the west); (3) independent cities, such as in Virginia, present special problems; and (4) some environmental models use input data in the form of rectangular grids of uniform cell size. We addressed some of the disadvantages by establishing a standard set of 3071 county units for the conterminous United States and by subdividing larger eastern counties into subcounty units based on physiographic conditions.

The relationship between the Geoecology Data Base and extant data sources is shown in Fig. I.2. "Dispersed data" are those files which are routinely collected by various agencies to carry out their particular mission. Inventories of these data sets have been compiled by information centers (Kemp 1977, Shriner and Peck 1978, Huber et al. 1978). These data bases are individually and collectively extremely valuable; however, they are often not readily available, have incomplete documentation, or were not designed to be compatible with other related studies. Accumulating these files into a single standardized data base would be costly and scientifically undesirable because of the uniqueness of each data set. For the Geoecology Data Base we have selected "preferred data sets" from these diverse sources based on geographic coverage, subject content, sampling time period, and availability.

ORNL-DWG 76-16441

Figure I.2. Data Resources for Energy-Related Assessment and Planning.

The Geoecology Data Base became operational in 1975 with applications and development continuing since that time. Less than a full-time-equivalent (person-year) per year has been devoted directly to Data Base development and management. The Office of Environmental Assessment, Department of Energy (DOE), is the principal funding agency.

B. Scope of the User's Guide

This report is both a documentation and a "user's guide" to the Geoecology Data Base. It describes the Data Base design, illustrates applications, provides examples of accessing the Data Base, and gives general information on the data set contents. Appendix A documents each of the over 100 data sets including source of the data, spatial and temporal characteristics, variable names and labels, and, for many data sets, sample graphic or tabular materials generated from the data. An index of the 1000 variable names and labels is given in Appendix B. Appendix C lists FIPS codes, names, sizes, and centroids of the states, counties, and subcounty units used in the Data Base.

The Geoecology Data Base uses SAS for data storage, retrieval, and analysis. The report assumes the user is already familiar with SAS or will refer to SAS documents to obtain details of the programming language. The report provides names of online disk files on the ORNL system, but it does not give specific (and ever changing) Job Control Language (JCL) to access the disk file and execute the SAS programs.

C. Data Availability

The Geoecology Data Base is funded to support DOE research projects. Although it is compiled from existing data sources with federal funds, a mechanism does not currently exist to provide data and associated support as a service function to other agencies. Access to the Data Base is encouraged for individuals working on DOE-funded projects and may be arranged on a cost-recovery basis for others. In light of the dynamic nature of the Geoecology Data Base, it is required that users will assume certain responsibilities. The conditions listed below were patterned directly after those contained in documentation of the Population at Risk to Air Pollution (PARAP) Data Base developed by Deane Merrill, Lawrence Berkeley Laboratory (LBL). These responsibilities apply equally to individuals obtaining copies of, accessing directly, or accessing indirectly all or parts of the Geoecology Data Base. Users of the Geoecology Data Base are asked to:

1. Inform the Geoecology Project when access to the Data Base is obtained, and keep us informed of anticipated uses of the data.
2. Agree to share in further distribution of data and related documentation which again includes informing the Geoecology Project of such distribution.
3. Include an appropriate citation in any published or unpublished reports which make use of the Geoecology Data Base and provide a copy of such materials to the Geoecology Project.
4. Obtain and consider all available documentation in order to understand limitations of the data.

5. Contact the Geoecology Project regarding any errors or inconsistencies that are discovered in the data.

6. Agree that no portion of the Geoecology Data Base may be sold or incorporated into an information system which is offered to the public on a fee basis.

II. APPLICATIONS

Applications of the Geoecology Data Base include site-specific environmental assessments (providing data), regional characterizations (Davis 1978, Copenhagen et al. 1979), regional analyses (Kitchings et al. 1976, Haynes et al. 1979, Ranney and Cushman 1980, Klopatek et al. 1980a, Nungesser and Olson 1980), and national analyses (Klopatek et al. 1980b, Klopatek et al. 1979). Selected examples are described below to demonstrate the versatility of county-level digital files in conducting regional environmental studies.

A. Sulfur Dioxide Environmental Impacts

An example of several applications of the Geoecology Data Base is the determination of potential regions where crops, natural vegetation types, or tree species are at risk to damage from sulfur dioxide (SO₂) and other pollutants. The impact of air pollution on plants is complex. However, the data files on air quality, agriculture, vegetation, and forestry have been combined to identify areas at the greatest risk from SO₂ damage. The National Coal Utilization Assessment study (Davis 1978) dealt with potential soybean yield reductions. Fig. II.1 shows areas where chronic SO₂ levels are currently high enough to cause damage to white pine (Nungesser and Olson 1980).

Average chemical characteristics of soils within counties were calculated to determine the potential capacity of soils to buffer the effects of acid rain and therefore reduce potential impacts of this SO₂-related factor (Klopatek et al. 1980a). Maps of soil pH, cation exchange capacity, base saturation, and base content were displayed for the eastern United States. These maps were overlaid with hydrogen-ion-loading levels calculated from rainfall amounts and rainfall pH. Fig. II.2 shows the 117 counties in which soils were classified as most sensitive to acid rain.

B. Natural Vegetation and Land Use

The need to incorporate information on natural vegetation (Küchler 1964) into regional studies prompted the estimation of the areal extent of vegetation types within counties using Küchler's map (USDI 1970). To allow the estimates to more nearly reflect current conditions, each vegetation type within a county was adjusted for land-use changes (Klopatek et al. 1979). Probabilities for land-use change were assigned to each vegetation type. An algorithm

Figure II.1. Southeastern Areas Where White Pine is at Risk from Impacts of High Sulfur Dioxide Levels (Nungesser and Olson 1980).

was devised to proportionally reduce natural vegetation types within a county by combining estimates of current land-use and the probabilities of change.

The study of the declining distribution of the red wolf (Canis lupus) used the potential and land-use-adjusted natural vegetation data. Fig. II.3a shows the presettlement distribution of floodplain forest while Fig. II.3b shows the current extent of this type. This loss of habitat was one of the factors used to explain the endangered species status of the red wolf (Wilson 1979). The study used discriminant analysis of county-level vegetation and land-use data to classify counties as probable or improbable habitat locations for the red wolf.

Figure II.2. Acid Sensitive Soils in the Eastern United States (Klopatek et al. 1980a).

Figure II.3. Percent Floodplain Forest (Küchler Type 103)
(a.) Not Adjusted for Current Land Use, and
(b.) Adjusted for Current Land Use (Wilson 1979).

C. Wilderness Areas Evaluation

A national assessment of potential wilderness areas within the U. S. Forest Service's Roadless Area Review and Evaluation (RARE) II program was conducted to provide DOE with information on the ecological uniqueness of areas that also had potential energy resources (Klopatek et al. 1980b). The analysis of RARE II areas utilized national data on vegetation, mammals, birds, and endangered species. The country was stratified into ecoregions (Bailey 1976, Bailey 1978) to rank wilderness areas against other ecologically similar areas. Each area was ranked, based on the uniqueness of each of the four parameters. Values were calculated so that a tract with local abundance of a nationally scarce ecological resource (one of the four parameters) would receive a high rank. An Overall Ecological Index (OEI) was then calculated by combining the four ranks. Fig. II.4 shows the OEIs for RARE II areas in the Douglas-fir ecoregion (M3112). RARE II areas are represented by circles drawn proportional to the size of each area.

D. Biomass Fuels

Determining the potential for biomass as an alternate energy source in the South required information on the ecological and economic feasibility of this technology (Ranney and Cushman 1980). Potential areas for biomass production were identified, based on land capability and current agriculture and forestry practices. Then locations of population centers, pulp mills, and other economic factors were considered which would influence the demand for biomass fuel. Fig. II.5 shows the resulting pattern of areas with high potential for successful biomass programs.

OEI RANKS - M3112

Figure II.4 Overall Ecological Ranks for RARE II Wilderness Areas in the Douglas-Fir Ecoregion (M3112) Represented by Circles Proportional to Area Sizes and Symbols Indicating 20 Percentile Classes (Klopatek et al. 1980b).

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WOOD ENERGY CONVERSION UNIT SUPPORT CAPABILITY
USING WOODY BIOMASS FARMS AS ONLY FEEDSTOCK SOURCE
25% OF LAND CONSIDERED AVAILABLE
(HAUL DISTANCE MAXIMUM=40 MI.)

Figure II.5 Wood Energy Conversion Unit Support Capability using Woody Biomass Farms as the Only Feedstock Source Assuming 25 percent of Suitable Land Being Available and a Maximum 64 km Hauling Distance (Ranney and Cushman 1980).

III. DATA BASE MANAGEMENT

A. SAS

The Statistical Analysis System - SAS (Barr et al. 1979) is used for data editing, data base management, and analysis (Fig. III.1). SAS provides a user-oriented file management system with extensive statistical capabilities. The system also allows user-written programs (FORTRAN, PL/I, etc.) to interface directly with the Data Base and other SAS programs. SAS operates exclusively on IBM computers in both batch and interactive modes. Analysis functions include tabular report generation, data retrieval, statistical analysis, and graphical display. Formatted files from SAS are used as input to other computer programs for graphic and cartographic display. Currently over 90 SAS data sets are stored on a single online disk file occupying 12 million bytes of storage. In addition, several larger files are stored offline as SAS tape files.

Figure III.1. The Use of SAS with the Geocology Data Base (Nungesser and Olson 1980).

Each data set contains a set of variables such as state and county identifiers, reference year, and data items. Data sets are assigned a permanent three-character name used as the second-level data set name within the SAS data base. The name consists of a letter representing thematic sectors within the data base (e.g., A-Agriculture, C-Climate, etc.) and a two-digit number assigned sequentially to new data sets within a sector. States and counties are consistently identified by Federal Information Processing Standards (FIPS) codes (USDC 1973a) to facilitate merging files for analysis and display. The FIPS code consists of a two-digit state code (01 to 56) and a three-digit county code, primarily odd numbers, assigned to counties in an alphabetic sequence (001, 003, 005, etc.). Reference years, abbreviated as the last two digits, are stored when observations from several years are included in a data set.

Data sets may have single or multiple observations for each county unit. With single observations, each computer record contains all the variables for a county. As an example, within the forest resource data set, each county has an observation containing estimates for each of the 12 major forest types in the East, even though not all forest types occur in each county. Data sets with multiple observations per spatial unit include mammal, bird, and tree species data. In these cases, there is an observation per county unit for each species that occurs within a county. Therefore, computer storage is not used for species that do not occur in the county. In addition, the Data Base includes dictionaries to provide English translations of codes used in the system and index files to define regions in which individual county units are located. The index files allow county data to be easily aggregated into regions as described under IV.A-Spatial Cells.

A significant facet of the project is maintaining up-to-date and adequate documentation. Meaningful mnemonic variable names and 40-character labels are used throughout the Geoecology Data Base. Thus, minimal online documentation is available for the casual user via the SAS CONTENTS procedure. In addition, a separate dictionary data set, G02, contains SAS variable names and labels extracted from the Data Base. Another data set, G01, contains the title, temporal and spatial characteristics, date compiled, compilers, and other relevant information for existing and planned data sets. Data sets G01 and G02 were used to provide most of the information on each data set presented in Appendix A. These dictionary data sets will be updated as new data are added so that users can list them to obtain the most up-to-date descriptions.

B. Display Programs

SAS is used in connection with display programs to provide needed graphics. Procedure DISPLA1 (Olson and Kumar 1980) provides a direct interface between SAS and DISSPLA (ISSCO 1978) to produce high quality line plots. Cartographic display is used both for editing and for displaying analytical results. Input to the mapping programs is usually a system tape or disk file that is created as a formatted output file by SAS. An in-house mapping program called "EZMAP" was developed by the Geographic Systems Group at ORNL (Coleman 1978). It produces state and county outlines with shading or labels within the polygons. SYMAP (Dougenik and Sheehan 1975) is also used with the Data Base to produce shaded contour maps.

C. Data Base Conventions

1. Units of Measure

The Geoecology Data Base is "metric-SI" (ASTM 1976). Land area measurements are expressed in hectares (ha), weights in kilograms (kg), and volumes as cubic meters (cu m). Centimeters (cm) and degrees Celsius (C) are used in the climatic sector. Other units of measure are defined with individual data set descriptions in Appendix A. Data were converted to metric-SI and rounded to the appropriate number of significant digits.

2. Variable Names

SAS variable names were assigned to be meaningful and unique within the Geoecology Data Base. Many names contain an underscore ("_") to improve the readability of the name. Often names end with a single letter indicating the variable type. Some standard variable type definitions are: A - area (ha), C - code, D - descriptive name, F - fraction of the total, N - number of unit occurrences, P - proportion of unit, and T - general type code. Thus, the names VEG_C, VEG_D, and VEG_A indicate the vegetation code, the descriptive name, and the areal extent in hectares, respectively. Several standard SAS names that occur in many data sets are: FIPS_ST - FIPS state code, FIPS_CO - FIPS county code, SCU - subcounty unit letter designation, ST - two-letter state abbreviation, and YEAR - reference year indicated by last two digits, e.g., 1980 = 80. Appendix B contains a combined list of the 1000 variable names, labels, and data set associations currently in the Geoecology Data Base.

3. Data Sets

Data sets are assigned a permanent three-character data set name except for data sets containing subcounty unit (SCU) data. Data sets containing data for subcounty units have a data set name with an 'SCU' suffix. There are data sets in the Data Base (primarily climate and terrain data) which contain identical parameters but at different spatial scale than the primary county-level data set. An example is that C07 and C07SCU both contain monthly temperature data. The main data set (C07) contains observations for all counties including those which have been subdivided. The data set with the SCU suffix (C07SCU) contains observations for the 239 SCU's which occur in the eastern 79 subdivided counties. Such data sets also contain the variable "SCU" identifying the subcounty unit.

Files with county identifiers are stored sorted by FIPS_ST and FIPS_CO codes. Dictionary files are sorted by the code variable. Identifier variables, including FIPS_ST, FIPS_CO, and "numeric" code variables, are stored as SAS character variables. Character variables are not used in numerical analysis and usually are defined with leading zeroes (e.g., "001"). Therefore, when using SAS to select county or other codes, the user must use a statement such as "IF FIPS_CO='003';" in a SAS program.

To conserve space on the disk file, most variables are stored with a length of four or fewer bytes. Lengths were selected to accommodate the largest value occurring in the data and should not influence calculation accuracy since SAS performs statistical manipulations with double precision arithmetic.

4. Special Output Formats

The SAS procedure FORMAT allows the user to define output formats, giving label values to variable values (Barr et al. 1979). In relation to the Geoecology Data Base, we have created a library of stored labels for FIPS codes, ecoregion codes, and vegetation codes. To substitute English labels for codes, the user program must include JCL for the catalogued format load module library, construct a variable from the code variable to be used for the label, and include an appropriate FORMAT statement. An alternative slower method would be to merge files with dictionaries. The catalogued data set containing the library is ENVSCI.RJX12891.GEOLIB. Statements that could be used to print state names for FIPS codes are given below:

```
// EXEC SAS
//SASLIB DD DSN=ENVSCI.RJX12891.GEOLIB,DISP=SHR
//GEODAT DD DSN=ENVSCI.RJX12891.GEODAT,DISP=SHR
DATA ONE; SET GEODAT.B01; STATE=FIPS_ST;
PROC PRINT; BY FIPS ST STATE;
      FORMAT STATE $STATES.; VAR FIPS_CO CO_AREA;
```

The second JCL statement refers to the data set containing format load modules created and catalogued by procedure FORMAT. The STATE=FIPS_ST defines a variable which will temporarily contain state names. The FORMAT statement uses the \$STATES. load module to associate state names based on the FIPS code with the variable STATE for the duration of the program step. The output report will contain state FIPS codes (FIPS_ST), state names (STATE), county FIPS codes (FIPS_CO), and county areas (CO_AREA).

Names of the available format load modules within the Geoecology Data Base are listed below. The SAS variables within the Data Base (e.g., FIPS_ST, ECO_CODE, VEG_CODE) to be used with FORMAT statements are given. To obtain county names, the state and county FIPS codes must be concatenated to provide a unique code. If several of the format load modules are referenced by the same FORMAT statement, that program step may require more than 270K of memory.

\$STATES.	State and region names (FIPS_ST)
\$COUNTIES.	County names (FIPS_ST and FIPS_CO)
\$ECOCODES.	Ecoregion names (ECO_CODE)
\$VEGCODES.	Vegetation names (VEG_CODE)

5. SAS Files

In addition to the Geoecology Data Base, there are two libraries available in connection with the Data Base. One contains the procedure DISPLA1 program for producing line plots, and the second contains format load modules equivalents for use by the SAS FORMAT statement. The second library currently contains load modules for FIPS codes, ecoregion codes, and vegetation codes with, plans to add other codes as time permits. The names of the catalogued files on the ORNL computer system are:

```
ENVSCI.RJX12891.GEODAT - Geoecology Data Base
ENVSCI.RJX12891.GEOLIB - Procedure FORMAT Library
ENVSCI.RJX12891.SASDSPLY - Procedure DISPLA1 module
```


IV. SPATIAL AND TEMPORAL ASPECTS

A. Spatial Cells

We have selected counties as our primary geographic unit for analysis and display as discussed in the INTRODUCTION AND SCOPE. A standard set of 3071 county units for the conterminous United States was defined using the 1972 County and City Data Book (USDC 1973b) and the FIPS Codes book (USDC 1973a). Most independent cities were combined with appropriate county units because environmental data are normally not available for these smaller urban areas such as Baltimore City, St Louis City, and 34 of the 39 Virginia independent cities. The Interlaboratory Working Group for Data Exchange (Benkovitz 1979) has also endorsed FIPS codes and standardized county units to facilitate exchange of county-level thematic data files. Counties containing aggregated data from associated independent cities are listed in Table IV.1. Table IV.2 lists counties that we have found may be treated differently in the various "county-level" source files. We have estimated or aggregated data in creating our "standard" data sets to obtain observations for all county units. The 3071 county units are listed as Appendix C along with the 239 subcounty units and a summary by state.

County units can be easily aggregated by various regional designations stored in the Geoecology Data Base. Crop Reporting Districts, State Climatic Divisions, Land Resource Regions, Air Quality Control Regions (AQCR's), Aggregated Sub-Areas, Standard Metropolitan Statistical Areas (SMSA's), Bureau of Economic Analysis areas (BEA's), and states all represent areas defined in terms of aggregates of county cells.

There is a distinct overall difference between county sizes in the eastern states and western states. Because of our interest in the Eastern Deciduous Forest Biome which covers parts of all the eastern states, we have concentrated efforts in this area. There are 2660 county units in the eastern 37 states ranging in size from 60 to 17,700 sq km with an average size of 1750 sq km. By subdividing 79 counties based on size and geographic heterogeneity, the largest county unit was reduced to 6,900 sq km and the average to 1660 sq km. We have entered terrain and climatic data at the subcounty-level of resolution in the east. The ecologically heterogeneous large western counties still need to be subdivided.

Table IV.1. Counties Containing Aggregated Data from Associated Independent Cities within the Geoeology Data Base

State	County	FIPS code		Associated independent city	FIPS code
		State	County		
MD	Baltimore	24	005	Baltimore City	510
MO	St. Louis	29	189	St. Louis City	510
MT	Park	30	067	Yellowstone National Park - Part	113
VA	Albermarle	51	003	Charlottesville	540
VA	Alleghany	51	005	Clifton Forge	560
VA	Alleghany	51	005	Covington	580
VA	Arlington	51	013	Alexandria	510
VA	Augusta	51	015	Staunton	790
VA	Augusta	51	015	Waynesboro	820
VA	Bedford	51	019	Bedford	515
VA	Campbell	51	031	Lynchburg	680
VA	Carroll	51	035	Galax	640
VA	Dinwiddle	51	053	Colonial Heights	570
VA	Dinwiddle	51	053	Petersburg	730
VA	Fairfax	51	059	Fairfax	600
VA	Fairfax	51	059	Falls Church	610
VA	Fredrick	51	069	Winchester	840
VA	Greensville	51	081	Emporia	595
VA	Halifax	51	083	South Boston	780
VA	Henrico	51	087	Richmond	760
VA	Henry	51	089	Martinsville	690
VA	James City	51	095	Williamsburg	830
VA	Montgomery	51	121	Radford	750
VA	Pittsylvania	51	143	Danville	590
VA	Prince George	51	149	Hopewell	670
VA	Roanoke	51	161	Roanoke	770
VA	Roanoke	51	161	Salem	775
VA	Rockbridge	51	163	Buena Vista	530
VA	Rockbridge	51	163	Lexington	678
VA	Rockingham	51	165	Harrisonburg	660
VA	Southampton	51	175	Franklin	620
VA	Spotsylvania	51	177	Fredericksburg	630
VA	Washington	51	191	Bristol	520
VA	Wise	51	195	Norton	720
VA	Chesapeake	51	550	Chesapeake	550
VA	Chesapeake	51	550	Norfolk	710
VA	Chesapeake	51	550	Portsmouth	740
VA	Hampton*	51	650	Hampton	650
VA	Newport News*	51	700	Newport News	700
VA	Suffolk	51	800	Suffolk	800
VA	Suffolk	51	800	Namesmond	695
VA	Virginia Beach*	51	810	Virginia Beach	810

* Independent cities that are treated as unique county units.

Table IV.2. County Units Providing Confusion Resulting From Historic Changes

Table 3 County Units That Provide Confusion Due to Historic Changes				
FIPS Code				
State	County	State	County	Comments
GA	Columbus	13	510	Formerly Muscogee County (13215)
NV	Carson City	32	510	Formerly Ormsby County (32025)
WI	Menominee	55	078	Formerly Menominee Indian Reservation
WY	Park (6,959 sq mi)	56	029	Formerly Yellowstone Nat. Pk, now assigned to these two counties
	Teton (4,000 sq mi)	56	039	
ID	Fremont	16	043	Contains part of Yellowstone National Park

B. Geographic Coverage

Our goal is to have national coverage for all data sets. Historically, we have had three levels of coverage: the southern 16 states, the eastern 37 states, and the 48 conterminous states. The South is associated with ORNL's regional studies program for DOE. States included in the South are Maryland, West Virginia, Kentucky, Mississippi, Oklahoma, Texas, and all states to the south (the District of Columbia is considered a state unit). The East includes the eastern Deciduous Forest Biome with the more uniform county units. States in the East include North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, and all states to the east.

C. Temporal Coverage

The temporal aspect of each data set was selected to reflect the most current conditions. In the case of rapidly changing resources, data sets may contain observations for a series of years. The reference year for most files lies between 1965 and 1978. Agricultural productivity, bird populations, air quality, and human population are examples of files with several years of data. Land-use changes occur very rapidly for certain areas, but current data are not available at the county-level to define these changes.

V. DATA BASE COMPILATION

A. Data Sources

Extensive efforts are required to find appropriate data sources and to reformat them into data sets for the Geoecology Data Base. New data files are normally restricted to those files with U. S. coverage that contain the most recently available data and are available from a single source in a consistent, documented form. Such files are usually created, maintained, and not widely documented by mission-oriented agencies to fulfill their specific needs. Diligent searching and personal contacts are required to find these unique and very useful data sets.

The Geoecology Project has a collection of magnetic tapes which were used to create Geoecology data sets, provide additional environmental data, or provide complementary data such as health, population, energy, etc. The tape files exist in a variety of formats and usually do not have FIPS county identifiers. When the need arises, the flexible inputting capabilities of SAS are used to read and merge such files with the Geoecology Data Base. The file G03 provides an inventory with titles of the tapes; however, formats and associated information must be obtained from the Geoecology Project. Inventories of these and other spatial data files at ORNL have been published periodically since 1975 (Copenhaver and Barker 1980).

B. Quality Control

Our experience with extant data has emphasized the need for extensive data checking. Data problems encountered include erroneous data, missing data, wrong county identifiers, and inconsistent county identifiers for independent cities and other areas (e.g., Yellowstone National Park). The most fruitful ways to determine errors are (1) using the data, (2) generating thematic maps, (3) searching sorted lists, (4) calculating univariate statistics, and (5) associating two or more independent files. Although users of a data set may eventually discover errors, we have found that a preliminary thematic map of a variable will quickly display possible inconsistencies through irregularities in the spatial pattern. Fig. V.1 is a typical map generated to edit the lithology data set. By comparing this map with the original source map, missing data and data errors were corrected.

One of the most thorough methods to ensure quality control is to combine two independent files by county and check for inconsistencies. Based on ecological

LITHOLOGY CATEGORIES

Figure V.1. Sample Map used for Editing the Lithology Data Set.

relationships, tree species occurrences are checked against potential vegetation types within a county; for example, many tree species do not normally occur in areas classified as prairie. If a county is found with such an inconsistency, both source maps are checked. If an error has occurred, each file is checked for errors in digitizing, transcribing, keypunching, and entering data. Appropriate corrections are made using the SAS EDITOR procedure. Another example of cross-file checking compares county areas. Most files which contain an estimate of total county area do not agree with the 1970 Census values used as our base county statistic. Some of these differences stem from the classification of small and large water bodies in an inventory or from real changes in county boundaries. However, in other cases it has been exceedingly difficult to resolve differences in the elementary statistic of county size.

Despite our continuing efforts toward quality control in the Data Base, it would be presumptuous to imply that the Geoecology Data Base is free of errors. Errors will be corrected when found. Individuals obtaining copies of the Data Base must share the responsibility of informing us of potential errors discovered in the data. Users should also periodically request information on updates or request an updated copy of the file.

C. Compilers

The Geoecology Data Base has involved the efforts of many individuals in the compilation of data sets. These individuals are listed in Appendix A with the data sets to which they contributed through digitizing, analytical methodologies, or editing. By utilizing the expertise of these contributors, we have achieved additional quality control and a broader spectrum of data sets.

VI. DATA BASE CONTENTS

There are thirteen thematic sectors in the Geoecology Data Base representing groupings of data sets into similar subject areas. Table VI.1 lists the sector designation letter, title, and number of data sets in the sector. The Items column represents the number of SAS variables while the Records column gives the number of observations in the Data Base. Titles, temporal and spatial characteristics, and status of data sets within each sector are given in Table VI.2. Although individual data sets within a sector may be replaced by updated files, each sector represents an aspect of the environment often needing to be characterized within regional studies. Each sector, identified by its letter, is described below.

Table VI.1 Geoecology Data Base Sectors

Sector	Theme	Number	Items	Records
A	Agriculture	5	89	22,179
B	Base Data	5	35	10,686
C	Climate	14	171	20,765
D	Vegetation	12	89	120,678
F	Forestry	7	67	38,794
G	General	2	18	1,968
K	Air Quality	3	21	4,081
L	Land	8	136	57,600
N	Natural areas	8	62	15,122
P	Population	2	50	4,459
Q	Water Resources	1	60	0
T	Terrain	12	78	28,765
W	Wildlife	14	104	297,788
		--	---	-----
	Totals	93	980	622,883

A. Agriculture (A)

The Agriculture Sector contains both crop and livestock statistics selected from national inventories. Data for more crops and crops grown under irrigation are available on tapes.

Table VI.2. Reference Year(s), Geographic Coverage, Spatial Units, and Status of Data Sets within the Geoecology Data Base

----- SECTOR CODE LETTER=A ----- THEMATIC SECTOR TITLE=AGRICULTURE -----					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
A01	CROP AREAS AND YIELDS, AG LAND USE	1969	EAST	COUNTY	ONLINE
A02	LIVESTOCK AND POULTRY INVENTORY/SALES	1969	EAST	COUNTY	ONLINE
A03	CROP AREAS AND YIELDS (SOUTHERN CROPS)	1975	SOUTH	COUNTY	ONLINE
A04	CROP PLANTED-HARVESTED AREAS AND YIELDS	1975	U. S.	COUNTY	ONLINE
A05	CROP REPORTING DISTRICT INDEX	1975	U. S.	COUNTY	ONLINE
----- SECTOR CODE LETTER=B ----- THEMATIC SECTOR TITLE=BASE DATA -----					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
B01	COUNTY CODES, NAMES AND CENTROIDS	1970	U. S.	COUNTY	ONLINE
B02	STATE NAMES AND INDICES (EPA, BBS, NOAA)	1970	U. S.	STATES	ONLINE
B03	AIR (AQCR) AND WATER (WRC-SA) INDICES	1975	U. S.	COUNTY	ONLINE
B05	REGIONAL DESIGNATIONS	1970	U. S.	COUNTY	ONLINE
B06	EPA AQCR INDICES	1975	SOUTH	COUNTY	ONLINE
B07	FEDERAL & STATE LAND OWNERSHIP BY AGENCY	1979	U. S.	COUNTY	BEING EDITED
----- SECTOR CODE LETTER=C ----- THEMATIC SECTOR TITLE=CLIMATE -----					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
C07	MONTHLY AVERAGE TEMPERATURES BY COUNTY	1941-1970	EAST	COUNTY	ONLINE
C08	MONTHLY AVERAGE PRECIPITATION BY COUNTY	1941-1970	EAST	COUNTY	ONLINE
C09	MONTHLY POTENTIAL EVAPORATION BY COUNTY	1941-1970	EAST	COUNTY	ONLINE
C10	MONTHLY MOISTURE INDEX BY COUNTY	1941-1970	EAST	COUNTY	ONLINE
C11	MONTHLY AVERAGE TEMPERATURES BY DIVISION	1941-1970	U. S.	SCD	ONLINE
C12	MONTHLY MAXIMUM TEMPERATURES BY DIVISION	1941-1970	U. S.	SCD	ONLINE
C13	MONTHLY MINIMUM TEMPERATURES BY DIVISION	1941-1970	U. S.	SCD	ONLINE
C14	MONTHLY AVERAGE PRECIPITATION BY DIVISION	1941-1970	U. S.	SCD	ONLINE
C15	MONTHLY MAXIMUM PRECIPITATION BY DIVISION	1941-1970	U. S.	SCD	ONLINE
C16	MONTHLY MINIMUM PRECIPITATION BY DIVISION	1941-1970	U. S.	SCD	ONLINE
C17	CLIMATIC DIVISION INDEX	1970	U. S.	COUNTY	ONLINE
C18	GROWING SEASON LENGTH, FIRST/LAST FROST	1978	EAST	COUNTY	ONLINE
C19	STATE CLIMATIC DIVISION NAMES/WEIGHTS	1975	U. S.	SCD	ONLINE
C20	RAINFALL PH & H ION LOADINGS	1974	EAST	COUNTY	ONLINE
----- SECTOR CODE LETTER=D ----- THEMATIC SECTOR TITLE=VEGETATION -----					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
D01	TREE SPECIES CODES DICTIONARY	1966	U. S.		ONLINE
D02	TREE SPECIES RANGES (LITTLE)	1966	U. S.	COUNTY	OFFLINE
D03	POT. & ADJ. VEGETATION NATIONAL STATS	1966-1967	U. S.		ONLINE
D04	POT. & ADJ. VEGETATION	1966-1967	U. S.	COUNTY	ONLINE
D05	VEGETATION-LAND USE CHANGE PROBABILITIES	1978	U. S.		ONLINE
D06	VEGETATION REPLACEMENT BY URBAN AREAS	1978	WEST	COUNTY	ONLINE
D07	POT. & ADJ. ECOREGION NATIONAL STATS	1976	U. S.		ONLINE
D08	POT. & ADJ. ECOREGION AREAS	1976	U. S.	COUNTY	ONLINE
D09	POT. & ADJ. VEGETATION-ECOREGION STATS	1978	U. S.		ONLINE
D10	POT. & ADJ. VEGETATION WITHIN ECOREGIONS	1978	U. S.	COUNTY	ONLINE
D11	ECOREGION CODES DICTIONARY	1976	U. S.		ONLINE
D12	VEGETATION WITHIN WESTERN ECOREGIONS	1976	WEST	ECOREGION	ONLINE
D13	VEGETATION SENSITIVITY TO SO2	1979	U. S.		BEING EDITED
----- SECTOR CODE LETTER=F ----- THEMATIC SECTOR TITLE=FORESTRY -----					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
F01	FOREST AREA BY MAJOR TYPES	1965-1977	SOUTH	COUNTY	ONLINE
F02	FOREST GROWING STOCK VOLUMES	1965-1977	SOUTH	COUNTY	ONLINE
F03	FOREST SAWTIMBER VOLUMES	1965-1977	SOUTH	COUNTY	ONLINE
F04	FOREST SURVEY UNIT INDEX	1975	U. S.	COUNTY	ONLINE
F05	TREE SPECIES CODES DICTIONARY	1979	U. S.		ONLINE
F06	TREE SPECIES GROWING STOCK VOLUMES	1965-1978	EAST	COUNTY	ONLINE
F07	FOREST AREA & GROWING STOCK VOLUME	1965-1978	EAST	COUNTY	ONLINE
----- SECTOR CODE LETTER=G ----- THEMATIC SECTOR TITLE=GENERAL -----					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
G01	DATA SET TITLES AND CHARACTERISTICS				ONLINE
G02	DATA SET VARIABLES AND LABELS				ONLINE
G03	SOURCE & SUPPORTING DATA FILES (TAPES)				BEING EDITED
G04	GEOECOLOGY-GENERATED GRAPHICS INDEX				BEING EDITED
G05	SOURCE & SUPPORTING MAPS				PLANNED
----- SECTOR CODE LETTER=K ----- THEMATIC SECTOR TITLE=AIR QUALITY -----					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
K01	AMBIENT AIR QUALITY (SAROAD)	1974-1976	SOUTH	AQCR	ONLINE
K02	PROJECTED EMISSIONS (SEAS)	75,85,90,2000	U. S.	AQCR	PLANNED
K03	PROJECTED AMBIENT SO2,TSP (SEAS)	75,85,90,2000	U. S.	AQCR	PLANNED
K04	AIR QUALITY NONATTAINMENT AREAS (EPA)	1979	U. S.	COUNTY	ONLINE
K05	PROJECTED AMBIENT SO2,SULFATE (INCUA)	1975,1985,2000	SOUTH	COUNTY	ONLINE
K06	AMBIENT AIR QUALITY ESTIMATES	1974-1976	U. S.	COUNTY	BEING EDITED

Table VI.2(cont.). Reference Year(s), Geographic Coverage, Spatial Units, and Status of Data Sets within the Geoecology Data Base

SECTOR CODE LETTER=L THEMATIC SECTOR TITLE=LAND					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
L01	LAND USE (CNI DETAILED)	1967	U. S.	COUNTY	ONLINE
L02	LAND CAPABILITY CLASSES (CNI)	1967	U. S.	COUNTY	ONLINE
L03	LAND USE BY LAND CAPABILITY CLASS (CNI)	1967	U. S.	COUNTY	OFFLINE
L04	SEISMIC RISK RATINGS	1975	SOUTH	COUNTY	ONLINE
L05	LAND SURFACE MININGS	1975	U. S.	COUNTY	ONLINE
L06	LAND RESOURCE REGION INDEX	1967	U. S.	COUNTY	ONLINE
L07	LAND USE (CNI AGGREGATED)	1967	U. S.	COUNTY	ONLINE
L08	LAND AREAS (RURAL, URBAN, ROADS, WATER, FED)	1979	U. S.	COUNTY	ONLINE
SECTOR CODE LETTER=N THEMATIC SECTOR TITLE=NATURAL AREAS					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
N01	RARE II TRACTS	1978	U. S.	POINTS	ONLINE
N02	NATIONAL PARK SERVICE AREAS	1979	U. S.	COUNTY	ONLINE
N03	WILDERNESS AREAS	1978	U. S.	COUNTY	ONLINE
N04	RARE II TRACTS BY COUNTY	1978	U. S.	COUNTY	ONLINE
N05	RARE II TRACTS BY ECOREGION & VEG.	1978	U. S.	TRACTS	ONLINE
N06	RARE II TRACTS ORNL RANKS	1979	U. S.	TRACTS	ONLINE
N07	RARE II TRACTS USFS DATA	1978	U. S.	TRACTS	ONLINE
N08	RARE II TRACTS ENERGY RESOURCES	1978	U. S.	TRACTS	ONLINE
N09	CRITICAL NATURAL AREAS		U. S.	COUNTY	PLANNED
SECTOR CODE LETTER=P THEMATIC SECTOR TITLE=POPULATION					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
P01	POPULATION BY SEX AND 5 YEAR AGE CLASSES	1970	U. S.	COUNTY	ONLINE
P02	PROJECTED POPULATION FOR 1985, 2000	1985, 2000	SOUTH	COUNTY	ONLINE
SECTOR CODE LETTER=Q THEMATIC SECTOR TITLE=WATER RESOURCES					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
Q01	WATER QUALITY (NASQAN)	1974-1977	U. S.	WSA	BEING EDITED
SECTOR CODE LETTER=T THEMATIC SECTOR TITLE=TERRAIN					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
T01	LAND SURFACE FORM	1964	EAST	COUNTY	ONLINE
T02	BEDROCK LITHOLOGY	1970	EAST	COUNTY	ONLINE
T03	SOILS AT MAP UNIT LEVEL	1967	EAST	COUNTY	ONLINE
T04	GLACIAL GEOLOGY	1970	EAST	COUNTY	ONLINE
T05	KARST TERRAIN	1970	EAST	COUNTY	ONLINE
T06	ELEVATION (BROAD CLASSES)	1959	EAST	COUNTY	ONLINE
T07	SOIL ORDER, SUBORDER, MAP UNIT DICTIONARY	1967	EAST		ONLINE
T08	GREAT SOIL GROUPS CHARACTERISTICS	1967	EAST		ONLINE
T09	GREAT SOIL GROUPS WITHIN MAP UNITS	1967	EAST		ONLINE
T10	SOIL MAP UNIT CHEMICAL CHARACTERISTICS	1979	EAST		ONLINE
T11	UNIQUE LAND SURFACE COVER (SAND & SWAMP)	1967	EAST	COUNTY	ONLINE
T12	SOILS AVERAGE CHEMICAL CHARACTERISTICS	1967	EAST	COUNTY	ONLINE
T13	SOILS AT SOIL ORDER LEVEL	1967	EAST	COUNTY	ONLINE
T14	PHYSICAL REGIONS	1970	U. S.	COUNTY	BEING EDITED
T15	PHYSICAL REGIONS DICTIONARY	1970			BEING EDITED
SECTOR CODE LETTER=W THEMATIC SECTOR TITLE=WILDLIFE					
DSN	TITLE	YEARS	GEOCOVER	GEOUNIT	STATUS
W01	BBS ROUTES (BREEDING BIRD SURVEY)	1978	U. S.	POINTS	ONLINE
W02	BBS PHYSIOGRAPHIC STRATA DICTIONARY	1978	U. S.		ONLINE
W03	BBS BIRD CODES DICTIONARY		U. S.		ONLINE
W04	BBS BIRD NATIONAL & REGIONAL STATS	1973-1974	U. S.	REGION	ONLINE
W05	BBS BIRD-ECOREGION STATS	1973-1974	U. S.	ECOREG	ONLINE
W06	BBS BIRD COUNTS WITHIN STRATA	1973-1974	U. S.	REGION	ONLINE
W08	BBS BIRD COUNTS FOR ROUTES	1973-1974	U. S.	POINTS	OFFLINE
W09	ENDANGERED SPECIES CODES DICTIONARY	1977	U. S.		ONLINE
W10	ENDANGERED SPECIES (ORNL FILE)	1977	U. S.	COUNTY	ONLINE
W11	ENDANGERED SPECIES (ORNL MODIFIED)	1978	U. S.	COUNTY	ONLINE
W12	MAMMAL CODES DICTIONARY	1978	U. S.		ONLINE
W13	MAMMAL NATIONAL & REGIONAL STATS	1978	U. S.		ONLINE
W14	MAMMAL-ECOREGION STATS	1978	U. S.	ECOREG	ONLINE
W15	MAMMAL SPECIES RANGES	1978	U. S.	COUNTY	OFFLINE
W16	MAMMAL SPECIES RANGES (RARE SPECIES)	1978	U. S.	COUNTY	ONLINE

B. Base Data (B)

Basic data about the size and location of counties plus various index files are contained in the B Sector. Data set B01 defines the 3071 county units used as the primary spatial cells in the Geoecology Data Base. The index files can be merged with other data sets to aggregate counties into various regions for analysis. Data set B01SCU defines the 79 eastern counties that have been divided into 239 subcounty units.

C. Climate (C)

Climatic data in Sector C consist of temperature, precipitation, potential evapotranspiration, moisture index, and length of growing season. Monthly and annual norms are included for State Climatic Divisions and for counties in the East. County values were estimated by T. Webb, III, (1976) using irregularly spaced weather station data and assuming that estimates for the county centroid would be representative for the county. Additional data tapes containing monthly observations for weather stations are available to provide records over long time periods.

D. Vegetation (D)

The Vegetation Sector contains estimates of areas of potential natural vegetation (Küchler 1964) as digitized from Küchler's (USDI 1970) map and as adjusted for current land-use practices (Klopatek et al. 1979). In addition, the ecoregion classification map (Bailey 1976, Bailey 1978) has been digitized and combined with the vegetation data (see the Vegetation Overview in Appendix A for additional information).

E. Forestry (F)

The Forestry Sector represents a significant effort in compiling, editing, and reformatting county-level tree species growing-stock volume data involving a variety of data sources (Delcourt et al. 1980). Data include volumes and biomass estimates for major forest species and forest area by major forest types.

F. General (G)

The General Sector includes information on the contents of the other data sets and on a library of analysis and display materials that have been generated from the data sets. G01 provides characteristics of data sets and G02 contains variables and labels extracted from the individual

data set directories. Data set G03 is an inventory of tape files associated with the Geoecology Project and data set G04 is an inventory of graphic materials that have been generated from the Geoecology Data Base.

G. Air Quality (K)

Ambient air quality statistics have been compiled by Lawrence Berkeley Laboratory as part of the Population At Risk to Air Pollution (PARAP) project (Merrill 1980). County-level statistics were estimated from available monitoring data which were screened before being used. These data are currently being added to the Geoecology Data Base. Air emission levels are projected by the Strategic Environmental Assessment System (SEAS) model which is being developed by DOE. We plan to incorporate these data into the Data Base when available. The SEAS data are provided for Air Quality Control Regions. Existing data on air quality in the Data Base have geographic coverage limited to the South.

H. Land (L)

The Land Sector includes several data sets related to land-use, land capability, and land-use restrictions. County-level land-use statistics are available from the 1967 Conservation Needs Inventory (USDA 1971) which are both out-of-date and subject to relatively high statistical sampling errors for individual counties. The inventory is also restricted to nonfederal land. Land Resource Regions are defined in terms of the agriculture practices and capabilities of an area.

I. Natural Areas (N)

Natural areas are defined as areas administered and protected to maintain natural ecological conditions. Included are parks, wilderness areas, national forests, wildlife refuges, ecological preserves, and others. We anticipate expanding this sector to include a comprehensive inventory of these areas.

J. Population (P)

Human population statistics are stored for 1970 along with projections for 1985 and 2000.

K. Water Quality (Q)

The National Stream Quality Accounting Network (NASQAN) provides a comprehensive system of monitoring stations for 328 water basins covering the United States. We are developing water quality statistics from these data for inclusion in the Geoecology Data Base.

L. Terrain (T)

Various aspects of the terrain are characterized as part of the Terrain Sector. A set of National Atlas maps including land form, elevation, soils, lithology, karst terrain, and glacial areas was digitized for the East by C. A. Roswell, Jr (1976). These files have been edited and several are being expanded to cover the West. In addition, a map on physical regions has been digitized. Characterization data are being developed for the chemical, physical, and land-use properties of the soils file.

M. Wildlife (W)

The Wildlife Sector includes information on birds from the annual Breeding Bird Survey (BBS), data on federally designated endangered and threatened species, and mammal species ranges. Information on the potential presence or absence of 280 mammal species by county was digitized from a variety of sources. Plans exist to incorporate information defining wildlife habitat requirements.

VII. ACCESSING THE DATA BASE

As described earlier, files in the Geoecology Data Base are stored as SAS data sets with SAS used for data retrieval and analysis. The following examples demonstrate a typical analysis involving the SAS operations of: (A) checking the contents, (B) merging files, (C) generating reports, (D) statistical analysis, and (E) producing displays. Specifically, a file of crop production (A03) is combined with ambient air quality (K05) to portray potential areas of SO₂-soybean impacts. A third file (B01) is used to provide statistics on the size of counties.

A. Data Set Contents

In the first step, PROC CONTENTS is used to list the data set names of the files currently stored online (Fig. VII.1). The disk file is designated as GEODAT which must be correctly referenced by Job Control Language (JCL). PROC CONTENTS is also used to list the variables and labels within B01, A03, and K05 (Fig. VII.2).

```
*****;  
*   SAS EXAMPLE A;  
*;  
*   USE OF PROC CONTENTS TO LIST DATA SET CONTENTS;  
*;  
*;  
PROC CONTENTS DATA=GEODAT. ALL NODS;  
    TITLE CONTENTS OF THE ONLINE GEOECOLOGY DATA BASE;  
*;  
*   CONTENTS OF SPECIFIC FILES;  
*;  
PROC CONTENTS DATA=GEODAT.A03 NOSOURCE;  
*;  
PROC CONTENTS DATA=GEODAT.B01 NOSOURCE;  
*;  
PROC CONTENTS DATA=GEODAT.K05 NOSOURCE;  
*;  
*****;
```

B. Merging Data Sets

The second step involves merging the data sets and calculating a crop yield value. The resulting data set is used to print a report, perform a statistical analysis, produce an X-Y graph, and generate a map. The combined data set, called FIVE, could be stored on a user's disk area for subsequent access. In this series of examples, it is assumed that all steps will be run as one job and data set FIVE

CONTENTS OF THE ONLINE GEOECOLOGY DATA BASE

CONTENTS PROCEDURE

PHYSICAL CHARACTERISTICS OF OS DATA SET

DSNAME=ENVSCI.RJI12891.GEODAT UNIT=SYSDA VOL=SER=ENVSCI SPACE=(TRK,(950,10)) DISP=OLD DEVICE= 3330 DISK
 TRACKSIZE= 13030 BYTES CREATED MONDAY, DECEMBER 27, 1976 950 TRACKS ALLOCATED IN 1 EXTENTS

SAS DATA SET DIRECTORY

NAME	# OBS	TRACKS	SUBEXTENTS

C07	2660	14	1
C07SCU	219	3	1
C08	2660	14	2
C08SCU	219	3	1
C09	2660	14	2
C09SCU	219	3	1
C10	2660	14	1
C10SCU	219	3	1
C11	353	3	1
C12	353	3	1
C13	353	3	1
C14	353	3	1
C15	353	3	1
C16	353	3	1
P02	1388	5	1
C20	1572	4	1
K04	1206	3	1
A05	3071	4	1
B01	3071	15	2
B01SCU	219	2	1
C16	2660	6	1
C17	3431	7	1
C19	344	3	1
D03	106	4	1
D04	7227	13	2
D05	117	2	1
D06	169	2	1
D07	54	2	1
D08	4337	9	1
D09	387	3	2
D10	7614	16	1
D11	63	2	1
D12	252	2	1
B02	51	2	1
B03	3105	6	2
B05	3071	4	2
B06	1402	4	2
L07	3071	12	3
W01	2367	23	1
W02	61	2	1
W03	739	3	2
W04	462	4	2
W05	6916	15	2
W06	7041	11	2
K01	963	6	2
K05	1388	5	1
L04	1388	4	1
L05	3071	11	1
M03	577	4	1
P01	3071	42	2
M01	280	3	2
M02	270	4	1
M03	5786	11	1
A02	2289	22	1
L01	3071	27	1
LU2	3057	31	1
L06	3071	6	1
F01	1388	8	1
F02	1388	7	1
F03	1388	7	1
A01	2346	33	1
A03	1388	7	2
A04	13085	37	1
B03	310	3	1
F04	2842	4	2
F05	328	3	1
F06	29781	56	1
F07	1679	9	1
L08	3070	26	1
M01	1910	11	1
M04	2528	5	1

T07	194	3	2
T08	85	2	1
T09	459	2	1
T10	194	2	1
T12	2662	7	1
M05	4079	7	1
T13	3660	11	1
W09	204	2	1
W10	6916	8	1
W11	7034	26	1
W02	710	5	2
M05	2923	6	2
M06	2107	11	2
M08	1368	11	1
W07	2999	9	2
W07	58	17	1
G01	117	3	2
G02	1294	7	2
T14	4184	7	1

TOTAL TRACKS USED: 815
 HIGH TRACK USED: 815

Figure VII.1. Example A Output: Displaying the Directory of the Online Data Base

CONTENTS OF THE ONLINE GEOECOLOGY DATA BASE

CONTENTS OF SAS DATA SET GEODAT.A03

TRACKS USED=7 SUBEXTENTS=2 OBSERVATIONS=1388 CREATED BY JOB CJENET AT 11:16 FRIDAY, FEBRUARY 29, 1980
 BY SAS RELEASE 79.22 DSNANE=ENVSCI.BJ112891.GEODAT BLKSIZE=13030 LRECL=49
 LABEL= CROP AREAS AND YIELDS (SOUTHERN CROPS) OBSERVATIONS PER TRACK=265 GENERATED BY DATA

ALPHABETIC LIST OF VARIABLES

#	VARIABLE	TYPE	LENGTH	POSITION	FORMAT	INFORMAT	LABEL
3	CORN_G_A	NUM	4	9			CORN FOR GRAIN AREA HARVESTED
8	CORN_G_Y	NUM	4	29			CORN FOR GRAIN YIELD
2	PIPS_CO	CHAR	3	6	3.		PIPS COUNTY NUMBER
1	PIPS_ST	CHAR	2	4	2.		PIPS STATE NUMBER
6	HAY_A	NUM	4	21			HAY AREA HARVESTED
11	HAY_Y	NUM	4	41			HAY YIELD
4	SORG_G_A	NUM	4	13			SORGHUM FOR GRAIN AREA HARVESTED
9	SORG_G_Y	NUM	4	33			SORGHUM FOR GRAIN YIELD
7	SOYBN_A	NUM	4	25			SOYBEAN AREA HARVESTED
12	SOYBN_Y	NUM	4	45			SOYBEAN YIELD
5	WHEAT_A	NUM	4	17			WHEAT AREA HARVESTED
10	WHEAT_Y	NUM	4	37			WHEAT YIELD

CONTENTS OF SAS DATA SET GEODAT.K05

TRACKS USED=5 SUBEXTENTS=1 OBSERVATIONS=1388 CREATED BY JOB CJENET AT 11:17 FRIDAY, FEBRUARY 1, 1980
 BY SAS RELEASE 79.22 DSNANE=ENVSCI.BJ112891.GEODAT BLKSIZE=13030 LRECL=33
 LABEL= PROJECTED AMBIENT SO2, SULFATE (HCUA) OBSERVATIONS PER TRACK=394 GENERATED BY DATA

ALPHABETIC LIST OF VARIABLES

#	VARIABLE	TYPE	LENGTH	POSITION	FORMAT	INFORMAT	LABEL
2	PIPS_CO	CHAR	3	6			PIPS COUNTY NUMBER
1	PIPS_ST	CHAR	2	4			PIPS STATE NUMBER
3	SO2_1975	NUM	4	9			ESTIMATED SO2 AMBIENT LEVELS FOR 1975
5	SO2_1985	NUM	4	17			PROJECTED SO2 AMBIENT LEVELS FOR 1985
7	SO2_2000	NUM	4	25			PROJECTED SO2 AMBIENT LEVELS FOR 2000
4	SUL_1975	NUM	4	13			ESTIMATED SULFATE AMBIENT LEVELS, 1975
6	SUL_1985	NUM	4	21			PROJECTED SULFATE AMBIENT LEVELS, 1985
8	SUL_2000	NUM	4	29			PROJECTED SULFATE AMBIENT LEVELS, 2000

CONTENTS OF SAS DATA SET GEODAT.B01

TRACKS USED=14 SUBEXTENTS=2 OBSERVATIONS=3071 CREATED BY JOB CJENET AT 8:29 WEDNESDAY, JANUARY 30, 1980
 BY SAS RELEASE 79.22 DSNANE=ENVSCI.BJ112891.GEODAT BLKSIZE=13030 LRECL=55
 LABEL= COUNTY CODES, NAMES AND CENTROIDS OBSERVATIONS PER TRACK=236 GENERATED BY DATA

ALPHABETIC LIST OF VARIABLES

#	VARIABLE	TYPE	LENGTH	POSITION	FORMAT	INFORMAT	LABEL
9	CUA_AREA	NUM	4	46	7.		AREA OF COUNTY EXCLUDING >16HA LAKES
3	CO_CODE	CHAR	4	9	4.		COUNTY FIPS/STATE CODE
5	COUNTY	CHAR	20	15	20.		COUNTY NAME
2	PIPS_CO	CHAR	3	6	3.		PIPS COUNTY NUMBER
1	PIPS_ST	CHAR	2	4	2.		PIPS STATE NUMBER
7	LATITUDE	NUM	4	37	8.5		LATITUDE OF COUNTY CENTROID
8	LONGITUDE	NUM	4	41	9.5		LONGITUDE OF COUNTY CENTROID
11	NCAH	NUM	3	52	4.		NATIONAL COUNTY ALPHABETIC NUMBER
6	NO_SCU	NUM	2	35	2.		NUMBER OF SUBCOUNTY UNITS
4	ST_CODE	CHAR	2	13	2.		STATE CODE LETTERS
10	SVCH	NUM	3	49	3.		STATE VISUAL CONTINGENCY NUMBER

Figure VII.2. Example A Output: Displaying the Contents of Individual Data Sets

will be held as a temporary data set by SAS. Files B01 and A03 are merged by FIPS_ST and FIPS_CO. YIELD is calculated as the amount of soybeans produced within the county divided by the county area (kg/ha). This resulting data set is merged with K05 by FIPS_ST and FIPS_CO. Because data sets are stored sorted by FIPS_ST and FIPS_CO, they do not need to be sorted prior to the merging. Codes for mapping (MAPCODE) are assigned to each observation (county) based on the levels of SO2 and soybean production. Criteria for the codes were based on prior knowledge of SO2 impacts on soybeans. A variable, called COUNTY, is also created by concatenating FIPS_ST and FIPS_CO which can be used with a FORMAT statement to be translated into the county name.

```
*****;
*   SAS EXAMPLE B;
*;
*   USE OF SUBSETTING AND MERGING TO PRODUCE DESIRED DATA
SET;
*;
*   GET TOTAL COUNTY AREA FROM FILE B01;
*;
DATA ONE;  SET GEODAT.B01;
           KEEP FIPS_ST FIPS_CO CO_AREA;
*;
*   GET SOYBEAN PRODUCTION (KG) FROM FILE A03;
*;
DATA TWO;  SET GEODAT.A03;
           KEEP FIPS_ST FIPS_CO SOYBN_Y;
           IF SOYBN_Y=. THEN SOYBN_Y=0;
*;
*   A SOYBEAN YIELD VALUE IS CALCULATED BY DIVIDING;
*   SOYBEAN PRODUCTION BY THE TOTAL COUNTY AREA;
*;
DATA THREE;  MERGE ONE(IN=A) TWO(IN=B);
             BY FIPS_ST FIPS_CO;
             KEEP FIPS_ST FIPS_CO YIELD CO_AREA SOYBN_Y;
             YIELD=SOYBN_Y/CO_AREA;
             IF A AND B;
*;
*   GET AMBIENT AIR QUALITY DATA FROM FILE K05;
*;
DATA FOUR;  SET GEODAT.K05;
           KEEP FIPS_ST FIPS_CO SO2_1985;
*;
*   MERGE SOYBEAN DATA AND AIR QUALITY DATA;
*;
*   ASSIGN MAP CODES BASED ON PRIOR KNOWLEDGE OF SO2
IMPACTS;
*;
DATA FIVE;  MERGE THREE FOUR;
```



```

BY FIPS_ST FIPS_CO;
MAPCODE=5.5;
IF SO2_1985 LE 10 THEN MAPCODE=4.5;
IF SO2_1985 LE 1 OR YIELD LE 10 THEN MAPCODE=3.5;
IF SO2_1985 LE .1 THEN MAPCODE=2.5;
IF SO2_1985 LE 10 AND YIELD LE 1 THEN MAPCODE=1.5;
IF YIELD LE .1 THEN MAPCODE=.5;
* SET UP VARIABLES TO TRANSLATE FIPS CODES TO THEIR;
* APPROPRIATE STATE AND COUNTY NAMES;
  STATE='  '; COUNTY='  ';
  STATE=FIPS_ST;
  COUNTY=FIPS_ST || FIPS_CO;
*;
*****;

```

C. Report Generation

Frequently only a segment of a data file is of interest, so the capability to subset a file prior to generating a report is important. In this step, county values for Alabama are obtained by a simple subsetting "IF" statement. The data set is sorted by MAPCODE prior to printing to allow easy identification of counties with potential SO2 impacts. The resulting report is given as Fig. VII.3.

```

*****;
* SAS EXAMPLE C;
*;
* USE OF PROC PRINT TO GENERATE A COUNTY-LEVEL REPORT;
*;
DATA SIX; SET FIVE;
  IF FIPS_ST='01';
*;
* SORT DATA BY MAPCODE AND YIELD;
*;
PROC SORT; BY MAPCODE YIELD;
*;
* GENERATE THE REPORT;
* USE 'FORMAT' TO PRINT STATE AND COUNTY NAMES;
*;
PROC PRINT;
  BY FIPS_ST STATE;
  ID FIPS_CO;
  VAR COUNTY CO AREA SOYBN Y YIELD MAPCODE;
  FORMAT STATE $STATES. COUNTY $COUNTIES.;
  TITLE2 SIZE (HA), SOUBEAN PRODUCTION (KG), SOYBEAN YIELD;
  TITLE3 (KG/HA), AND MAPCODES FOR ALABAMA COUNTIES;
*****;

```

SIZES (HA), SOYBEAN PRODUCTION (KG), SOYBEAN YIELD
(KG/HA), AND HAPCODES FOR ALABAMA COUNTIES

----- PIPS STATE NUMBER=01 STATE=ALABAMA -----					
PIPS_CO	COUNTY	CO_AREA	SOYBN_Y	YIELD	HAPCODE
027	CLAY	156201	108800	0.697	1.5
023	CHOCTAW	235899	187680	0.796	1.5
017	CHAMBERS	154598	187680	1.214	3.5
111	RANDOLPH	150499	187680	1.247	3.5
037	COOSA	168301	212160	1.261	3.5
073	JEFFERSON	288800	399840	1.384	3.5
127	WALKER	208498	408000	1.957	3.5
123	TALLAPOOSA	182299	538560	2.954	3.5
025	CLARKE	319099	1468800	4.603	3.5
021	CHILTON	181000	848640	4.689	3.5
115	ST CLAIR	165800	799680	4.823	3.5
029	CLEBURNE	148698	723520	4.866	3.5
109	PIKE	174298	924800	5.306	3.5
081	LEE	158499	878560	5.543	3.5
007	BIBB	161899	897600	5.544	3.5
005	BARBOUR	230800	1632000	7.071	3.5
133	WINSTON	159300	1360000	8.537	3.5
129	WASHINGTON	276097	2627520	9.517	3.5
067	HENRY	143497	1689120	11.771	3.5
013	BUTLER	200198	3264000	16.304	3.5
041	CRENSHAW	158200	2872320	18.156	3.5
113	RUSSELL	162400	4607680	28.372	3.5
011	BULLOCK	159300	7616000	47.809	3.5
119	SUMTER	237000	11369600	47.973	3.5
051	ELMORE	161599	7888000	48.812	3.5
085	LOWNDES	185200	9196320	49.656	3.5
131	WILCOX	232799	12506560	53.723	3.5
087	HACON	159499	10077600	63.183	3.5
063	GREENE	162400	12778560	78.686	3.5
091	HARENGO	253301	20808000	82.147	3.5
047	DALLAS	252799	23084640	91.316	3.5
101	MONTGOMERY	204601	20506080	100.225	3.5
069	HOUSTON	148900	16972800	113.988	3.5
045	DALE	144801	1632000	11.271	4.5
125	TUSCALOOSA	345197	5304000	15.365	4.5
001	AUTAUGA	155100	2611200	16.836	4.5
117	SHELBY	206697	3536800	17.107	4.5
035	CONECUH	220100	6315840	28.695	4.5
057	PAYETTE	162400	5780000	35.591	4.5
055	ETOWAH	143700	5799040	40.355	4.5
059	FRANKLIN	166799	6808160	40.817	4.5
015	CALHOUN	158200	6462720	40.852	4.5
093	HARION	192400	8812800	45.805	4.5
031	COFFEE	175298	8282400	47.248	4.5
075	LANAR	156698	8132800	51.981	4.5
107	PICKENS	229700	13083200	56.958	4.5
033	COLBERT	154400	10763040	69.709	4.5
049	DE KALB	201501	15199360	75.431	4.5
121	TALLADEGA	194201	15618240	80.423	4.5
097	MOBILE	321199	28424000	88.893	4.5
099	MONROE	267299	24161760	90.392	4.5
039	COVINGTON	254899	25551680	100.242	4.5
019	CHEROKEE	143999	14660800	101.812	4.5
105	PERRY	190101	21161600	111.318	4.5
061	GENEVA	149398	21216000	142.010	4.5
103	MORGAN	147601	23500800	159.218	4.5
053	ESCAMBIA	249197	41017600	164.599	4.5
079	LAWRENCE	177398	33048000	186.293	4.5
077	LAUDERDALE	171498	32896000	187.151	4.5
089	MADISON	208000	43345920	208.394	4.5
003	BALDWIN	408700	88400000	216.296	4.5
065	HALE	171498	37318400	217.603	4.5
083	LIMESTONE	141401	50600160	357.849	4.5
009	BLOUNT	165500	4847040	29.287	5.5
043	CULLMAN	189097	8024000	42.433	5.5
071	JACKSON	279500	31815840	113.831	5.5
095	MARSHALL	147900	22208800	150.161	5.5

Figure VII.3. Example B/C Output: Integrating Three
Data Sets and Generating a County-level Report

D. Statistical Analysis

The generation of summary statistics is also an important aspect of data analysis. Although this example uses PROC MEANS, the Geoecology data sets can be used easily in connection with any of the other SAS statistical procedures. This example demonstrates the creation of a table of state totals for soybean production with PROC MEANS. The OUTPUT option is used to allow reformatting the printed table. The variable STATE, created above, is used to print state names using the FORMAT statement. The final table is printed as Fig. VII.4.

```
*****;  
*   SAS EXAMPLE D;  
*;  
*   USE OF PROC MEANS TO CALCULATE STATE STATISTICS;  
*;  
PROC MEANS SUM NOPRINT DATA=FIVE;  
  BY FIPS ST STATE NOTSORTED;  
  VAR SOYBN Y;  
  OUTPUT OUT=SEVEN SUM=SOYBN_Y;  
PROC PRINT;  
  ID FIPS ST;  
  VAR STATE SOYBN_Y;  
  FORMAT STATE $STATES.;  
  TITLE SOYBEAN PRODUCTION (KG) FOR STATES IN THE  
SOUTHEAST;  
*****;
```

E. Graphics

An X-Y graph of soybeans and SO₂ levels was produced (Fig. VII.5) using the PROC DISPLA1 (Olson and Kumar 1980). This procedure was written at ORNL to interface SAS and DISSPLA (ISSCO 1970) to produce report quality graphs from SAS data sets.

```
*****;  
*   SAS EXAMPLE E;  
*;  
*   USE OF PROC DISPLA1 TO GENERATE AN X-Y PLOT;  
*;  
*   SELECT COUNTIES WITH SO2 VALUES GREATER THAN 10 FOR  
PLOT;  
*;  
DATA EIGHT; SET FIVE;  
  IF SO2_1985 GE 10;  
*;  
*   GENERATE AN X-Y LINE PLOT USING PROC DISPLA1;  
*;
```

SOYBEAN PRODUCTION (KG) FOR STATES IN THE SOUTHEAST

FIPS_ST	STATE	SOYBN_Y
01	ALABAMA	855168000
05	ARKANSAS	3068012960
10	DELAWARE	138720000
11	WASH., D. C.	0
12	FLORIDA	142353920
13	GEORGIA	856721120
21	KENTUCKY	863651680
22	LOUISIANA	1188096000
24	MARYLAND	242188800
28	MISSISSIPPI	1867008000
37	NORTH CAROLINA	888352000
40	OKLAHOMA	145443024
45	SOUTH CAROLINA	825248000
47	TENNESSEE	1228515200
48	TEXAS	243567840
51	VIRGINIA	293855200
54	WEST VIRGINIA	0

Figure VII.4. Example D Output: Calculating a Summary Table using a SAS Statistical Procedure

```

PROC DISPLA1 DATA=FIVE
  XINTAX YINTAX
  XORIG=10. XSTEP=5. XMAX=25.
  YORIG=0. YSTEP=80. YMAX=400. ;
  VAR SO2_1985 VALUE;
  PARMCARDS;
  LTITLE1 1985 SO2 IMPACT ON SOYBEANS $
  LTITLE2 COUNTIES WITH MORE THAN 10 KG SOYBEANS $
  LTITLE3 PER UNIT COUNTY AREA $
  LXNAME SO2 - MICROGRAMS PER CUBIC METERS$
  LYNAME SOYBEANS - KG/HA$
  *****;

```

F. Cartographics

In many of the applications of the Geoecology Data Base, maps are used to show regional patterns and to generally aid in editing and interpreting large amounts of spatial data. SAS is used to assemble the data to be mapped and to create a formatted output file. The PUT statement is used to create the file which is stored on a temporary disk

1985 SO₂ IMPACT ON SOYBEANS
COUNTIES WITH MORE THAN 10 KG SOYBEANS
PER UNIT COUNTY AREA

Figure VII.5. Example E Output: Producing an X-Y Plot using Procedure DISPLA1.

file to be accessed by mapping programs. The mapping program used to produce Fig. VII.6 was developed locally by the Geographic Systems Group and is called EZMAP (Coleman 1978). Alternately, map files can be created for the Harvard SYMAP and CALFORM programs or the DISSPLA system.

```
*****;  
*   SAS EXAMPLE F;  
*;  
*   CREATE A FORMATTED OUTPUT FILE FOR INPUT INTO EZMAP;  
*;  
DATA NINE;   SET FIVE;  
    FILE NEWF;  
    PUT FIPS_ST $CHAR2. FIPS_CO $CHAR3. MAPCODE 10.2;  
*;  
*****;
```

G. Data Exchange

SAS files can be transferred to other computers either as SAS tape files or as formatted EBCDIC tape files. The SAS files would contain all the directory information to allow an installation with SAS to establish the data base. Formatted files require creating a format for each data set, using SAS PUT statements to write the tape file, and writing a computer program to read and process the tape by the new user.

This sequence of examples was selected to demonstrate the elementary operations of accessing, merging, subsetting, printing, analyzing, and displaying data from the Geoecology Data Base. If the Geoecology Data Base contains data applicable to a project, then the capability of using the Data Base is limited only by users' knowledge of SAS, understanding of the data, and imagination.

Figure VII.6. Example F Output: A Map Produced by EZMAP Utilizing a SAS Output File from the Geoecology Data Base.

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APPENDIX A. DATA SET DOCUMENTATION

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APPENDIX A. DATA SET DOCUMENTATION

Appendix A documents the individual data sets in the Geoecology Data Base that are listed in Table A.1. The Appendix is subdivided into 13 thematic sectors. Sectors contain an initial overview section that describes relationships between the data sets within the sector, such as common data sources. Each data set documentation includes standard information as listed and defined below. In addition, many data set descriptions include illustrative maps, graphs, or tables selected to demonstrate applications of the data and display techniques (Table A.2). Dictionary tables are included to provide reference lists of codes and associated names used within data sets. The three-character data set name (DSN) is used in numbering pages, tables, and figures to easily associate all materials with a data set. This numbering scheme will also accommodate updates and additions.

The descriptive fields used in Appendix A include:

TITLE: The data set name (DSN) and title are given as they are stored in the Geoecology Data Base. Because SAS restricts the title to 40 characters, the title printed in the Appendix may include abbreviations used to accommodate this limit.

DESCRIPTION: Information is included about the creation of the data set, calculations of variables, expanded definitions of variables, units of measure, known limitations of the data, and potential applications of the data.

SOURCE(S): Possible sources are surveys, inventories, maps, other data bases, or other data sets within the Geoecology Data Base. Complete citations are listed in the REFERENCES section of the report.

COMMENTS: Specific items to be considered in using the data are highlighted, such as missing data, special data conventions, limited geographic coverage, etc.

REFERENCE(S): Citations are listed of published reports that specifically used this data set and provide additional descriptive material. See the REFERENCES section for complete citations.

YEAR(S): The date refers to the year or years in which the data were collected or the data source was published.

TEMPORAL RESOLUTION: The temporal unit is defined as: Hist. (e.g., historic species ranges); Currnt (e.g., current conditions); Norms (e.g., 30-year averages); Annual (e.g., yearly crop yields); Months (e.g., climatic data); or Varies (different times within the data set). This field is blank for index and dictionary data sets and for data sets which reflect contemporary environmental conditions, such as soils or bedrock geology.

GEOCOVERAGE: Geographic coverage of the data set is defined as: U. S. (48 conterminous states), East (37 eastern states), West (11 western states), or South (16 southern states).

SPATIAL RESOLUTION: Smallest geographic units are defined as: States, Counties, SCU (subcounty units in larger counties), SCD (State Climatic Divisions), or Points (weather station locations).

STATUS: Possible conditions are: Online (edited and readily available); Offline (stored on magnetic tape in edited form as SAS data set); Being Edited (may be available in preliminary form); Unedited (source file may exist, but FIPS codes, metric conversion, or county aggregations have not been completed); Not Digitized (map or hard copy may exist but not as a computer file); or Planned (needs and data have been identified but not yet compiled).

DATA SET TYPE: This field provides information about how the data set is structured: Single (one record per county unit); Multiple (several records per county, e.g., a record for each species occurring in a county); Index (pointers usually associating counties with various regions, e.g. State Climatic Division index); or Dictionary (names and characteristics associated with codes, e.g., species code names).

NUMBER OF RECORDS: Total number of records in the data set: data sets having single records per county should have 3071 records for the U. S., 2660 for the East, 1338 for the South, and 411 for the West.

VARIABLES PER RECORD: Number of SAS variables in the data set.

CREATED/UPDATED: Gives the date the data set was originally added to the Data Base or that significant changes were incorporated. Most files have a March 1980 date when units of measure were changed to metric-SI units.

NEW DATA: Interval at which new data may become available for addition to or replacement of the current data set.

COMPILER: Individuals involved in compiling, digitizing, editing, or other aspects of creating the data set for the Geoecology Data Base.

VARIABLE: Names listed correspond exactly to the spelling of SAS variables within the Data Base.

LABEL AND UNITS OF MEASURE: Brief informative description of the variable corresponding to the SAS labels stored within the Data Base. Because SAS restricts the label to 40 characters, the label printed in the Appendix may include abbreviations used to accommodate this limit.

Table A.1. Geoecology Data Sets included in Appendix A.

--- SECTOR CODE LETTER=A THEMATIC SECTOR TITLE=AGRICULTURE ---

DSN	TITLE
A01	CROP AREAS AND YIELDS, AG LAND USE
A02	LIVESTOCK AND POULTRY INVENTORY/SALES
A03	CROP AREAS AND YIELDS (SOUTHERN CROPS)
A04	CROP PLANTED-HARVESTED AREAS AND YIELDS
A05	CROP REPORTING DISTRICT INDEX

--- SECTOR CODE LETTER=B THEMATIC SECTOR TITLE=BASE DATA ---

DSN	TITLE
B01	COUNTY CODES, NAMES AND CENTROIDS
B02	STATE NAMES AND INDICES (EPA, BBS, NOAA)
B03	AIR(AQCR) AND WATER(WRC-SAI) INDICES
B05	REGIONAL DESIGNATIONS
B06	EPA AQCR INDICES
B07	FEDERAL & STATE LAND OWNERSHIP BY AGENCY

--- SECTOR CODE LETTER=C THEMATIC SECTOR TITLE=CLIMATE ---

DSN	TITLE
C07	MONTHLY AVERAGE TEMPERATURES BY COUNTY
C08	MONTHLY AVERAGE PRECIPITATION BY COUNTY
C09	MONTHLY POTENTIAL EVAPORATION BY COUNTY
C10	MONTHLY MOISTURE INDEX BY COUNTY
C11	MONTHLY AVERAGE TEMPERATURES BY DIVISION
C12	MONTHLY MAXIMUM TEMPERATURES BY DIVISION
C13	MONTHLY MINIMUM TEMPERATURES BY DIVISION
C14	MONTHLY AVERAGE PRECIPITATION BY DIVISION
C15	MONTHLY MAXIMUM PRECIPITATION BY DIVISION
C16	MONTHLY MINIMUM PRECIPITATION BY DIVISION
C17	CLIMATIC DIVISION INDEX
C18	GROWING SEASON LENGTH, FIRST/LAST FROST
C19	STATE CLIMATIC DIVISION NAMES/WEIGHTS
C20	RAINFALL PH & H ION LOADINGS

--- SECTOR CODE LETTER=D THEMATIC SECTOR TITLE=VEGETATION ---

DSN	TITLE
D01	TREE SPECIES CODES DICTIONARY
D02	TREE SPECIES RANGES (LITTLE)
D03	POT. & ADJ. VEGETATION NATIONAL STATS
D04	POT. & ADJ. VEGETATION
D05	VEGETATION-LAND USE CHANGE PROBABILITIES
D06	VEGETATION REPLACEMENT BY URBAN AREAS
D07	POT. & ADJ. ECOREGION NATIONAL STATS
D08	POT. & ADJ. ECOREGION AREAS
D09	POT. & ADJ. VEGETATION-ECOREGION STATS
D10	POT. & ADJ. VEGETATION WITHIN ECOREGIONS
D11	ECOREGION CODES DICTIONARY
D12	VEGETATION WITHIN WESTERN ECOREGIONS
D13	VEGETATION SENSITIVITY TO SO2

--- SECTOR CODE LETTER=F THEMATIC SECTOR TITLE=FORESTRY ---

DSN	TITLE
F01	FOREST AREA BY MAJOR TYPES
F02	FOREST GROWING STOCK VOLUMES
F03	FOREST SAWTIMBER VOLUMES
F04	FOREST SURVEY UNIT INDEX
F05	TREE SPECIES CODES DICTIONARY
F06	TREE SPECIES GROWING STOCK VOLUMES
F07	FOREST AREA & GROWING STOCK VOLUME

--- SECTOR CODE LETTER=G THEMATIC SECTOR TITLE=GENERAL ---

DSN	TITLE
G01	DATA SET TITLES AND CHARACTERISTICS
G02	DATA SET VARIABLES AND LABELS
G03	SOURCE & SUPPORTING DATA FILES (TAPES)
G04	GEOECOLOGY-GENERATED GRAPHICS INDEX
G05	SOURCE & SUPPORTING MAPS

--- SECTOR CODE LETTER=K THEMATIC SECTOR TITLE=AIR QUALITY ---

DSN	TITLE
K01	AMBIENT AIR QUALITY (SAROAD)
K02	PROJECTED EMISSIONS (SEAS)
K03	PROJECTED AMBIENT SO2,TSP (SEAS)
K04	AIR QUALITY NONATTAINMENT AREAS (EPA)
K05	PROJECTED AMBIENT SO2,SULFATE (NCUA)
K06	AMBIENT AIR QUALITY ESTIMATES

--- SECTOR CODE LETTER=L THEMATIC SECTOR TITLE=LAND ---

DSN	TITLE
L01	LAND USE (CNI DETAILED)
L02	LAND CAPABILITY CLASSES (CNI)
L03	LAND USE BY LAND CAPABILITY CLASS (CNI)
L04	SEISMIC RISK RATINGS
L05	LAND SURFACE MINING
L06	LAND RESOURCE REGION INDEX
L07	LAND USE (CNI AGGREGATED)
L08	LAND AREAS (RURAL,URBAN,ROADS,WATER,FED)

--- SECTOR CODE LETTER=N THEMATIC SECTOR TITLE=NATURAL AREAS ---

DSN	TITLE
N01	RARE II TRACTS
N02	NATIONAL PARK SERVICE AREAS
N03	WILDERNESS AREAS
N04	RARE II TRACTS BY COUNTY
N05	RARE II TRACTS BY ECOREGION & VEG.
N06	RARE II TRACTS ORNL RANKS
N07	RARE II TRACTS USFS DATA
N08	RARE II TRACTS ENERGY RESOURCES
N09	CRITICAL NATURAL AREAS

--- SECTOR CODE LETTER=P THEMATIC SECTOR TITLE=POPULATION ---

DSN	TITLE
P01	POPULATION BY SEX AND 5 YEAR AGE CLASSES
P02	PROJECTED POPULATION FOR 1985,2000

--- SECTOR CODE LETTER=Q THEMATIC SECTOR TITLE=WATER RESOURCES ---

DSN	TITLE
Q01	WATER QUALITY (NASQAN)

--- SECTOR CODE LETTER=T THEMATIC SECTOR TITLE=TERRAIN ---

DSN	TITLE
T01	LAND SURFACE FORM
T02	BEDROCK LITHOLOGY
T03	SOILS AT MAP UNIT LEVEL
T04	GLACIAL GEOLOGY
T05	KARST TERRAIN
T06	ELEVATION (BROAD CLASSES)
T07	SOIL ORDER, SUBORDER, MAP UNIT DICTIONARY
T08	GREAT SOIL GROUPS CHARACTERISTICS
T09	GREAT SOIL GROUPS WITHIN MAP UNITS
T10	SOIL MAP UNIT CHEMICAL CHARACTERISTICS
T11	UNIQUE LAND SURFACE COVER (SAND & SWAMP)
T12	SOILS AVERAGE CHEMICAL CHARACTERISTICS
T13	SOILS AT SOIL ORDER LEVEL
T14	PHYSICAL REGIONS
T15	PHYSICAL REGIONS DICTIONARY

--- SECTOR CODE LETTER=W THEMATIC SECTOR TITLE=WILDLIFE ---

DSN	TITLE
W01	BBS ROUTES (BREEDING BIRD SURVEY)
W02	BBS PHYSIOGRAPHIC STRATA DICTIONARY
W03	BBS BIRD CODES DICTIONARY
W04	BBS BIRD NATIONAL & REGIONAL STATS
W05	BBS BIRD-ECOREGION STATS
W06	BBS BIRD COUNTS WITHIN STRATA
W08	BBS BIRD COUNTS FOR ROUTES
W09	ENDANGERED SPECIES CODES DICTIONARY
W10	ENDANGERED SPECIES (BNL FILE)
W11	ENDANGERED SPECIES (ORNL MODIFIED)
W12	MAMMAL CODES DICTIONARY
W13	MAMMAL NATIONAL & REGIONAL STATS
W14	MAMMAL-ECOREGION STATS
W15	MAMMAL SPECIES RANGES
W16	MAMMAL SPECIES RANGES (RARE SPECIES)

Table A.2. Illustrations included in Appendix A.

- A03.1 Soybean Yield from the 1975 State Summaries Expressed as Total Production for Total County Area. Interval limits in Bushels per acre: (1) <0.001, (2) 0.001-0.01, (3) 0.01-0.1, (4) 0.1-1.0, (5) 1.0-10.0, (6) >10.0.
- A04.1 1975 Corn Production in Bushels.
- B01.1 Counties of the United States with FIPS County Numbers.
- C07.1 Average Annual Temperatures Based on 30-Year Monthly Norms for the Period 1941-1970. Interval limits in degrees Fahrenheit: (1) <54.5, (2) 54.5-59.0, (3) 59.0-63.5, (4) 63.5-68.0, (5) 68.0-72.5, (6) >72.5.
- C08.1 Total Annual Rainfall Based on 30-Year Monthly Norms for the Period 1941-1970. Interval limits in inches: (1) <24.0, (2) 25.0-32.0, (3) 35.0-45.0, (4) 45.0-55.0, (5) >55.0.
- C09.1 Annual Potential Evapotranspiration Calculated from the 30-Year Monthly Temperature and Precipitation Norms for the Period 1941-1970 Using the Thornthwaite Formulas. Interval limits in inches: (1) <30.0, (2) 30.0-35.0, (3) 35.0-40.0, (4) 40.0-45.0, (5) >45.0.
- C10.1 Annual Moisture Index Calculated from 30-Year Monthly Temperature and Precipitation Norms. Interval limits: (1) <-40.0, (2) -40.0-0.0, (3) 0.0-20.0, (4) 20.0-40.0, (5) 40.0-60.0, (6) >60.0.
- C11.1 Monthly Temperature Ranges (Maximum, Average, Minimum) for East Tennessee.
- C14.1 Monthly Precipitation Ranges (Maximum, Average, Minimum) for East Tennessee.
- C18.1 Growing Season Length (days) for the Eastern United States.
- C20.1 1974 Rainfall pH for the Eastern United States.
- D03.1 Potential Vegetation Percentages for the United States.

- D04.1 Percent Potential Vegetation Types Remaining in the United States.
- D07.1 Ecoregion Percentages for the United States.
- D08.1 Ecoregions in the South.
- D09.1 Percent of Potential Vegetation Types within Ecoregions.
- D13.1 Potential Vegetation Types with Low Tolerance to Sulfur Dioxide (Relative Sensitivity).
- F02.1 Forest Stand Volumes based on 1963-1975 Inventories. Growing-stock volumes are expressed as net volume of trees greater than 5.0 in. dbh per total county area. Interval limits in cubic feet per acre: (1) <100, (2) 100-250, (3) 250-500, (4) 500-750, (5) >750.
- F05.1 Tree Species Codes Dictionary.
- F06.1 Sensitive Tree Biomass in the South at Risk to High Levels of Sulfur Dioxide. High-level Areas are Air Quality Control Regions in which the 1974-1976 Annual Ambient Average Concentration Exceeded 100 micrograms per cubic meter.
- K01.1 Air Quality Control Regions in the South with High Sulfur Dioxide Levels, for which the 1974-1976 Annual Average Ambient Concentrations Exceeded 100 micrograms per cubic meter.
- K04.1 Nonattainment Counties for Total Suspended Particulates.
- K05.2 Projected 1985 Ambient Sulfur Dioxide Concentrations. Interval limits in micrograms per cubic meter: (1) <0.1, (2) 0.1-1.0, (3) 1.0-3.0, (4) 3.0-10.0, (5) >10.0.
- L01.1 County Land-Use Classifications based on the 1967 Conservation Needs Inventory.
- L01.2 Cropland Percentages by County based on the 1967 Conservation Needs Inventory.
- L02.1 Land Capability Classes I-II-III Percentages based on the 1967 Conservation Needs Inventory.
- L04.1 Relative Seismic Suitability for Nuclear Facilities.

- L06.1 Soil Conservation Service Land Resource Regions.
- N01.1 Counties in the South with RARE II Proposed Wilderness Areas.
- N02.1 Counties Containing Class I Air Quality Areas Based on the Occurrence of National Parks Greater than 5000 acres.
- N03.1 Counties in the South with Existing and Proposed Wilderness Areas (RARE II).
- N03.2 Counties with Existing, Endorsed, and Proposed Wilderness Areas Qualifying as Class I Air Quality Areas.
- T06.1 Elevation Classifications for the South.
- T07.1 Soil Order, Suborder, and Map-Unit Codes Dictionary.
- T09.1 Great Soil Groups Ranked within Map Units.
- T10.1 Soil Map Unit Chemical Characteristics including: Base Saturation (BS), Cation Exchange Capacity (CEC), pH, Clay Content (CC), and Organic Matter (OM).
- W04.1 Bird Species Codes Dictionary.
- W09.1 Endangered Species Codes Dictionary.
- W10.1 Endangered Mammal Species Concentrations in the South.
- W13.1 Mammal Species Codes Dictionary.

AGRICULTURE (A) SECTOR OVERVIEW

The Agriculture Sector contains both crop and livestock data for counties based on state and federal inventories. Data set A04 contains statistics for major crops for 1975 with national coverage. These data are probably the most representative county estimates because they are based on annual surveys conducted for each county. The Census of Agriculture (used for A01 and A02) may have sampling errors due to survey techniques. Data for more years, more crops, and crops grown under irrigation are available on tapes. New data are added as they become available.

TITLE: A01 - CROP AREAS AND YIELDS, AG LAND USE

DESCRIPTION: Major crop areas, yields for selected crops, and major farmland-use statistics were obtained from the 1969 Census of Agriculture. Hectares of land harvested and kilograms yielded were included for corn, sorghum, wheat, hay, soybeans, peanuts, cotton, and tobacco. Areas devoted to vegetables, small grains, fruit orchards, berries and small fruits, potatoes, other miscellaneous crops, and nursery and greenhouses were included so that the sum of all areas equals the total cropland in the Census. Also included are total land area, large lakes, nonharvested cropland, grazed woodlands, and other land statistics. Totals for irrigated and fertilized land occurring within the various categories were included with amounts of water and fertilizer used. Data do not always accurately reflect county totals: information is withheld to maintain privacy; corporate farm holdings may be reported with the headquarters county and not the county in which the crops are located; and totals may not be properly corrected for nonrespondents of the mail questionnaire.

SOURCE(S): Breen, J. T. 1972. 1969 Census of Agriculture magnetic tape file. U. S. Department of Commerce, Bureau of the Census, Agriculture Division, Washington, DC.

REFERENCE(S): USDC 1969.

COMMENTS: Data tapes are available with approximately 500 crop and livestock types per county for 1949, 1954, 1959, 1964, and 1969. Data for North Dakota, South Dakota, Nebraska, Kansas, and the western states are not included in the data set but are available on tape.

YEAR(S): 1969

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: East

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 2346

VARIABLES PER RECORD: 42

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 5 years

COMPILER: R J Olson

VARIABLE

LABEL AND UNITS OF MEASURE

ALL LAND	Approximate land area	ha
AREA_69	Total surface area - 1969 C of Ag	ha
BERRY_A	Berries and small fruits	ha
CORN_G_A	Corn for grain	ha
CORN_G_Y	Corn for grain yield	kg

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CORN_S_A	Corn for silage or grazing	ha
COTTON_A	Cotton	ha
COTTON_Y	Cotton yield	kg
CROP_A	Cropland	ha
CRP_MS_A	Miscellaneous crops	ha
FARM_A	Farmland	ha
FERT_A	Total fertilized land	ha
FERT_AMT	Total fertilizer used(dry & liquid)	kg
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
FRUIT_A	Fruit orchards	ha
GRAIN_A	Small grains excluding wheat	ha
HARV_A	Harvested cropland	ha
HAY_A	Hay or grass silage	ha
HAY_Y	Hay or grass silage yield	kg
IRR_LAND	Irrigated land: cropland & pasture	ha
IRR_WATR	Irrigation water used	cu m
LND_MS_A	Other land, pastured or not	ha
LRG_LAKE	Large lakes (>16 ha)	ha
NHARV_A	Nonharvested cropland	ha
NURSRY_A	Nursery and greenhouse products	ha
PASTR_A	Cropland used for pasture/grazing	ha
PASTR_T	Total pastureland - all types	ha
PEANUT_A	Peanuts for nuts	ha
PEANUT_Y	Peanuts for nuts yield	kg
POTAT_A	Potatoes	ha
SORG_G_A	Sorghum for grain	ha
SORG_G_Y	Sorghum for grain yield	kg
SORG_S_A	Sorghum for silage or grazing	ha
SOYBN_A	Soybeans for beans	ha
SOYBN_Y	Soybeans for beans yield	kg
TOBAC_A	Tobacco	ha
TOBAC_Y	Tobacco yield	kg
VEGET_A	Vegetables harvested for sale	ha
WHEAT_A	Wheat	ha
WHEAT_Y	Wheat yield	kg
WOODY_A	Woodland pastured or not	ha

TITLE: A02 - LIVESTOCK AND POULTRY INVENTORY/SALES

DESCRIPTION: Major livestock and poultry statistics of animal inventories and numbers sold were obtained from the 1969 Census of Agriculture. Data include inventories of cattle, pigs, sheep, chickens, turkeys, ducks and geese, and horses and ponies. Counts are also included for cows that have calved and milk cows, along with subtotals for chickens older than three months, hens and pullets, and broilers. Data have limitations because of survey and reporting methods - see A01 description.

SOURCE(S): Breen, J. T. 1972. 1969 Census of Agriculture magnetic tape file. U. S. Department of Commerce, Bureau of the Census, Agriculture Division, Washington, DC.

REFERENCE(S): USDC 1969.

COMMENTS: Data tapes are available with additional data for 1949, 1954, 1959, 1964, and 1969.

YEAR(S): 1969

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 2289

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 24

NEW DATA: Every 5 years

VARIABLE	LABEL AND UNITS OF MEASURE

BROILR_I	Broiler and meat chicken inventory
BROILR_S	Broiler and meat chicken sales
CATTLE_I	Cattle and calves inventory
CATTLE_S	Cattle and calves sales
CHICKN_I	Chickens inventory (older than 3 months)
CHICKN_S	Chickens sales (older than 3 months)
COW_CALF	Cows that have calved
COW_MILK	Milk cows inventory
COW_OTHR	Cows other than milk cows
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
HENS_I	Hens and pullets inventory
HENS_S	Hens and pullets sales
HORSES_I	Horses, ponies and mules inventory
HORSES_S	Horses, ponies and mules sales
PIGS_F_S	Feeder pigs sales
PIGS_I	Pigs inventory
PIGS_S	Pigs sales

POULT_I	Ducks, geese and other poultry inventory
POULT_S	Ducks, geese and other poultry sales
SHEEP_I	Sheep and lambs inventory
SHEEP_S	Sheep and lambs sales
TURKEY_I	Turkey inventory
TURKEY_S	Turkey sales

TITLE: A03 - CROP AREAS AND YIELDS (SOUTHERN CROPS)

DESCRIPTION: Southern state agricultural departments provided data on harvested cropland and yields for corn, wheat, hay, soybeans, and sorghum for 1975. Data were keypunched from state reports.

SOURCE(S): Crop statistics reports for 1975 were obtained from individual states in the south and selected tables were keypunched.

YEAR(S): 1975

GEOCOVERAGE: South

STATUS: Online

NUMBER OF RECORDS: 1388

CREATED/UPDATED: Mar. 1980

COMPILER: J M Klopatek

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 12

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
CORN_G_A	Corn for grain area harvested ha
CORN_G_Y	Corn for grain yield kg
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
HAY_A	Hay area harvested ha
HAY_Y	Hay yield kg
SORG_G_A	Sorghum for grain area harvested ha
SORG_G_Y	Sorghum for grain yield kg
SOYBN_A	Soybean area harvested ha
SOYBN_Y	Soybean yield kg
WHEAT_A	Wheat area harvested ha
WHEAT_Y	Wheat yield kg

A03.1 Soybean Yield from the 1975 State Summaries Expressed as Total Production for Total County Area. Interval limits in Bushels per acre: (1) <0.001, (2) 0.001-0.01, (3) 0.01-0.1, (4) 0.1-1.0, (5) 1.0-10.0, (6) >10.0.

TITLE: A04 - CROP PLANTED-HARVESTED AREAS AND YIELDS

DESCRIPTION: Statistics for land planted and harvested with associated crop yields and production were obtained from the Economics, Statistics, and Cooperative Services (ESCS), USDA, for the years 1972-1977. Data were extracted for 1975 crops of wheat, rye, rice, corn, oats, sorghum, cotton, tobacco, and peanuts crops. State statistical offices are responsible for county estimates. Data are used primarily by the Agricultural Stabilization and Conservation Service (ASCS) and Federal Crop Insurance Corporation (FCIC).

SOURCE(S): Barr, J. T. May, 1979. 1972-1977 County Crop Estimates magnetic tape. U. S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, Washington, DC.

COMMENT: If crop acreages are small within a county, county values may be withheld to protect privacy; however, Crop Reporting District or state statistics on the data tape include these values in the totals. Data for 1972 through 1977 are available on a magnetic tape.

YEAR(S): 1975

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 13085

VARIABLES PER RECORD: 8

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: C J Emerson

VARIABLE

LABEL AND UNITS OF MEASURE

CROP	Crop name	
CROP_HRV	Crop harvested area	ha
CROP_PLN	Crop planted area	ha
CROP_PRD	Crop production for county	kg
CROP_YLD	Crop yield, kg per area	
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
YEAR	1975 year of ESCS estimate	

A04.1 1975 Corn Production in Bushels.

TITLE: A05 - CROP REPORTING DISTRICT INDEX

DESCRIPTION: Crop Reporting Districts (CRD's) are groupings of contiguous counties within states based on homogeneous agricultural practices. They are used in summarizing crop statistics.

SOURCE(S): Barr, J. T. May, 1979. 1972-1977 County Crop Estimates magnetic tape. U. S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, Washington, DC.

YEAR(S): 1975

TEMPORAL RESOLUTION: Currnt

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Index

NUMBER OF RECORDS: 3071

VARIABLES PER RECORD: 3

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: C J Emerson

VARIABLE	LABEL AND UNITS OF MEASURE

CRD_CODE	Crop Reporting District code
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number

BASE DATA (B) SECTOR OVERVIEW

Basic data about the size and location of counties plus various index files are contained in the B Sector. Data set B01 defines the 3071 county units used as the primary spatial cells in the Geoecology Data Base. Data set B01SCU defines the 79 eastern counties that have been divided into 239 subcounty units based on size and environmental characteristics. Currently, index files for Air Quality Control Regions (AQCR's) and Water Resource Council Subregions are available. The index files can be merged with other data sets by FIPS codes to aggregate counties into various regions for analysis.

TITLE: B01 - COUNTY CODES, NAMES AND CENTROIDS

DESCRIPTION: The primary 3071 county units for the 48 conterminous states utilized in the Geoecology Data Base are defined. Included are FIPS codes, county names, land area, latitude/longitude location of the geographic centroid of each county, Visual Continuity Numbers (VCN), and National County Alphabetic Numbers (NCAN). Names and land area were obtained for 1970 from the 1972 County and City Data Book (USDC 1973a). Land area includes 'census water,' defined as lakes smaller than 16 ha and small streams. Centroids were calculated by averaging the latitude/longitude coordinates of the county outline obtained from Department of Transportation data. The VCN and NCAN indices are unique county codes used for digitization and display programs. VCN's were assigned to counties within states so that adjacent counties have consecutive numbers (Schreiber et al. 1974). NCAN's (1 to 3069) were assigned sequentially to alphabetical lists of counties within states arranged alphabetically. Since VCN's and NCAN's were created for a special application, not all 3071 counties were assigned codes. The county mnemonic codes are unique four-character codes derived from the county name. Data set B01SCU contains similar variables for the 79 counties in the east that have been subdivided into 239 subcounty units. It contains the additional variable SCU which is a letter designating the subcounty unit within a county.

SOURCE(S): FIPS codes and land areas: RUSTIC, Energy Division. 1975. 1972 County and City Data Book Magnetic Tape. Oak Ridge National Laboratory, Oak Ridge, TN.

NCAN's and VCN's: Assigned by the Geoecology Project (see Schreiber et al. 1974).

County centroids: Calculated by the Geoecology Project from the coordinates of county boundaries.

REFERENCE(S): Schreiber et al. 1974. USDC 1973a.

COMMENTS: See discussion on county units and listing of 3071 units in Appendix C. The SAS FORMAT statement may be used to substitute state and county names for FIPS codes (see section on Special Output Formats).

YEAR(S): 1970

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 3071

CREATED/UPDATED: Mar. 1980

TEMPORAL RESOLUTION: Current

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 11

NEW DATA: Not anticipated

COMPILER: R J Olson, R L Stephenson

VARIABLE	LABEL AND UNITS OF MEASURE
CO_AREA	Area of county excluding >16ha lakes
CO_CODE	County mnemonic code
COUNTY	County name
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
LATITUDE	Latitude of county centroid
LNGITUDE	Longitude of county centroid
NCAN	National County Alphabetic Number
NO_SCU	Number of subcounty units
ST	State code letters
SVCN	State Visual Continuity Number

B01.1 Counties of the United States with FIPS County Numbers.

ORNL-DWG 78-21129

COUNTIES OF THE UNITED STATES
WITH FIPS COUNTY NUMBERS

TITLE: B02 - STATE NAMES AND INDICES (EPA, BBS, NOAA)

DESCRIPTION: Various state codes and state-level regional indices have been accumulated from several agencies as a means of facilitating conversion to FIPS codes. By merging the regional indices with other data sets, data can be aggregated by regions.

SOURCE(S): State codes were obtained from each agency.

YEAR(S): 1970

TEMPORAL RESOLUTION: Current

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: States

STATUS: Online

DATA SET TYPE: Index

NUMBER OF RECORDS: 51

VARIABLES PER RECORD: 10

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE

AQA_RGN	Air Quality Region codes (EPA)
BBS_ST	Breeding Bird Survey state codes
C_AG_RGN	Census of Agriculture region codes
C_AG_ST	Census of Agriculture state codes
CENS_60	State census codes, 1960
FED_RGN	Federal region code
FIPS_ST	FIPS state number
NOAA_ST	NOAA state codes
ST	State two-letter code
STATE	State name

TITLE: B03 - AIR(AQCR) AND WATER(WRC-SA) INDICES

DESCRIPTION: Air and water regions are defined by naturally occurring airsheds and watersheds. These regions are approximated by Air Quality Control Regions (AQCR's) and Water Resource Council Subareas (WRC-SA's) which consist of aggregations of counties. There are 247 AQCR's and 205 WRC-SA's. Air quality data are routinely provided by AQCR such as in K01. Water supply and demand data, both actual and projected, are provided by WRC-SA and the 10 larger water regions. Another definition of water regions (not currently included in B03) is used for water quality data. Water quality data are available for the 327 National Stream Quality Accounting Network (NASQAN) areas as in Q01.

SOURCE(S): Wilson, D. L. 1978. AQCR and WRC-SA Computer File. Computer Sciences Division, UCCND, Oak Ridge, TN.

REFERENCE(S): AQCR's: USEPA 1975.

WRC-SA's: Water Resources Council 1970.

YEAR(S): 1975

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 3105

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Current

SPATIAL RESOLUTION: County

DATA SET TYPE: Index

VARIABLES PER RECORD: 5

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

AQCR	Air Quality Control Region number - EPA
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
WRCSA_75	Water Resource Council Subareas - 1975
WRCSA_76	Water Resource Council Subareas - 1976

TITLE: B05 - REGIONAL DESIGNATIONS

DESCRIPTION: Historically, the Geoecology Project has accumulated data for three levels of geographic coverage. These are the southern 16 states (assigned DOE region), the 37 eastern states (containing the Eastern Deciduous Forest Biome and states that have homogeneous county sizes), and the conterminous 48 states. This file identifies the southern (S) 1388 counties, the northern (N) 1272 counties, and the western (W) 411 counties. The 2660 counties in the S and N regions make up the eastern level. The southern region includes Maryland, West Virginia, Kentucky, Mississippi, Oklahoma, Texas, and states to the south of these with the District of Columbia classified as a state unit. The eastern region includes North and South Dakota, Kansas, Nebraska, Oklahoma, Texas, and all states to the east.

SOURCE(S): Assigned by Geoecology Project Staff.

YEAR(S): 1970

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 3071

CREATED/UPDATED: Mar. 1980

COMPILER: M K Nungesser

TEMPORAL RESOLUTION: Current

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 3

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
GEO_RGN	Geoecology regions of coverage - S,N,W

TITLE: B06 - EPA AQCR INDICES

DESCRIPTION: This data set facilitates relating EPA county codes to FIPS county codes. Work at LBL (Deane Merrill) and BNL (Carmen Benkovitz) has created updated files for all EPA county and city codes along with EPA monitoring station latitude/longitude locations.

SOURCE(S): Merrill, D. 1977. EPA County Index Computer File. Lawrence Berkeley Laboratory, Berkeley, CA.

YEAR(S): 1975

TEMPORAL RESOLUTION: Current

GEOCOVERAGE: South

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 1388

VARIABLES PER RECORD: 6

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE

AQCR	Air Quality Control Region number - EPA
EPA_CO	EPA county number
EPA_ST	EPA state number
FED_RGN	Federal region number
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number

TITLE: B07 - FEDERAL AND STATE LAND OWNERSHIP BY AGENCY

DESCRIPTION: The U. S. Forest Service has compiled a county-level inventory of land managed by six federal agencies. The agencies include: U. S. Forest Service (FS), U. S. Bureau of Land Management (BLM), U. S. Fish and Wildlife Service (FWS), U. S. Army Corps of Engineers (COE), and U. S. Bureau of Reclamation (BR). The data were obtained primarily from "payment in-lieu-of-taxes" records except for the FWS areas which were based on the Revenue Sharing Act data file. Land and water statistics are included. Also included are the areas of state natural area lands and state school lands. The natural area lands consist of a combined total area for fish and wildlife refuges, parks, and forests managed by states.

SOURCE(S): Kaplan, M. March 1980. National Land Ownership Magnetic Tape UR3653. U. S. Forest Service, Land Management Planning. Fort Collins, CO.

YEAR(S): 1979
GEOCOVERAGE: U.S.
STATUS: Being Edited

TEMPORAL RESOLUTION: Current
SPATIAL RESOLUTION: County
DATA SET TYPE: Single

CLIMATE (C) SECTOR OVERVIEW

The Climate Sector contains climatic data for county-subcounty units and State Climatic Divisions. Climatic data include monthly temperature ranges and total rainfall as well as potential evapotranspiration, moisture index, growing season and frost data, rainfall pH, and several indices. Most data were calculated from weather station data for the 30-year period 1941-1970. Additional detailed climatic data for longer periods of record are available on magnetic tapes.

Data sets C07-C10 were derived from the 1941-1970 monthly climatic norms for weather stations. Using the SYMAP program, station values were interpolated to determine county values for temperature and rainfall because there are many counties without weather stations. The algorithm to produce contour maps was used to estimate values for points on a grid using the irregularly spaced weather station data. County values were then obtained from the grid surface. Because no correction was made for elevation, caution is recommended when using data in mountainous areas. The resolution is adequate for regional studies. The county values were then used with the Thornthwaite (1948) equations to estimate potential evapotranspiration and moisture indices. Data sets C07SCU, C08SCU, C09SCU, and C10SCU contain data for subcounty units for the 79 larger eastern counties. These data sets are not described separately in this section as they contain the same variables as data sets C07, C08, C09, and C10 plus the variable SCU.

State Climatic Divisions (SCD's) are areas within states with similar climate. There are 353 SCD's in the United States defined by the National Weather Service. Most follow county boundaries, but in mountainous areas the SCD's do subdivide counties. SCD names are available in C19 and counties within each SCD are defined in C17. C11-C16 contain monthly average temperature and rainfall norms for SCD's. The average, minimum, and maximum values were calculated for the period 1941-1970 from a file obtained from the National Climatic Center.

TITLE: C07 - MONTHLY AVERAGE TEMPERATURES BY COUNTY

DESCRIPTION: Monthly average temperatures were estimated for the geographic centroid of county units. See Climate Overview for details on the estimation procedure.

SOURCE(S): Webb, T. 1976. Climatological Magnetic Tape File. Brown University, RI.

REFERENCE(S): Webb 1976, USDC 1973d.

COMMENTS: The estimation procedure did not adjust for elevation so caution should be used with data in mountainous areas.

YEAR(S): 1941-1970

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 2660

CREATED/UPDATED: Mar. 1980

COMPILER: T Webb, III

TEMPORAL RESOLUTION: Norms

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 15

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE	
ANN_TEMP	Annual average temperature	C degrees
APR_TEMP	April average temperature	C degrees
AUG_TEMP	August average temperature	C degrees
DEC_TEMP	December average temperature	C degrees
FEB_TEMP	February average temperature	C degrees
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
JAN_TEMP	January average temperature	C degrees
JUL_TEMP	July average temperature	C degrees
JUN_TEMP	June average temperature	C degrees
MAR_TEMP	March average temperature	C degrees
MAY_TEMP	May average temperature	C degrees
NOV_TEMP	November average temperature	C degrees
OCT_TEMP	October average temperature	C degrees
SEP_TEMP	September average temperature	C degrees

C07.1 Average Annual Temperatures Based on 30-Year Monthly Norms for the Period 1941-1970. Interval limits in degrees Fahrenheit: (1) <54.5, (2) 54.5-59.0, (3) 59.0-63.5, (4) 63.5-68.0, (5) 68.0-72.5, (6) >72.5.

TITLE: C08 - MONTHLY AVERAGE PRECIPITATION BY COUNTY

DESCRIPTION: Monthly average rainfall totals were estimated for the geographic centroid of county units. See Climate Overview for details on the estimation procedure.

SOURCE(S): Webb, T. 1976. Climatological Magnetic Tape File. Brown University, RI.

REFERENCE(S): Webb 1976, USDC 1973d.

COMMENTS: The estimation procedure did not adjust for elevation so caution should be used with data in mountainous areas.

YEAR(S): 1941-1970

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 2660

CREATED/UPDATED: Mar. 1980

COMPILER: T Webb, III

TEMPORAL RESOLUTION: Norms

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 15

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

ANN_RAIN	Annual precipitation	cm
APR_RAIN	April precipitation	cm
AUG_RAIN	August precipitation	cm
DEC_RAIN	December precipitation	cm
FEB_RAIN	February precipitation	cm
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
JAN_RAIN	January precipitation	cm
JUL_RAIN	July precipitation	cm
JUN_RAIN	June precipitation	cm
MAR_RAIN	March precipitation	cm
MAY_RAIN	May precipitation	cm
NOV_RAIN	November precipitation	cm
OCT_RAIN	October precipitation	cm
SEP_RAIN	September precipitation	cm

C08.1 Total Annual Rainfall Based on 30-Year Monthly Norms for the Period 1941-1970. Interval limits in inches: (1) <24.0, (2) 25.0-32.0, (3) 35.0-45.0, (4) 45.0-55.0, (5) >55.0.

TITLE: C09 - MONTHLY POTENTIAL EVAPORATION BY COUNTY

DESCRIPTION: Monthly potential evapotranspiration (PE) values were calculated for the geographic centroid of county units. See Climate Overview for details on the data sources. Potential evapotranspiration is a calculated estimate of water loss from evaporation and plant transpiration. The Thornthwaite equation uses rainfall and average temperature with a latitudinal correction factor to calculate PE.

SOURCE(S): Webb, T. 1976. Climatological Magnetic Tape File. Brown University, RI.

REFERENCE(S): Webb 1976, Thornthwaite 1948.

COMMENTS: The estimation procedure did not adjust for elevation so caution should be used with data in mountainous areas.

YEAR(S): 1941-1970

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 2660

CREATED/UPDATED: Mar. 1980

COMPILER: T Webb, III

TEMPORAL RESOLUTION: Norms

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 15

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE	
ANN_P_E	Annual potential evapotrans	cm
APR_P_E	April potential evapotrans	cm
AUG_P_E	August potential evapotrans	cm
DEC_P_E	December potential evapotrans	cm
FEB_P_E	February potential evapotrans	cm
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
JAN_P_E	January potential evapotrans	cm
JUL_P_E	July potential evapotrans	cm
JUN_P_E	June potential evapotrans	cm
MAR_P_E	March potential evapotrans	cm
MAY_P_E	May potential evapotrans	cm
NOV_P_E	November potential evapotrans	cm
OCT_P_E	October potential evapotrans	cm
SEP_P_E	September potential evapotrans	cm

C09.1 Annual Potential Evapotranspiration Calculated from the 30-Year Monthly Temperature and Precipitation Norms for the Period 1941-1970 Using the Thornthwaite Formulas. Interval limits in inches: (1) <30.0, (2) 30.0-35.0, (3) 35.0-40.0, (4) 40.0-45.0, (5) >45.0.

TITLE: C10 - MONTHLY MOISTURE INDEX BY COUNTY

DESCRIPTION: Monthly moisture index (MI) values were calculated for the geographic centroid of county units. See Climate Overview for details on the data sources. The moisture index is a ratio of precipitation to potential evapotranspiration (PE) with values between 1.0 and -1.0. Positive values indicate soil moisture accumulation while negative values indicate soil moisture depletion. Because the index was initially set up to calculate annual values, individual monthly values for winter months sometimes produce nonsense values. When the PE value is small, the MI becomes unreasonably large (greater than 9999.9) and is set to 99999. When the PE value is equal to zero, MI is undefined and set to -9999. Some extremely high values for monthly MI's may still appear in the data set but may be less than 9999.9. A check for these conditions should be made when using monthly data.

SOURCE(S): Webb, T. 1976. Climatological Magnetic Tape File. Brown University, RI.

REFERENCE(S): Webb 1976, Thornthwaite 1948.

COMMENTS: The estimation procedure did not adjust for elevation so caution should be used with data in mountainous areas. When using monthly data, check for unreasonable MI values (-9999 if the corresponding PE value is zero, 99999 if the MI value is greater than 9999.9).

YEAR(S): 1941-1970

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 2660

CREATED/UPDATED: Mar. 1980

COMPILER: T Webb, III

TEMPORAL RESOLUTION: Norms

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 15

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

ANN_M_I	Annual moisture index
APR_M_I	April moisture index
AUG_M_I	August moisture index
DEC_M_I	December moisture index
FEB_M_I	February moisture index
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
JAN_M_I	January moisture index
JUL_M_I	July moisture index

JUN_M_I_	June moisture index
MAR_M_I_	March moisture index
MAY_M_I_	May moisture index
NOV_M_I_	November moisture index
OCT_M_I_	October moisture index
SEP_M_I_	September moisture index

C10.1 Annual Moisture Index Calculated from 30-Year Monthly Temperature and Precipitation Norms. Interval limits: (1) <-40.0 , (2) $-40.0-0.0$, (3) $0.0-20.0$, (4) $20.0-40.0$, (5) $40.0-60.0$, (6) >60.0 .

TITLE: C11 - MONTHLY AVERAGE TEMPERATURES BY DIVISION

DESCRIPTION: The monthly and annual average temperatures for State Climatic Divisions (SCD's) were calculated from monthly data for the 30-year period 1941 to 1970. See Climate Overview for additional documentation. Data for individual years for the period 1931 to 1975 are available (Watts et al. 1980).

SOURCE(S): National Climatic Center. 1978. Monthly Temperature and Precipitation Normals for State Climatic Divisions, 1931-1976, Magnetic Tape. National Climatic Center, Asheville, NC.

REFERENCE(S): Watts et al. 1980, USDC 1973c.

YEAR(S): 1941-1970

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: SCD

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 353

VARIABLES PER RECORD: 15

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE	
ANN_TAVE	Annual average temperature	C degrees
APR_TAVE	April average temperature	C degrees
AUG_TAVE	August average temperature	C degrees
DEC_TAVE	December average temperature	C degrees
FEB_TAVE	February average temperature	C degrees
FIPS_ST	FIPS state number	
JAN_TAVE	January average temperature	C degrees
JUL_TAVE	July average temperature	C degrees
JUN_TAVE	June average temperature	C degrees
MAR_TAVE	March average temperature	C degrees
MAY_TAVE	May average temperature	C degrees
NOV_TAVE	November average temperature	C degrees
OCT_TAVE	October average temperature	C degrees
SCD_CODE	State Climatic Division code	
SEP_TAVE	September average temperature	C degrees

C11.1 Monthly Temperature Ranges (Maximum, Average, Minimum)
for East Tennessee.

TITLE: C12 - MONTHLY MAXIMUM TEMPERATURES BY DIVISION

DESCRIPTION: The monthly and annual maximum temperatures for State Climatic Divisions (SCD's) were calculated from monthly data for the 30-year period 1941 to 1970. See Climate Overview for additional documentation. Data for individual years for the period 1931 to 1975 are available (Watts et al. 1980).

SOURCE(S): National Climatic Center. 1978. Monthly Temperature and Precipitation Normals for State Climatic Divisions, 1931-1976, Magnetic Tape. National Climatic Center, Asheville, NC.

REFERENCE(S): Watts et al. 1980, USDC 1973c.

YEAR(S): 1941-1970

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: SCD

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 353

VARIABLES PER RECORD: 15

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE	
ANN_TMAX	Annual maximum temperature	C degrees
APR_TMAX	April maximum temperature	C degrees
AUG_TMAX	August maximum temperature	C degrees
DEC_TMAX	December maximum temperature	C degrees
FEB_TMAX	February maximum temperature	C degrees
FIPS_ST	FIPS state number	
JAN_TMAX	January maximum temperature	C degrees
JUL_TMAX	July maximum temperature	C degrees
JUN_TMAX	June maximum temperature	C degrees
MAR_TMAX	March maximum temperature	C degrees
MAY_TMAX	May maximum temperature	C degrees
NOV_TMAX	November maximum temperature	C degrees
OCT_TMAX	October maximum temperature	C degrees
SCD_CODE	State Climatic Division code	
SEP_TMAX	September maximum temperature	C degrees

TITLE: C13 - MONTHLY MINIMUM TEMPERATURES BY DIVISION

DESCRIPTION: The monthly and annual minimum temperatures for State Climatic Divisions (SCD's) were calculated from monthly data for the 30-year period 1941 to 1970. See Climate Overview for additional documentation. Data for individual years for the period 1931 to 1975 are available (Watts et al. 1980).

SOURCE(S): National Climatic Center. 1978. Monthly Temperature and Precipitation Normals for State Climatic Divisions, 1931-1976, Magnetic Tape. National Climatic Center, Asheville, NC.

REFERENCE(S): Watts et al. 1980, USDC 1973c.

YEAR(S): 1941-1970

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: SCD

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 353

VARIABLES PER RECORD: 15

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE	
ANN_TMIN	Annual minimum temperature	C degrees
APR_TMIN	April minimum temperature	C degrees
AUG_TMIN	August minimum temperature	C degrees
DEC_TMIN	December minimum temperature	C degrees
FEB_TMIN	February minimum temperature	C degrees
FIPS_ST	FIPS state number	
JAN_TMIN	January minimum temperature	C degrees
JUL_TMIN	July minimum temperature	C degrees
JUN_TMIN	June minimum temperature	C degrees
MAR_TMIN	March minimum temperature	C degrees
MAY_TMIN	May minimum temperature	C degrees
NOV_TMIN	November minimum temperature	C degrees
OCT_TMIN	October minimum temperature	C degrees
SCD_CODE	State Climatic Division code	
SEP_TMIN	September minimum temperature	C degrees

TITLE: C14 - MONTHLY AVERAGE PRECIPITATION BY DIVISN

DESCRIPTION: The monthly and annual average precipitation for State Climatic Divisions (SCD's) was calculated from monthly data for the 30-year period 1941 to 1970. See Climate Overview for additional documentation. Data for individual years for the period 1931 to 1975 are available (Watts et al. 1980).

SOURCE(S): National Climatic Center. 1978. Monthly Temperature and Precipitation Normals for State Climatic Divisions, 1931-1976, Magnetic Tape. National Climatic Center, Asheville, NC.

REFERENCE(S): Watts et al. 1980, USDC 1973c.

YEAR(S): 1941-1970

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: SCD

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 353

VARIABLES PER RECORD: 15

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE
ANN_PAVE	Annual average precipitation cm
APR_PAVE	April average precipitation cm
AUG_PAVE	August average precipitation cm
DEC_PAVE	December average precipitation cm
FEB_PAVE	February average precipitation cm
FIPS_ST	FIPS state number
JAN_PAVE	January average precipitation cm
JUL_PAVE	July average precipitation cm
JUN_PAVE	June average precipitation cm
MAR_PAVE	March average precipitation cm
MAY_PAVE	May average precipitation cm
NOV_PAVE	November average precipitation cm
OCT_PAVE	October average precipitation cm
SCD_CODE	State Climatic Division code
SEP_PAVE	September average precipitation cm

C14.1 Monthly Precipitation Ranges (Maximum, Average, Minimum)
for East Tennessee.

TITLE: C15 - MONTHLY MAXIMUM PRECIPITATION BY DIVISN

DESCRIPTION: The monthly and annual maximum precipitation for State Climatic Divisions (SCD's) was calculated from monthly data for the 30-year period 1941 to 1970. See Climate Overview for additional documentation. Data for individual years for the period 1931 to 1975 are available (Watts et al. 1980).

SOURCE(S): National Climatic Center. 1978. Monthly Temperature and Precipitation Normals for State Climatic Divisions, 1931-1976, Magnetic Tape. National Climatic Center, Asheville, NC.

REFERENCE(S): Watts et al. 1980, USDC 1973c.

YEAR(S): 1941-1970

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: SCD

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 353

VARIABLES PER RECORD: 15

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE
ANN_PMAX	Annual maximum precipitation cm
APR_PMAX	April maximum precipitation cm
AUG_PMAX	August maximum precipitation cm
DEC_PMAX	December maximum precipitation cm
FEB_PMAX	February maximum precipitation cm
FIPS_ST	FIPS state number
JAN_PMAX	January maximum precipitation cm
JUL_PMAX	July maximum precipitation cm
JUN_PMAX	June maximum precipitation cm
MAR_PMAX	March maximum precipitation cm
MAY_PMAX	May maximum precipitation cm
NOV_PMAX	November maximum precipitation cm
OCT_PMAX	October maximum precipitation cm
SCD_CODE	State Climatic Division code
SEP_PMAX	September maximum precipitation cm

TITLE: C16 - MONTHLY MINIMUM PRECIPITATION BY DIVISN

DESCRIPTION: The monthly and annual minimum precipitation for State Climatic Divisions (SCD's) was calculated from monthly data for the 30-year period 1941 to 1970. See Climate Overview for additional documentation. Data for individual years for the period 1931 to 1975 are available (Watts et al. 1980).

SOURCE(S): National Climatic Center. 1978. Monthly Temperature and Precipitation Normals for State Climatic Divisions, 1931-1976, Magnetic Tape. National Climatic Center, Asheville, NC.

REFERENCE(S): Watts et al. 1980, USDC 1973c.

YEAR(S): 1941-1970

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: SCD

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 353

VARIABLES PER RECORD: 15

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE
ANN_PMIN	Annual minimum precipitation cm
APR_PMIN	April minimum precipitation cm
AUG_PMIN	August minimum precipitation cm
DEC_PMIN	December minimum precipitation cm
FEB_PMIN	February minimum precipitation cm
FIPS_ST	FIPS state number
JAN_PMIN	January minimum precipitation cm
JUL_PMIN	July minimum precipitation cm
JUN_PMIN	June minimum precipitation cm
MAR_PMIN	March minimum precipitation cm
MAY_PMIN	May minimum precipitation cm
NOV_PMIN	November minimum precipitation cm
OCT_PMIN	October minimum precipitation cm
SCD_CODE	State Climatic Division code
SEP_PMIN	September minimum precipitation cm

TITLE: C17 - CLIMATIC DIVISION INDEX

DESCRIPTION: State Climatic Divisions (SCD's) are areas within states with similar climatic characteristics. Often the SCD's are aggregates of contiguous counties; however, in mountainous areas, the SCD's may subdivide counties. This data set defines the counties or portions of counties within each SCD. It was created by digitizing the map of SCD's (USDC 1968, page 50). When a county occurred in more than one SCD, the proportion in each was measured with a planimeter. Individual state maps showing county lines and SCD lines were used. C19 provides the names and state weighting factors (population- and area-based) for each SCD. C11-C16 contain climatic data for SCD's.

SOURCE(S): USDC 1968, p 50; USDC 1977.

YEAR(S): 1970

TEMPORAL RESOLUTION: Current

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Index

NUMBER OF RECORDS: 3431

VARIABLES PER RECORD: 5

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: M K Nungesser, R M Anderson

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
SCD_AREA	Area of county in SCD ha
SCD_CODE	State Climatic Division code
SCD_PART	Portion of county in SCD

TITLE: C18 - GROWING SEASON LENGTH, FIRST/LAST FROST

DESCRIPTION: The growing season is defined in terms of the last spring frost date, first fall frost date, and the length of the growing season in days. The first and last frost dates were digitized from maps in the Climatic Atlas (USDC 1968, pp 29-30) and the length calculated from the two dates.

SOURCE(S): USDC 1968, pp 29-30.

COMMENTS: The Julian dates were created such that January first is stored as 60001 and December 31st as 60365.

YEAR(S): 1968	TEMPORAL RESOLUTION: Norms
GEOCOVERAGE: East	SPATIAL RESOLUTION: County
STATUS: Online	DATA SET TYPE: Single
NUMBER OF RECORDS: 2660	VARIABLES PER RECORD: 5
CREATED/UPDATED: Mar. 1980	NEW DATA: Not anticipated
COMPILER: L K Mann, W M Post	

VARIABLE	LABEL AND UNITS OF MEASURE
FALFROST	First fall frost, Julian date
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
GROW_DAY	Growing season length in days
SPRFROST	Last spring frost, Julian date

C18.1 Growing Season Length (days) for the Eastern United States.

TITLE: C19 - STATE CLIMATIC DIVISION NAMES/WEIGHTS

DESCRIPTION: State Climatic Divisions (SCD's) are areas within states with similar climatic characteristics. This data set includes names and state weighting factors (population and area) for the 353 SCD's. C11-C16 contain SCD climatic data and C17 contains definitions of counties within SCD's.

SOURCE(S): USDC 1977.

YEAR(S): 1975

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 344

CREATED/UPDATED: Mar. 1980

COMPILER: M K Nungesser, V G Myers

TEMPORAL RESOLUTION: Current

SPATIAL RESOLUTION: SCD

DATA SET TYPE: Index

VARIABLES PER RECORD: 5

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_ST	FIPS state number
SCD_A_WT	Area weighted value
SCD_CODE	State Climatic Division code
SCD_NAME	State Climatic Division name
SCD_P_WT	Population weighted value

TITLE: C20 - RAINFALL PH & H-ION LOADINGS

DESCRIPTION: The problems associated with increased acidity of rainfall in the eastern United States are being studied to understand regional environmental impacts. The pattern of rainfall acidity for 1974 (Cogbill and Likens 1974) was digitized and combined with average annual rainfall (C08) to calculate an estimate of hydrogen-ion loading factors. The formula used was: H-ions per square meter = rainfall pH * annual rainfall (cm) * 10.

SOURCE(S): Cogbill and Likens 1974. C08.

REFERENCE(S): Klopatek et al. 1980a.

YEAR(S): 1974

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: East

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 1572

VARIABLES PER RECORD: 5

CREATED/UPDATED: Mar. 1980

NEW DATA: As available

COMPILER: J M Klopatek, C S Tucker

VARIABLE	LABEL AND UNITS OF MEASURE
ANN_RAIN	Annual rainfall, 1941-1970 norms, cm
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
H_IONS	Hydrogen ion loading factor - H ions/m2
RAIN_PH	pH of rainfall as of 1974

ORNL-DWG 79-15155

C20.1 1974 Rainfall pH for the Eastern United States.

VEGETATION (D) SECTOR OVERVIEW

The Vegetation Sector is based primarily on two interrelated maps of ecoregions and potential natural vegetation. Ecoregions (Bailey 1976, Bailey 1978) represent a hierarchical landscape classification scheme based on climate, soils, and vegetation. There are 54 ecoregions at the section level in the conterminous United States. The vegetation aspect of the classification scheme is based on potential natural vegetation (Küchler 1964, USDI 1970 sheets 89 and 90). We have used Küchler's 1966 map (USDI 1970 sheet 89 and 90) to define the county occurrences. However, the larger scale 1964 map (Küchler 1964) was used to help locate the vegetation boundaries. There are 106 vegetation types in the conterminous United States. The ecoregion and vegetation boundaries were aligned and the proportion of each ecoregion/vegetation combination within a county was estimated to create data set D10. Most other vegetation files were derived from D10.

The natural vegetation and ecoregion maps reflect potential climax conditions which might occur if man's impacts could be removed. Limitations of the Küchler map have been recognized (Klopatek et al. 1979). To have the data reflect current conditions, the potential natural vegetation types were adjusted for current land-use practices occurring within counties. Each vegetation type was assigned a probability of being converted by man to agriculture, pasture, or inundation. Vegetation types were then proportionally reduced within a county for these and for urban build-up changes.

TITLE: D01 - TREE-SPECIES CODES DICTIONARY

DESCRIPTION: The dictionary of tree species includes Latin genus/species names, common names, USFS numeric codes, and ORNL mnemonic codes. The mnemonic codes consist of letters from the genus and species names selected to form unique and meaningful sequences. The algorithm for creating mnemonic codes involves deleting vowels, except the first character, followed by consonants until unique six- to eight-character codes are created. The codes are used with D02, F06 and F07.

SOURCE(S): USDA 1967.

REFERENCE(S): Schreiber et al. 1974

YEAR(S): 1966

TEMPORAL RESOLUTION:

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS:

VARIABLES PER RECORD: 5

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R K Schreiber, R L Stephenson, F G Goff

VARIABLE	LABEL AND UNITS OF MEASURE
TREE_DSC	Tree species common name
TREE_SPC	Tree genus-species scientific name
TREECODE	Tree species mnemonic code
TREE_KEY	Tree species code number

TITLE: D02 - TREE SPECIES RANGES (LITTLE)

DESCRIPTION: County-level ranges of 203 tree species were digitized from Little's Atlas (1971) covering most commercially important species in the conterminous United States. The technique described by Schreiber et al. (1974) was initially used to digitize the maps and store the data. The ranges were subsequently stored in the Geoecology Data Base.

SOURCE(S): Little 1971.

REFERENCES(S): Schreiber et al. 1974.

COMMENTS: Program RANGER (Schreiber et al. 1974) provides a means to digitize and manipulate qualitative county-level data.

YEAR(S): 1966

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Offline

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 100,000

VARIABLES PER RECORD: 3

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R K Schreiber, R L Stephenson, F G Goff

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
TREECODE	Tree species mnemonic code

TITLE: D03 - POT. & ADJ. VEGETATION NATIONAL STATS

DESCRIPTION: National and regional summary statistics for potential and land-use-adjusted natural vegetation were calculated from D04. See the Vegetation Overview for additional information on vegetation data and regions. Areal extent, fraction of the total, and county occurrence frequencies are given for each vegetation type for the eastern forest region, central plains region, and western mountains region, and for the nation. Names are given for the 106 Kchler vegetation codes.

SOURCE(S): D04.

REFERENCE(S): Klopatek et al. 1979.

COMMENTS: The SAS FORMAT procedure may be used to substitute vegetation names for codes (see section on Special Output Formats).

YEAR(S): 1966-1967

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 106

VARIABLES PER RECORD: 26

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE
VEG_CODE	Vegetation code, 1966 Kchler, 001-106
VEG_DSCP	Vegetation description
VEGA_C_A	Adj. vegetation central area ha
VEGA_C_N	Adj. vegetation no. counties in central
VEGA_C_P	Fraction of adj. vegetation in central
VEGA_E_A	Adj. vegetation eastern area ha
VEGA_E_N	Adj. vegetation no. counties in east
VEGA_E_P	Fraction of adj. vegetation in east
VEGA_N_A	Adj. vegetation national area ha
VEGA_N_N	Adj. vegetation national no. counties
VEGA_N_P	Fraction of adj. vegetation in nation
VEGA_W_A	Adj. vegetation western area ha
VEGA_W_N	Adj. vegetation no. counties in west
VEGA_W_P	Fraction of adj. vegetation in west
VEGP_C_A	Pot. vegetation central area ha
VEGP_C_N	Pot. vegetation no. counties in central
VEGP_C_P	Fraction of pot. vegetation in central
VEGP_E_A	Pot. vegetation eastern area ha
VEGP_E_N	Pot. vegetation no. counties in east

VEGP_E_P	Fraction of pot. vegetation in east	
VEGP_N_A	Pot. vegetation national area	ha
VEGP_N_N	Pot. vegetation national no. counties	
VEGP_N_P	Fraction of pot. vegetation in nation	
VEGP_W_A	Pot. vegetation western area	ha
VEGP_W_N	Pot. vegetation no. counties in west	
VEGP_W_P	Fraction of pot. vegetation in west	

D03.1 Potential Vegetation Percentages for the United States.

VEG_CODE	DESCRIPTION	PERCENT	VEG_CODE	DESCRIPTION	PERCENT
001	SPRUCE-CEDAR-HEMLOCK FOREST	0.22	087	NORTHEASTERN SPRUCE-FIR FOREST	0.31
002	CEDAR-HEMLOCK-DOUGLAS FIR FOREST	0.98	088	SOUTHEASTERN SPRUCE-FIR FOREST	0.01
003	SILVER FIR-DOUGLAS FIR FOREST	0.34	089	NORTHERN FLOODPLAIN FOREST	0.95
004	FIR-HEMLOCK FOREST	0.24	090	MAPLE-BASSWOOD FOREST	0.78
005	MIXED CONIFER FOREST	0.73	091	OAK-HICKORY FOREST	6.60
006	REDWOOD FOREST	0.12	092	ELM-ASH FOREST	0.29
007	RED FIR FOREST	0.10	093	BEECH-MAPLE FOREST	1.55
008	LOGPOLE PINE-SUBALPINE FOREST	0.12	094	MIXED MESOPHYTIC FOREST	1.29
009	PINE-CYPRESS FOREST	0.01	095	APPALACHIAN OAK FOREST	3.21
010	WESTERN PONDEROSA FOREST	1.22	096	MANGROVE	0.03
011	DOUGLAS FIR FOREST	1.71	097	NORTHERN HARDWOODS	3.36
012	CEDAR-HEMLOCK-PINE FOREST	0.24	098	NORTHERN HARDWOODS-FIR FOREST	0.44
013	GRAND FIR-DOUGLAS FIR FOREST	0.59	099	NORTHERN HARDWOODS-SPRUCE FOREST	0.93
014	WESTERN SPRUCE-FIR FOREST	1.41	100	NORTHEASTERN OAK-PINE FOREST	0.11
015	EASTERN PONDEROSA FOREST	0.33	101	OAK-HICKORY-PINE FOREST	8.00
016	BLACK HILLS PINE FOREST	0.17	102	SOUTHERN MIXED FOREST	3.20
017	PINE-DOUGLAS FIR FOREST	0.97	103	SOUTHERN FLOODPLAIN FOREST	2.32
018	ARIZONA PINE FOREST	0.23	104	POCOSIN	0.15
019	SPRUCE-FIR-DOUGLAS FIR FOREST	0.10	105	SAND PINE SCRUB	0.04
020	SOUTHWESTERN SPRUCE-FIR FOREST	0.30	106	SUBTROPICAL PINE FOREST	0.02
021	JUNIPER-PINYON WOODLAND	3.59			
022	OREGON OAKWOODS	0.05			
023	MESQUITE BOSQUES	0.01			
024	MOSAIC OF 2 AND 22	0.14			
025	CALIFORNIA MIXED EVERGREEN FOREST	0.19			
026	CALIFORNIA OAKWOODS	0.60			
027	OAK-JUNIPER WOODLAND	0.29			
028	TRANSITION BETWEEN 27 AND 31	0.22			
029	CHAPARRAL	0.44			
030	COASTAL SAGEBRUSH	0.16			
031	MOUNTAIN MAHOGANY-OAK SCRUB	0.31			
032	GREAT BASIN SAGEBRUSH	2.17			
033	BLACKBUSH	0.15			
034	SALT BUSH-GREASEWOOD	2.08			
035	CREOSOTE BUSH	1.80			
036	CREOSOTE BUSH-BUR SAGE	1.07			
037	PALO VERDE-CACTUS SHRUB	0.40			
038	CEHIZA SHRUB	0.09			
039	DESERT - LACKING VEGETATION	0.25			
040	FESCUE-OATGRASS	0.04			
041	CALIFORNIA STEPPE	0.68			
042	TULE MARSHES	0.11			
043	FESCUE-WHEATGRASS	0.27			
044	WHEATGRASS-BLUEGRASS	0.46			
045	ALPINE MEADOWS AND BARREN	0.46			
046	FESCUE-MOUNTAIN RICHLY PRAIRIE	0.09			
047	GRAMA-GALLETA STEPPE	1.01			
048	GRAMA-TOBOSA PRAIRIE	0.20			
049	SAGEBRUSH STEPPE	5.00			
050	WHEATGRASS-NEEDLEGRASS SHRUBSTEPPE	0.56			
051	GALLETA-THREE AWM SHRUBSTEPPE	0.06			
052	GRAMA-TOBOSA SHRUBSTEPPE	1.41			
053	TRANS-PECOS SHRUB SAVANNA	1.13			
054	MESQUITE-ACACIA SAVANNA	0.84			
055	MESQUITE-LIVE OAK SAVANNA	0.10			
056	FOOTHILLS PRAIRIE	0.60			
057	GRAMA NEEDLEGRASS-WHEATGRASS	2.65			
058	GRAMA BUFFALO-GRASS	4.00			
059	WHEATGRASS-NEEDLEGRASS	3.22			
060	WHEATGRASS-BLUESTEM-NEEDLEGRASS	1.75			
061	WHEATGRASS-GRAMA BUFFALO GRASS	0.03			
062	BLUESTEM-GRAMA PRAIRIE	1.68			
063	SANDSAGE-BLUESTEM PRAIRIE	0.53			
064	SHINNERY	0.32			
065	NORTHERN CORDGRASS PRAIRIE	0.04			
066	BLUESTEM PRAIRIE	3.52			
067	NEBRASKA SANDHILLS PRAIRIE	0.74			
068	BLACKLAND PRAIRIE	0.62			
069	BLUESTEM-SACAHUISTA PRAIRIE	0.53			
070	SOUTHERN CORDGRASS PRAIRIE	0.29			
071	PALMETTO PRAIRIE	0.14			
072	OAK SAVANNA	0.84			
073	MOSAIC OF NUMBERS 66 AND 91	3.09			
074	CEDAR GLADES	0.13			
075	CROSS TIMBERS	1.04			
076	MESQUITE-BUFFALO GRASS	1.50			
077	JUNIPER-OAK SAVANNA	0.82			
078	MESQUITE-OAK SAVANNA	0.11			
079	FAYETTE PRAIRIE	0.09			
080	BLACKBELT	0.22			
081	LIVE OAK-SEA OATS	0.09			
082	CYPRESS SAVANNA	0.04			
083	EVERGLADES	0.15			
084	GREAT LAKES SPRUCE-FIR FOREST	0.50			
085	CONIFER DOG	0.39			
086	GREAT LAKES PINE FOREST	0.95			

TITLE: D04 - POT. & ADJ. VEGETATION

DESCRIPTION: Potential and land-use-adjusted areas of each type of natural vegetation occurring within a county were calculated from D10. See the Vegetation Overview for additional information on the vegetation data.

SOURCE(S): D10.

REFERENCE(S): Klopatek et al. 1979.

YEAR(S): 1966-1967	TEMPORAL RESOLUTION: Hist.
GEOCOVERAGE: U. S.	SPATIAL RESOLUTION: County
STATUS: Online	DATA SET TYPE: Multiple
NUMBER OF RECORDS: 7227	VARIABLES PER RECORD: 5
CREATED/UPDATED: Mar. 1980	NEW DATA: Not anticipated
COMPILER: C Kelsey, J M Klopatek, J L Jones	

VARIABLE	LABEL AND UNITS OF MEASURE	
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
VEG_CODE	Vegetation code, Küchler, 001-106	
VEGA_A	Adjusted vegetation area	ha
VEGP_A	Potential vegetation area	ha

D04.1 Percent Potential Vegetation Types Remaining in the United States.

ORNL-DWG 78-21127

TITLE: D05 - VEGETATION-LAND USE CHANGE PROBABILITIES

DESCRIPTION: The algorithm to adjust potential natural vegetation for current land-use utilized conversion probabilities for each Kuchler vegetation type. The probabilities consider the existing conversion of natural vegetation to cropland, pastureland, or inundation. The values contained in D05 were obtained from several sources (Klopatek et al. 1979). They were ranked 1 (high probability) to 4 (low probability).

SOURCE(S): Klopatek et al. 1979.

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 117

CREATED/UPDATED: Mar. 1980

COMPILER: J M Klopatek

TEMPORAL RESOLUTION: Current

SPATIAL RESOLUTION:

DATA SET TYPE: Dictnry

VARIABLES PER RECORD: 9

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
PROB_AGR	Probability of change to agriculture
PROB_FOR	Probability of change to forest
PROB_PST	Probability of change to pasture
PROB_RNG	Probability of change to range
PROB_WTR	Probability of being covered by water
PVEG_C	Vegetation code, Kuchler 1964
VEG_CODE	Vegetation code, 1966 Kuchler, 001-106
VEG_DSCP	Vegetation description, 1964 Kuchler
VEG_TYPE	General vegetation description - Kuchler

TITLE: D06 - VEGETATION REPLACEMENT BY URBAN AREAS

DESCRIPTION: The algorithm to adjust potential natural vegetation for current land-use incorporated the replacement of vegetation types within counties by urban build-up. In the smaller eastern counties, urban build-up area was proportionally subtracted from all vegetation types occurring in a county. This data set defines vegetation types within western counties that have been urbanized. The data were obtained by overlaying a map of urban areas with Kuchler's vegetation map.

SOURCE(S): USDI 1970 sheets 89 and 90.

YEAR(S): 1978

GEOCOVERAGE: West

STATUS: Online

NUMBER OF RECORDS: 169

CREATED/UPDATED: Mar. 1980

COMPILER: J M Klopatek

TEMPORAL RESOLUTION: Current

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 3

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
VEG_CODE	Vegetation code, Kuchler, 001-106

TITLE: D07 - POT. & ADJ. ECOREGION NATIONAL STATS

DESCRIPTION: National and regional summary statistics for potential and land-use-adjusted ecoregion areas at the section level were calculated from D08. See the Vegetation Overview for additional details on the ecoregion data. Areal extent, fraction of the total, and county occurrence frequencies are given for each ecoregion for the Eastern Deciduous Forest region, Central Plains region, Western Mountains region, and nation. Names are also given for the 54 ecoregion section codes (Bailey 1976, Bailey 1978).

SOURCE(S): D08.

YEAR(S): 1976

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 54

VARIABLES PER RECORD: 10

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE
ECO_CODE	Ecoregion section code, Bailey 1976
ECO_DSCP	Ecoregion section description
ECO_KEY	Ecoregion section numeric key, 1-54
EOA_N_A	Adj. ecoregion national area ha
EOA_N_N	Adj. ecoregion national no. of counties
EOA_N_P	Fraction of adj. ecoregion in nation
ECOP_N_A	Pot. ecoregion national area ha
ECOP_N_N	Pot. ecoregion national no. of counties
ECOP_N_P	Fraction of pot. ecoregion in nation
RGN	Region - E,C,W

D07.1 Ecoregion Percentages for the United States.

ECO_CODE	DESCRIPTION	PERCENT
2111	SPRUCE-FIR FOREST	1.15
2112	NORTHERN HARDWOODS-FIR FOREST	0.76
2113	NORTHERN HARDWOODS FOREST	2.98
2114	NORTHERN HARDWOODS-SPRUCE FOREST	2.15
2211	MIXED MESOPHYTIC FOREST	1.32
2212	BEECH-MAPLE FOREST	2.24
2213	MAPLE-BASSWOOD FOREST + OAK SAVANA	1.68
2214	APPALACHIAN OAK FOREST	3.67
2215	OAK-HICKORY FOREST	4.35
2311	BEECH-SWEETGUM-MAGNOLIA-PINE-OAK FOREST	3.79
2312	SOUTHERN FLOODPLAIN FOREST	1.55
2320	SOUTHEASTERN MIXED FOREST	8.46
2410	WILLAMETTE - PUGET FOREST	0.50
2511	OAK-HICKORY-BLUESTEM PARKLAND	4.65
2512	OAK + BLUESTEM PARKLAND	2.79
2521	MESQUITE-BUFFALO GRASS	1.52
2522	JUNIPER-OAK-MESQUITE	0.95
2523	MESQUITE-ACACIA	0.94
2531	BLUESTEM PRAIRIE	3.79
2532	WHEATGRASS-BLUESTEM NEEDLEGRASS	2.74
2533	BLUESTEM-GRAMA PRAIRIE	1.98
2610	CALIFORNIA GRASSLAND	0.74
3111	GRAMA-NEEDLEGRASS-WHEATGRASS	3.34
3112	WHEATGRASS-NEEDLEGRASS	3.62
3113	GRAMA-BUFFALO GRASS	4.81
3120	PALOUSE GRASSLAND	0.66
3131	SAGEBRUSH - WHEATGRASS	3.85
3132	LA MONTAN SALT BUSH-GREASEWOOD	1.31
3133	GREAT BASIN SAGEBRUSH	1.57
3154	BONNEVILLE SALT BUSH - GREASEWOOD	0.92
3135	PONDEROSA SHRUB FOREST	0.49
3140	MEXICAN HIGHLANDS SHRUB STEPPE	0.70
3211	GRAMA - TOBOSA	0.68
3212	TARBUUSH-CREOSOTE BUSH	1.59
3221	CREOSOTE BUSH	1.44
3222	CREOSOTE BUSH - BUR SAGE	1.40
4110	EVERGLADES	0.29
A3141	WHEATGRASS - NEEDLEGRASS - SAGEBRUSH	0.50
A3142	SAGEBRUSH - WHEATGRASS	1.19
M2111	DOUGLAS FIR FOREST	0.35
M2112	CEDAR - HEMLOCK - DOUGLAS FIR FOREST	1.26
M2411	SITKA SPRUCE-CEDAR-HEMLOCK FOREST	0.25
M2412	REDWOOD FOREST	0.16
M2413	CEDAR-HEMLOCK-DOUGLAS FIR FOREST	0.65
M2414	CALIFORNIA MIXED EVERGREEN FOREST	0.16
M2415	SILVER FIR - DOUGLAS FIR FOREST	0.88
M2610	SIERRA FOREST	1.26
M2620	CALIFORNIA CHAPPARRAL	1.05
M3111	GRAND FIR - DOUGLAS FIR FOREST	0.96
M3112	DOUGLAS FIR FOREST	3.00
M3113	PONDEROSA PINE - DOUGLAS FIR FOREST	1.99
M3120	UPPER GILA MOUNTAINS FOREST	1.29
P3151	JUNIPER-PINYON WOODLAND/SAGEBRUSH-SALT BUSH MOSAIC	1.60
P3132	GRAMA-GALLETA STEPPE/JUNIPER-PINYON WOODLAND MOSAIC	2.23

TITLE: D08 - POT. & ADJ. ECOREGION AREAS

DESCRIPTION: Potential and land-use-adjusted areas for each ecoregion occurring in a county were calculated from D10. See Vegetation Overview for additional information on ecoregion data. The data were recorded at the ecoregion section level.

SOURCE(S): D10.

YEAR(S): 1976

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 4337

VARIABLES PER RECORD: 5

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson, J M Klopatek, J L Jones

VARIABLE	LABEL AND UNITS OF MEASURE
ECO_CODE	Ecoregion section code, Bailey 1976
ECO_A	Adjusted ecoregion area ha
ECOP_A	Potential ecoregion area ha
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number

D08.1 Ecoregions in the South.

ORNL-OWC 70-066

TITLE: D09 - POT. & ADJ. VEGETATION-ECOREGION STATS

DESCRIPTION: Potential and land-use-adjusted natural vegetation statistics for each ecoregion at the section level were calculated from D10. See the Vegetation Overview for additional information. Statistics are given for the 387 ecoregion/vegetation combinations occurring in the conterminous United States. Areal extent, fraction of the total, and county occurrence frequencies are included for vegetation types (Küchler 1964, USDI 1970 sheets 89 and 90) occurring in each of the 54 ecoregions (Bailey 1976, Bailey 1978). Ecoregions are keyed to their location in the Eastern Deciduous Forest region (E), Central Plains region (C), or Western Mountains region (W).

SOURCE(S): D10.

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 387

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION:

DATA SET TYPE: Dictnry

VARIABLES PER RECORD: 11

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
ECO_CODE	Ecoregion section code, Bailey 1976
ECO_KEY	Ecoregion section numeric key, 1-54
EVEGA_A	Ecorgn/adj. veg. area ha
EVEGA_N	Ecorgn/adj. veg no. of counties
EVEGA_P	Fraction in ecoregion of adj. veg. type
EVEGP_A	Ecorgn/pot. veg. area ha
EVEGP_N	Ecorgn/pot. veg no. of counties
EVEGP_P	Fraction in ecoregion of pot. veg. type
RGN	Region - E,C,W
VEG_CODE	Vegetation code, 1966 Küchler, 001-106
VEG_KEY	Vegetation number, 1966 Küchler, 1-106

D09.1 Percent of Potential Vegetation Types within Ecoregions.

----- ECO_CODE=2111 Ecoregion SECTION DESCRIPTION=SPRUCE-FIR FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
072	OAK SAVANNA	0.07
084	GREAT LAKES SPRUCE-FIR FOREST	42.56
085	CONIFER BOG	20.48
086	GREAT LAKES PINE FOREST	33.69
089	NORTHERN FLOODPLAIN FOREST	0.12
090	MAPLE-BASSWOOD FOREST	2.27
097	NORTHERN HARDWOODS	0.81
----- ECO_CODE=2112 Ecoregion SECTION DESCRIPTION=NORTHERN HARDWOODS-FIR FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
084	GREAT LAKES SPRUCE-FIR FOREST	1.39
085	CONIFER BOG	6.93
086	GREAT LAKES PINE FOREST	16.00
097	NORTHERN HARDWOODS	17.16
098	NORTHERN HARDWOODS-FIR FOREST	58.53
----- ECO_CODE=2113 Ecoregion SECTION DESCRIPTION=NORTHERN HARDWOODS FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
072	OAK SAVANNA	0.15
084	GREAT LAKES SPRUCE-FIR FOREST	0.03
085	CONIFER BOG	3.30
086	GREAT LAKES PINE FOREST	13.77
087	NORTHEASTERN SPRUCE-FIR FOREST	0.06
091	OAK-HICKORY FOREST	0.84
092	ELM-ASH FOREST	3.16
093	BEECH-MAPLE FOREST	4.82
095	APPALACHIAN OAK FOREST	5.07
097	NORTHERN HARDWOODS	68.17
098	NORTHERN HARDWOODS-FIR FOREST	0.04
099	NORTHERN HARDWOODS-SPRUCE FOREST	0.58
----- ECO_CODE=2114 Ecoregion SECTION DESCRIPTION=NORTHERN HARDWOODS-SPRUCE FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
087	NORTHEASTERN SPRUCE-FIR FOREST	13.38
093	BEECH-MAPLE FOREST	0.63
097	NORTHERN HARDWOODS	43.16
099	NORTHERN HARDWOODS-SPRUCE FOREST	42.63
----- ECO_CODE=2211 Ecoregion SECTION DESCRIPTION=MIXED MESOPHYTIC FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
073	MOSAIC OF NUMBERS 66 AND 91	0.12
074	CEDAR GLADES	1.09
094	MIXED MESOPHYTIC FOREST	97.63
101	OAK-HICKORY-PINE FOREST	1.16
----- ECO_CODE=2212 Ecoregion SECTION DESCRIPTION=BEECH-MAPLE FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
066	BLUESTEM PRAIRIE	0.23
073	MOSAIC OF NUMBERS 66 AND 91	2.41
086	GREAT LAKES PINE FOREST	0.62
091	OAK-HICKORY FOREST	26.91
092	ELM-ASH FOREST	8.83
093	BEECH-MAPLE FOREST	61.00
----- ECO_CODE=2213 Ecoregion SECTION DESCRIPTION=MAPLE-BASSWOOD FOREST + OAK SAVANNA -----		
VEG_CODE	VEG_DSCP	PERCENT
066	BLUESTEM PRAIRIE	10.51
072	OAK SAVANNA	43.08
085	CONIFER BOG	0.06
086	GREAT LAKES PINE FOREST	0.87
089	NORTHERN FLOODPLAIN FOREST	2.63
090	MAPLE-BASSWOOD FOREST	42.79
091	OAK-HICKORY FOREST	0.06

D09.1. Percent of Potential Vegetation Types within Ecoregions

----- ECO_CODE=2214 ECREGION SECTION DESCRIPTION=APPALACHIAN OAK FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
065	NORTHERN CORDGRASS PRAIRIE	0.13
066	BLUESTEM PRAIRIE	0.06
087	NORTHEASTERN SPRUCE-FIR FOREST	0.46
088	SOUTHEASTERN SPRUCE-FIR FOREST	0.15
095	APPALACHIAN OAK FOREST	83.38
097	NORTHERN HARDWOODS	7.39
100	NORTHEASTERN OAK-PINE FOREST	1.09
101	OAK-HICKORY-PINE FOREST	7.36
----- ECO_CODE=2215 ECREGION SECTION DESCRIPTION=OAK-HICKORY FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
066	BLUESTEM PRAIRIE	0.04
073	MOAIC OF NUMBERS 66 AND 91	3.42
074	CEDAR GLADES	2.76
075	CROSS TIMBERS	0.07
091	OAK-HICKORY FOREST	81.55
093	BEECH-MAPLE FOREST	0.69
101	OAK-HICKORY-PINE FOREST	8.40
103	SOUTHERN FLOODPLAIN FOREST	3.05
----- ECO_CODE=2311 ECREGION SECTION DESCRIPTION=BEECH-SWEETGUM-MAGNOLIA-PINE-OAK FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
069	BLUESTEM-SACAMUISTA PRAIRIE	3.48
070	SOUTHERN CORDGRASS PRAIRIE	2.05
071	PALMETTO PRAIRIE	3.73
081	LIVE OAK-SEA OATS	1.55
096	MANGROVE	0.08
101	OAK-HICKORY-PINE FOREST	1.09
102	SOUTHERN MIXED FOREST	80.52
103	SOUTHERN FLOODPLAIN FOREST	6.88
105	SAND PINE SCRUB	0.63
----- ECO_CODE=2312 ECREGION SECTION DESCRIPTION=SOUTHERN FLOODPLAIN FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
069	BLUESTEM-SACAMUISTA PRAIRIE	1.76
070	SOUTHERN CORDGRASS PRAIRIE	8.02
073	MOAIC OF NUMBERS 66 AND 91	0.15
091	OAK-HICKORY FOREST	3.38
101	OAK-HICKORY-PINE FOREST	1.67
103	SOUTHERN FLOODPLAIN FOREST	85.02
----- ECO_CODE=2320 ECREGION SECTION DESCRIPTION=SOUTHEASTERN MIXED FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
065	NORTHERN CORDGRASS PRAIRIE	0.38
080	BLACKBELT	2.61
081	LIVE OAK-SEA OATS	0.32
091	OAK-HICKORY FOREST	1.32
100	NORTHEASTERN OAK-PINE FOREST	0.81
101	OAK-HICKORY-PINE FOREST	85.00
102	SOUTHERN MIXED FOREST	1.31
103	SOUTHERN FLOODPLAIN FOREST	6.50
104	POCOSTIN	1.74
----- ECO_CODE=2410 ECREGION SECTION DESCRIPTION=WILLAMETTE - PUGET FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
002	CEDAR-HEMLOCK-DOUGLAS FIR FOREST	69.98
022	OREGON OAKWOODS	1.86
024	MOAIC OF 2 AND 22	28.56
----- ECO_CODE=2511 ECREGION SECTION DESCRIPTION=OAK-HICKORY-BLUESTEM PARKLAND -----		
VEG_CODE	VEG_DSCP	PERCENT
073	MOAIC OF NUMBERS 66 AND 91	64.25
075	CROSS TIMBERS	1.86
090	MAPLE-BASSWOOD FOREST	0.44
091	OAK-HICKORY FOREST	33.01
101	OAK-HICKORY-PINE FOREST	0.15
103	SOUTHERN FLOODPLAIN FOREST	0.50

D09.1. Percent of Potential Vegetation Types within Ecoregions

ECO_CODE=2512 Ecoregion Section Description=OAK + BLUESTEM PARKLAND		
VEG_CODE	VEG_DSCP	PERCENT
062	BLUESTEM-GRAMA PRAIRIE	0.06
066	BLUESTEM PRAIRIE	2.17
068	BLACKLAND PRAIRIE	22.26
069	BLUESTEM-SACAUISTA PRAIRIE	13.30
070	SOUTHERN COARDBASS PRAIRIE	3.11
073	MOZAIC OF NUMBERS 66 AND 91	0.69
074	CROSS TIMBERS	17.37
077	JUNIPER-OAK SAVANNA	0.08
079	FAYETTE PRAIRIE	3.37
091	OAK-HICKORY FOREST	21.06
101	OAK-HICKORY-PINE FOREST	0.03
102	SOUTHERN MIXED FOREST	0.09
103	SOUTHERN FLOODPLAIN FOREST	1.45
ECO_CODE=2521 Ecoregion Section Description=MESQUITE-BUFFALO GRASS		
VEG_CODE	VEG_DSCP	PERCENT
062	BLUESTEM-GRAMA PRAIRIE	1.28
063	SANDSAGE-BLUESTEM PRAIRIE	0.39
064	SHINNERY	0.18
076	MESQUITE-BUFFALO GRASS	98.15
ECO_CODE=2522 Ecoregion Section Description=JUNIPER-OAK-MESQUITE		
VEG_CODE	VEG_DSCP	PERCENT
077	JUNIPER-OAK SAVANNA	88.50
078	MESQUITE-OAK SAVANNA	11.70
ECO_CODE=2525 Ecoregion Section Description=MESQUITE-ACACIA		
VEG_CODE	VEG_DSCP	PERCENT
054	MESQUITE-ACACIA SAVANNA	89.29
055	MESQUITE-LIVE OAK SAVANNA	10.71
ECO_CODE=2551 Ecoregion Section Description=BLUESTEM PRAIRIE		
VEG_CODE	VEG_DSCP	PERCENT
066	BLUESTEM PRAIRIE	86.26
072	OAK SAVANNA	1.89
075	CROSS TIMBERS	0.07
089	NORTHERN FLOODPLAIN FOREST	5.92
090	MAPLE-BASSWOOD FOREST	0.48
091	OAK-HICKORY FOREST	5.38
ECO_CODE=2532 Ecoregion Section Description=WHEATGRASS-BLUESTEM NEEDLEGRASS		
VEG_CODE	VEG_DSCP	PERCENT
015	EASTERN PONDEROSA FOREST	0.52
060	WHEATGRASS-BLUESTEM-NEEDLEGRASS	63.08
063	SANDSAGE-BLUESTEM PRAIRIE	1.10
067	NEBRASKA SANDHILLS PRAIRIE	26.79
072	OAK SAVANNA	1.42
089	NORTHERN FLOODPLAIN FOREST	7.10
ECO_CODE=2533 Ecoregion Section Description=BLUESTEM-GRAMA PRAIRIE		
VEG_CODE	VEG_DSCP	PERCENT
062	BLUESTEM-GRAMA PRAIRIE	83.63
063	SANDSAGE-BLUESTEM PRAIRIE	7.12
075	CROSS TIMBERS	2.12
089	NORTHERN FLOODPLAIN FOREST	7.13
ECO_CODE=2610 Ecoregion Section Description=CALIFORNIA GRASSLAND		
VEG_CODE	VEG_DSCP	PERCENT
021	JUNIPER-PINYON WOODLAND	0.43
026	CALIFORNIA OAKWOODS	1.14
034	SALTBOUSH-GREASEWOOD	8.67
041	CALIFORNIA STEPPE	78.50
042	TULE MARSHES	11.26

D09.1. Percent of Potential Vegetation Types within Ecoregions

----- ECD_CODE=3111 Ecoregion Section Description=GRAMA-NEEDLEGRASS-WHEATGRASS -----		
VEG_CODE	VEG_DSCP	PERCENT
011	DOUGLAS FIR FOREST	0.92
014	WESTERN SPRUCE-FIR FOREST	0.06
015	EASTERN PONDEROSA FOREST	8.56
017	PINE-DOUGLAS FIR FOREST	0.19
049	SAGEBRUSH STEPPE	1.15
056	FOOTHILLS PRAIRIE	10.54
057	GRAMA NEEDLEGRASS-WHEATGRASS	74.90
059	WHEATGRASS-NEEDLEGRASS	1.65
089	NORTHERN FLOODPLAIN FOREST	2.03
----- ECD_CODE=3112 Ecoregion Section Description=WHEATGRASS-NEEDLEGRASS -----		
VEG_CODE	VEG_DSCP	PERCENT
015	EASTERN PONDEROSA FOREST	0.76
016	BLACK HILLS PINE FOREST	4.64
059	WHEATGRASS-NEEDLEGRASS	87.22
061	WHEATGRASS-GRAMA BUFFALO GRASS	0.89
089	NORTHERN FLOODPLAIN FOREST	6.49
----- ECD_CODE=3113 Ecoregion Section Description=GRAMA-BUFFALO GRASS -----		
VEG_CODE	VEG_DSCP	PERCENT
015	EASTERN PONDEROSA FOREST	0.09
017	PINE-DOUGLAS FIR FOREST	0.40
021	JUNIPER-PINYON WOODLAND	1.32
058	GRAMA BUFFALO-GRASS	83.03
062	BLUESTEM-GRAMA PRAIRIE	0.25
063	SANDSAGE-BLUESTEM PRAIRIE	7.45
064	SHINNERY	6.37
067	NEBRASKA SANDHILLS PRAIRIE	0.19
075	CROSS TIMBERS	0.06
089	NORTHERN FLOODPLAIN FOREST	0.87
----- ECD_CODE=3120 Ecoregion Section Description=PALOUSE GRASSLAND -----		
VEG_CODE	VEG_DSCP	PERCENT
010	WESTERN PONDEROSA FOREST	5.35
043	FESCUE-WHEATGRASS	39.13
044	WHEATGRASS-BLUEGRASS	51.31
049	SAGEBRUSH STEPPE	4.23
----- ECD_CODE=3131 Ecoregion Section Description=SAGEBRUSH - WHEATGRASS -----		
VEG_CODE	VEG_DSCP	PERCENT
005	MIXED CONIFER FOREST	0.28
010	WESTERN PONDEROSA FOREST	0.36
013	GRAND FIR-DOUGLAS FIR FOREST	0.16
014	WESTERN SPRUCE-FIR FOREST	0.62
021	JUNIPER-PINYON WOODLAND	2.13
031	MOUNTAIN MAHOGANY-OAK SCRUB	0.13
032	GREAT BASIN SAGEBRUSH	0.07
034	SALTBUUSH-GREASEWOOD	5.56
039	DESERT - LACKING VEGETATION	1.32
042	TULE MARSHES	0.17
044	WHEATGRASS-BLUEGRASS	1.22
045	ALPINE MEADOWS AND BARREN	0.15
049	SAGEBRUSH STEPPE	87.82
----- ECD_CODE=3132 Ecoregion Section Description=LAHONTAN SALTBUUSH-GREASEWOOD -----		
VEG_CODE	VEG_DSCP	PERCENT
008	LODGEPOLE PINE-SUBALPINE FOREST	0.52
010	WESTERN PONDEROSA FOREST	0.18
021	JUNIPER-PINYON WOODLAND	14.64
031	MOUNTAIN MAHOGANY-OAK SCRUB	1.74
032	GREAT BASIN SAGEBRUSH	26.78
034	SALTBUUSH-GREASEWOOD	50.21
039	DESERT - LACKING VEGETATION	1.76
041	CALIFORNIA STEPPE	0.36
042	TULE MARSHES	0.39
045	ALPINE MEADOWS AND BARREN	0.10
049	SAGEBRUSH STEPPE	3.52

D09.1. Percent of Potential Vegetation Types within Ecoregions

----- ECO_CODE=3133 Ecoregion Section Description=GREAT BASIN SAGEBRUSH -----		
VEG_CODE	VEG_DSCP	PERCENT
010	WESTERN PONDEROSA FOREST	5.99
014	WESTERN SPRUCE-FIR FOREST	0.26
021	JUNIPER-PINYON WOODLAND	24.15
032	GREAT BASIN SAGEBRUSH	67.44
034	SALTBUH-GREASEWOOD	4.09
039	DESERT - LACKING VEGETATION	0.08
----- ECO_CODE=3134 Ecoregion Section Description=BONNEVILLE SALTBUH - GREASEWOOD -----		
VEG_CODE	VEG_DSCP	PERCENT
014	WESTERN SPRUCE-FIR FOREST	0.25
019	SPRUCE-FIR-DOUGLAS FIR FOREST	0.14
021	JUNIPER-PINYON WOODLAND	19.95
031	MOUNTAIN MAHOGANY-OAK SCRUB	0.52
032	GREAT BASIN SAGEBRUSH	22.03
034	SALTBUH-GREASEWOOD	37.68
039	DESERT - LACKING VEGETATION	17.76
042	TULE MARSHES	1.66
----- ECO_CODE=3135 Ecoregion Section Description=PONDEROSA SHRUB FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
004	FIR-HEMLOCK FOREST	0.30
005	MIXED CONIFER FOREST	3.33
010	WESTERN PONDEROSA FOREST	90.43
022	OREGON OAKWOODS	0.78
032	GREAT BASIN SAGEBRUSH	0.65
049	SAGEBRUSH STEPPE	4.50
----- ECO_CODE=3140 Ecoregion Section Description=MEXICAN HIGHLANDS SHRUB STEPPE -----		
VEG_CODE	VEG_DSCP	PERCENT
018	ARIZONA PINE FOREST	1.28
027	OAK-JUNIPER WOODLAND	20.11
028	TRANSITION BETWEEN 27 AND 31	1.05
036	CREOSOTE BUSH-BUR SAGE	11.77
037	PALO VERDE-CACTUS SHRUB	0.26
052	GRAMA-TOBOSA SHRUBSTEPPE	65.54
----- ECO_CODE=3211 Ecoregion Section Description=GRAMA - TOBOSA -----		
VEG_CODE	VEG_DSCP	PERCENT
021	JUNIPER-PINYON WOODLAND	0.25
034	SALTBUH-GREASEWOOD	1.69
048	GRAMA-TOBOSA PRAIRIE	0.21
052	GRAMA-TOBOSA SHRUBSTEPPE	97.87
----- ECO_CODE=3212 Ecoregion Section Description=TARBUSH-CREOSOTE BUSH -----		
VEG_CODE	VEG_DSCP	PERCENT
017	PINE-DOUGLAS FIR FOREST	0.08
027	OAK-JUNIPER WOODLAND	9.38
034	SALTBUH-GREASEWOOD	0.90
038	CENIZA SHRUB	5.38
048	GRAMA-TOBOSA PRAIRIE	12.40
053	TRANS-PECOS SHRUB SAVANNA	71.36
064	SHINNERY	0.50
----- ECO_CODE=5221 Ecoregion Section Description=CREOSOTE BUSH -----		
VEG_CODE	VEG_DSCP	PERCENT
010	WESTERN PONDEROSA FOREST	0.17
021	JUNIPER-PINYON WOODLAND	3.52
034	SALTBUH-GREASEWOOD	6.85
055	CREOSOTE BUSH	88.61
037	PALO VERDE-CACTUS SHRUB	0.81
041	CALIFORNIA STEPPE	0.05

D09.1. Percent of Potential Vegetation Types within Ecoregions

----- ECO_CODE=3222 Ecoregion Section Description=CREOSOTE BUSH - BUR SAGE -----		
VEG_CODE	VEG_DSCP	PERCENT
021	JUNIPER-PINYON WOODLAND	0.20
023	MESQUITE BOSQUES	0.66
034	SALT BUSH-GREASEWOOD	1.44
056	CREOSOTE BUSH-BUR SAGE	69.20
037	PALO VERDE-CACTUS SHRUB	27.00
039	DESERT - LACKING VEGETATION	1.01
052	GRAMA-TOBOSA SHRUBSTEPPE	0.27
----- ECO_CODE=4110 Ecoregion Section Description=EVERGLADES -----		
VEG_CODE	VEG_DSCP	PERCENT
082	CYPRESS SAVANNA	13.35
083	EVERGLADES	52.60
096	MANGROVE	10.64
102	SOUTHERN MIXED FOREST	11.22
105	SAND PINE SCRUB	4.38
106	SUBTROPICAL PINE FOREST	7.81
----- ECO_CODE=A3141 Ecoregion Section Description=WHEATGRASS - NEEDLEGRASS - SAGEBRUSH -----		
VEG_CODE	VEG_DSCP	PERCENT
015	EASTERN PONDEROSA FOREST	0.50
034	SALT BUSH-GREASEWOOD	13.46
049	SAGEBRUSH STEPPE	18.14
050	WHEATGRASS-NEEDLEGRASS SHRUBSTEPPE	65.96
056	FOOTHILLS PRAIRIE	1.93
----- ECO_CODE=A3142 Ecoregion Section Description=SAGEBRUSH - WHEATGRASS -----		
VEG_CODE	VEG_DSCP	PERCENT
011	DOUGLAS FIR FOREST	1.70
021	JUNIPER-PINYON WOODLAND	1.34
031	MOUNTAIN MANGANY-OAK SCRUB	0.67
054	SALT BUSH-GREASEWOOD	6.24
049	SAGEBRUSH STEPPE	77.85
050	WHEATGRASS-NEEDLEGRASS SHRUBSTEPPE	2.55
056	FOOTHILLS PRAIRIE	0.75
057	GRAMA NEEDLEGRASS-WHEATGRASS	8.92
----- ECO_CODE=M2111 Ecoregion Section Description=DOUGLAS FIR FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
002	CEDAR-HEMLOCK-DOUGLAS FIR FOREST	2.08
010	WESTERN PONDEROSA FOREST	25.60
011	DOUGLAS FIR FOREST	64.51
014	WESTERN SPRUCE-FIR FOREST	5.05
043	FESCUE-WHEATGRASS	2.75
----- ECO_CODE=M2112 Ecoregion Section Description=CEDAR - HEMLOCK - DOUGLAS FIR FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
010	WESTERN PONDEROSA FOREST	22.45
011	DOUGLAS FIR FOREST	28.49
012	CEDAR-HEMLOCK-PINE FOREST	18.71
013	GRAND FIR-DOUGLAS FIR FOREST	9.60
014	WESTERN SPRUCE-FIR FOREST	18.22
044	WHEATGRASS-BLUEGRASS	0.64
045	ALPINE MEADOWS AND BARREN	1.34
056	FOOTHILLS PRAIRIE	0.58
----- ECO_CODE=M2411 Ecoregion Section Description=SITKA SPRUCE-CEDAR-HEMLOCK FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
001	SPRUCE-CEDAR-HEMLOCK FOREST	85.48
004	FIR-HEMLOCK FOREST	2.67
014	WESTERN SPRUCE-FIR FOREST	6.82
045	ALPINE MEADOWS AND BARREN	5.03

D09.1. Percent of Potential Vegetation Types within Ecoregions

----- ECO_CODE=M2412 Ecoregion SECTION DESCRIPTION=REDWOOD FOREST -----

VEG_CODE	VEG_DESCP	PERCENT
002	CEDAR-HEMLOCK-DOUGLAS FIR FOREST	17.55
006	REDWOOD FOREST	72.26
009	PINE-CYPRESS FOREST	2.55
029	CHAPARRAL	0.75
030	COASTAL SAGEBRUSH	2.91
U40	FESCUE-OATGRASS	4.00

----- ECO_CODE=M2413 Ecoregion SECTION DESCRIPTION=CEDAR-HEMLOCK-DOUGLAS FIR FOREST -----

VEG_CODE	VEG_DESCP	PERCENT
002	CEDAR-HEMLOCK-DOUGLAS FIR FOREST	90.07
005	MIXED CONIFER FOREST	4.79
025	CALIFORNIA MIXED EVERGREEN FOREST	3.56
029	CHAPARRAL	1.59

----- ECO_CODE=M2414 Ecoregion SECTION DESCRIPTION=CALIFORNIA MIXED EVERGREEN FOREST -----

VEG_CODE	VEG_DESCP	PERCENT
005	MIXED CONIFER FOREST	2.57
009	PINE-CYPRESS FOREST	0.43
025	CALIFORNIA MIXED EVERGREEN FOREST	85.68
040	FESCUE-OATGRASS	10.32
042	TULE MARSHES	1.71

----- ECO_CODE=M2415 Ecoregion SECTION DESCRIPTION=SILVER FIR - DOUGLAS FIR FOREST -----

VEG_CODE	VEG_DESCP	PERCENT
001	SPRUCE-CEDAR-HEMLOCK FOREST	0.45
002	CEDAR-HEMLOCK-DOUGLAS FIR FOREST	1.17
003	SILVER FIR-DOUGLAS FIR FOREST	39.22
004	FIR-HEMLOCK FOREST	26.85
005	MIXED CONIFER FOREST	1.16
010	WESTERN PONDEROSA FOREST	1.01
011	DOUGLAS FIR FOREST	8.69
013	GRAND FIR-DOUGLAS FIR FOREST	1.16
014	WESTERN SPRUCE-FIR FOREST	9.11
022	OREGON OAKWOODS	1.87
045	ALPINE MEADOWS AND BARREN	9.32

----- ECO_CODE=M2610 Ecoregion SECTION DESCRIPTION=SIERRAN FOREST -----

VEG_CODE	VEG_DESCP	PERCENT
005	MIXED CONIFER FOREST	49.96
007	RED FIR FOREST	8.06
008	LOGPOLE PINE-SUBALPINE FOREST	9.15
010	WESTERN PONDEROSA FOREST	0.19
021	JUNIPER-PINYON WOODLAND	0.50
025	CALIFORNIA MIXED EVERGREEN FOREST	1.28
026	CALIFORNIA OAKWOODS	19.00
029	CHAPARRAL	8.52
041	CALIFORNIA STEPPE	0.26
045	ALPINE MEADOWS AND BARREN	3.08

----- ECO_CODE=M2620 Ecoregion SECTION DESCRIPTION=CALIFORNIA CHAPARRAL -----

VEG_CODE	VEG_DESCP	PERCENT
005	MIXED CONIFER FOREST	2.68
006	REDWOOD FOREST	0.07
009	PINE-CYPRESS FOREST	0.21
021	JUNIPER-PINYON WOODLAND	6.49
025	CALIFORNIA MIXED EVERGREEN FOREST	0.67
026	CALIFORNIA OAKWOODS	33.68
029	CHAPARRAL	30.64
030	COASTAL SAGEBRUSH	14.52
040	FESCUE-OATGRASS	1.86
041	CALIFORNIA STEPPE	9.05
042	TULE MARSHES	0.12

D09.1. Percent of Potential Vegetation Types within Ecoregions

----- ECO_CODE=M3111 Ecoregion SECTION DESCRIPTION=GRAND FIR - DOUGLAS FIR FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
010	WESTERN PONDEROSA FOREST	26.53
011	DOUGLAS FIR FOREST	0.60
013	GRAND FIR-DOUGLAS FIR FOREST	45.05
014	WESTERN SPRUCE-FIR FOREST	16.04
032	GREAT BASIN SAGEBRUSH	0.25
044	WHEATGRASS-BLUEGRASS	5.98
049	SAGEBRUSH STEPPE	4.73
----- ECO_CODE=M3112 Ecoregion SECTION DESCRIPTION=DOUGLAS FIR FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
010	WESTERN PONDEROSA FOREST	0.70
011	DOUGLAS FIR FOREST	32.28
013	GRAND FIR-DOUGLAS FIR FOREST	0.51
014	WESTERN SPRUCE-FIR FOREST	16.61
017	PINE-DOUGLAS FIR FOREST	0.79
018	ARIZONA PINE FOREST	1.31
019	SPRUCE-FIR-DOUGLAS FIR FOREST	2.78
021	JUNIPER-PINYON WOODLAND	9.19
031	MOUNTAIN MAHOGANY-OAK SCRUB	7.03
032	GREAT BASIN SAGEBRUSH	2.84
034	SALTBUH-GREASEWOOD	2.61
045	ALPINE MEADOWS AND BARREN	3.88
049	SAGEBRUSH STEPPE	10.85
056	FOOTHILLS PRAIRIE	7.27
057	GRAMA NEEDLEGRASS-WHEATGRASS	1.34
----- ECO_CODE=M3113 Ecoregion SECTION DESCRIPTION=PONDEROSA PINE - DOUGLAS FIR FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
011	DOUGLAS FIR FOREST	1.45
014	WESTERN SPRUCE-FIR FOREST	19.13
017	PINE-DOUGLAS FIR FOREST	29.18
020	SOUTHWESTERN SPRUCE-FIR FOREST	13.38
021	JUNIPER-PINYON WOODLAND	7.87
031	MOUNTAIN MAHOGANY-OAK SCRUB	2.80
032	GREAT BASIN SAGEBRUSH	4.66
034	SALTBUH-GREASEWOOD	3.31
059	DESERT - LACKING VEGETATION	0.13
045	ALPINE MEADOWS AND BARREN	9.28
046	FESCUE-MOUNTAIN MUCHLY PRAIRIE	4.29
049	SAGEBRUSH STEPPE	4.55
----- ECO_CODE=M3120 Ecoregion SECTION DESCRIPTION=UPPER GILA MOUNTAINS FOREST -----		
VEG_CODE	VEG_DSCP	PERCENT
017	PINE-DOUGLAS FIR FOREST	11.85
018	ARIZONA PINE FOREST	13.54
019	SPRUCE-FIR-DOUGLAS FIR FOREST	0.87
020	SOUTHWESTERN SPRUCE-FIR FOREST	0.81
021	JUNIPER-PINYON WOODLAND	29.77
028	TRANSITION BETWEEN 27 AND 31	16.82
034	SALTBUH-GREASEWOOD	0.48
036	CREOSOTE BUSH-OUR SAGE	1.41
037	PALO VERDE-CACTUS SHRUB	0.27
047	GRAMA-GALLETA STEPPE	6.46
052	GRAMA-TOROSA SHRUBSTEPPE	17.74
----- ECO_CODE=P3131 Ecoregion SECTION DESCRIPTION=JUNIPER-PINYON WOODLAND/SAGEBRUSH-SALTBUH MOSAIC -----		
VEG_CODE	VEG_DSCP	PERCENT
017	PINE-DOUGLAS FIR FOREST	4.15
018	ARIZONA PINE FOREST	0.23
020	SOUTHWESTERN SPRUCE-FIR FOREST	0.71
021	JUNIPER-PINYON WOODLAND	38.79
031	MOUNTAIN MAHOGANY-OAK SCRUB	0.24
032	GREAT BASIN SAGEBRUSH	19.70
033	BLACKBRUSH	9.55
034	SALTBUH-GREASEWOOD	13.01
035	CREOSOTE BUSH	1.62
037	PALO VERDE-CACTUS SHRUB	0.17
044	WHEATGRASS-BLUEGRASS	0.88
047	GRAMA-GALLETA STEPPE	3.90
051	GALLETA-THREE AWM SHRUBSTEPPE	3.81
052	GRAMA-TOROSA SHRUBSTEPPE	3.34

D09.1. Percent of Potential Vegetation Types within Ecoregions

----- ECO_CODE=P3132 Ecoregion SECTION DESCRIPTION=GRAMA-GALLETA STEPPE/JUNIPER-PINYON WOODLAND MOSAIC -----			
VEG_CODE	VEG_DESCP	PERCENT	
017	PINE-DOUGLAS FIR FOREST	5.15	
020	SOUTHWESTERN SPRUCE-FIR FOREST	0.53	
021	JUNIPER-PINYON WOODLAND	48.44	
031	MOUNTAIN HEMLOCK-OAK SCRUB	0.05	
032	GREAT BASIN SAGEBRUSH	2.31	
034	SALTBRUSH-GREASEWOOD	3.80	
017	GRAMA-GALLETA STEPPE	38.77	

TITLE: D10 - POT. & ADJ. VEGETATION WITHIN ECOREGIONS

DESCRIPTION: Potential and land-use-adjusted natural vegetation areas occurring within ecoregions (section level) within county units were digitized from maps as the base data set. See Vegetation Overview for additional information. The potential natural vegetation map (Küchler 1964, USDI 1970 sheets 89 and 90) and the ecoregion map (Bailey 1976) were combined so that appropriate vegetation and ecoregion boundaries coincided. The resulting map was overlaid with county outlines and the proportion of counties in each ecoregion/vegetation type estimated. Digitizing was done with a dot grid for the 37 eastern states and with a planimeter for the larger western states. Proportions were estimated to the nearest 10 percent for the small counties in the east, and to 0.1 percent in the west. The digitizing errors associated with individual counties are probably fairly high due to the techniques used; however, considerable effort was spent in verifying that ecoregion/vegetation types occurred in counties so recorded. Areas were calculated using the 1970 Census Bureau county land area data (B01).

SOURCE(S): Küchler 1964, USDI 1970 sheets 89 and 90; Bailey 1976; B01.

YEAR(S): 1978	TEMPORAL RESOLUTION: Hist.
GEOCOVERAGE: U. S.	SPATIAL RESOLUTION: County
STATUS: Online	DATA SET TYPE: Multiple
NUMBER OF RECORDS: 7614	VARIABLES PER RECORD: 6
CREATED/UPDATED: Mar. 1980	NEW DATA: Not anticipated
COMPILER: R J Olson, J M Klopatek, J T Kitchings	

VARIABLE	LABEL AND UNITS OF MEASURE
ECO_CODE	Ecoregion section code, Bailey 1976
EVEGA_A	Adjusted ecorgn/vegetation area ha
EVEGP_A	Potential ecorgn/vegetation area ha
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
VEG_CODE	Vegetation code, Küchler, 001-106

TITLE: D11 - ECOREGION CODES DICTIONARY

DESCRIPTION: Ecoregion codes and names are given for the province and section levels based on Bailey's (1976) map.

SOURCE(S): Bailey 1976.

COMMENTS: The ecoregion names can be substituted for the codes by using the SAS FORMAT statement (see the section on Special Output Formats).

YEAR(S): 1976

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 63

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION:

DATA SET TYPE: Dictnry

VARIABLES PER RECORD: 2

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
ECO_CODE	Ecoregion section code, Bailey 1976
ECO_DSCP	Ecoregion section description

TITLE: D12 - VEGETATION WITHIN WESTERN ECOREGIONS

DESCRIPTION: The areal extent of potential natural vegetation within ecoregions, ignoring state and county boundaries, was estimated using a planimeter for the western ecoregions. These data were used in verifying the D10 data set; however, they were not edited to agree with the D10 data.

SOURCE(S): Bailey 1976. Kuchler 1964, USDI 1970 sheets 89 and 90.

YEAR(S): 1976

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: West

SPATIAL RESOLUTION: Ecorgn

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 252

VARIABLES PER RECORD: 4

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: J M Klopatek, J L Joness

VARIABLE	LABEL AND UNITS OF MEASURE
ECO_CODE	Ecoregion section code, Bailey 1976
EVEGP_P	Vegetation within an ecoregion, percent
PVEG_C	Vegetation code, Kuchler 1964
VEG_CODE	Vegetation code, 1966 Kuchler, 001-106

TITLE: D13 - VEGETATION SENSITIVITY TO SO₂

DESCRIPTION: Sensitivities of potential natural vegetation (Küchler 1964) to sulfur dioxide (SO₂) were rated by Argonne National Laboratory (Ballou et al. 1979). Their method involved rating (sensitive, intermediate, and resistant) individual species based on tolerance to SO₂, as reported in the literature. Vegetation communities were then classified according to the most sensitive dominant species in the association.

SOURCE(S): Ballou, S. W. 1979. Unpublished manuscript. Argonne National Laboratory, Argonne, IL.

REFERENCE(S): Ballou et al. 1979.

COMMENTS: This data set can be combined with D10 to obtain the SO₂ sensitivity of potential natural vegetation within counties.

YEAR(S): 1979
GEOCOVERAGE: U.S.
STATUS: Being Edited

TEMPORAL RESOLUTION: Hist.
SPATIAL RESOLUTION:
DATA SET TYPE: Dictnry

D13.1 Potential Vegetation Types with Low Tolerance to Sulfur Dioxide
(Relative Sensitivity).

FOREST (F) SECTOR OVERVIEW

The Forest Sector is based primarily on data produced by the U. S. Forest Service's Continuous Forest Inventory (CFI) program. This program conducts timber surveys on permanently established plots at approximately ten-year intervals. States are sampled on a staggered schedule. The sampling intensity is defined to produce statistical estimates within a specified level of sampling error for forest survey units. Forest survey units are aggregates of counties. County estimates have higher sampling errors and often are not published if forestland is very sparse. County-level statistics are not readily available as a national file in either printed or computer readable forms. State inventories vary in format depending on the region of the country. The list of publications used to compile data sets F01 to F07 is presented below. The compilation of county-level forestry statistics, especially species-level data in F05-F07, represents a significant effort in producing a uniform data set for the eastern United States.

SOURCE(S): F01, F02, and F03 (southern states): Bellamy and Knight 1970, Cost 1968, Cost 1975a, Cost 1975b, Earles 1967, Earles 1975, Ferguson 1964, Gansner 1968, Haines 1967, Hedlund and Earles 1969, Hedlund and Earles 1970a, Hedlund and Earles 1970b, Hedlund and Earles 1971, Knight and McClure 1967, Knight and McClure 1974, McClure 1969, McClure 1970, Snyder and Knight 1970, Sternitzke and Van Sickle 1968, Welch 1968, Welch 1975, Welch and Knight 1974.

F06 and F07 (eastern states): Delcourt et al. 1980.

TITLE: F01 - FOREST AREA BY MAJOR TYPES.

DESCRIPTION: Forestland areas by major forest types were obtained from USFS state forest inventory publications. See Forest Overview for details on data sources. Commercial forestland is defined as land producing or capable of producing crops of industrial wood which has not been withdrawn from timber production. The sum of the major forest types equals the area of commercial forest.

SOURCE(S): USFS state forest inventory publications.

YEAR(S): 1965-1977

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: South

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 1388

VARIABLES PER RECORD: 16

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE	
CEDAR_A	Cedar forest	ha
ELM_A_A	Elm-ash-cottonwood forest	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
FOREST_A	Forest land - commercial	ha
HARDWD_A	Hardwood forest	ha
LNGL_P_A	Longleaf-slash pine forest	ha
LOBL_P_A	Loblolly-shortleaf pine forest	ha
MAP_B_A	Maple-beech-birch forest	ha
OAK_G_A	Oak-gum-cypress forest	ha
OAK_H_A	Oak-hickory forest	ha
OAK_P_A	Oak-pine forest	ha
SOFTWD_A	Softwood forest	ha
SP_FIR_A	Spruce-fir forest	ha
WP_HEM_A	White pine-hemlock forest	ha
WPINE_A	White pine forest	ha

TITLE: F02 - FOREST GROWING-STOCK VOLUMES

DESCRIPTION: Growing-stock volumes for commercial tree species groupings were obtained from USFS state forest inventory publications. See Forest Overview for details on data sources. Growing-stock volume is defined as net volume in live sawtimber and poletimber trees from the stump to a 1.6 cm top. Deductions were made for rot and other defects. Survey methods and species aggregations differ between states depending on forest conditions and the USFS forest survey region. The softwoods consist of all conifers including the southern or yellow pines and other eastern softwoods. In some states the hardwood category consists of hard and soft hardwoods. Hard hardwoods include select oaks (white and red oaks) and miscellaneous hardwoods, while the soft hardwoods include the gums.

SOURCE(S): USFS state forest inventory publications.

COMMENTS: Units of measure are thousands of cubic meters (k m**3).

YEAR(S): 1965-1977

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: South

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 1388

VARIABLES PER RECORD: 12

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE

ALL SP_G	Growing stock vol. of all species
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
GUM_G	Growing stock vol. of gum
HARD_H_G	Growing stock vol. of hard hardwoods
HARD_S_G	Growing stock vol. of soft hardwoods
HARDWD_G	Growing stock vol. of all hardwoods
OAK_G	Growing stock vol. of select oaks
OTHR_H_G	Growing stock vol. of misc. hardwoods
OTHR_S_G	Growing stock vol. of misc. softwoods
PINE_G	Growing stock vol. of southern pine
SOFTWD_G	Growing stock vol. of all softwoods

F02.1 Forest Stand Volumes based on 1963-1975 Inventories.
Growing-stock volumes are expressed as net volume of trees greater than 5.0 in. dbh per total county area. Interval limits in cubic feet per acre: (1) <100, (2) 100-250, (3) 250-500, (4) 500-750, (5) >750.

TITLE: F03 - FOREST SAWTIMBER VOLUMES

DESCRIPTION: Sawtimber volumes for commercial tree-species groupings were obtained from USFS state forest inventory publications. See Forest Overview for details on data sources. Sawtimber volume is an estimate of the amount of available lumber or other forest products in standing trees. Deductions are made for estimated rot and defects along with manufacturing losses such as saw kerf and unusable slabs. Survey methods and species aggregations differ between states, depending on forest conditions and the USFS forest survey region. See F02 for definitions of species groupings.

SOURCE(S): USFS state forest inventory publications.

COMMENTS: Units of measure are thousands of cubic meters (k m**3).

YEAR(S): 1965-1977

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: South

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 1388

VARIABLES PER RECORD: 12

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE

ALL SP S	Sawtimber volume of all species
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
GUM S	Sawtimber volume of gum
HARD_H S	Sawtimber volume of hard hardwoods
HARD_S S	Sawtimber volume of soft hardwoods
HARDWD S	Sawtimber volume of all hardwoods
OAK S	Sawtimber volume of select oaks
OTHR_H S	Sawtimber volume of misc. hardwoods
OTHR_S S	Sawtimber volume of misc. softwoods
PINE S	Sawtimber volume of southern pine
SOFTWD S	Sawtimber volume of all softwoods

TITLE: F04 - FOREST SURVEY UNIT INDEX

DESCRIPTION: The Forest Service groups counties within states into forest survey units based on homogeneous forest conditions. Sampling methods and frequencies are designed to produce forest statistics with small sampling errors at the forest survey unit level. States are also grouped into regions for conducting forest inventories and other programs. This data set provides an index to these designations. The index does not include counties in the Central Plains which do not contain forestland nor does the index include certain urbanized counties in the east.

SOURCE(S): U. S. Department of Agriculture. 1967. Forest Survey Handbook No. 436, Chap. 70. U. S. Department of Agriculture, Forest Service, Washington, DC.

YEAR(S): 1975

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 2842

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION: County

DATA SET TYPE: Index

VARIABLES PER RECORD: 5

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
USFS_REG	USFS survey region code within a section
USFS_SEC	USFS section code, 1-4
USFS_UNT	USFS survey unit code within a state

TITLE: F05 - TREE-SPECIES CODES DICTIONARY

DESCRIPTION: The tree-species codes dictionary for use with F06 was created from D01 with the addition of codes to accommodate aggregations of species as used by the Forest Service. See the D01 description for more information on the coding system.

SOURCE(S): U. S. Department of Agriculture. 1967. Forest Survey Handbook, No. 436. U. S. Department of Agriculture, Forest Service, Washington, DC.

YEAR(S): 1979

TEMPORAL RESOLUTION:

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 328

VARIABLES PER RECORD: 3

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE

TREE_DSC	Tree species common name
TREE_SPC	Tree genus-species scientific name
TREECODE	Tree species mnemonic code
TREE_KEY	Tree species code number

F05.1 Tree Species Codes Dictionary.

TREE_KEY	DESCRIPTION	TRFE_KEY	DESCRIPTION
001	SFTWDS NOT ELSEWHERE SPECIFI	651	CUCUMBERTREE
002	CULL SFTWDS	652	SOUTHERN MAGNOLIA
004	HRWDOS NOT ELSEWHERE SPECIFI	653	SWEETBAY
009	FIR AND SPRUCE SPECIES	680	MULBERRY
012	BALSAM FIR	690	TUPELO
043	ATLANTIC WHITE-CEDAR	691	WATER TUPELO
060	JUNIPER	695	BLACK TUPELO
068	EASTERN REDCEDAR	696	SWAMP TUPELO, BLACKGUM
069	REDCEDAR	701	EASTERN HOPHORNBEAM
071	TAMARACK	731	AMERICAN SYCAMORE
090	SPRUCE	740	COTTONWOOD, POPLAR
094	WHITE SPRUCE	741	BALSAM POPLAR
095	BLACK SPRUCE	742	EASTERN COTTONWOOD
097	RED SPRUCE	743	BIGTOOTH ASPEN
099	BLACK & RED SPRUCE	746	QUAKING ASPEN
100	PINE	749	BIGTOOTH & QUAKING ASPEN
105	JACK PINE	760	CHERRY, PEACH, PLUM
107	SAND PINE	762	BLACK CHERRY
110	SHORTLEAF PINE	800	OAK
111	SLASH PINE	802	WHITE OAK
115	SPRUCE PINE	804	SWAMP WHITE OAK
121	LONGLEAF PINE	806	SCARLET OAK
122	PONDEROSA PINE	809	NORTHERN-PIN OAK
123	TABLE-MOUNTAIN PINE	812	SOUTHERN RED OAK
125	RED PINE	813	CHERRYBARK OAK
126	PITCH PINE	817	SHINGLE OAK
128	POND PINE	820	LAUREL OAK
129	EASTERN WHITE PINE	822	OVERCUP OAK
130	SCOTCH PINE	823	BUR OAK
151	LOBLOLLY PINE	825	SWAMP CHESTNUT OAK
152	VIRGINIA PINE	826	CHINKAPIN OAK
155	LONGLEAF & SLASH PINE	827	WATER OAK
160	SHORTLEAF & LOBLOLLY PINE	830	PIN OAK
165	MINOR EASTERN YELLOW PINES	831	WILLOW OAK
160	EST. MINOR PINE GROUP	832	CHESTNUT OAK
180	EASTERN HARD, YELLOW PINES	833	NORTHERN RED OAK
220	BALDCYPRESS	834	SHUMARD OAK
221	BALDCYPRESS	835	POST OAK
222	PONDICYPRESS	837	BLACK OAK
241	NORTHERN WHITE-CEDAR	838	LIVE OAK
260	HEMLOCK	880	WHITE OAK GROUP
261	EASTERN HEMLOCK	890	RED OAK GROUP
310	MAPLE	899	SCRUB OAKS
311	FLORIDA MAPLE	901	BLACK LOCUST
313	BOXELDER	920	WILLOW
314	BLACK MAPLE	922	BLACK WILLOW
316	RED MAPLE	930	SASSAFRAS
317	SILVER MAPLE	931	SASSAFRAS
318	SUGAR MAPLE	950	BASSWOOD
326	SOFT MAPLE GROUP	951	AMERICAN BASSWOOD
328	HARD MAPLE GROUP	970	ELM
330	BUCKEYE	972	AMERICAN ELM
370	BIRCH	975	SLIPPERY ELM
371	YELLOW BIRCH	977	ROCK ELM
372	SWEET BIRCH		
373	RIVER BIRCH		
375	PAPER BIRCH		
379	GRAY BIRCH		
400	HICKORY		
401	WATER HICKORY		
402	BITTERNUT HICKORY		
404	PECAN		
407	SHAGBARK HICKORY		
440	CASUARINA		
460	HACKBERRY		
461	SUGARBERRY		
462	HACKBERRY		
491	FLOWERING DOGWOOD		
520	PERSIMMON		
521	COMMON PERSIMMON		
531	AMERICAN BEECH		
540	ASH		
541	WHITE ASH		
543	BLACK ASH		
544	GREEN ASH		
550	HONEYLOCUST		
552	HONEYLOCUST		
555	LOBLOLLY-BAY		
580	SILVERBELL		
591	AMERICAN HOLLY		
600	WALNUT		
601	BUTTERNUT		
602	BLACK WALNUT		
611	SWEETGUM		
621	YELLOW-POPLAR		
650	MAGNOLIA		

TITLE: F06 - TREE-SPECIES GROWING-STOCK VOLUMES

DESCRIPTION: Estimates of individual tree-species growing-stock volumes were obtained from USFS state forest inventory publications, unpublished tables, and data tapes (Delcourt et al. 1980). Estimates are based on the Continuous Forest Inventory (CFI) program within the USFS. See the Forest Overview for details on data sources. This compilation represents a unique and significant effort in creating a single uniform file from the various sources within the USFS. Growing-stock volume is defined as the net volume in live sawtimber and poletimber trees from stump to a 1.6 cm top. Deductions were made for rot and other defects. Although most of the species are tabulated individually, when species occur at low densities they may be aggregated into genus-level groupings. Species-specific conversion factors were used to calculate biomass from the growing-stock volumes. In areas with low forest density, such as in the Corn Belt, forest statistics are presented for forest survey units.

SOURCE(S): Delcourt H. 1979. Eastern Forest Species Data File. Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.

REFERENCE(S): Delcourt et al. 1980.

COMMENTS: Species may be aggregated or grouped in different combinations in different states. Data may only be available for forest survey units in some states. Forest survey units have FIPS county codes greater than 900. See F04 for the counties within a forest survey unit.

YEAR(S): 1965-1978	TEMPORAL RESOLUTION: Annual
GEOCOVERAGE: East	SPATIAL RESOLUTION: County
STATUS: Being edited	DATA SET TYPE: Multiple
NUMBER OF RECORDS: 29781	VARIABLES PER RECORD: 6
CREATED/UPDATED: Mar. 1980	NEW DATA: Every 10 years
COMPILER: H Delcourt, P Delcourt	

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
TREE_BIO	Tree biomass in commercial forest tn/ha
TREE_GSV	Tree growing stock volume 10**6 ft**3
TREE_KEY	Tree species numeric code
TREE_VOL	Tree volume in commercial forest m**3/ha

F06.1 Sensitive Tree Biomass in the South at Risk to High Levels of Sulfur Dioxide. High-level Areas are Air Quality Control Regions in which the 1974-1976 Annual Ambient Average Concentration Exceeded 100 micrograms per cubic meter.

TITLE: F07 - FOREST AREA & GROWING-STOCK VOLUME

DESCRIPTION: This data set contains county or survey unit statistics compiled in connection with F06 (Delcourt et al. 1980). See the Forest Overview for details on data sources. Included are land area, forest area, and commercial forest area. The USFS land area does not coincide with the B01 data primarily because water areas greater than 0.6 ha are included in F07 but excluded in B01. Forestland includes areas stocked at least ten percent with forest trees or that formerly had tree cover but are not developed for nonforest use. Commercial forestland is forestland that is producing or capable of producing crops of industrial wood. USFS county codes, geographic centroid of the county or survey unit, and publication reference to the source of growing-stock data in F06 are given. The sum of the growing-stock volumes for all species in F06 and the sum of the biomass are also included.

SOURCE(S): Delcourt H. 1979. Eastern Forest Species Data File. Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.

REFERENCE(S): Delcourt et al. 1980.

COMMENTS: Data are presented for survey units if the density of forestland is low. Forest survey unit codes are indicated by FIPS codes greater than 900. No data are included for the western portions of the Great Plains states including Texas, Oklahoma, Kansas, Nebraska, and the Dakotas. Data are included for the Canadian portions of the eastern deciduous forest.

YEAR(S): 1965-1978	TEMPORAL RESOLUTION: Annual
GEOCOVERAGE: East	SPATIAL RESOLUTION: County
STATUS: Being edited	DATA SET TYPE: Single
NUMBER OF RECORDS: 1679	VARIABLES PER RECORD: 12
CREATED/UPDATED: Mar. 1980	NEW DATA: Every 10 years
COMPILER: R J Olson	

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
FS_CF_A	Area of co. in commercial forest ha
FS_CO_A	Area of county based on USFS estimates
FS_FOR_A	Area of county in forest ha
PUB_REF	Publication reference

T S BIO	Total stand biomass	m. tn/ha
T S_GSV	Total stand growing stock volume	m**3/ha
USFS_CO	County code - USFS	
USFS_LAT	Latitude of county or survey unit	
USFS_LNG	Longitude of county or survey unit	
USFS_ST	State code - USFS	

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GENERAL (G) SECTOR OVERVIEW

The General Sector contains information on the contents of the Geoecology Data Base including data set characteristics (G01) and labels for each of the variables within the Data Base (G02). The variables and labels were extracted from the individual SAS data set contents. These data sets were used to compile Appendices A and B of this report. The other data sets in the G Sector provide an index of supporting data tapes (G03) and of materials produced from the Geoecology Data Base. G04 is an inventory of graphs and maps that have been generated from the Data Base.

TITLE: G01 - DATA SET TITLES AND CHARACTERISTICS

DESCRIPTION: This data set provides general information for each of the data sets within the Geoecology Data Base. Thematic sector designation, data set title, spatial and temporal characteristics, data set status and type, and compiler and date of compilation are included. Both the geographic coverage and spatial resolution are defined as well as the reference year(s) and temporal resolution. If a data set is an index or dictionary type, these fields will be blank. Data set type may indicate that the data set is being edited or in the planning stage. This file is updated as new data sets are added or change status. It is used to create the center section (e.g., YEAR(S) through COMPILER) of the data set descriptions in Appendix A.

SOURCE(S): Compiled from the Geoecology Data Base.

YEAR(S): Current

TEMPORAL RESOLUTION:

GEOCOVERAGE:

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 113

VARIABLES PER RECORD: 15

CREATED/UPDATED: Aug 1980

NEW DATA: as needed

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE

COMPILER	Data Compiler(s)
DATE	Date Created/Updated
DSN	Data Set Number
GEOCOVER	Geographic Coverage
GEOUNIT	Spatial Resolution
ITEMS	Number of Variables
RECORDS	Number of Records
SECTOR	Sector Code Letter
STATUS	Data Set Status
TEMPORAL	Temporal Resolution
THEME	Thematic Sector Letter
TITLE	Data Set Title
TYPE	Data Set Type
UPDATES	Anticipated Update Interval
YEARS	Reference year(s) of the data

TITLE: G02 - DATA SET VARIABLES AND LABELS

DESCRIPTION: Each SAS variable, label, and data set number (DSN) are included in this data set. These were extracted from the data base to generate Appendix B which is an index of the 1000 variables. G02 also enables the variable names and labels to be edited to ensure uniqueness and consistency.

SOURCE(S): Compiled from the Geoecology Data Base.

YEAR(S): Current	TEMPORAL RESOLUTION:
GEOCOVERAGE:	SPATIAL RESOLUTION:
STATUS: Online	DATA SET TYPE: Dictnry
NUMBER OF RECORDS: 1500	VARIABLES PER RECORD: 3
CREATED/UPDATED: Aug 1980	NEW DATA: As Needed
COMPILER: R J Olson	

VARIABLE	LABEL AND UNITS OF MEASURE

DSN	Data Set Number
LABEL	Variable Label and Units of Measure
VARIABLE	Variable Name

TITLE: G03 - SOURCE & SUPPORTING DATA FILES (TAPES)

DESCRIPTION: The Geoecology Data Base has been created primarily from extant data. A library of source data is being accumulated in the development and expansion of the data base. This data set provides an inventory of the magnetic tapes including original source files, offline data sets (edited and stored as SAS data sets), and back-up files.

SOURCE(S): Compiled by the Geoecology Staff.

REFERENCE(S) Copenhaver and Barker 1980.

YEAR(S): Current

TEMPORAL RESOLUTION:

GEOCOVERAGE:

SPATIAL RESOLUTION:

STATUS: Being Edited

DATA SET TYPE: Index

TITLE: G04 - GEOECOLOGY-GENERATED GRAPHICS INDEX

DESCRIPTION: Many maps and graphics are generated from the Geoecology Data Base by a variety of individuals for various project needs. We are maintaining a file of materials that have been used in publications or presentations. The index provides information on the title, source data set(s), and the ORNL drawing number, if available.

SOURCE(S): Compiled by the Geoecology Staff.

YEAR(S): Current

TEMPORAL RESOLUTION:

GEOCOVERAGE:

SPATIAL RESOLUTION:

STATUS: Being Edited

DATA SET TYPE: Index

TITLE: G05 - SOURCE & SUPPORTING MAPS

DESCRIPTION: The Geoecology Project uses many maps either to create data sets or to support the interpretation of results using the digital files. This data set provides an index to these maps and working maps that have been generated from the data base.

SOURCE(S): Compiled by the Geoecology Staff.

YEAR(S): Current

TEMPORAL RESOLUTION:

GEOCOVERAGE:

SPATIAL RESOLUTION:

STATUS: Being Edited

DATA SET TYPE: Index

AIR QUALITY (K) SECTOR OVERVIEW

Ambient air quality is monitored by EPA to determine compliance with the Clean Air Act and other legislation. Often monitoring stations are concentrated in industrial or urban areas. The frequency, reliability, and number of pollutants measured varies with local conditions. Air quality statistics have been compiled by Lawrence Berkeley Laboratory as part of the Population At Risk to Air Pollution (PARAP) project (Merrill 1980). These county-level statistics were estimated from the available EPA monitoring data which were screened before being used. County estimates were calculated for the population centroid of the counties which had a monitoring station within 60 km. Air emissions from projected industrial activity are calculated by the Strategic Environmental Assessment System (SEAS) model. The SEAS model is a joint DOE/EPA effort. We plan to incorporate data from SEAS on projected emissions and ambient concentrations when these data become available. The SEAS data are for AQCR's.

TITLE: K01 - AMBIENT AIR QUALITY (SAROAD)

DESCRIPTION: Ambient air quality values for sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and total suspended particulates (TSP) were calculated for Air Quality Control Regions (AQCR's) in the 16 southeastern states. See data sets B03 and B06 for AQCR-county indices. Estimates were based on the EPA monitoring data collected from 1973 through 1976. Annual average concentrations were calculated for each year with arithmetic means for SO₂ and NO₂ and geometric means for TSP. Number of observations, minimum, maximum, and standard deviation are included for each pollutant.

SOURCE(S): EPA. 1977. SAROAD Magnetic Tape. EPA, Research Triangle Park, NC.

REFERENCE(S): Strand 1979, USEPA 1976.

COMMENTS: Units of measure are micrograms per cubic meter (mcg/m³). The TSP mean concentration is calculated as the geometric mean.

YEAR(S): 1974-1976

GEOCOVERAGE: South

STATUS: Online

NUMBER OF RECORDS: 963

CREATED/UPDATED: Mar. 1980

COMPILER: R A Strand

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: AQCR

DATA SET TYPE: Single

VARIABLES PER RECORD: 8

NEW DATA: Annually

VARIABLE

LABEL AND UNITS OF MEASURE

AQ_MAX	Air quality maximum value	mcg/m ³
AQ_MEAN	Arith mean SO ₂ &NO ₂ , geom mean TSP	mcg/m ³
AQ_MIN	Air quality minimum value	mcg/m ³
AQ_NUM	Air quality number of observations	
AQ_SD	Air quality standard deviation	mcg/m ³
AQCR	Air Quality Control Region number	- EPA
POLLUTNT	Pollutant	
YEAR	Year of data	

K01.1 Air Quality Control Regions in the South with High Sulfur Dioxide Levels, for which the 1974-1976 Annual Average Ambient Concentrations Exceeded 100 micrograms per cubic meter.

TITLE: K02 - PROJECTED EMISSIONS (SEAS)

DESCRIPTION: This data set will be compiled when the projected emission residuals become available from the DOE/EPA SEAS model.

YEAR(S): 75,85,90,2000

GEOCOVERAGE: U. S.

STATUS: Planned

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: AQCR

DATA SET TYPE: Multiple

TITLE: K03 - PROJECTED AMBIENT SO₂, TSP (SEAS)

DESCRIPTION: Data set K02 projects residuals at the AQCR level. This data set will contain ambient concentrations based on the K02 residuals. Contributions from adjoining AQCR's are considered through the use of a roll-back model. Data set K03 will not be available until both the SEAS and roll-back model outputs have been verified by DOE.

YEAR(S): 75,85,90,2000

GEOCOVERAGE: U. S.

STATUS: Planned

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: AQCR

DATA SET TYPE: Single

TITLE: K04 - AIR QUALITY NONATTAINMENT AREAS (EPA)

DESCRIPTION: Air quality nonattainment areas are those which have recorded a violation of the National Ambient Air Quality Standards for one of the major pollutants during a specific time. This file, from EPA, gives the status of counties as of April 23, 1979. Pollutants included are: sulfur dioxide (SO₂), nitrogen oxides (NO_x), total suspended particulates (TSP), carbon monoxide (CO), and photochemical oxidants (OX). Codes are included to indicate if part (P) or all (A) of the county is in violation of either the primary (1) or secondary (2) standards.

SOURCE(S): Deal, L. August, 1979. Nonattainment county card deck. EPA, Research Triangle Park, NC.

YEAR(S): 1979

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 1246

VARIABLES PER RECORD: 5

CREATED/UPDATED: Mar. 1980

NEW DATA: Annually

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
NA STD	Standard not met (1=primary 2=secondary)
NC_PART	Noncomplying part of co. (P=part A=all)
POLLUTNT	Pollutant

K04.1 Nonattainment Counties for Total Suspended Particulates.

PRIMARY, ENTIRE CO   PRIMARY, PART OF CO   SECONDARY, ENTIRE CO   SECONDARY, PART CO

TITLE: K05 - PROJECTED AMBIENT SO₂, SULFATE (NCUA)

DESCRIPTION: Ambient air quality concentrations for sulfur dioxide (SO₂) and sulfate (SUL) were estimated for counties in the 16 southeastern states for 1975, 1985, and 2000. Concentrations are given in micrograms per cubic meter (mcg/m³). Estimations of regional loading patterns were calculated using a long-range transport model. January climatological conditions were used because of the shallow mixing layer and high electric power demand. These conditions would produce the most severe pollution problems in most parts of the country. Emission sources for 1975, 1985, and 2000 were based on the National Coal Utilization Assessment (NCUA) power plant siting patterns. Long-range transport considered the depletion by dry deposition and washout. A sulfur dioxide to sulfate transformation rate of 5 percent per hour was used. The model utilized a rectangular grid network. The grid data were entered into the SYMAP program which fitted a surface to the estimated points. Concentration levels at the geographic centroids of counties were estimated from the SYMAP fitted surface.

SOURCE(S): Begovich, C. 1977. Data File. Computer Sciences Division, Oak Ridge, TN.

REFERENCE(S): Begovich et al. 1978, Davis 1978.

COMMENTS: Concentrations are given in micrograms per cubic meter (mcg/m³).

YEAR(S): 1975,1985,2000

GEOCOVERAGE: South

STATUS: Online

NUMBER OF RECORDS: 1388

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 8

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
SO2_1975	Estimated SO ₂ ambient levels for 1975
SO2_1985	Projected SO ₂ ambient levels for 1985
SO2_2000	Projected SO ₂ ambient levels for 2000
SUL_1975	Estimated sulfate ambient levels, 1975
SUL_1985	Projected sulfate ambient levels, 1985
SUL_2000	Projected sulfate ambient levels, 2000

K05.2 Projected 1985 Ambient Sulfur Dioxide Concentrations. Interval limits in micrograms per cubic meter: (1) <0.1, (2) 0.1-1.0, (3) 1.0-3.0, (4) 3.0-10.0, (5) >10.0.

TITLE: K06 - AMBIENT AIR QUALITY ESTIMATES

DESCRIPTION: Ambient air quality estimates were derived by Deane Merrill, Lawrence Berkeley Laboratory (LBL), as part of the Population at Risk to Air Pollution (PARAP) project. This file includes estimates for nine pollutants including: carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NO₂), nonmethane hydrocarbons, total oxidants, ozone (O₃), sulfur dioxide (SO₂), total suspended particulates (TSP), and sulfates. Annual averages for the county population centroid were calculated by averaging measurements from all nearby monitoring stations for the period 1974 to 1976. If no measurements for a pollutant were available from stations located within 60 km of the county centroid, the county value was not estimated. Therefore, many areas with limited monitoring data for some or all of the pollutants have no county estimates for these pollutants. Both geometric and arithmetic mean concentrations were calculated. The estimation procedure utilized a distance weighting function and smoothing parameter based on a 20 km distance. The choice of an appropriate weighting function is being studied by LBL.

SOURCE(S): Merrill, D. March 1980. PARAP County-level Ambient Air Quality Magnetic Tape. Lawrence Berkeley Laboratory, Berkeley, CA.

REFERENCE(S): Merrill et al. 1978.

COMMENTS: Averages for NO₂ and SO₂ are given based on 24-hour and hourly measurements when available. These estimates should be comparable; however, often the monitoring procedures (e.g., frequency of measurements and period of station operation) are such that the two methods produce significantly different values.

YEAR(S): 1974-1976
GEOCOVERAGE: U.S.
STATUS: Being Edited

TEMPORAL RESOLUTION: Annual
SPATIAL RESOLUTION: County
DATA SET TYPE: Single

LAND (1)

LAND (L) SECTOR OVERVIEW

The Land Sector includes several data sets related to land-use, land capability, and land-use restrictions. County-level land-use statistics which have national coverage are available from the 1967 Conservation Needs Inventory (USDA 1971). The CNI is both out-of-date and subject to relatively high statistical sampling errors for individual counties. The inventory is also restricted to nonfederal land. Data sets L01, L02, L03, and L07 are based on the CNI. Land Resource Regions (LRR) (L06) are defined in terms of the agricultural practices and capabilities of a region.

TITLE: L01 - LAND USE (CNI DETAILED)

DESCRIPTION: Land-use statistics for 25 categories are given based on the 1967 Conservation Needs Inventory (CNI). The CNI was conducted by the USDA to determine land use, land capability, and required conservation treatment needs. Only nonfederal, nonurban land was surveyed (about 75 percent of the conterminous states and 1 percent of Alaska). It was based on field surveys using a stratified sampling scheme of individual counties. About 2 percent of the area was sampled, ranging from 1 percent to 10 percent depending on the county. A limited resurvey (state level) was conducted in 1975. The CNI data suffer from several deficiencies but provide the only source of relatively consistent county-level land-use statistics for the nation. Problems include out-of-date estimates, high sampling errors for counties, and discrepancies in county totals. The totals for some counties differ significantly from county area given in the 1970 Census file (B01). We have been unable to resolve these differences. Data set L07 provides aggregated land-use statistics based on L01, in which the values have been standardized to the 1970 county areas. The L01 data set was created by aggregating capability classes in data set L03 and merging in estimates of the noninventory categories of urban build-up, federal, and small water areas. Estimates of these areas were obtained from Iowa State University for each county.

SOURCE(S): L03. R. Hickman. July, 1975.
CNI-Noninventory Magnetic Tape. Statistical Laboratory,
Iowa State University, Ames, IA.

REFERENCE(S): USDA 1971.

COMMENTS: The sum of the land-use areas within a county may not equal the 1970 county Census area.

YEAR(S): 1967	TEMPORAL RESOLUTION: Annual
GEOCOVERAGE: U. S.	SPATIAL RESOLUTION: County
STATUS: Online	DATA SET TYPE: Single
NUMBER OF RECORDS: 3071	VARIABLES PER RECORD: 27
CREATED/UPDATED: Mar. 1980	NEW DATA: As available
COMPILER: R J Olson	

VARIABLE	LABEL AND UNITS OF MEASURE

CONS_LND	Conservation use only	ha
CRN_CROP	Corn and sorghum	ha

CROPLAND	Total of all types of crop land	ha
FALLOW	Summer fallow	ha
FARM_LND	Farmsteads, feedlots, roads	ha
FED_LAND	Federally owned land	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
FLD_CROP	Close grown field crops	ha
FOREST	Total of all forest land	ha
FORST_C	Commercial forest (.6 cu m/yr)	ha
FORST_NC	Noncommercial forest	ha
GRAZ_CF	Grazed portion of comm. forests	ha
GRAZ_NCF	Grazed portion of noncomm. forests	ha
HAY_PAST	Rotation hay and pasture	ha
HAYLAND	Permanent forage production	ha
NFRM_LND	Nonfarm land - houses, swamps, etc	ha
OPEN_LND	Open land without recent use	ha
ORCH_LND	Orchards, vineyards, bush berries	ha
OTHR_LND	Otherland-houses, swamps, etc	ha
PAST_LND	Pastureland managed for forage	ha
RANG_LND	Rangeland with natural forage	ha
ROW_CROP	Other row crops-not corn,wheat	ha
SML_LAKE	Small lakes <16ha and rivers	ha
TMP_IDLE	Temporarily idle with recent use	ha
TOT_AREA	Total area excluding >16ha lakes	ha
URB_LAND	Urban areas	ha

L01.1 County Land-Use Classifications based on the 1967 Conservation Needs Inventory.

ORNL-DWG 78-865

L01.2 Cropland Percentages by County based on the 1967 Conservation Needs Inventory.

ORNL-DWG 78-11840

TITLE: L02 - LAND CAPABILITY CLASSES (CNI)

DESCRIPTION: The 1967 Conservation Needs Inventory classified the land in terms of the capability of soils for agricultural uses (crops and pasture) or sustaining natural vegetation (forest and range). See L01 for a description of the CNI and limitations of the data. The Inventory did not include federal land nor urban build-up land; therefore county totals do not equal the total county area, and some counties are excluded if the entire county is federal or urban. Eight land capability classes (LCC) are included ranging from LCC-1 (few limitations restricting land use) to LCC-8 (severe limitations precluding commercial crop activities). In general, LCC-1 through LCC-4 are capable of producing cultivated crops, while LCC-5 and LCC-6 are capable of sustaining managed natural vegetation. Dominant limitations are designated as E-erosion hazard, W-excess water limitation, S-other unfavorable soil conditions such as shallowness, stoniness, salinity, low fertility, etc., and C-climatic limitation, either temperature or lack of moisture. The data set was created by aggregating land-use types in data set L03.

SOURCE(S): L03.

REFERENCE(S): USDA 1971.

COMMENTS: The 1967 CNI does not include federal land nor urban build-up land; therefore, county totals do not equal the total county area.

YEAR(S): 1967

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 3057

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 31

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
LCC_1	Soil with no limits ha
LCC_2C	Soil with some limits - temp/dryness ha
LCC_2E	Soil with some limits - erosion ha
LCC_2S	Soil with some limits - poor soil ha
LCC_2W	Soil with some limits - excess water ha
LCC_3C	Soil with severe limits - temp/dryness

LCC 3E	Soil with severe limits - erosion	ha
LCC 3S	Soil with severe limits - poor soil	ha
LCC 3W	Soil with severe limits - excess water	
LCC 4C	Soil w/ very severe limits-temp/dryness	
LCC 4E	Soil w/ very severe limits-erosion	ha
LCC 4S	Soil w/ very severe limits-poor soil	ha
LCC 4W	Soil w/ very severe limits-excess water	
LCC 5C	Soil level but wet/stoney - temp/dryness	
LCC 5E	Soil level but wet/stoney - erosion	ha
LCC 5S	Soil level but wet/stoney - poor soil	ha
LCC 5W	Soil level but wet/stoney - excess water	
LCC 6C	Soil for range,forest,etc - temp/dryness	
LCC 6E	Soil for range,forest,etc - erosion	ha
LCC 6S	Soil for range,forest,etc - poor soil	ha
LCC 6W	Soil for range,forest,etc - excess water	
LCC 7C	Soil for forest,wildlife - temp/dryness	
LCC 7E	Soil for forest,wildlife - erosion	ha
LCC 7S	Soil for forest,wildlife - poor soil	ha
LCC 7W	Soil for forest,wildlife - excess water	
LCC 8C	Soil w/ cultivatn precluded-temp/dryness	
LCC 8E	Soil w/ cultivatn precluded-erosion	ha
LCC 8S	Soil w/ cultivatn precluded-poor soil	ha
LCC 8W	Soil w/ cultivatn precluded-excess water	

L02.1 Land Capability Classes I-II-III Percentages based on the 1967 Conservation Needs Inventory.

ORNL-DWG 78-11843

TITLE: L03 - LAND USE BY LAND CAPABILITY CLASS (CNI)

DESCRIPTION: The land-use capability class (LCC) data for each of the 22 land-use categories are maintained as an offline tape file. See data set L01 and L02 descriptions for definitions and data set problems. This file was used to produce L01 and L02.

SOURCE(S): R. Hickman. April, 1972. 1967 CNI Magnetic Tape. Statistical Laboratory, Iowa State University, Ames, IA.

REFERENCE(S): USDA 1971.

YEAR(S): 1967

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Offline

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 37800

VARIABLES PER RECORD: 28

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE	
CONS_LND	Conservation use only	ha
CRN_CROP	Corn and sorghum	ha
CROPLAND	Total of all types of crop land	ha
FALLOW	Summer fallow	ha
FARM_LND	Farmsteads, feedlots, roads	ha
FED_LAND	Federally owned land	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
FLD_CROP	Close grown field crops	ha
FOREST	Total of all forest land	ha
FORST_C	Commercial forest (.6 cu m/yr)	ha
FORST_NC	Noncommercial forest	ha
GRAZ_CF	Grazed portion of comm. forests	ha
GRAZ_NCF	Grazed portion of noncomm. forests	ha
HAY_PAST	Rotation hay and pasture	ha
HAYLAND	Permanent forage production	ha
LCC_CODE	Land capability class code	
NFRM_LND	Nonfarm land - houses, swamps, etc	ha
OPEN_LND	Open land without recent use	ha
ORCH_LND	Orchards, vineyards, bush berries	ha
OTHLAND	Otherland-houses, swamps, etc	ha
PAST_LND	Pastureland managed for forage	ha
RANG_LND	Rangeland with natural forage	ha
ROW_CROP	Other row crops-not corn,wheat	ha
SML_LAKE	Small lakes <16ha and rivers	ha

TMP_IDLE	Temporarily idle with recent use	ha
TOT_AREA	Total area excluding >16ha lakes	ha
URB_LAND	Urban areas	ha

TITLE: L04 - SEISMIC RISK RATINGS

DESCRIPTION: Seismic activity was rated by the Nuclear Regulatory Commission for nuclear energy center operations. The three relative seismic suitability zones were defined in terms of difficulty in establishing seismic risk as low (1), moderate (2), or high (3). Zone 1 contains suitable sites, zone 2 would require site-specific studies, and zone 3 would be impractical for nuclear facility siting due to costs and time required for seismic studies. The ratings were based on tectonics structure and seismologic history of the region. The proportion of each county in each category was estimated.

SOURCE(S): Wilson, D. L. 1978. Seismic Risk Data File. Computer Sciences Division, UCCNC, Oak Ridge, TN.

REFERENCE(S): USNRC 1976, Map plate 4.1.

YEAR(S): 1975	TEMPORAL RESOLUTION: Current
GEOCOVERAGE: South	SPATIAL RESOLUTION: County
STATUS: Online	DATA SET TYPE: Single
NUMBER OF RECORDS: 1388	VARIABLES PER RECORD: 5
CREATED/UPDATED: Mar. 1980	NEW DATA: Not anticipated
COMPILER: D L Wilson	

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
SEISM_1A	Low seismic risk area ha
SEISM_2A	Moderate seismic risk area ha
SEISM_3A	High seismic risk area ha

L04.1 Relative Seismic Suitability for Nuclear Facilities.

LOW SEISMIC RISK
  SUITABLE SITES AVAILABLE
  HIGH SEISMIC RISK

TITLE: L05 - LAND SURFACE MINING

DESCRIPTION: Areas of counties disturbed by surface mining were estimated for several types of mining activities which either do or do not require land reclamation activities. Commodities included were coal, sand and gravel, and all other. Areas needing reclamation were further subdivided into those for which reclamation is and is not required by law. Areas disturbed include land from which materials have been displaced, land upon which materials have been deposited, haul roads, and other lands whose natural state has been disturbed as a result of surface mining activities. The inventory is the fourth since 1965. The data set was created by keypunching the tables contained in the Soil Conservation Service report (Holmberg 1977).

SOURCE(S): Holmberg 1977.

YEAR(S): 1975

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 3071

CREATED/UPDATED: Mar. 1980

COMPILER: C J Emerson

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 10

NEW DATA: As available

VARIABLE	LABEL AND UNITS OF MEASURE	
COAL_NEC	Coal mines - reclamation necessary	ha
COAL_RQD	Coal mines - reclam required by law	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
LAND_DST	Total land disturbed	ha
LAND_NOT	Land not requiring reclamation	ha
OTHR_NEC	Other mines - reclamation necessary	ha
OTHR_RQD	Other mines - reclam required by law	ha
SAND_NEC	Sand and gravel reclam necessary	ha
SAND_RQD	Sand and gravel - reclam rqd by law	ha

TITLE: L06 - LAND RESOURCE REGION INDEX

DESCRIPTION: The conterminous states have been divided into 20 Land Resource Regions (LRR's) and into 156 Major Land Resource Areas (LRA's) based primarily on existing agricultural activity and physiographic conditions. The boundaries have been adjusted to counties for compilations of statistical data; however, counties within an LRA are not always contiguous. The names and characteristics of the regions are available in USDA Handbook 296 (Austin 1965). This data set was included with the 1967 CNI file. The data set also includes the Water Resource Region index code; however, data set B03 contains a more up-to-date and detailed index of Water Regions.

SOURCE(S): Hickman, R. 1972. 1967 CNI Magnetic Tape. Statistical Laboratory, Iowa State Universtiy, Ames, IA.

REFERENCE(S): Austin 1965.

YEAR(S): 1967

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 3071

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Current

SPATIAL RESOLUTION: County

DATA SET TYPE: Index

VARIABLES PER RECORD: 5

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
LRA_CODE	SCS Land Resource Area code
LRR_CODE	SCS Land Resource Region code
WRR_CODE	SCS Water Resource Region code

L06.1 Soil Conservation Service Land Resource Regions.

TITLE: L07 - LAND USE (CNI AGGREGATED)

DESCRIPTION: Land-use statistics were summarized from data set L01 by aggregating the land-use categories and standardizing the areas so that the county totals equal the 1970 Census county area (B01). See L01 for a description of the 1967 Conservation Needs Inventory and the limitations of this inventory.

SOURCE(S): L01, B01.

YEAR(S): 1967

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 3071

VARIABLES PER RECORD: 11

CREATED/UPDATED: Mar. 1980

NEW DATA: As available

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE	
CROPLAND	Total of all types of crop land	ha
FED_LAND	Federally owned land	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
FOREST	Total of all forest land	ha
OTHLAND	Other land-houses, swamps, etc	ha
PAST_LND	Pastureland managed for forage	ha
RANG_LND	Rangeland with natural forage	ha
SML_LAKE	Small lakes <16ha and rivers	ha
TOT_AREA	Total area excluding >16ha lakes	ha
URB_LAND	Urban areas	ha

TITLE: L08 - LAND AREAS (RURAL, URBAN, ROADS, WATER, FED)

DESCRIPTION: Counties were inventoried by the USDA for urban, rural, water, and transportation rights-of-way areas. Transportation land included road, highway, interstate, and railroad rights-of-way areas. Roads were divided into dirt roads, gravel roads, paved roads, state highways, and interstates. All categories were subdivided into federal and nonfederal land. This data set contains updated information which can be combined with the 1967 CNI data sets (L01, L07). Since county officials were required to verify the figures, the file is probably accurate.

SOURCE(S): Goebel, J. J. Dec. 1979. County Statistics Magnetic Tape. Statistical Laboratory, Iowa State University, Ames, IA.

YEAR(S): 1979

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 3071

VARIABLES PER RECORD: 26

CREATED/UPDATED: Mar. 1980

NEW DATA: As available

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE	
AREA 77	Total surface area - 1977	ha
FEDRL 77	Total federal land area - 1977	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
HIWAY_F	Highways on rural-federal	ha
HIWAY_N	Highways on rural-nonfederal	ha
INTERS_F	Interstates on rural-federal	ha
INTERS_N	Interstates on rural-nonfederal	ha
LAND 77	Land area - 1977	ha
RAILR 77	Total railroad area - 1977	ha
RAILRD_F	Railroads on rural-federal	ha
RAILRD_N	Railroads on rural-nonfederal	ha
ROAD_D_F	Dirt roads on rural-federal	ha
ROAD_D_N	Dirt roads on rural-nonfederal	ha
ROAD_G_F	Gravel roads on rural-federal	ha
ROAD_G_N	Gravel roads on rural-nonfederal	ha
ROAD_P_F	Paved roads on rural-federal	ha
ROAD_P_N	Paved roads on rural-nonfederal	ha
ROADS 77	Federal and state road area - 1977	ha
RUR_F 77	Rural federal land area - 1977	ha
RUR_N 77	Rural nonfederal land area - 1977	ha
RURAL 77	Total rural land area - 1977	ha

URB_F_77	Urban-federal land area - 1977	ha
URB_N_77	Urban nonfederal land area - 1977	ha
URBAN_77	Total urban land area - 1977	ha
WATER_77	Census water area - 1977	ha

NATURAL AREAS (N) SECTOR OVERVIEW

Natural areas are defined as areas administered and protected to maintain natural ecological conditions. Included are parks, wilderness areas, national forests and rangelands, wildlife refuges, ecological preserves, and others. We anticipate expanding this sector to include a comprehensive inventory of federal, state, and selected private natural areas.

TITLE: N01 - RARE II TRACTS

DESCRIPTION: The USDA Forest Service initiated the Roadless Area Review and Evaluation II (RARE II) program in 1978 to inventory existing roadless areas within the National Forests and to determine their management strategies. This data set gives code, name, size, location, 1978 status, and 1979 RARE II recommendation for each of 1910 tracts in the conterminous states. Data sets N04, N05, N06, N07, and N08 contain additional information on the RARE II tracts. These files can be merged with N01 to give complete name and location data.

SOURCE(S): Simons, P. June, Nov. and Dec. 1978. RARE II Magnetic Tape Files. U. S. Department of Agriculture, Forest Service, Washinton, DC.

REFERENCE(S): USDA 1979.

COMMENTS: Wilderness status codes are: EX-existing, EN-endorsed, SW-wildlife refuge, ST-state area, LM-land management, and IN-inventory area.

YEAR(S): 1978

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: Points

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 1910

VARIABLES PER RECORD: 13

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE	
LAT_D	Latitude of area	degree
LAT_M	Latitude of area	minute
LONG_D	Longitude of area	degree
LONG_M	Longitude of area	minute
ST	State 2 letter code	
USFS_RGN	USFS region code	
WLD_AREA	Wilderness gross area	ha
WLD_CODE	Wilderness area code number -USFS	
WLD_FDRL	Wilderness area federal ownership	ha
WLD_NAME	Wilderness name	
WLD_PLAN	Wilderness planning designation -USFS	
WLD_RATE	Wilderness attribute rating-USFS Apr 78	
WLD_STAT	Wilderness status-ex,en,sw,st,lm,in	

N01.1 Counties in the South with RARE II Proposed Wilderness Areas.

ORNL-DWG 78-869

TITLE: N02 - NATIONAL PARK SERVICE AREAS

DESCRIPTION: An inventory of the National Parks including code number, name, location, and size was obtained from the National Park Service. The file is used for accounting purposes and contains fields for bookkeeping. Occasionally a field will contain a negative number reflecting a transaction which resulted in a loss of area. Fee areas are those in which the Park Service has total interest and control (ownership). Less-than-fee areas are those for which it has limited control, such as right-of-way, easement, or scenic interest.

SOURCE(S): Uzman, F. A. June 1979. National Park Service Lands Magnetic Tape File. U. S. Department of the Interior, National Park Service, Washington, DC.

REFERENCE(S): USDI 1975.

YEAR(S): 1979

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 710

CREATED/UPDATED: Mar. 1980

COMPILER: M K Nungesser

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 11

NEW DATA: Infrequently

VARIABLE	LABEL AND UNITS OF MEASURE	
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
PRK_AREA	Park area - gross	ha
PRK_CODE	National park identification number	
PRK_FEE	Park area - fee	ha
PRK_LTF	Park area - less than fee	ha
PRK_NAME	National park name	
PRK_PRV	Park area - private	ha
PRK_PUB	Park area - other public	ha
PRK_SUB1	Park area - fee & less than fee	ha
PRK_SUB2	Park area - other public & priv.	ha

TITLE: N03 - WILDERNESS AREAS

DESCRIPTION: An inventory of existing and proposed wilderness areas was derived from the data base obtained for the RARE II project (N01). This file excludes RARE II areas. The code designations for each tract include characters identifying the agency managing the tract. Abbreviations are NF-Forest Service; NP-National Park Service; FW-Fish and Wildlife Service; or two-character state abbreviation if it is State managed. The status codes are described under N01.

SOURCE(S): N01.

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 577

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 7

NEW DATA: Infrequently

VARIABLE	LABEL AND UNITS OF MEASURE	
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
WLD_AREA	Wilderness area - gross	ha
WLD_CO_A	Wilderness area - county portion	ha
WLD_CODE	Wilderness code number -USFS	
WLD_NAME	Wilderness area name	
WLD_STAT	Wilderness area status code	

N03.1 Counties in the South with Existing and Proposed Wilderness Areas (RARE II).

ORNL-DWG 78-668

< 1,000 ACRES   1,000 - 10,000 ACRES   10,000 - 100,000 ACR   > 100,000 ACRES

N03.2 Counties with Existing, Endorsed, and Proposed Wilderness Areas
Qualifying as Class I Air Quality Areas.

TITLE: N04 - RARE II TRACTS BY COUNTY

DESCRIPTION: RARE II tracts often cover parts of several counties. This file defines the area of a tract in each of the counties in which it occurs.

SOURCE(S): See N01 sources.

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 2528

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 4

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

CNTY_A	Wilderness tract county area	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
WLD_CODE	Wilderness area code number -USFS	

TITLE: N05 - RARE II TRACTS BY ECOREGION & VEG.

DESCRIPTION: RARE II tracts often cover parts of more than one ecoregion/vegetation combination. See the section on Vegetation data for a discussion of Bailey ecoregions and Kuchler potential vegetation types. This file defines the area of a tract in each of the ecoregion/vegetation types in which it occurs. The ecoregion designation was used in the ORNL analysis of the RARE II tracts. The data set was created by editing the U. S. Forest Service data (see N01) to designate the ecoregion section-level codes in addition to the province-level ecoregion codes. The Bailey Ecoregion map and the RARE II Draft Environmental Impact Statement maps were used to determine the ecoregion codes.

SOURCE(S): See N01 sources.

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 2923

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION: Tracts

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 4

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
ECO_CODE	Ecoregion section code, Bailey 1976
EVEGP_A	Ecoregion/vegetation potential area ha
VEG_CODE	Vegetation code, Kuchler 1966
WLD_CODE	Wilderness area code number -USFS

TITLE: N06 - RARE II TRACTS ORNL RANKS

DESCRIPTION: The ecological analysis of RARE II tracts by ORNL involved ranking the attributes of vegetation, birds, mammals, and endangered and threatened species for each tract to obtain an overall ecological index (OEI). The tracts were stratified according to ecoregions for the analysis so that the OEI of tracts within ecoregions are comparable. Each attribute was evaluated at national, regional (eastern deciduous forest, central plains, and western mountains), and ecoregional scales for relative abundance. The abundance of an attribute within a tract was compared against the ecoregion, regional, and national values. If a tract contained a proportionally large amount of a regionally and nationally rare attribute, then the tract would receive a high score for that attribute. The OEI was calculated from the sum of the four attribute values.

SOURCE(S): Calculated from several data sets.

REFERENCE(S): Klopatek et al. 1980b.

YEAR(S): 1979	TEMPORAL RESOLUTION:
GEOCOVERAGE: U. S.	SPATIAL RESOLUTION: Tracts
STATUS: Online	DATA SET TYPE: Single
NUMBER OF RECORDS: 2107	VARIABLES PER RECORD: 12
CREATED/UPDATED: Mar. 1980	NEW DATA: Not anticipated
COMPILER: R J Olson, K D Kumar, J T Kitchings, L K Mann, J M Klopatek	

VARIABLE	LABEL AND UNITS OF MEASURE
BRD_INDXX	Tract score - birds
BRD_RANK	Tract rank - birds
EAT_INDXX	Tract score - end. & threat. species
EAT_RANK	Tract rank - end. & threat. species
ECO_CODE	Ecoregion section code, Bailey 1976
MAM_INDXX	Tract score - mammals
MAM_RANK	Tract rank - mammals
OEI_INDXX	Tract score - overall ecological index
OEI_RANK	Tract rank - overall ecological index
VEG_INDXX	Tract score - vegetation
VEG_RANK	Tract rank - vegetation
WLD_CODE	Wilderness area code number -USFS

TITLE: N07 - RARE II TRACTS USFS DATA

DESCRIPTION: The Forest Service compiled characteristics of each RARE II tract which were published as part of the Draft Environmental Impact Statement (DEIS). These data were keypunched from the DEIS for use in the ecological analysis conducted by ORNL.

SOURCE(S): USDA 1979.

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 2999

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION: Tracts

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 8

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
ECO_CODE	Ecoregion province level code, Bailey
LND_CODE	Land surface form code, Hammond
SPECL_A	Special classification wilderness ha
ST	State 2 letter code
VEG_CODE	Vegetation code, Kuchler 1966
WLD_ANML	Wilderness associated wildlife species
WLD_CODE	Wilderness area code number -USFS
WLD_RATE	Wilderness attribute rating, USFS Apr 78

TITLE: N08 - RARE II TRACTS ENERGY RESOURCES

DESCRIPTION: The energy resource potential was estimated by the Department of Energy for the Forest Service for most of the RARE II tracts. Although these estimates were provided with a minimum of field study or other verification due to time constraints, they were used in the RARE II project. Commodities evaluated include coal, oil and gas, hydroelectric, and uranium. The proportion of the tract in each of five categories was estimated. The overall evaluation consisted of selecting the highest category of the five resources that was recorded.

SOURCE(S): USDOE 1978.

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 1368

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION: Tracts

DATA SET TYPE: Single

VARIABLES PER RECORD: 28

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

COAL_1	Very important coal resources
COAL_2	Important coal resources
COAL_3	Commercially important coal resources
COAL_4	No commercial coal resources
COAL_5	Indirectly significant for coal
HYDR_1	Very important hydroelectric resources
HYDR_2	Important hydroelectric resources
HYDR_3	Commercially potential hydroelectric
HYDR_4	No commercial hydroelectric resources
HYDR_5	Indirectly significant hydroelectric
OAGS_1	Very important oil and gas resources
OAGS_2	Important oil and gas resources
OAGS_3	Commercially potential oil and gas
OAGS_4	No commercial oil and gas resources
OAGS_5	Indirectly significant oil and gas
OVER_1	Overall - very important for energy
OVER_2	Overall - important for energy
OVER_3	Overall - commercial potential
OVER_4	Overall - no commercial potential
OVER_5	Overall - indirect significance
ST	State 2 letter code
URAN_1	Very important uranium resources
URAN_2	Important uranium resources
URAN_3	Commercially potential uranium

URAN_4	No commercial uranium resources
URAN_5	Indirectly significant uranium
WLD_CODE	Wilderness area code number -USFS
WLD_RMKS	Remarks on indirect energy values

TITLE: N09 - CRITICAL NATURAL AREAS

DESCRIPTION: This data set will be created from several sources such as The Nature Conservancy and other federal, state, and private agencies.

YEAR(S):

GEOCOVERAGE: U. S.

STATUS: Planned

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

1

POPULATION (P) SECTOR

TITLE: P01 - POPULATION BY SEX AND 5 YEAR AGE CLASSES

DESCRIPTION: The 1970 summary population counts for 5-year age groups and for males and females are contained in data set P01.

SOURCE(S): Loebel, A. S. 1975. 1970 Population Computer File. Energy Division, Oak Ridge National Laboratory. Oak Ridge, TN.

REFERENCE(S): USDC 1972.

YEAR(S): 1970

TEMPORAL RESOLUTION: Annual

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Single

NUMBER OF RECORDS: 3071

VARIABLES PER RECORD: 41

CREATED/UPDATED: Mar. 1980

NEW DATA: Every 10 years

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
F00_04	Females between birth and 4 years of age
F05_09	Females between 5 and 9 years of age
F10_14	Females between 10 and 14 years of age
F15_19	Females between 15 and 19 years of age
F20_24	Females between 20 and 24 years of age
F25_29	Females between 25 and 29 years of age
F30_34	Females between 30 and 34 years of age
F35_39	Females between 35 and 39 years of age
F40_44	Females between 40 and 44 years of age
F45_49	Females between 45 and 49 years of age
F50_54	Females between 50 and 54 years of age
F55_59	Females between 55 and 59 years of age
F60_64	Females between 60 and 64 years of age
F65_69	Females between 65 and 69 years of age
F70_74	Females between 70 and 74 years of age
F75_79	Females between 75 and 79 years of age
F80_84	Females between 80 and 84 years of age
F85_GT	Females 85 years of age and greater
M00_04	Males between birth and 4 years of age
M05_09	Males between 5 and 9 years of age
M10_14	Males between 10 and 14 years of age
M15_19	Males between 15 and 19 years of age
M20_24	Males between 20 and 24 years of age
M25_29	Males between 25 and 29 years of age
M30_34	Males between 30 and 34 years of age

M35_39	Males between 35 and 39 years of age
M40_44	Males between 40 and 44 years of age
M45_49	Males between 45 and 49 years of age
M50_54	Males between 50 and 54 years of age
M55_59	Males between 55 and 59 years of age
M60_64	Males between 60 and 64 years of age
M65_69	Males between 65 and 69 years of age
M70_74	Males between 70 and 74 years of age
M75_79	Males between 75 and 79 years of age
M80_84	Males between 80 and 84 years of age
M85_CT	Males 85 years of age and greater
P_1970A	1970 total population
P_1970F	1970 female population
P_1970M	1970 male population

TITLE: P02 - PROJECTED POPULATION FOR 1985,2000

DESCRIPTION: Population projections for males and females for 1985 and 2000 were estimated using the ORNL/MULTIREGION model for use in the National Coal Utilization Assessment. These county-level estimates reflect the growth associated with energy demand and supply patterns of the NCUA study.

SOURCE(S): Energy Division. 1977. National Coal Utilization Assessment Population Projections. Energy Division, Oak Ridge National Laboratory, Oak Ridge, TN.

REFERENCE(S): Davis et al. 1978.

YEAR(S): 1985,2000

GEOCOVERAGE: South

STATUS: Online

NUMBER OF RECORDS: 1388

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 9

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

BEA_CODE	OBE economic area code
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
P_1985A	1985 total population
P_1985F	1985 female population
P_1985M	1985 male population
P_2000A	2000 total population
P_2000F	2000 female population
P_2000M	2000 male population

WATER QUALITY (Q) SECTOR OVERVIEW

The National Stream Quality Accounting Network (NASQAN) provides a comprehensive system of monitoring stations for 328 water basins covering the United States. NASQAN includes monthly values. We are developing water quality statistics from these data for inclusion in the Geoecology Data Base.

TITLE: Q01 - WATER QUALITY (NASQAN)

DESCRIPTION: Water quality data were obtained from the Council of Environmental Quality. They provided a copy of the National Stream Quality Accounting Network (NASQAN) data base for the period 1974-1977 as collected and compiled by the U.S. Geological Survey. The NASQAN data base consists of monthly water quality and flow readings for a set of monitoring stations. The monitoring stations were selected to be representative of each of the 328 water accounting units. Currently the file is maintained as a tape data set.

SOURCE(S): Feldman, M. 1978. NASQAN. Water Quality Magnetic Tape File. Council of Environmental Quality.

YEAR(S): 1974-1977

GEOCOVERAGE: U. S.

STATUS: Being edited

NUMBER OF RECORDS: .

CREATED/UPDATED: Mar. 1980

COMPILER: C J Emerson

TEMPORAL RESOLUTION: Norms

SPATIAL RESOLUTION: WRC-SA

DATA SET TYPE: Single

VARIABLES PER RECORD: 60

NEW DATA: As available

TERRAIN (T) SECTOR OVERVIEW

Various aspects of the terrain are characterized as part of the Terrain Sector. A set of National Atlas (USDI 1970) maps including land form, lithology, soils, karst terrain, glacial deposits, and elevation were digitized for counties in the eastern United States by C. A. Roswell, Jr (1977). The proportion of counties in various terrain categories was estimated by overlaying county boundaries on the thematic maps. These files have been edited and mapped. Several, including soils and lithology, are being expanded to cover the western United States. In addition, a map on physical regions has been digitized. Characterization data are being developed for the chemical, physical, and land-use properties of the soils file.

Data sets T01SCU, T02SCU, T03SCU, T04SCU, T05SCU, T06SCU, and T11SCU contain data for subcounty units for the 79 larger eastern counties. These data sets contain the same variables as described in this section for data sets T01, T02, etc., plus the variable SCU.

TITLE: T01 - LAND SURFACE FORM

DESCRIPTION: Land surface form is a composite of the simple topographic variables of relief, slope inclination (profile), and slope aspect. Surface form affects microclimate, drainage, and soil characteristics. Hammond (1963) produced a national map of land surface form. The bases of his classification are the proportion of area in slopes of less than eight percent (gently sloping), proportion of such gently sloping in upland versus that in lowland, and local relief. These variables are ordinally scaled so that there is a land surface form map class for each of the 96 possible class combinations. The map was digitized by recording the proportion of each county in each land surface form class. Because of the complexity of the map and large number of map classes per county, there are potential errors resulting from the digitizing process. Percentages were recorded to the nearest ten percent.

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, Hammond 1963.

YEAR(S): 1964	TEMPORAL RESOLUTION: Hist.
GEOCOVERAGE: East	SPATIAL RESOLUTION: County
STATUS: Online	DATA SET TYPE: Multiple
NUMBER OF RECORDS: 6552	VARIABLES PER RECORD: 7
CREATED/UPDATED: Mar. 1980	NEW DATA: Not anticipated
COMPILER: C A Roswell, Jr	

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
LAND_S_A	Area in land surface form code ha
LAND_S_P	Portion in land surface form code
LAND_S_R	Land surface local relief class code
LAND_S_S	Land surface gentle slope class code
LAND_S_T	Land surface profile type class code

TITLE: T02 - BEDROCK LITHOLOGY

DESCRIPTION: Bedrock lithology affects chiefly drainage and nutrient availability. The geologic map in the National Atlas was used as the source. This map defines classes by stratigraphy rather than by lithology. Lithology can be interpreted from stratigraphy because of the correlation between age and rock type within broad regions. The map is general enough to permit rapid interpretation of lithologic information, but too broad for detailed analysis. The translation and classes are listed below. The proportion of each county in each class was digitized to the nearest ten percent.

Code	Lithologic Class	Geologic Map Units
1	Intrusive Igneous Rocks	Lower Tertiary, Mesozoic, Paleozoic
2	Metamorphic Rocks	Precambrian (Older, Younger)
3	Consolidated Sediments	Paleozoic (Upper, Middle, Lower)
4	Unconsolidated Sediments	Quaternary, Tertiary (Upper, Lower), Cretaceous
5	Volcanic Rocks	Quaternary, Tertiary

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, USDI 1970 Sheet Number 74.

YEAR(S): 1970

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 3414

CREATED/UPDATED: Mar. 1980

COMPILER: C A Roswell, Jr

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 5

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number

LITHOL_A	Area in bedrock lithologic class	ha
LITHOL_C	Bedrock lithologic class code	
LITHOL_P	Portion in bedrock lithologic class	

TITLE: T03 - SOILS AT MAP UNIT LEVEL

DESCRIPTION: Soils data were digitized from the National Atlas soils map. The Soil Map Units are associations of Great Soils Groups according to the Seventh Approximation classification. There are 327 classes on the map with 194 occurring in the east. The map was digitized by recording the proportion of soil types in each county to the nearest ten percent. Characteristics of the Soil Map Units are stored as separate data sets to be merged with T03 as needed. Data set T07 provides codes and names for Soil Orders, Soil Suborders, and Soil Map Units. Data set T09 defines the occurrence and ranking of Great Soil Groups within Soil Map Units. Data set T08 includes six ordinally scaled soil variables for Great Soil Groups. Data set T10 defines five chemical properties of Soil Map Units.

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, USDI 1970 Sheet Number 86.

YEAR(S): 1967

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 5551

CREATED/UPDATED: Mar. 1980

COMPILER: C A Roswell, Jr

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 5

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
SOILS_A	Area in soils map unit ha
SOILS_C	Soils code for map unit in Natl Atlas
SOILS_P	Portion in soils map unit

TITLE: T04 - GLACIAL GEOLOGY

DESCRIPTION: The age and nature of glacial deposits affects drainage conditions and the nutrient status of the soils developing on them. The source for this file was the glacial map of the eastern United States. The classes are:

Code	Glacial Deposit
11	Wisconsin drift
12	Illinoisan drift
13	Kansan drift
14	Nebraskan drift
21	Wisconsin end moraine
22	Illinoisan end moraine
31	Ice-contact stratified drift
32	Outwash sediments
33	Lacustrine sediments
34	Marine sediments

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, Geological Society of America 1959.

YEAR(S): 1970

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 3250

CREATED/UPDATED: Mar. 1980

COMPILER: C A Roswell, Jr

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 5

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
GLACL_A	Area in glacial geology class ha
GLACL_C	Glacial geology class code
GLACL_F	Flag, * = area is < 0.001 of county

TITLE: T05 - KARST TERRAIN

DESCRIPTION: Karst terrain is often associated with extreme droughtiness or other peculiar drainage conditions, while the associated soils are generally highly basic (alkaline). The true karst is always associated with limestone or dolomite, while particular classes of pseudokarst may be associated with igneous rocks or unconsolidated sediments. The proportion, to the nearest ten percent, of each karst types was recorded. The eleven types are listed below.

LIMESTONE AND DOLOMITE

- 11 Ponors and dolines on plains and valley floors; undissected uplands
- 12 Ponors and dolines with extensive karrenfelder on plains and valley floors
- 13 Doline ponds and lakes on plains
- 14 Dolines and uvala on ridges and dissected uplands
- 15 Collapsed dolines and uvala on dissected plateaus and plains; small poljes on margin of plateaus

GYPSUM AND SALT TERRAIN

- 21 Dolines and ponors on plains

PSEUDOKARST

- 31 Sinkholes and cisterns on lava plains
- 32 Basins on plains of weathered lava
- 33 Sinkholes and basins on gravel and sand plains and plateaus
- 34 Shallow sinkholes on granite and diorite uplands

KARRENFELDER

- 41 Karrenfelder outside of areas of other karst types

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, USDI 1970 Sheet Number 77.

YEAR(S): 1970

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 944

CREATED/UPDATED: Mar. 1980

COMPILER: C A Roswell, Jr

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 5

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE	
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
KARST_A	Area in karst terrain class	ha
KARST_C	Karst terrain class code	
KARST_P	Portion in karst terrain class	

TITLE: T06 - ELEVATION (BROAD CLASSES)

DESCRIPTION: Elevation has a significant influence on climatic factors, especially temperature, and indirectly affects species distributions. The source topographic map had wide contour intervals so that elevation data fall into five rather broad classes. Class limits in meters are (1) 0-150, (2) 150-300, (3) 300-600, (4) 600-1500, and (5) 1500-2700. An average elevation was calculated using the midpoint of each class weighted by the proportion of the county in that class.

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, USDI 1970 Sheet Number 59.

YEAR(S): 1959

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: East

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 2802

VARIABLES PER RECORD: 9

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: C A Roswell, Jr

VARIABLE	LABEL AND UNITS OF MEASURE	
ELEV_AVE	Average elevation	m
ELEV_1	Area between 0 and 150 m	ha
ELEV_2	Area between 150 and 300 m	ha
ELEV_3	Area between 300 and 600 m	ha
ELEV_4	Area between 600 and 1500 m	ha
ELEV_5	Area between 1500 and 2700 m	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	

T06.1 Elevation Classifications for the South.

ORNL-DWG 78-12969

TITLE: T07 - SOIL ORDER, SUBORDER, MAP UNIT DICTIONRY

DESCRIPTION: This data set contains a dictionary of English names for the soils codes. Names are included for the nine orders, 53 suborders, and 194 map units. The dictionary includes all types occurring in the east.

SOURCE(S): Roswell 1976.

YEAR(S): 1967

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: East

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 194

VARIABLES PER RECORD: 6

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: C A Roswell, Jr

VARIABLE	LABEL AND UNITS OF MEASURE

SOIL_M_C	Soils map unit code
SOIL_M_D	Soils map unit description
SOIL_O_C	Soils order code
SOIL_O_D	Soils order description
SOIL_S_C	Soils suborder code
SOIL_S_D	Soils suborder description

T07.1 Soil Order, Suborder, and Map-Unit Codes Dictionary.

----- SOILS ORDER DESCRIPTION=ALFISOLS SOILS SUBORDER DESCRIPTION=ALBAQUALFS -----

SOIL_M_C SOIL_M_D

A0101 ALBAQUALFS, ARGIALBOLLS, AND ARGIUDDLLS, GENTLY SLOPING
 A0102 ALBAQUALFS AND HAPLUDALFS, GENTLY SLOPING
 A0103 ALBAQUALFS, NATRAQUALFS, AND FRAGIUDALFS, GENTLY SLOPING
 A0104 ALBAQUALFS, AND OCHRAQUALFS, GENTLY SLOPING

----- SOILS ORDER DESCRIPTION=ALFISOLS SOILS SUBORDER DESCRIPTION=OCHRAQUALFS -----

SOIL_M_C SOIL_M_D

A0201 OCHRAQUALFS, HAPLAQUEPTS, AND HAPLUDALFS, GENTLY SLOPING
 A0202 OCHRAQUALFS AND HAPLUDALFS, GENTLY SLOPING
 A0203 OCHRAQUALFS AND PSAMMAQUENTS, GENTLY SLOPING

----- SOILS ORDER DESCRIPTION=ALFISOLS SOILS SUBORDER DESCRIPTION=EUTROBORALFS -----

SOIL_M_C SOIL_M_D

A0401 EUTROBORALFS, GENTLY OR MODERATELY SLOPING
 A0402 EUTROBORALFS AND PRAGIUBORALFS, GENTLY OR MODERATELY SLOPING
 A0403 EUTROBORALFS AND HAPLAQUEPTS, GENTLY OR MODERATELY SLOPING
 A0404 EUTROBORALFS, HAPLUSTOLLS, HISTORHENTS, ROCK LAND, GENTLY SLOPING
 A0405 EUTROBORALFS AND HISTOSOLS (PLANTS NOT DECOMPOSED), GENTLY SLOPING

----- SOILS ORDER DESCRIPTION=ALFISOLS SOILS SUBORDER DESCRIPTION=GLOSSOBORALFS -----

SOIL_M_C SOIL_M_D

A0501 GLOSSOBORALFS AND EUTROBORALFS, GENTLY SLOPING

----- SOILS ORDER DESCRIPTION=ALFISOLS SOILS SUBORDER DESCRIPTION=FRAGIUDALFS -----

SOIL_M_C SOIL_M_D

A0601 FRAGIUDALFS, GENTLY SLOPING
 A0602 FRAGIUDALFS, FRAGIAQUALFS, AND HAPLAQUEPTS, GENTLY SLOPING
 A0603 FRAGIUDALFS, FRAGIAQUALFS, AND HAPLUDDLLS, GENTLY SLOPING TO ST
 A0604 FRAGIUDALFS AND FRAGIOCHREPTS, GENTLY SLOPING
 A0605 FRAGIUDALFS AND GLOSSAQUALFS, GENTLY SLOPING
 A0606 FRAGIUDALFS AND HAPLUDALFS, GENTLY SLOPING
 A0607 FRAGIUDALFS AND HAPLUDALFS, MODERATELY SLOPING, ROCK LAND, STEE
 A0608 FRAGIUDALFS AND NATRAQUALFS, GENTLY SLOPING
 A0609 FRAGIUDALFS, OCHRAQUALFS, AND FRAGIAQUALFS, GENTLY SLOPING

----- SOILS ORDER DESCRIPTION=ALFISOLS SOILS SUBORDER DESCRIPTION=HAPLUDALFS -----

SOIL_M_C SOIL_M_D

A0701 HAPLUDALFS, GENTLY SLOPING
 A0702 HAPLUDALFS, MODERATELY SLOPING
 A0704 HAPLUDALFS AND ARGIAQUOLLS, GENTLY SLOPING
 A0705 HAPLUDALFS AND ARGIUDDLLS, GENTLY SLOPING
 A0706 HAPLUDALFS AND ARGIUDDLLS, GENTLY OR MODERATELY SLOPING
 A0708 HAPLUDALFS AND FRAGIUDALFS, GENTLY SLOPING
 A0709 HAPLUDALFS AND FRAGIUDALFS, MODERATELY SLOPING
 A0710 HAPLUDALFS AND HAPLAQUOLLS, GENTLY SLOPING
 A0711 HAPLUDALFS, HAPLAQUOLLS, AND ARGIUDDLLS, GENTLY SLOPING
 A0712 HAPLUDALFS, HAPLAQUOLLS, AND GLOSSOBORALFS, GENTLY SLOPING
 A0713 HAPLUDALFS, HAPLAQUOLLS, AND UDIPSAMMENTS, GENTLY SLOPING
 A0714 HAPLUDALFS AND HAPLUDDLLS, MODERATELY SLOPING
 A0715 HAPLUDALFS AND OCHRAQUALFS, GENTLY SLOPING
 A0716 HAPLUDALFS, PALEUDALFS, HAPLUDDLLS, AND HAPLUDDLLS, MODERATELY
 A0717 HAPLUDALFS, MODERATELY SLOPING, AND ROCK LAND, STEEP

----- SOILS ORDER DESCRIPTION=ALFISOLS SOILS SUBORDER DESCRIPTION=PALEUDALFS -----

SOIL_M_C SOIL_M_D

A0801 PALEUDALFS, HAPLUDALFS, AND DYSTROCHREPTS, GENTLY SLOPING TO ST
 A0802 PALEUDALFS, HAPLUDDLLS, AND ROCK LAND, GENTLY OR MODERATELY SLO

----- SOILS ORDER DESCRIPTION=ALFISOLS SOILS SUBORDER DESCRIPTION=HAPLUSTALFS -----

SOIL_M_C SOIL_M_D

A0901 HAPLUSTALFS AND ARGIUDDLLS, GENTLY OR MODERATELY SLOPING
 A0902 HAPLUSTALFS, CALCIUSTOLLS, AND ARGIUDDLLS, GENTLY SLOPING
 A0903 HAPLUSTALFS, HAPLUDDLLS, AND CALCIUSTOLLS (SHALLOW), GENTLY SLO
 A0904 HAPLUSTALFS AND PALEUSTALFS, GENTLY SLOPING
 A0905 HAPLUSTALFS AND UDIPSAMMENTS, GENTLY SLOPING

T07.1 (continued)

SOILS ORDER DESCRIPTION=ALFISOLS		SOILS SUBORDER DESCRIPTION=PALEUSTALFS
SOIL_M_C	SOIL_M_D	
A1001	PALEUSTALFS AND ARGISTOLLS, GENTLY SLOPING	
A1002	PALEUSTALFS AND HAPLUSTALFS, GENTLY SLOPING	
A1003	PALEUSTALFS AND USTORTMENTS (SHALLOW), GENTLY SLOPING	
SOILS ORDER DESCRIPTION=ARIDISOLS		SOILS SUBORDER DESCRIPTION=HAPLARGIDS
SOIL_M_C	SOIL_M_D	
D0211	HAPLARGIDS, TORRIORTHENTS, ARGISTOLLS, TORRIPSAMMENTS, GENTLY	
D0219	HAPLARGIDS, TORRIORTHENTS, TORRIORTHENTS (SHALLOW), PALEARGIDS	
SOILS ORDER DESCRIPTION=ARIDISOLS		SOILS SUBORDER DESCRIPTION=CALCIORTHIDS
SOIL_M_C	SOIL_M_D	
U0501	CALCIORTHIDS, TORRIORTHENTS, PALEARTHIDS, TORRIFLUVENTS, GENTL	
U0504	CALCIORTHIDS AND TORRIORTHENTS (SHALLOW), GENTLY SLOPING	
SOILS ORDER DESCRIPTION=ENTISOLS		SOILS SUBORDER DESCRIPTION=PSAMMAQUENTS
SOIL_M_C	SOIL_M_D	
E0101	PASAMMAQUENTS AND HAPLAQUODS, GENTLY SLOPING (INCLUDES SWAMPS)	
E0102	PSAMMAQUENTS, SIDERAQUODS, HISTOSOLS (PLANTS NOT DECOMPOSED), G	
SOILS ORDER DESCRIPTION=ENTISOLS		SOILS SUBORDER DESCRIPTION=TORRIORTHENTS
SOIL_M_C	SOIL_M_D	
E0304	TORRIORTHENTS, HAPLARGIDS, ROUGH STONY LAND, MODERATELY SLOPING	
SOILS ORDER DESCRIPTION=ENTISOLS		SOILS SUBORDER DESCRIPTION=TORRIORTHENTS (SHALLOW)
SOIL_M_C	SOIL_M_D	
E0404	TORRIORTHENTS (SHALLOW) AND ROUGH STONY LAND, GENTLY SLOPING	
E0405	TORRIORTHENTS (SHALLOW), ROUGH STONY LAND, AND CALCIORTHIDS, ST	
SOILS ORDER DESCRIPTION=ENTISOLS		SOILS SUBORDER DESCRIPTION=USTORTMENTS
SOIL_M_C	SOIL_M_D	
E0501	USTORTMENTS, ARGISTOLLS, AND ARGIDOLLS, MODERATELY SLOPING	
E0502	USTORTMENTS, ARGIBOROLLS, AND NATRIBOROLLS, MODERATELY SLOPING	
E0503	USTORTMENTS AND HAPLOBOROLLS, MODERATELY SLOPING OR STEEP	
SOILS ORDER DESCRIPTION=ENTISOLS		SOILS SUBORDER DESCRIPTION=USTORTMENTS (SHALLOW)
SOIL_M_C	SOIL_M_D	
E0601	USTORTMENTS (SHALLOW TO SOFT BEDROCK) AND BADLANDS, STEEP	
E0603	USTORTMENTS (SHALLOW) AND USTORTMENTS, MODERATELY SLOPING	
SOILS ORDER DESCRIPTION=ENTISOLS		SOILS SUBORDER DESCRIPTION=QUARTZIPSAMMENTS
SOIL_M_C	SOIL_M_D	
E1001	QUARTZIPSAMMENTS AND PALEUDULTS, GENTLY SLOPING	
E1002	QUARTZIPSAMMENTS AND PALEUDULTS, GENTLY OR MODERATELY SLOPING	
E1003	QUARTZIPSAMMENTS AND OCHRAQUULTS, GENTLY SLOPING	
E1004	QUARTZIPSAMMENTS AND UMBRAQUULTS, GENTLY OR MODERATELY SLOPING	
SOILS ORDER DESCRIPTION=ENTISOLS		SOILS SUBORDER DESCRIPTION=UDIPSAMMENTS
SOIL_M_C	SOIL_M_D	
E1201	UDIPSAMMENTS, EUTROBORALFS, AND HAPLOBOROLLS, GENTLY OR MODERA	
E1202	UDIPSAMMENTS, HAPLUDALFS, AND HAPLAQUOLLS, GENTLY OR MODERATELY	
E1203	UDIPSAMMENTS AND HISTOSOLS (UNDIFFERENTIATED), GENTLY SLOPING	
SOILS ORDER DESCRIPTION=ENTISOLS		SOILS SUBORDER DESCRIPTION=USTIPSAMMENTS
SOIL_M_C	SOIL_M_D	
E1301	USTIPSAMMENTS, MODERATELY SLOPING	
E1302	USTIPSAMMENTS AND PALEUSTALFS (SANDY), GENTLY OR MODERATELY SLO	

T07.1 (continued)

SOILS ORDER DESCRIPTION=HISTOSOLS		SOILS SUBORDER DESCRIPTION=HISTOSOLS
SOIL_M_C	SOIL_M_D	
M0101	(PLANT RESIDUES NOT DECOMPOSED), PSAMMAQUEPTS, AND HAPLORHODS	
SOILS ORDER DESCRIPTION=HISTOSOLS		SOILS SUBORDER DESCRIPTION=HISTOSOLS(DECOMPOSED)
SOIL_M_C	SOIL_M_D	
M0201	(PLANT RESIDUES MODERATELY DECOMPOSED), GENTLY SLOPING	
M0202	(PLANT RESIDUES HIGHLY DECOMPOSED), GENTLY SLOPING	
M0203	(PLANT RESIDUES MODERATELY OR HIGHLY DECOMPOSED), GENTLY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=CALCIAQUOLLS
SOIL_M_C	SOIL_M_D	
M0101	CALCIAQUOLLS, GENTLY SLOPING	
M0102	CALCIAQUOLLS AND HAPLOBOROLLS, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=HAPAQUOLLS
SOIL_M_C	SOIL_M_D	
M0202	HAPAQUOLLS (CLAYEY) AND CALCIAQUOLLS, GENTLY SLOPING	
M0203	HAPAQUOLLS, HISTOSOLS (PLANTS DECOMPOSED), HAPLAQUEPTS, GENTLY SLOPING	
M0204	HAPAQUOLLS, UDIFLUENTS, HAPLUODOLLS, HAPLUODALFS, GENTLY SLOPING	
M0205	HAPAQUOLLS AND UDIPSAMENTS, GENTLY SLOPING	
M0206	HAPAQUOLLS, UDIPSAMENTS, AND HAPLAQUEPTS, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=ARGIBOROLLS
SOIL_M_C	SOIL_M_D	
M0303	ARGIBOROLLS AND EUTROBORALFS, MODERATELY SLOPING	
M0304	ARGIBOROLLS AND HAPLOBOROLLS, GENTLY SLOPING	
M0306	ARGIBOROLLS, HAPLOBOROLLS, AND CALCIAQUOLLS, GENTLY OR MODERATELY SLOPING	
M0308	ARGIBOROLLS, NATRIBOROLLS, AND HAPLOBOROLLS, GENTLY SLOPING	
M0309	ARGIBOROLLS AND USTORTMENTS, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=HAPLOBOROLLS
SOIL_M_C	SOIL_M_D	
M0501	HAPLOBOROLLS, GENTLY SLOPING	
M0502	HAPLOBOROLLS, MODERATELY SLOPING	
M0503	HAPLOBOROLLS AND ARGIBOROLLS, MODERATELY SLOPING	
M0504	HAPLOBOROLLS, HAPAQUOLLS, AND CALCIAQUOLLS, GENTLY SLOPING	
M0505	HAPLOBOROLLS AND NATRIBOROLLS, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=ARGIUDOLLS
SOIL_M_C	SOIL_M_D	
M0601	ARGIUDOLLS, GENTLY OR MODERATELY SLOPING	
M0602	ARGIUDOLLS, ALBAQUOLLS, AND PALEUSTOLLS, GENTLY SLOPING	
M0603	ARGIUDOLLS AND ARGIAQUOLLS, GENTLY SLOPING	
M0604	ARGIUDOLLS, ARGIAQUOLLS, AND ARGIALBOLLS, GENTLY OR MODERATELY SLOPING	
M0605	ARGIUDOLLS, ARGIUSTOLLS, ARGIAQUOLLS, AND USTIPSAMENTS, GENTLY SLOPING	
M0606	ARGIUDOLLS AND HAPLAQUOLLS, GENTLY SLOPING	
M0607	ARGIUDOLLS, HAPLUODALFS, AND HAPLAQUOLLS, GENTLY OR MODERATELY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=HAPLUODOLLS
SOIL_M_C	SOIL_M_D	
M0701	HAPLUODOLLS, GENTLY SLOPING	
M0702	HAPLUODOLLS, GENTLY OR MODERATELY SLOPING	
M0703	HAPLUODOLLS AND ARGIUDOLLS, GENTLY SLOPING	
M0704	HAPLUODOLLS, ARGIUDOLLS, USTORTMENTS, AND HAPLUODALFS, GENTLY OR MODERATELY SLOPING	
M0705	HAPLUODOLLS, EUTROCHREPTS, AND UDIFLUENTS, GENTLY SLOPING	
M0706	HAPLUODOLLS AND HAPLAQUOLLS, GENTLY SLOPING	
M0707	HAPLUODOLLS AND USTORTMENTS, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=HAPLUODOLLS(SHALLOW)
SOIL_M_C	SOIL_M_D	
M0801	HAPLUODOLLS (SHALLOW), ARGIUSTOLLS, AND ARGIUDOLLS, GENTLY SLOPING	

T07.1 (continued)

SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=ARGIUSTOLLS
SOIL_M_C	SOIL_M_D	
M0901	ARGIUSTOLLS, GENTLY SLOPING	
M0902	ARGIUSTOLLS, CALCIUSTOLLS, AND PALEUSTOLLS, GENTLY SLOPING	
M0906	ARGIUSTOLLS AND HAPLUSTOLLS, GENTLY SLOPING	
M0909	ARGIUSTOLLS, HAPLUSTOLLS, PALEUSTOLLS, AND CALCIUSTOLLS, GENTLY	
M0910	ARGIUSTOLLS, HAPLUSTOLLS (SHALLOW), PALEUSTOLLS, AND USTORTHERNS	
M0912	ARGIUSTOLLS AND NATRUSTOLLS, GENTLY OR MODERATELY SLOPING	
M0913	ARGIUSTOLLS AND PALEUSTOLLS, GENTLY SLOPING	
M0915	ARGIUSTOLLS, PALEUSTOLLS, AND USTORTHERNS, GENTLY SLOPING	
M0916	ARGIUSTOLLS AND USTIPSAMMENTS, GENTLY SLOPING	
M0917	ARGIUSTOLLS, USTIPSAMMENTS, AND USTOCHREPTS, GENTLY OR MODERATE	
M0918	ARGIUSTOLLS AND USTORTHERNS, GENTLY SLOPING	
M0919	ARGIUSTOLLS AND USTORTHERNS (SHALLOW), GENTLY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=CALCIUSTOLLS
SOIL_M_C	SOIL_M_D	
M1001	CALCIUSTOLLS, HAPLUSTOLLS, ARGIUSTOLLS, AND USTOCHREPTS (SHALL	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=CALCIUSTOLLS(SHALLOW)
SOIL_M_C	SOIL_M_D	
M1102	CALCIUSTOLLS (SHALLOW), PELLUSTERTS, AND TORRERTS, GENTLY SLOP	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=HAPLUSTOLLS
SOIL_M_C	SOIL_M_D	
M1202	HAPLUSTOLLS, ARGIUSTOLLS, AND HAPLUSTALFS, GENTLY SLOPING	
M1203	HAPLUSTOLLS, ARGIUSTOLLS, AND USTORTHERNS, GENTLY SLOPING	
M1204	HAPLUSTOLLS AND PELLUSTERTS, GENTLY SLOPING	
M1205	HAPLUSTOLLS AND USTORTHERNS, MODERATELY SLOPING	
M1206	HAPLUSTOLLS, USTORTHERNS, AND CAMBORTHIDS, MODERATELY SLOPING	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=HAPLUSTOLLS(SHALLOW)
SOIL_M_C	SOIL_M_D	
M1301	HAPLUSTOLLS (SHALLOW) AND HAPLUSTOLLS, GENTLY OR MODERATELY SL	
SOILS ORDER DESCRIPTION=MOLLISOLS		SOILS SUBORDER DESCRIPTION=NATRUSTOLLS
SOIL_M_C	SOIL_M_D	
M1401	NATRUSTOLLS AND ARGIBOROLLS, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=INCEPTOSOLS		SOILS SUBORDER DESCRIPTION=HAPLAQUEPTS
SOIL_M_C	SOIL_M_D	
M0501	HAPLAQUEPTS AND HAPLAQUODS, GENTLY SLOPING	
M0502	HAPLAQUEPTS, HAPLAQUOLLS, UOIFLUVENTS, AND HAPLUDALFS, GENTL	
M0503	HAPLAQUEPTS, OCHRAQUALFS, HAPLAQUOLLS, AND NATRAQUALFS, GENT	
M0504	HAPLAQUEPTS, OCHRAQUALFS, PALEUDULTS, AND HAPLUDULTS, GENTLY	
M0505	HAPLAQUEPTS, PSAMMAQUENTS, HAPLAQUENTS, AND HAPLAQUOUS, GENT	
SOILS ORDER DESCRIPTION=INCEPTOSOLS		SOILS SUBORDER DESCRIPTION=HUMAQUEPTS
SOIL_M_C	SOIL_M_D	
M0601	HUMAQUEPTS, HYDRAQUENTS, AND PSAMMAQUENTS, GENTLY SLOPING (T	
SOILS ORDER DESCRIPTION=INCEPTOSOLS		SOILS SUBORDER DESCRIPTION=DYSTROCHREPTS
SOIL_M_C	SOIL_M_D	
M0801	DYSTROCHREPTS, GENTLY SLOPING	
M0802	DYSTROCHREPTS, GENTLY SLOPING TO STEEP (DISSECTED PLATEAU)	
M0803	DYSTROCHREPTS, FRAGIOCHREPTS, AND HAPLUDALFS, MOD. SLOPE	
M0804	DYSTROCHREPTS, STEEP, HAPLUDALFS AND HAPLUDULTS, MOD. SLOPE	
M0805	DYSTROCHREPTS, STEEP, PALEUDALFS AND HAPLUDULTS, MOD. SLOPE	
M0806	DYSTROCHREPTS, ROCK LAND, AND HAPLUDULTS, STEEP	

T07.1 (continued)

SOILS ORDER DESCRIPTION=INCEPTOSOLS		SOILS SUBORDER DESCRIPTION=EUTROCHREPTS
SOIL_M_C	SOIL_M_D	
N0901	EUTROCHREPTS, STEEP	
N0902	EUTROCHREPTS AND DYSTROCHREPTS, GENTLY SLOPING	
N0903	EUTROCHREPTS AND CHROMUDERTS, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=INCEPTOSOLS		SOILS SUBORDER DESCRIPTION=FRAGIOCHREPTS
SOIL_M_C	SOIL_M_D	
N1001	FRAGIOCHREPTS AND DYSTROCHREPTS (BOTH STONY), STEEP	
N1002	FRAGIOCHREPTS, FRAGIAQUEPTS, AND DYSTROCHREPTS, GENTLY SLOPE	
N1003	FRAGIOCHREPTS, FRAGIAQUEPTS, AND DYSTROCHREPTS, MOD. SLOPE	
N1004	FRAGIOCHREPTS, FRAGIAQUEPTS, AND DYSTROCHREPTS, GENTLY SLOPE	
SOILS ORDER DESCRIPTION=INCEPTOSOLS		SOILS SUBORDER DESCRIPTION=USTOCHREPTS
SOIL_M_C	SOIL_M_D	
N1101	USTOCHREPTS (SHALLOW) AND HAPLUSTALFS, BOTH MOD. SLOPE	
SOILS ORDER DESCRIPTION=SPODOSOLS		SOILS SUBORDER DESCRIPTION=HAPLAQUDDS
SOIL_M_C	SOIL_M_D	
S0101	HAPLAQUDDS AND QUARTZIPSAMMENTS, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=SPODOSOLS		SOILS SUBORDER DESCRIPTION=FRAGIORTHODS
SOIL_M_C	SOIL_M_D	
S0301	FRAGIORTHODS, MODERATELY SLOPING	
SOILS ORDER DESCRIPTION=SPODOSOLS		SOILS SUBORDER DESCRIPTION=HAPLORTHODS
SOIL_M_C	SOIL_M_D	
S0401	HAPLORTHODS (LOAMY), GENTLY SLOPING	
S0402	HAPLORTHODS (SANDY), GENTLY OR MODERATELY SLOPING	
S0403	HAPLORTHODS AND FRAGIORTHODS, GENTLY SLOPING	
S0404	HAPLORTHODS AND FRAGIORTHODS, MODERATELY SLOPING	
S0405	HAPLORTHODS, FRAGIORTHODS, AND ROCK LAND, STEEP	
S0406	HAPLORTHODS AND GLISSOBORALFS, GENTLY SLOPING	
S0407	HAPLORTHODS, CLOSSOBORALFS, AND UDIPSAMMENTS, MODERATELY SLOPE	
S0408	HAPLORTHODS, HAPLAQUEPTS, AND FRAGIOCHREPTS, GENTLY OR MODERATELY SLOPING	
S0409	HAPLORTHODS, HAPLAQUEPTS, AND OCHRAQUALFS, GENTLY SLOPING	
S0410	HAPLORTHODS, QUARTZIPSAMMENTS, AND HAPLUDULTS, GENTLY SLOPING	
S0411	HAPLORTHODS AND ROCK LAND, MODERATELY SLOPING OR STEEP	
SOILS ORDER DESCRIPTION=ULTISOLS		SOILS SUBORDER DESCRIPTION=OCHRAQUULTS
SOIL_M_C	SOIL_M_D	
U0101	OCHRAQUULTS, GLUSSAQUALFS, AND PALEUDULTS, GENTLY SLOPING	
U0102	OCHRAQUULTS, PALEUDULTS, AND HAPLUDULTS, GENTLY SLOPING	
U0103	OCHRAQUULTS AND QUARTZIPSAMMENTS, GENTLY SLOPING	
U0104	OCHRAQUULTS, UMBRAQUULTS, AND TIDAL MARSH, GENTLY SLOPING	
SOILS ORDER DESCRIPTION=ULTISOLS		SOILS SUBORDER DESCRIPTION=FRAGIUDULTS
SOIL_M_C	SOIL_M_D	
U0401	FRAGIUDULTS AND PALEUDULTS, GENTLY OR MODERATELY SLOPING	
SOILS ORDER DESCRIPTION=ULTISOLS		SOILS SUBORDER DESCRIPTION=HAPLUDULTS
SOIL_M_C	SOIL_M_D	
U0501	HAPLUDULTS, GENTLY OR MODERATELY SLOPING	
U0502	HAPLUDULTS, GENTLY SLOPING TO STEEP (MOSTLY DISSECTED PLATEAUS)	
U0503	HAPLUDULTS, MODERATELY SLOPING	
U0504	HAPLUDULTS, STEEP	
U0505	HAPLUDULTS AND DYSTROCHREPTS, MODERATELY SLOPING	
U0506	HAPLUDULTS AND DYSTROCHREPTS, STEEP	
U0507	HAPLUDULTS AND DYSTROCHREPTS, GENTLY SLOPING, AND ROCK LAND, STEEP	
U0508	HAPLUDULTS AND FRAGIUDULTS, GENTLY SLOPING	
U0509	HAPLUDULTS, HAPLUDALFS, AND DYSTROCHREPTS, STEEP	
U0510	HAPLUDULTS, HAPLUDALFS, AND ROCK LAND, MODERATELY SLOPING OR STEEP	
U0511	HAPLUDULTS AND OCHRAQUULTS, GENTLY SLOPING	
U0512	HAPLUDULTS AND PALEUDULTS, MODERATELY SLOPING	
U0513	HAPLUDULTS, PALEUDULTS, AND DYSTROCHREPTS, GENTLY SLOPING TO STEEP	

T07.1 (continued)

SOILS ORDER DESCRIPTION=ULTISOLS		SOILS SUBORDER DESCRIPTION=PALEUDULTS	
SOIL_M_C	SOIL_M_D		
U0601	PALEUDULTS, GENTLY SLOPING		
U0602	PALEUDULTS AND FRAGIUDULTS, GENTLY SLOPING		
U0603	PALEUDULTS, MODERATELY SLOPING, AND FRAGIUDULTS, GENTLY SLOPING		
U0604	PALEUDULTS AND FRAGIUDULTS, MODERATELY SLOPING		
U0605	PALEUDULTS AND HAPLUDULTS, GENTLY SLOPING		
U0606	PALEUDULTS AND HAPLUDULTS, MODERATELY SLOPING, AND FRAGIUDULTS,		
U0607	PALEUDULTS, OCHRAQUULTS, AND FRAGIAQUULTS, GENTLY SLOPING		
U0608	PALEUDULTS, PALEUDALFS, HAPLUDULTS, HAPLUDALFS, GENTLY SLOPING		
U0609	PALEUDULTS AND QUARTZIPSAMMENTS, GENTLY SLOPING		
U0610	PALEUDULTS AND QUARTZIPSAMMENTS, MODERATELY SLOPING		
U0611	PALEUDULTS AND RHODUDULTS, MODERATELY SLOPING		
SOILS ORDER DESCRIPTION=VERTISOLS		SOILS SUBORDER DESCRIPTION=CHROMUDERTS	
SOIL_M_C	SOIL_M_D		
V0101	CHROMUDERTS AND EUTROCHREPTS, GENTLY SLOPING		
SOILS ORDER DESCRIPTION=VERTISOLS		SOILS SUBORDER DESCRIPTION=PELLUDERTS	
SOIL_M_C	SOIL_M_D		
V0201	PELLUDERTS, PELLUSTERTS, AND RENDOLLS, GENTLY SLOPING		
SOILS ORDER DESCRIPTION=VERTISOLS		SOILS SUBORDER DESCRIPTION=CHROMUSTERTS	
SOIL_M_C	SOIL_M_D		
V0301	CHROMUSTERTS AND PALEUSTALFS, GENTLY SLOPING		
SOILS ORDER DESCRIPTION=VERTISOLS		SOILS SUBORDER DESCRIPTION=PELLUSTERTS	
SOIL_M_C	SOIL_M_D		
V0401	PELLUSTERTS AND CHROMUSTERTS, GENTLY SLOPING		
V0402	PELLUSTERTS, CAMBORTHIDS, AND TORRERTS, GENTLY SLOPING		

TITLE: T08 - GREAT SOIL GROUPS CHARACTERISTICS

DESCRIPTION: The Soil Map Units are associations of Great Soil Groups. This data set provides information on the average characteristics of Great Soil Groups to allow the interpretation of soils classification data in terms of ecological studies. Included are base status, moisture status, organic matter content, pans, temperature, and texture characteristics. By consulting the map legend and 1967 Supplement to the Seventh Approximation (USDA 1960, USDA 1975) of soil classification, ordinally scaled values were assigned to each soil parameter.

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, USDI 1970 Sheet Number 86.

YEAR(S): 1967

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: East

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 85

VARIABLES PER RECORD: 8

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: C A Roswell, Jr

VARIABLE	LABEL AND UNITS OF MEASURE

GSG_CODE	Great soils group code
GSG_DSCP	Great soils description
S_BASE_C	Soil base code
S_MOIS_C	Soil moisture code
S_ORGN_C	Soil organic matter code
S_PAN_C	Soil pan code
S_TEMP_C	Soil temperature code
S_TEXT_C	Soil texture code

TITLE: T09 - GREAT SOIL GROUPS WITHIN MAP UNITS

DESCRIPTION: The Soil Map Units are associations of Great Soil Groups. This data set defines these associations including the rank of each Great Soil Group within a Soil Map Unit. This data set permits the merging of Great Soil Group characteristics (T08) with the soils distribution data (T03).

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, USDI 1970 Sheet Number 86.

YEAR(S): 1967

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: East

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 459

VARIABLES PER RECORD: 3

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE

LABEL AND UNITS OF MEASURE

GSG_CODE	Great soils group within soils map unit
GSG_RANK	Great soils group rank within map unit
SOIL_M_C	Soils map unit code

T09.1 Great Soil Groups Ranked within Map Units.

SOIL_M_C	GSG_CODE	DESCRIPTION	SOIL_M_C	GSG_CODE	DESCRIPTION
A0101	A11	ALBAQUALFS	A0801	N33	DYSTROCHREPTS
A0101	M11	ARGTALBOLLS	A0802	A37	PALEUDALFS
A0101	M51	ARGTUDOLLS	A0802	I32	HAPLUDULTS
A0102	A11	ALBAQUALFS	A0802	T20	ROCK LAND
A0102	A35	HAPLUDALFS	A0901	A47	HAPLUSTALFS
A0103	A11	ALBAQUALFS	A0901	M51	ARGTUDOLLS
A0103	A14	NATRAQUALFS	A0902	A42	HAPLUSTALFS
A0103	A33	FRAGIUDALFS	A0902	M62	CALCIUSTOLLS
A0104	A11	ALBAQUALFS	A0902	M61	ARGTUSTOLLS
A0104	A15	OCHRAQUALFS	A0903	A42	HAPLUSTALFS
A0201	A15	OCHRAQUALFS	A0903	M64	HAPLUSTOLLS
A0201	N25	HAPLAQUEPTS	A0905	M62	CALCIUSTOLLS
A0201	A35	HAPLUDALFS	A0904	A42	HAPLUSTALFS
A0202	A15	OCHRAQUALFS	A0904	A44	PALEUSTALFS
A0202	A35	HAPLUDALFS	A0905	A42	HAPLUSTALFS
A0203	A15	OCHRAQUALFS	A0905	E54	UDIPSAMMENTS
A0203	E13	PSAMMAQUENTS	A1001	A44	PALEUSTALFS
A0401	A22	EUTROBORALFS	A1001	M61	ARGTUSTOLLS
A0402	A22	EUTROBORALFS	A1002	A44	PALEUSTALFS
A0402	A23	FRAGIBORALFS	A1002	A42	HAPLUSTALFS
A0403	A22	EUTROBORALFS	A1003	A44	PALEUSTALFS
A0403	N25	HAPLAQUEPTS	A1005	E43	USTORTMENTS
A0404	A22	EUTROBORALFS	D0211	D12	HAPLARGIOS
A0404	M64	HAPLUSTOLLS	D0211	E42	TORRORTMENTS
A0404	E43	USTORTMENTS	D0211	M61	ARGTUSTOLLS
A0404	T20	ROCK LAND	D0211	E53	TORRIPSAMMENTS
A0405	A22	EUTROBORALFS	D0219	D12	HAPLARGIOS
A0405	H11	HISTOSOLS	U0219	E42	TORRORTMENTS
A0501	A24	GLUSSUBIRALFS	D0219	D13	PALEARGIOS
A0501	A22	EUTROBORALFS	D0501	D21	CALCIORTHIDS
A0601	A33	FRAGIUDALFS	D0501	D21	CALCIORTHIDS
A0602	A33	FRAGIUDALFS	D0501	E42	TORRORTMENTS
A0602	A12	FRAGIAQUALFS	D0501	D24	PALEORTHIDS
A0602	N25	HAPLAQUEPTS	U0501	E32	TORRIFLUVENTS
A0605	A35	FRAGIUDALFS	D0504	D21	CALCIORTHIDS
A0603	A12	FRAGIAQUALFS	D0504	E42	TORRORTMENTS
A0603	M52	HAPLUDOLLS	E0101	E13	PSAMMAQUENTS
A0604	A33	FRAGIUDALFS	E0101	S14	HAPLAQUOOS
A0604	N35	FRAGIOCHREPTS	E0102	E13	PSAMMAQUENTS
A0605	A35	FRAGIUDALFS	E0102	S16	SIDERAQUOOS
A0605	A13	GLOSSAQUALFS	E0102	H11	HISTOSOLS
A0606	A33	FRAGIUDALFS	E0304	E42	TORRORTMENTS
A0606	A35	HAPLUDALFS	E0304	E42	TORRORTMENTS
A0607	A33	FRAGIUDALFS	E0304	D12	HAPLARGIOS
A0607	A35	HAPLUDALFS	E0504	T40	ROUGH STONY LAND
A0607	T20	ROCK LAND	E0404	E42	TORRORTMENTS
A0608	A33	FRAGIUDALFS	E0404	T40	ROUGH STONY LAND
A0608	A14	NATRAQUALFS	E0405	E42	TORRORTMENTS
A0609	A33	FRAGIUDALFS	E0405	T40	ROUGH STONY LAND
A0609	A15	OCHRAQUALFS	E0405	D21	CALCIORTHIDS
A0609	A12	FRAGIAQUALFS	E0501	E43	USTORTMENTS
A0701	A35	HAPLUDALFS	E0501	M61	ARGTUSTOLLS
A0702	A35	HAPLUDALFS	E0501	M51	ARGTUDOLLS
A0704	A35	HAPLUDALFS	E0502	E43	USTORTMENTS
A0704	M21	ARGTADOLLS	E0502	M31	ARGTBOROLLS
A0705	A35	HAPLUDALFS	E0502	M35	NATRIBOROLLS
A0705	M51	ARGTUDOLLS	E0503	E43	USTORTMENTS
A0706	A35	HAPLUDALFS	E0503	M34	HAPLOBOROLLS
A0708	A35	HAPLUDALFS	E0601	E43	USTORTMENTS
A0708	A33	FRAGIUDALFS	E0601	T30	BADLANDS
A0709	A35	HAPLUDALFS	E0603	E43	USTORTMENTS
A0709	A35	FRAGIUDALFS	E1001	E52	QUARTZIPSAMMENTS
A0710	A35	HAPLUDALFS	E1001	U33	PALEUDULTS
A0710	M25	HAPLAQUOLLS	E1002	E52	QUARTZIPSAMMENTS
A0711	A35	HAPLUDALFS	E1002	U33	PALEUDULTS
A0711	M25	HAPLAQUOLLS	E1003	E52	QUARTZIPSAMMENTS
A0711	M51	ARGTUDOLLS	E1005	U12	OCHRAQUULTS
A0712	A35	HAPLUDALFS	E1004	E52	QUARTZIPSAMMENTS
A0712	M25	HAPLAQUOLLS	E1004	U15	UMBRAQUULTS
A0712	A24	GLOSSOBORALFS	E1201	E54	UDIPSAMMENTS
A0713	A35	HAPLUDALFS	E1201	A22	EUTROBORALFS
A0713	M25	HAPLAQUOLLS	E1201	M54	HAPLOBOROLLS
A0713	E54	UDIPSAMMENTS	E1202	E54	UDIPSAMMENTS
A0714	A35	HAPLUDALFS	E1202	A35	HAPLUDALFS
A0714	U32	HAPLUDULTS	E1202	M25	HAPLAQUOLLS
A0715	A35	HAPLUDALFS	E1203	E54	UDIPSAMMENTS
A0715	A15	OCHRAQUALFS	E1205	H11	HISTOSOLS
A0716	A35	HAPLUDALFS	E1301	E55	USTIPSAMMENTS
A0716	A37	PALEUDALFS	E1302	E55	USTIPSAMMENTS
A0716	U32	HAPLUDULTS	E1302	A44	PALEUSTALFS
A0716	M52	HAPLUDOLLS	M0101	H11	HISTOSOLS
A0717	A35	HAPLUDALFS	M0101	E13	PSAMMAQUENTS
A0717	T20	ROCK LAND	M0101	S43	HAPLORTHOIDS
A0801	A37	PALEUDALFS	M0201	H12	HISTOSOLS
A0801	A35	HAPLUDALFS	M0202	H13	HISTOSOLS

T09.1 (continued)

SOIL_M_C	GSG_CODE	DESCRIPTION	SOIL_M_C	GSG_CODE	DESCRIPTION
M0203	M12	HISTOSOLS	M0910	M61	ARGIUSTOLLS
M0205	M13	HISTOSOLS	M0910	M64	HAPLUSTOLLS
M0101	M22	CALCTIAQUOLLS	M0910	M66	PALEUSTOLLS
M0102	M22	CALCTIAQUOLLS	M0910	E43	USTORTMENTS
M0102	M34	HAPLOBOROLLS	M0912	M61	ARGIUSTOLLS
M0202	M25	HAPLAQUOLLS	M0912	M65	NATRUSTOLLS
M0202	M22	CALCTIAQUOLLS	M0913	M61	ARGIUSTOLLS
M0203	M25	HAPLAQUOLLS	M0913	M66	PALEUSTOLLS
M0203	M13	HISTOSOLS	M0915	M61	ARGIUSTOLLS
M0203	M25	HAPLAQUEPTS	M0915	M66	PALEUSTOLLS
M0204	M25	HAPLAQUOLLS	M0915	E43	USTORTMENTS
M0204	E34	UDIFLUVENTS	M0916	M61	ARGIUSTOLLS
M0204	M52	HAPLUDOLLS	M0916	E55	USTIPSAMMENTS
M0204	A35	HAPLUDALFS	M0917	M61	ARGIUSTOLLS
M0205	M25	HAPLAQUOLLS	M0917	E55	USTIPSAMMENTS
M0205	E54	UDIPSAMMENTS	M0917	N36	USTOCHREPTS
M0206	M25	HAPLAQUOLLS	M0918	M61	ARGIUSTOLLS
M0206	E54	UDIPSAMMENTS	M0918	E43	USTORTMENTS
M0206	N26	HUMAQUEPTS	M0919	M61	ARGIUSTOLLS
M0303	M31	ARGTBOROLLS	M0919	E43	USTORTMENTS
M0303	A22	EUTROBORALFE	M1001	M62	CALCIUSTOLLS
M0304	M31	ARGTBOROLLS	M1001	M64	HAPLUSTOLLS
M0304	M34	HAPLOBOROLLS	M1001	M61	ARGIUSTOLLS
M0306	M31	ARGTBOROLLS	M1001	N36	USTOCHREPTS
M0306	M34	HAPLOBOROLLS	M1102	M62	CALCIUSTOLLS
M0306	M22	CALCTIAQUOLLS	M1102	V10	TORRERTS
M0308	M31	ARGTBOROLLS	M1102	V32	PELLUSTERTS
M0308	M35	NATRTBOROLLS	M1202	M64	HAPLUSTOLLS
M0308	M34	HAPLOBOROLLS	M1202	M61	ARGIUSTOLLS
M0309	M51	ARGTBOROLLS	M1202	A42	HAPLUSTALFS
M0309	E43	USTORTMENTS	M1203	M64	HAPLUSTOLLS
M0501	M34	HAPLOBOROLLS	M1203	M61	ARGIUSTOLLS
M0502	M34	HAPLOBOROLLS	M1203	E43	USTORTMENTS
M0503	M34	HAPLOBOROLLS	M1204	M64	HAPLUSTOLLS
M0503	M51	ARGTBOROLLS	M1204	V32	PELLUSTERTS
M0504	M34	HAPLOBOROLLS	M1205	M64	HAPLUSTOLLS
M0504	M25	HAPLAQUOLLS	M1205	E43	USTORTMENTS
M0504	M22	CALCTIAQUOLLS	M1206	M64	HAPLUSTOLLS
M0505	M34	HAPLOBOROLLS	M1206	E43	USTORTMENTS
M0505	M55	NATRTBOROLLS	M1206	D22	CMBORHIDS
M0601	M51	ARGTUDOLLS	M1301	M64	HAPLUSTOLLS
M0602	M51	ARGTUDOLLS	M1301	M64	HAPLUSTOLLS
M0602	A11	ALBAQUALFS	M1401	M65	NATRUSTOLLS
M0602	M66	PALEUSTOLLS	M1401	M31	ARGTBOROLLS
M0603	M51	ARGTUDOLLS	M0501	M25	HAPLAQUEPTS
M0604	M51	ARGTUDOLLS	M0501	S14	HAPLAQUODS
M0604	M21	ARGTUDOLLS	M0502	M25	HAPLAQUEPTS
M0604	M11	ARGTUDOLLS	M0502	M25	HAPLAQUOLLS
M0605	M51	ARGTUDOLLS	M0502	E34	UDIFLUVENTS
M0605	M61	ARGIUSTOLLS	M0502	A55	HAPLUDALFS
M0605	M21	ARGTUDOLLS	M0503	M25	HAPLAQUEPTS
M0605	E55	USTIPSAMMENTS	M0503	A15	CHRAQUALFS
M0606	M51	ARGTUDOLLS	M0503	M25	HAPLAQUOLLS
M0606	M25	HAPLAQUOLLS	M0504	A14	NATRAQUALFS
M0607	M51	ARGTUDOLLS	M0504	M25	HAPLAQUEPTS
M0607	A35	HAPLUDALFS	M0504	A15	CHRAQUALFS
M0607	M25	HAPLAQUOLLS	M0504	U33	PALEUDULTS
M0701	M52	HAPLUDOLLS	M0504	U32	HAPLUDULTS
M0702	M52	HAPLUDOLLS	M0505	M25	HAPLAQUEPTS
M0703	M52	HAPLUDOLLS	M0505	E15	PSAMMAQUENTS
M0703	M51	ARGTUDOLLS	M0505	E12	HYDRAQUENTS
M0704	M52	HAPLUDOLLS	M0505	S14	HAPLAQUODS
M0704	M51	ARGTUDOLLS	M0601	N26	HUMAQUEPTS
M0704	E44	UDORTMENTS	M0601	E12	HYDRAQUENTS
M0704	A35	HAPLUDALFS	M0601	E13	PSAMMAQUENTS
M0705	M52	HAPLUDOLLS	M0801	N33	DYSTROCHREPTS
M0705	N34	EUTROCHREPTS	M0802	N33	DYSTROCHREPTS
M0705	E34	UDIFLUVENTS	M0803	N55	DYSTROCHREPTS
M0706	M52	HAPLUDOLLS	M0803	N35	FRAGTOCHREPTS
M0706	M25	HAPLAQUOLLS	M0803	A35	HAPLUDALFS
M0707	M52	HAPLUDOLLS	M0804	N33	DYSTROCHREPTS
M0707	E43	USTORTMENTS	M0804	A35	HAPLUDALFS
M0801	M52	HAPLUDOLLS	M0804	U52	HAPLUDULTS
M0801	M61	ARGIUSTOLLS	M0805	N33	DYSTROCHREPTS
M0801	M51	ARGTUDOLLS	M0805	A37	PALEUDALFS
M0901	M61	ARGIUSTOLLS	M0805	U32	HAPLUDULTS
M0902	M61	ARGIUSTOLLS	M0806	N33	DYSTROCHREPTS
M0902	M62	CALCIUSTOLLS	M0806	T20	ROCK LAND
M0902	M66	PALEUSTOLLS	M0806	U32	HAPLUDULTS
M0906	M61	ARGIUSTOLLS	M0901	N34	EUTROCHREPTS
M0906	M64	HAPLUSTOLLS	M0902	N34	EUTROCHREPTS
M0909	M61	ARGIUSTOLLS	M0902	N33	DYSTROCHREPTS
M0909	M64	HAPLUSTOLLS	M0903	N54	EUTROCHREPTS
M0909	M66	PALEUSTOLLS	M0903	V21	CHROMUDERTS
M0909	M62	CALCIUSTOLLS	N1001	N35	FRAGTOCHREPTS
			N1001	N33	DYSTROCHREPTS

T09.1 (continued)

SOIL_M_C	GSG_CODE	DESCRIPTION	SOIL_M_C	GSG_CODE	DESCRIPTION
N1002	N35	FRAGIOCHREPTS	U0605	U32	HAPLUDULTS
N1002	N25	FRAGIAQUEPTS	U0606	U33	PALEUDULTS
N1002	N33	DYSTROCHREPTS	U0606	U32	HAPLUDULTS
N1003	N35	FRAGIOCHREPTS	U0606	U31	FRAGIUDULTS
N1003	N23	FRAGIAQUEPTS	U0607	U33	PALEUDULTS
N1003	N33	DYSTROCHREPTS	U0607	U12	OCMRAQUULTS
N1004	N55	FRAGIOCHREPTS	U0607	U11	FRAGIAQUULTS
N1004	N73	FRAGIAQUEPTS	U0608	U33	PALEUDULTS
N1004	N33	DYSTROCHREPTS	U0608	A57	PALEUDALFS
N1101	N36	USTROCHREPTS	U0608	U32	HAPLUDULTS
N1101	A42	HAPLUSTALFS	U0608	A35	HAPLUDALFS
S0101	S14	HAPLAQUDDS	U0609	U55	PALEUDULTS
S0101	E52	QUARTZIPSAMMENTS	U0609	E52	QUARTZIPSAMMENTS
S0301	S42	FRAGIORTHODS	U0610	U33	PALEUDULTS
S0401	S43	HAPLORTHODS	U0610	E52	QUARTZIPSAMMENTS
S0402	S43	HAPLORTHODS	U0611	U33	PALEUDULTS
S0403	S43	HAPLORTHODS	U0611	U55	RHODUDULTS
S0403	S47	FRAGIORTHODS	U0611	V71	CHROMISTERTS
S0404	S43	HAPLORTHODS	V0101	N34	EUTROCHREPTS
S0404	S42	FRAGIORTHODS	V0201	V22	PELLUSTERTS
S0405	S43	HAPLORTHODS	V0201	V32	PELLUSTERTS
S0405	S42	FRAGIORTHODS	V0201	M40	RENDOLLS
S0405	T20	ROCK LAND	V0301	V31	CHROMUSTERTS
S0406	S43	HAPLORTHODS	V0301	A44	PALEUSTALFS
S0406	A24	GLOSSUBORALFS	V0401	V32	PELLUSTERTS
S0407	S43	HAPLORTHODS	V0401	V31	CHROMUSTERTS
S0407	A24	GLOSSOBORALFS	V0402	V52	PELLUSTERTS
S0407	E54	UDIPSAMMENTS	V0402	D22	CAMBORTHIDS
S0408	S43	HAPLORTHODS	V0402	V10	TORRERTS
S0408	N25	HAPLAQUEPTS			
S0408	N35	FRAGIOCHREPTS			
S0409	S43	HAPLORTHODS			
S0409	N25	HAPLAQUEPTS			
S0409	A15	OCMRAQUALFS			
S0410	S43	HAPLORTHODS			
S0410	E52	QUARTZIPSAMMENTS			
S0410	V32	PELLUSTERTS			
S0411	S43	HAPLORTHODS			
S0411	T20	ROCK LAND			
U0101	U12	OCMRAQUULTS			
U0101	A13	GLOSSAQUALFS			
U0101	U33	PALEUDULTS			
U0102	U12	OCMRAQUULTS			
U0102	U33	PALEUDULTS			
U0102	U32	HAPLUDULTS			
U0103	U12	OCMRAQUULTS			
U0103	E52	QUARTZIPSAMMENTS			
U0104	U12	OCMRAQUULTS			
U0104	U15	UMBRAQUULTS			
U0104	T50	TIDAL MARSH			
U0401	U31	FRAGIUDULTS			
U0401	U33	PALEUDULTS			
U0501	U52	HAPLUDULTS			
U0502	U32	HAPLUDULTS			
U0503	U32	HAPLUDULTS			
U0504	U52	HAPLUDULTS			
U0505	U32	HAPLUDULTS			
U0505	N33	DYSTROCHREPTS			
U0506	U32	HAPLUDULTS			
U0506	N33	DYSTROCHREPTS			
U0507	U52	HAPLUDULTS			
U0507	N33	DYSTROCHREPTS			
U0507	T20	ROCK LAND			
U0508	U32	HAPLUDULTS			
U0508	U31	FRAGIUDULTS			
U0509	U52	HAPLUDULTS			
U0509	A35	HAPLUDALFS			
U0509	N33	DYSTROCHREPTS			
U0510	U32	HAPLUDULTS			
U0510	A35	HAPLUDALFS			
U0510	T20	ROCK LAND			
U0511	U32	HAPLUDULTS			
U0511	U12	OCMRAQUULTS			
U0512	U52	HAPLUDULTS			
U0512	U33	PALEUDULTS			
U0513	U32	HAPLUDULTS			
U0513	U33	PALEUDULTS			
U0513	N33	DYSTROCHREPTS			
U0601	U55	PALEUDULTS			
U0602	U33	PALEUDULTS			
U0602	U31	FRAGIUDULTS			
U0603	U33	PALEUDULTS			
U0603	U31	FRAGIUDULTS			
U0604	U55	PALEUDULTS			
U0604	U31	FRAGIUDULTS			
U0605	U33	PALEUDULTS			

TITLE: T10 - SOIL MAP UNIT CHEMICAL CHARACTERISTICS

DESCRIPTION: The average chemical characteristics are defined for each Soil Map Unit. Values for base saturation, pH, cation exchange capacity (CEC), soil organic matter, and clay content were obtained for the A horizon of typic soils within Soil Map Units. These values were obtained from several literature sources to represent the average conditions in the upper 20-25 cm. If a typic soil was not described, values for an atypic but widely distributed soil were used. These data have been used to investigate impacts of acid rain on soils. In these studies the total base contents of the upper soil were estimated by multiplying base saturation by CEC.

SOURCE(S): USDA 1975, USDA 1960, Buol et al. 1973, Hole 1976, Hoyle 1973.

REFERENCE(S): Klopatek et al. 1980a.

YEAR(S): 1979

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: East

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 194

VARIABLES PER RECORD: 7

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: J M Klopatek

VARIABLE	LABEL AND UNITS OF MEASURE	
SOIL_BS	Soil base saturation	percent
SOIL_CC	Soil clay content	percent
SOIL_CEC	Soil cation exchange capacity	meq/100g
SOIL_M_C	Soils map unit code	
SOIL_OM	Soil organic matter	percent
SOIL_PH	Soil pH	

T10.1 Soil Map Unit Chemical Characteristics including: Base Saturation (BS), Cation Exchange Capacity (CEC), pH, Clay Content (CC), and Organic Matter (OM).

SOIL_M_C	SOIL_BS	SOIL_CEC	SOIL_PH	SOIL_CC	SOIL_OM
A0101	67.7	25.6	5.60	27.1	5.8
A0102	49.0	24.0	5.64	23.4	6.6
A0103	92.0	17.6	5.44	19.9	4.4
A0104	54.0	23.0	5.35	22.9	7.1
A0201	72.0	15.4	5.45	24.6	6.4
A0202	68.0	15.0	5.55	17.4	2.5
A0203	76.5	12.0	5.59	11.4	7.5
A0401	85.0	15.0	6.80	20.0	1.0
A0402	80.0	11.5	7.00	24.6	0.9
A0403	82.5	17.5	5.59	29.5	7.5
A0404	92.5	15.6	7.06	25.2	1.8
A0405	62.5	67.5	4.80	40.0	8.5
A0501	67.5	16.0	5.10	19.0	1.0
A0601	48.0	7.0	5.20	15.7	0.9
A0602	52.0	13.7	5.29	23.1	7.5
A0603	55.7	14.6	5.39	21.2	5.9
A0604	40.0	14.5	5.32	13.8	4.9
A0605	51.0	13.5	5.02	15.0	5.2
A0606	55.5	10.5	5.46	16.8	1.4
A0607	55.5	10.5	5.46	16.8	1.4
A0608	60.5	9.4	5.46	15.4	0.9
A0609	49.7	11.0	5.29	15.7	3.9
A0701	63.0	14.0	6.20	18.0	2.0
A0702	65.0	14.0	6.20	18.0	2.0
A0704	80.0	32.0	6.48	18.0	8.0
A0705	74.5	17.7	5.96	25.1	2.7
A0706	74.5	17.7	5.96	25.1	2.7
A0708	55.5	10.5	5.46	16.8	1.4
A0709	55.5	10.5	5.46	16.8	1.4
A0710	81.5	23.4	6.42	24.6	4.6
A0711	83.0	22.7	6.11	27.2	4.2
A0712	71.0	21.3	5.26	22.4	3.4
A0713	67.7	18.9	6.11	17.8	4.4
A0714	41.9	10.9	3.08	14.2	2.1
A0715	68.0	13.0	5.55	17.4	2.5
A0716	51.0	15.5	5.15	21.6	2.6
A0717	65.0	14.0	6.20	18.0	2.0
A0801	49.0	16.1	5.21	19.5	4.8
A0802	25.0	12.5	4.89	17.4	2.7
A0901	80.0	15.2	5.66	22.0	1.9
A0902	86.7	16.3	5.83	24.7	2.0
A0903	86.7	14.5	5.97	22.4	1.8
A0904	80.0	11.5	5.80	20.3	1.1
A0905	80.0	5.1	5.76	6.4	0.6
A1001	100.0	18.7	6.19	31.5	2.3
A1002	80.0	11.5	5.80	20.3	1.1
A1003	100.0	15.0	7.60	29.8	1.5
D0211	100.0	15.4	6.19	23.5	2.4
D0219	100.0	7.6	6.57	11.5	1.1
D0501	100.0	13.0	8.26	17.8	0.6
D0504	100.0	15.8	8.00	19.5	0.3
E0101	54.0	7.1	4.50	4.5	4.8
E0102	56.7	47.3	4.86	23.3	10.7
E0304	100.0	8.5	7.50	13.8	1.7
E0404	-	-	-	-	-
F0405	100.0	15.8	8.00	19.5	0.3
F0501	93.0	21.9	5.85	22.7	5.2
F0502	95.0	19.3	6.90	16.1	4.6
F0503	95.0	13.2	6.60	16.0	2.1
E0601	-	-	-	-	-
E0603	-	-	-	-	-
E1001	35.0	9.5	5.12	5.3	2.3
E1002	35.0	9.5	5.12	5.3	2.3
E1003	40.0	7.0	5.60	2.0	3.0
E1004	50.0	15.5	4.19	7.6	6.0
E1201	73.3	12.7	6.18	13.3	2.4
E1202	67.7	18.9	6.11	17.8	4.4
E1205	40.0	65.0	4.78	32.0	10.0
E1301	100.0	2.3	6.50	2.1	0.5
E1302	100.0	8.6	6.77	15.9	1.0
M0101	46.7	46.0	4.76	22.2	10.7
M0201	20.0	190.0	6.80	55.0	20.0
M0202	50.0	150.0	6.00	50.0	20.0
M0203	25.0	170.0	6.24	52.5	20.0
M0101	100.0	50.0	7.80	30.5	5.6
M0102	97.5	31.6	6.87	23.1	3.8
M0202	100.0	41.4	7.15	30.8	6.4
M0205	70.0	67.6	5.69	40.1	13.7
M0204	81.0	23.7	6.15	24.4	3.3
M0205	70.0	21.4	6.07	17.6	5.6
M0206	63.3	17.3	5.41	15.8	7.7
M0303	87.5	21.4	6.85	20.8	4.5
M0304	92.5	20.5	6.72	18.8	5.1
M0306	95.0	30.4	6.88	22.7	5.3
M0308	95.0	17.2	6.78	16.1	2.9
M0309	90.0	27.9	6.90	21.7	8.1
M0501	95.0	13.2	6.60	16.0	2.1
M0502	95.0	13.2	6.60	16.0	2.1

T10.1 (continued)

SOIL_M_C	SOIL_BS	SOIL_CEC	SOIL_PH	SOIL_CC	SOIL_OM
M0503	92.5	20.5	6.72	18.8	5.1
M0504	98.3	32.0	6.08	25.9	5.0
M0505	97.5	11.9	6.72	13.3	1.8
M0601	86.0	21.4	5.80	32.2	3.4
M0602	60.5	27.7	5.56	30.5	7.3
M0603	91.5	35.7	6.09	25.1	8.7
M0604	88.3	29.0	5.92	23.5	6.7
M0605	95.8	24.0	6.10	21.4	5.2
M0606	95.0	27.1	6.07	31.8	5.3
M0607	83.0	22.7	6.11	27.2	4.2
M0701	91.0	22.9	5.70	33.5	3.2
M0702	91.0	22.9	5.70	33.5	3.2
M0703	88.5	22.1	5.75	32.8	3.3
M0704	75.5	16.1	5.92	21.9	2.9
M0705	60.3	22.6	5.22	22.2	1.6
M0706	95.5	27.8	5.97	32.4	5.2
M0707	91.0	22.9	5.70	33.5	3.2
M0801	92.3	22.2	5.79	33.0	3.2
M0901	100.0	22.4	5.90	33.2	3.1
M0907	100.0	20.3	6.20	31.6	2.6
M0906	100.0	19.3	6.20	29.8	2.8
M0909	100.0	19.1	6.37	29.9	2.6
M0910	100.0	19.3	6.20	29.8	2.8
M0912	92.5	20.8	5.95	27.9	4.3
M0913	100.0	22.4	5.90	33.2	3.1
M0915	100.0	22.4	5.90	33.2	3.1
M0916	100.0	12.3	6.10	17.6	1.8
M0917	100.0	12.3	6.10	17.6	1.8
M0918	100.0	22.4	5.90	33.2	3.1
M0919	100.0	22.4	5.90	33.2	3.1
M1001	100.0	19.1	6.37	29.9	2.6
M1102	100.0	26.5	6.83	43.3	1.7
M1202	86.7	15.5	5.83	23.5	2.1
M1203	100.0	19.3	6.20	29.8	2.8
M1204	100.0	21.9	6.68	31.3	2.1
M1205	100.0	16.2	7.80	26.4	2.5
M1206	100.0	11.8	7.80	17.8	1.5
M1301	100.0	16.2	7.80	26.4	2.5
M1401	87.5	23.5	6.25	22.2	6.8
M0501	54.0	11.1	4.28	21.0	7.8
M0502	78.3	22.9	5.83	25.8	6.0
M0503	81.5	19.2	5.57	25.6	6.3
M0504	50.0	11.6	5.07	17.0	5.5
M0505	59.5	13.5	4.47	17.0	8.1
M0601	60.0	13.7	4.86	12.7	9.7
M0801	54.0	16.2	5.10	16.0	9.4
M0802	54.0	16.2	5.10	16.0	9.4
M0803	49.7	17.4	5.41	15.3	6.8
M0804	45.7	12.4	5.09	14.8	4.6
M0805	34.7	13.7	4.95	17.0	4.9
M0806	37.0	11.6	4.92	13.2	5.8
M0901	20.0	20.0	4.80	18.0	1.0
M0902	37.0	18.1	4.92	17.0	5.2
M0903	44.5	22.8	4.80	32.8	2.2
M1001	43.0	19.1	5.26	14.0	9.2
M1002	30.0	19.2	4.92	16.4	8.7
M1003	30.0	19.2	4.92	16.4	8.7
M1004	30.0	19.2	4.92	16.4	8.7
M1101	60.0	8.0	5.50	10.8	0.7
S0101	34.0	4.6	4.29	2.5	2.3
S0301	40.0	50.0	4.70	14.0	18.0
S0401	20.0	6.0	4.70	0.6	4.0
S0402	20.0	6.0	4.70	0.6	4.0
S0403	30.0	28.0	4.70	7.3	11.0
S0404	50.0	28.0	4.70	7.3	11.0
S0405	30.0	28.0	4.70	7.3	11.0
S0406	35.0	11.5	4.75	9.3	2.5
S0407	36.7	11.0	4.90	7.5	3.0
S0408	44.0	16.0	5.03	17.2	9.0
S0409	57.7	12.7	5.00	18.8	7.0
S0410	53.3	13.6	5.12	12.9	2.9
S0411	20.0	6.0	4.70	0.6	4.0
U0101	42.0	16.0	4.90	11.5	5.5
U0102	25.0	9.5	4.85	9.5	1.9
U0103	40.0	7.0	5.60	2.0	3.0
U0104	59.5	27.5	4.18	30.6	15.7
U0401	35.0	7.4	4.99	6.0	1.2
U0501	20.0	7.0	4.80	10.4	2.3
U0502	20.0	7.0	4.80	10.4	2.3
U0503	20.0	7.0	4.80	10.4	2.3
U0504	20.0	7.0	4.80	10.4	2.3
U0505	37.0	11.6	4.92	13.2	5.8
U0506	57.0	11.6	4.92	13.2	5.8
U0507	37.0	11.6	4.92	13.2	5.8
U0508	30.0	4.9	4.92	6.9	1.6
U0509	45.7	12.4	5.09	14.8	4.6
U0510	41.5	10.5	5.08	14.2	2.1
U0511	20.0	7.0	4.80	10.4	2.3

T10.1 (continued)

SOIL_M_C	SOIL_BS	SOIL_CEC	SOIL_PH	SOIL_CC	SOIL_OM
U0512	25.0	9.5	4.85	9.5	1.9
U0513	34.7	11.7	4.92	11.7	4.4
U0601	30.0	12.0	4.90	8.7	1.5
U0602	54.0	7.4	4.99	6.0	1.2
U0603	35.0	7.4	4.99	6.0	1.2
U0604	44.0	7.4	4.99	6.0	1.2
U0605	25.0	9.5	4.85	9.5	1.9
U0606	30.0	7.3	4.92	7.5	1.6
U0607	25.0	9.5	4.50	14.2	1.2
U0608	35.8	12.8	5.01	15.4	2.2
U0609	35.0	9.5	5.12	5.3	2.3
U0610	35.0	9.5	5.12	5.3	2.3
U0611	41.0	12.4	5.15	15.4	3.6
V0101	44.5	22.8	4.80	32.8	2.2
V0201	95.0	29.9	5.41	43.2	3.0
V0301	98.5	28.3	6.09	40.7	2.1
V0401	98.5	34.7	6.00	43.9	2.3
V0402	100.0	22.8	6.84	38.4	1.1

TITLE: T11 - UNIQUE LAND SURFACE COVER (SAND & SWAMP)

DESCRIPTION: The land surface form map (Hammond 1959) indicates areas in which more than fifty percent of the surface is covered by sand and areas in which standing water covers more than fifty percent or covers ten to fifty percent of the surface. This data set contains the area of each county in which these conditions occur. Sands are usually droughty and infertile while standing water is the extreme case of poor drainage. These conditions either restrict the habitat or create unique habitat conditions.

SOURCE(S): Roswell, C. A. 1976. Terrain Magnetic Tape File. University of Maryland, MD.

REFERENCE(S): Roswell 1976, Hammond 1959.

YEAR(S): 1967	TEMPORAL RESOLUTION: Hist.
GEOCOVERAGE: East	SPATIAL RESOLUTION: County
STATUS: Online	DATA SET TYPE: Single
NUMBER OF RECORDS: .	VARIABLES PER RECORD: 5
CREATED/UPDATED: Mar. 1980	NEW DATA: Not anticipated
COMPILER: R J Olson	

VARIABLE	LABEL AND UNITS OF MEASURE
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
SND_50_A	Area covered by sand (>50% coverage) ha
WTR_30_A	Area occupied by water (10-50%) ha
WTR_50_A	Area occupied by water (>50%) ha

TITLE: T12 - SOILS AVERAGE CHEMICAL CHARACTERISTICS

DESCRIPTION: The Soil Map Unit characteristics (T10) and Soil Map Unit distribution data (T03) were combined to estimate average soil characteristics for counties. If several Soil Map Units occurred within a county, the values were weighted according to the area of the county occupied by each type. Such an averaging procedure tends to obscure minor soil types or atypic variation. Since rocky outcrops and stony land were not included in the ratings, the county data are likely to overestimate soil properties such as the capacity to buffer acid precipitation. The orientation of this data set is regional, so local variation, which must be considered for site-specific studies, was not considered.

SOURCE(S): T03; T10.

REFERENCE(S): Klopatek et al. 1980a.

COMMENTS: Soil cation exchange capacity is expressed as milli-equivalents per 100 grams (meq/100g).

YEAR(S): 1967

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 2660

CREATED/UPDATED: Mar. 1980

COMPILER: J M Klopatek

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 7

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE	
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
SOIL_BS	Soil base saturation	percent
SOIL_CC	Soil clay content	percent
SOIL_CEC	Soil cation exchange capacity	meq/100g
SOIL_OM	Soil organic matter	percent
SOIL_PH	Soil pH	

TITLE: T13 - SOILS AT SOIL ORDER LEVEL

DESCRIPTION: The Soil Map Unit data set (T03) was aggregated to the Soil Order level by county to form this data set. Thus the area of counties in each of the nine Soil Orders was created. This data set was mapped and used for editing the T03 file. Some of the editing was performed at Brookhaven National Laboratory by Ed Kaplan and Alicia Portas.

SOURCE(S): T03.

YEAR(S): 1967

GEOCOVERAGE: East

STATUS: Online

NUMBER OF RECORDS: 2660

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION: County

DATA SET TYPE: Single

VARIABLES PER RECORD: 11

NEW DATA: Not anticipated

VARIABLE	LABEL AND UNITS OF MEASURE

ALFI_A	Alfisol soil	ha
ARIDI_A	Aridisol soil	ha
ENTI_A	Entisol soil	ha
FIPS_CO	FIPS county number	
FIPS_ST	FIPS state number	
HISTO_A	Histosol soil	ha
INCPT_A	Inceptisol soil	ha
MOLLI_A	Mollisol soil	ha
SPODO_A	Spodosol soil	ha
ULTI_A	Ultisol soil	ha
VERTI_A	Vertisol soil	ha

TITLE: T14 - PHYSICAL REGIONS

DESCRIPTION: Land is classified by physical form. This classification differs from physiographic forms, which are geomorphological formations. Physical forms at the subdivision level provide a general view of the land, comparable to Bailey's ecoregions (Bailey 1976, Bailey 1978). There are six divisions and 35 subdivisions in the U. S. The base map for this data set is Sheet 60 in the National Atlas (USDI 1970). This map was drawn by E. H. Hammond as a summary of his Land Surface Form map (Hammond 1963), which was digitized for data set T01.

SOURCE(S): USDI 1970. Sheet 60.

YEAR(S): 1970

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U.S.

SPATIAL RESOLUTION: County

STATUS: Being Edited

DATA SET TYPE: Multiple

TITLE: T15 - PHYSICAL REGIONS DICTIONARY

DESCRIPTION: Codes for E. H. Hammond's Physical Subdivisions (see T14) are tabulated at both the division and the subdivision levels. The codes consist of a number and letter. The number is the division code; the letter is the subdivision code within a division. There are six divisions and 35 subdivisions in the U. S.

SOURCE(S): USDI 1970. Sheet 60.

YEAR(S): 1970

GEOCOVERAGE: U.S.

STATUS: Being Edited

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION:

DATA SET TYPE: Dictnry

WILDLIFE (W) SECTOR OVERVIEW

The Wildlife Sector includes information on birds and mammals. The distribution and abundance of birds was obtained from the Breeding Bird Survey (BBS) which is conducted annually by the Fish and Wildlife Service. Information on the potential presence or absence of 280 mammal species by county was digitized from a variety of sources. Endangered species (animals and plants) data were obtained from Brookhaven National Laboratory (Nagy and Calef 1979). Plans exist to incorporate additional information which would define wildlife habitat requirements.

TITLE: W01 - BBS ROUTES (BREEDING BIRD SURVEY)

DESCRIPTION: Since 1966, the U. S. Fish and Wildlife Service has coordinated an annual survey of birds during the breeding season (early summer). The Breeding Bird Survey (BBS) is conducted by volunteers. Routes have been established which follow roads selected to give a random sample of roadside habitats. Fifty three-minute stops are made along the 40 km route and the count of each species seen or heard within 0.4 km radius is recorded. The survey provides species composition by various habitats, relative abundance estimates, and population trends over time. This data set defines the name, number, location, type, strata code, ecoregion code, and vegetation code(s) of each route. The type code indicates if the route was not run using prescribed methods. Codes are: 1=regular, 2=experimental, 3=late finish (over 5.5 hours), 4=check route, 5=early start (over 15 minutes), 6=late finish (over 30 minutes), 7=miscellaneous, 8=bad weather, 9=late date, 0=incomplete (fewer than 45 stops). Ecological strata are physiographic/ecological subdivisions used by the USF&WS to define homogeneous regions. There are 58 strata in the United States. Each route was associated with ecoregions (Bailey 1976) by comparing the state route maps with the ecoregion maps. Potential natural vegetation types (Kuchler 1964) were also keyed to the BBS routes by comparing the BBS routes and vegetation map. When BBS routes crossed several vegetation types, the three, or fewer, most dominant types were included. This data set is used with W02 through W08 to provide route data.

SOURCE(S): Bystrak, D. 1979. BBS Super-Deck Magnetic Tape File. U. S. Fish and Wildlife Service, Laurel, MD.

REFERENCE(S): Bystrak 1979.

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 2367

CREATED/UPDATED: Mar. 1980

COMPILER: R J Olson

TEMPORAL RESOLUTION: Annual

SPATIAL RESOLUTION: Points

DATA SET TYPE: Index

VARIABLES PER RECORD: 27

NEW DATA: Infrequently

VARIABLE	LABEL AND UNITS OF MEASURE

BBS_CMNT	Comments about BBS route
BBS_LAT	Latitude of start of BBS route
BBS_LONG	Longitude of start of BBS route

BBS_NAME	BBS route name
BBS_RT	BBS route number within a state
BBS_ST	BBS state code number
BBS_T_65	BBS route type, 1965
BBS_T_66	BBS route type, 1966
BBS_T_67	BBS route type, 1967
BBS_T_68	BBS route type, 1968
BBS_T_69	BBS route type, 1969
BBS_T_70	BBS route type, 1970
BBS_T_71	BBS route type, 1971
BBS_T_72	BBS route type, 1972
BBS_T_73	BBS route type, 1973
BBS_T_74	BBS route type, 1974
BBS_T_75	BBS route type, 1975
BBS_T_76	BBS route type, 1976
BBS_T_77	BBS route type, 1977
BBS_TAG	Tag, * - BBS route within one strata
ECO_CODE	Ecoregion section code, Bailey 1976
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
STR_CODE	BBS strata code
VEG1_C	Vegetation crossed by BBS route, Kuchler
VEG2_C	Vegetation crossed by BBS route, Kuchler
VEG3_C	Vegetation crossed by BBS route, Kuchler

TITLE: W02 - BBS PHYSIOGRAPHIC STRATA DICTIONARY

DESCRIPTION: The names of the Breeding Bird Survey physiographic strata are given. The BBS strata are defined by the USF&WS using a combination of the potential natural vegetation scheme of Kuchler (1964) and the physiographic/land-use scheme of Fenneman (1931, 1938).

SOURCE(S): Bystrak, D. 1979. Map of BBS Strata. U. S. Fish and Wildlife Service, Laurel, MD.

YEAR(S): 1978

TEMPORAL RESOLUTION:

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 61

VARIABLES PER RECORD: 3

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE
BBS_RT_N	BBS number of routes within a strata
STR_CODE	BBS strata code
STR_DSCP	Physiographic strata description

TITLE: W03 - BBS BIRD CODES DICTIONARY

DESCRIPTION: The American Ornithologists' Union (AOU) Check-list of North American Birds (1957) identifies species with 4-digit numeric codes. This dictionary provides common names and AOU codes for each of the 700 species in the Breeding Bird Survey.

SOURCE(S): Robbins, C. 1974. AOU Bird Species Codes Card Deck. US Fish and Wildlife Service. Laurel, MD.

REFERENCE(S): American Ornithologists' Union 1957.

YEAR(S):

TEMPORAL RESOLUTION:

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 739

VARIABLES PER RECORD: 3

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE
AOU_CODE	AOU bird species code number
AOU_SEQ	AOU sequence numbers
BRD_DSCP	Common bird names

TITLE: W04 - BBS BIRD NATIONAL & REGIONAL STATS

DESCRIPTION: National and regional statistics for birds were generated from the 1973-1974 average Breeding Bird Survey (BBS) data set W08. For each species, a set of parameters were calculated for each region or the nation. The first part of the SAS variable name indicates the region, and the last character indicates the parameter. The set of parameters and their codes are: N-count, count divided by number of routes in region; F-fraction, count divided by total count of all species in region; and R-rank within region based on count. The bird key is an identifier which was created by assigning consecutive numbers to the 470 species that were recorded in the 1973-1974 BBS. Federally designated endangered species were deleted from this data set and treated separately in the RARE-II analysis.

SOURCE(S): W08.

YEAR(S): 1973-1974

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: Region

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 462

VARIABLES PER RECORD: 16

CREATED/UPDATED: Mar. 1980

NEW DATA: As available

COMPILER: L K Mann, J T Kitchings

VARIABLE	LABEL AND UNITS OF MEASURE
AOU_CODE	AOU bird species code number
AOU_SEQ	AOU sequence numbers
BRD_C_N	Central aver. bird count, 1973-74
BRD_C_P	Fraction of central total
BRD_C_R	Central ranks of birds
BRD_DSCP	Common bird names
BRD_E_N	Eastern aver. bird count, 1973-74
BRD_E_P	Fraction of eastern total
BRD_E_R	Eastern ranks of birds
BRD_KEY	Bird key number, 1-470, RARE II subset
BRD_N_N	National aver. bird count, 1973-74
BRD_N_P	Fraction of national total
BRD_N_R	National ranks of birds
BRD_W_N	Western aver. bird count, 1973-74
BRD_W_P	Fraction of western total
BRD_W_R	Western ranks of birds

W04.1 Bird Species Codes Dictionary.

BRO_KEY	AQU_CODE	COMMON NAME	BRO_KEY	AQU_CODE	COMMON NAME
1	0010	WESTERN GREBE	87	2180	PURPLE GALLINULE
2	0020	RED-NECKED GREBE	88	2190	COMMON GALLINULE
3	0030	HORNED GREBE	89	2210	AMERICAN COOT
4	0040	EARED GREBE	90	2240	WILSON'S PHALAROPE
5	0060	PIED-BILLED GREBE	91	2250	AMERICAN AVOCET
6	0070	COMMON LOON	92	2260	BLACK-NECKED STILT
7	0150	RHINOCEROS AUKLET	93	2280	AMERICAN WOODCOCK
8	0290	PIGEON GUILLEMOT	94	2300	COMMON SNIPES
9	0300	COMMON MURRE	95	2340	KNOT
10	0440	GLAUCOUS-WINGED GULL	96	2480	SANDERLING
11	0470	GT. BLACK-BACKED GULL	97	2490	MARbled GOOWIT
12	0490	WESTERN GULL	98	2550	LESSER YELLOWLEGS
13	0510	MERRING GULL	99	2580	WILLET
14	0530	CALIFORNIA GULL	100	2610	UPLAND PLOVER
15	0554	UNIDENT. GULL	101	2630	SPOTTED SANDPIPER
16	0540	RING-BILLED GULL	102	2640	LONG-BILLED CURLEW
17	0580	LAUGHING GULL	103	2700	BLACK-BELLIED PLOVER
18	0500	FRANKLIN'S GULL	104	2720	KILLDEER
19	0600	BONAPARTE'S GULL	105	2780	SNOWY PLOVER
20	0630	GULL-BILLED TERN	106	2800	WILSON'S PLOVER
21	0640	CASPIAN TERN	107	2810	MOUNTAIN PLOVER
22	0650	ROYAL TERN	108	2860	AM. OYSTERCATCHER
23	0690	FORSTER'S TERN	109	2870	BLACK OYSTERCATCHER
24	0700	COMMON TERN	110	2881	GRAY PARTRIDGE
25	0720	ROSEATE TERN	111	2882	CHUKAR
26	0740	LEAST TERN	112	2890	BORWHITE
27	0770	BLACK TERN	113	2920	MOUNTAIN QUAIL
28	0800	BLACK SKIMMER	114	2930	SCALED QUAIL
29	1141	BLUE-FOOTED BOOBY	115	2940	CALIFORNIA QUAIL
31	1180	AMHINGA	116	2950	GAMBEL'S QUAIL
32	1200	DOUBLE-CR. CORMORANT	117	2970	BLUE GROUSE
33	1210	OLIVACEOUS CORMORANT	118	3000	RUFFED GROUSE
34	1220	BRANDT'S CORMORANT	119	3080	SHARP-TAILED GROUSE
35	1230	PELAGIC CORMORANT	120	3090	SAGE GROUSE
36	1250	WHITE PELICAN	121	3091	RING-NECKED PHEASANT
37	1280	MAGNIF. FRIGATEBIRD	122	3100	TURKEY
38	1290	COMMON MERGANSER	123	3110	CHACHALACA
39	1300	RED-BREASTED MERGANSER	124	3120	BAND-TAILED PIGEON
40	1310	HOODED MERGANSER	125	3131	ROCK DOVE
41	1320	MALLARD	126	3140	WHITE-CROWNED PIGEON
42	1350	BLACK DUCK	127	3151	SPOTTED DOVE
43	1340	MOTTLED DUCK	128	3160	MOURNING DOVE
44	1350	GAUWALL	129	3180	WHITE-THROATED DOVE
45	1370	AMERICAN WIDGEON	130	3190	WHITE-WINGED DOVE
46	1390	GREEN-WINGED TEAL	131	3200	GRINDING DOVE
47	1400	BLUE-WINGED TEAL	132	3210	INCA DOVE
48	1410	CINNAMON TEAL	133	3250	TURKEY VULTURE
49	1420	SHOVELER	134	3260	BLACK VULTURE
50	1450	PINTAIL	135	3270	SWALLOW-TAILED KITE
51	1440	WOOD DUCK	136	3280	WHITE-TAILED KITE
52	1460	REDHEAD	137	3290	MISSISSIPPI KITE
53	1470	CANVASBACK	138	3310	MARSH HAWK
54	1490	LESSER SCAUP	139	3320	SHARP-SHINNED HAWK
55	1500	RING-NECKED DUCK	140	3330	COOPER'S HAWK
56	1510	COMMON GOLDENEYE	141	3340	BOSSAWAK
57	1520	BARROW'S GOLDENEYE	142	3350	HARRIS' HAWK
58	1530	BUFFLEHEAD	143	3370	RED-TAILED HAWK
59	1670	RUDDY DUCK	144	3390	RED-SHOULDERED HAWK
60	1720	CANADA GOOSE	145	3410	WHITE-TAILED HAWK
61	1770	BLACK-BEL. TREE DUCK	146	3420	SWAINSON'S HAWK
62	1780	FULVUS TREE DUCK	147	3430	BROAD-WINGED HAWK
63	1810	TRUMPETER SWAN	148	3451	UNIDENT. BUTEO
64	1830	ROSEATE SPOONBILL	149	3470	ROUGH-LEGGED HAWK
65	1840	WHITE IBIS	150	3480	FERRUGINOUS HAWK
66	1060	GLOSSY IBIS	151	3490	GOLDEN EAGLE
67	1870	WHITE-FACED IBIS	152	3550	PRAIRIE FALCON
68	1880	WOOD IBIS	153	3570	PIGEON HAWK
69	1900	AMERICAN BITTERN	154	3600	SPARROW HAWK
70	1910	LEAST BITTERN	155	3620	CARACARA
71	1920	GREAT WHITE HERON	156	3640	OSPREY
72	1940	GREAT BLUE HERON	157	3650	HOON OWL
73	1960	COMMON EGRET	158	3660	LUNG-EARED OWL
74	1970	SNOWY EGRET	159	3670	SHORT-EARED OWL
75	1980	REDDISH EGRET	160	3680	BARRED OWL
76	1990	LOUISIANA HERON	163	3730	SCREECH OWL
77	2000	LITTLE BLUE HERON	164	3750	GREAT HORNED OWL
78	2001	CATTLE EGRET	165	3780	BURROWING OWL
79	2010	GREEN HERON	166	3790	PYGMY OWL
80	2020	BLACK-CR. NIGHT HERON	168	3830	SMOOTH-BILLED ANI
81	2030	YELLOW-CR. NT. HERON	169	3840	GROOVE-BILLED ANI
82	2070	LIMPKIN	170	3850	ROADRUNNER
83	2080	KING RAIL	171	3870	YELLOW-BILLED CUCKOO
84	2110	CLAPPER RAIL	172	3880	BLACK-BILLED CUCKOO
85	2120	VIRGINIA RAIL	173	3900	BELTED KINGFISHER
86	2140	SORA	174	3930	HAIKY WOODPECKER

W04.1 (continued)

BRD_KEY	AOU_CODE	COMMON NAME	BRD_KEY	AOU_CODE	COMMON NAME
175	3940	DOWNY WOODPECKER	261	4950	BROWN-HEADED COWBIRD
176	3960	LADDER-BACK WOODPECKER	262	4960	BRONZED COWBIRD
177	3970	NUTTALL'S WOODPECKER	263	4970	YELLOW-HEAD. BLACKBIRD
178	3980	ARIZONA WOODPECKER	264	4980	RED-WINGED BLACKBIRD
179	3990	WHITE-HEADED WOODPKR	265	5000	TRICOLORED BLACKBIRD
180	4000	BLK-BACK 3-TOED WDPKR	266	5010	EASTERN MEADOWLARK
181	4020	YELLOW-BEL. SAPSUCKER	267	5011	WESTERN MEADOWLARK
182	4040	WILLIAMSON'S SAPSUCKER	268	5012	UNIDENT. MEADOWLARK
183	4050	PILEATED WOODPECKER	269	5030	BLACK-HEADED ORIOLE
184	4060	RED-HEADED WOODPECKER	270	5032	SPOTTED-BREAST. ORIOLE
185	4070	ACORN WOODPECKER	271	5040	SCOTT'S ORIOLE
186	4080	LEWIS' WOODPECKER	272	5050	HOODED ORIOLE
187	4090	RED-BELLIED WOODPECKER	273	5060	ORCHARD ORIOLE
188	4100	GOLDEN-FRONTED WOODPKR	274	5070	BALTIMORE ORIOLE
189	4110	GILA WOODPECKER	275	5077	NORTHERN ORIOLE
190	4120	YELLOW-SHAFTED FLICKER	276	5080	BULLOCK'S ORIOLE
191	4130	RED-SHAFTED FLICKER	277	5090	RUSTY BLACKBIRD
192	4140	GILDED FLICKER	278	5100	BREWER'S BLACKBIRD
193	4160	CHUCK-WILL'S-WIDOW	279	5110	COMMON GRACKLE
194	4170	WHIP-POOR-WILL	280	5130	BOAT-TAILED GRACKLE
195	4180	POOR-WILL	281	5139	GREAT-TAILED GRACKLE
196	4190	PAURAGUE	282	5140	EVENING GROSBEAK
197	4200	COMMON NIGHTHAWK	283	5150	PINE GROSBEAK
198	4210	LESSER NIGHTHAWK	284	5170	PURPLE FINCH
199	4220	BLACK SWIFT	285	5180	CASSIN'S FINCH
200	4230	CHIMNEY SWIFT	286	5190	HOUSE FINCH
201	4240	VAUX'S SWIFT	287	5210	RED CROSSBILL
202	4250	WHITE-THROATED SWIFT	288	5220	WHITE-WINGED CROSSBILL
203	4280	RUBY-THR. HUMMINGBIRD	289	5290	AMERICAN GOLDFINCH
204	4290	BLACK-CHIN HUMMINGBIRD	290	5300	LESSER GOLDFINCH
205	4300	COSTA'S HUMMINGBIRD	291	5310	LAWRENCE'S GOLDFINCH
206	4310	ANNA'S HUMMINGBIRD	292	5330	PINE SISKIN
207	4320	BROAD-TAIL HUMMINGBIRD	293	5380	CHESTNUT-COL. LONGSPUR
208	4330	RUFIOUS HUMMINGBIRD	294	5390	MCCOWN'S LONGSPUR
209	4340	ALLEN'S HUMMINGBIRD	295	5400	VESPER SPARROW
210	4360	CALLIOPE HUMMINGBIRD	296	5420	SAVANNAH SPARROW
211	4401	UNIDENT. HUMMINGBIRD	297	5450	BAIRD'S SPARROW
215	4450	SCISSOR-TLD FLYCATCHER	298	5460	GRASSHOPPER SPARROW
216	4460	EASTERN KINGBIRD	299	5470	HENSLOW'S SPARROW
217	4470	GRAY KINGBIRD	300	5480	LE COMTE'S SPARROW
218	4480	WESTERN KINGBIRD	301	5490	SHARP-TAILED SPARROW
219	4490	KISKADEE FLYCATCHER	302	5500	SEASIDE SPARROW
220	4520	GT. CRESTED FLYCATCHER	303	5520	LARK SPARROW
221	4550	WIED'S CR. FLYCATCHER	304	5540	WHITE-CROWNED SPARROW
222	4540	ASH-THROAT. FLYCATCHER	305	5580	WHITE-THROATED SPARROW
223	4550	OLIVACEOUS FLYCATCHER	306	5600	CHIPPING SPARROW
224	4560	EASTERN PHOEBE	307	5610	CLAY-COLORED SPARROW
225	4570	SAY'S PHOEBE	308	5620	BREWER'S SPARROW
226	4580	BLACK PHOEBE	309	5630	FIELD SPARROW
227	4590	OLIVE-SIDED FLYCATCHER	310	5650	BLACK-CHINNED SPARROW
228	4610	EASTERN WOOD PEMEE	311	5660	WHITE-WINGED JUNCO
229	4620	WESTERN WOOD PEMEE	312	5670	SLATE-COLORED JUNCO
230	4630	YELLOW-B. FLYCATCHER	313	5679	OREGON JUNCO
231	4640	WESTERN FLYCATCHER	315	5708	GRAY-HEADED JUNCO
232	4650	ACADIAN FLYCATCHER	316	5730	BLACK-THROATED SPARROW
233	4660	TRAILL'S FLYCATCHER	317	5740	SAGE SPARROW
234	4663	ALDER FLYCATCHER	318	5750	BACHMAN'S SPARROW
235	4664	WILLOW FLYCATCHER	320	5780	CASSIN'S SPARROW
236	4670	LEAST FLYCATCHER	321	5790	RUFIOUS-WINGED SPARROW
237	4679	EMPTONAY SP.	322	5800	RUFIOUS-CROWNED SPARROW
238	4680	HAMMOND'S FLYCATCHER	325	5810	SONG SPARROW
239	4690	DUSKY FLYCATCHER	326	5830	LINCOLN'S SPARROW
240	4691	GRAY FLYCATCHER	327	5840	SWAMP SPARROW
241	4710	VERMILION FLYCATCHER	328	5850	FOX SPARROW
242	4720	BEARDLESS FLYCATCHER	327	5860	OLIVE SPARROW
243	4740	HORNED LARK	328	5870	RUFIOUS-SIDED TOWHEE
244	4750	BLACK-BILLED MAGPIE	329	5910	BROWN TOWHEE
245	4760	YELLOW-BILLED MAGPIE	330	5920	ABERT'S TOWHEE
246	4770	BLUE JAY	331	5921	GREEN-TAILED TOWHEE
247	4780	STELLER'S JAY	332	5930	CARDINAL
248	4810	SCRUB JAY	335	5940	PYRRHULOXIA
249	4820	MEXICAN JAY	334	5950	ROSE-BREASTED GROSBEAK
250	4830	GREEN JAY	335	5960	BLACK-HEADED GROSBEAK
251	4840	GRAY JAY	336	5970	BLUE GROSBEAK
252	4860	COMMON RAVEN	337	5980	INDIGO BUNTING
253	4870	WHITE-NECKED RAVEN	338	5990	LAZULI BUNTING
254	4880	COMMON CROW	339	6000	VARIED BUNTING
255	4890	NORTHWESTERN CROW	340	6010	PAINTED BUNTING
256	4900	FISH CROW	341	6040	DICKCISSEL
257	4910	CLARK'S NUTCRACKER	342	6050	LARK BUNTING
258	4920	PINYON JAY	343	6070	WESTERN Tanager
259	4930	STARLING	344	6080	SCARLET Tanager
260	4940	BOBOLINK	345	6090	HEPATIC Tanager
			346	6100	SUMMER Tanager
			347	6110	PURPLE MARTIN

W04.1 (continued)

BRD_KEY	AOU_CODE	COMMON NAME	BRD_KEY	AOU_CODE	COMMON NAME
348	6120	CLIFF SWALLOW	434	7190	BEWICK'S WREN
349	6130	BARN SWALLOW	435	7210	HOUSE WREN
350	6140	TREE SWALLOW	436	7220	WINTER WREN
351	6150	VIOLET-GREEN SWALLOW	437	7240	SHORT-BILL MARSH WREN
352	6160	BANK SWALLOW	438	7250	LONG-BILLED MARSH WREN
353	6170	ROUGH-WINGED SWALLOW	439	7260	BROWN CREEPER
354	6190	CEDAR WAXWING	440	7270	WHITE-BREAST NUTHATCH
355	6200	PHAINOPEPLA	441	7280	RED-BREASTED NUTHATCH
356	6220	LOGGERHEAD SHRIKE	442	7290	BROWN-HEAD NUTHATCH
357	6230	BLACK-WHISKERED VIREO	443	7300	PYGMY NUTHATCH
358	6240	RED-EYED VIREO	444	7310	TUFTED TITMOUSE
359	6260	PHILADELPHIA VIREO	445	7320	BLACK-CRESTED TITMOUSE
360	6270	WARBLING VIREO	446	7330	PLAIN TITMOUSE
361	6280	YELLOW-THROATED VIREO	447	7340	BRIDLED TITMOUSE
362	6290	SOLITARY VIREO	448	7350	BLACK-CAPPED CHICKADEE
364	6310	WHITE-EYED VIREO	449	7360	CAROLINA CHICKADEE
365	6320	HUTTON'S VIREO	450	7380	MOUNTAIN CHICKADEE
366	6330	BELL'S VIREO	451	7400	BOREAL CHICKADEE
367	6340	GRAY VIREO	452	7410	CHESTNUT-BKD CHICKADEE
368	6360	BLACK-TH WHITE WARBLER	453	7420	WREN TIT
369	6370	PROTHOMOTARY WARBLER	454	7430	COMMON BUSHTIT
370	6380	SWAINSON'S WARBLER	455	7460	VERDIN
371	6390	MORN-EATING WARBLER	456	7480	GOLDEN-CROWNED KINGLET
372	6410	BLUE-WINGED WARBLER	457	7490	RUBY-CROWNED KINGLET
373	6420	GOLDEN-WINGED WARBLER	458	7510	BLUE-GRAY GNATCATCHER
374	6430	LUCY'S WARBLER	459	7520	BLACK-TAIL GNATCATCHER
375	6440	VIRGINIA'S WARBLER	460	7540	TOWNSEND'S SOLITAIRE
376	6450	NASHVILLE WARBLER	461	7550	WOOD THRUSH
377	6460	ORANGE-CROWNED WARBLER	462	7560	VEERY
378	6470	TENNESSEE WARBLER	463	7570	GRAY-CHEEKED THRUSH
379	6480	PARULA WARBLER	464	7580	SWAINSON'S THRUSH
380	6500	CAPE MAY WARBLER	465	7590	HERMIT THRUSH
381	6520	YELLOW WARBLER	466	7610	ROBIN
382	6540	BLACK-TH BLUE WARBLER	467	7630	VARIED THRUSH
383	6550	MYRTLE WARBLER	468	7660	EASTERN BLUEBIRD
384	6560	AUDUBON'S WARBLER	469	7670	WESTERN BLUEBIRD
385	6570	MAGNOLIA WARBLER	470	7680	MOUNTAIN BLUEBIRD
386	6580	CERULEAN WARBLER			
387	6590	CHESTNUT-THOED WARBLER			
388	6600	BAY-BREASTED WARBLER			
389	6610	BLACKPOLL WARBLER			
390	6620	BLACKBURNIAN WARBLER			
391	6630	YELLOW-THROATED WARBLER			
392	6640	GRACE'S WARBLER			
393	6650	BLACK-TH GRAY WARBLER			
394	6670	BLACK-TH GREEN WARBLER			
395	6680	TOWNSEND'S WARBLER			
396	6690	HERMIT WARBLER			
397	6710	PINE WARBLER			
398	6720	PALM WARBLER			
399	6730	PRAIRIE WARBLER			
400	6740	OVENBIRD			
401	6750	NORTHERN WATERTHRUSH			
402	6760	LOUISIANA WATERTHRUSH			
403	6770	KENTUCKY WARBLER			
404	6780	CONNECTICUT WARBLER			
405	6790	MOURNING WARBLER			
406	6800	MACGILLIVRAY'S WARBLER			
407	6810	YELLOWTHROAT			
408	6830	YELLOW-BREASTED CHAT			
409	6840	HOODED WARBLER			
410	6850	WILSON'S WARBLER			
411	6860	CANADA WARBLER			
412	6870	AMERICAN REDSTART			
413	6880	PAINTED REDSTART			
414	6882	HOUSE SPARROW			
415	6883	EUROPEAN TREE SPARROW			
416	6900	RED-FACED WARBLER			
417	6970	WATPA PIPIT			
418	7000	SPRAGUE'S PIPIT			
419	7010	DIPPER			
420	7020	SAGE THRASHER			
421	7030	MCKINGTID			
422	7040	LAIBIRD			
423	7050	BROWN THRASHER			
424	7060	LONG-BILLED THRASHER			
425	7070	CURVE-BILLED THRASHER			
426	7080	BENDIRE'S THRASHER			
427	7100	CALIFORNIA THRASHER			
428	7110	LE CONTE'S THRASHER			
429	7120	CRESSAL THRASHER			
430	7130	CACTUS WREN			
431	7150	ROCK WREN			
432	7170	CANYON WREN			
433	7180	CAROLINA WREN			

TITLE: W05 - BBS BIRD-ECOREGION STATS

DESCRIPTION: Ecoregion statistics are given for birds based on the 1973-1974 average counts from the Breeding Bird Survey data set W08. A set of parameters was calculated for each ecoregion. The last characters of the SAS name indicate the parameter. Parameters and their codes are: N-average count, count divided by number of routes in ecoregion; P-fraction, count divided by total count of all routes in ecoregion; and TOT-total count of all species on all routes in ecoregion. Only routes that appeared entirely within an ecoregion were used to calculate W05.

SOURCE(S): W01, W08.

YEAR(S): 1973-1974

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: Ecorgn

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 6916

VARIABLES PER RECORD: 5

CREATED/UPDATED: Mar. 1980

NEW DATA: As available

COMPILER: L K Mann, J T Kitchings

VARIABLE	LABEL AND UNITS OF MEASURE

AOU_CODE	AOU bird species code number
EBRD_N	Ecoregion bird average count, 1973-74
EBRD_P	Fraction of counts within ecoregion
EBRD_TOT	Ecoregion bird total, all species
ECO_CODE	Ecoregion section code, Bailey 1976

TITLE: W06 - BBS BIRD COUNTS WITHIN STRATA

DESCRIPTION: Strata statistics are given for birds based on the 1973-1974 average counts from the Breeding Bird Survey data set W08. A set of parameters was calculated for each species within each strata. The last characters of the SAS name indicate the type of parameter. Parameters and their codes are: N-average count, count divided by number of routes in strata; and TOT-number of route occurrences in the strata. Only routes that appeared entirely within a strata were used to calculate W06. The association of routes and strata was provided by Danny Bystrak of the USF&WS including the definition of strata-crossers.

SOURCE(S): W01, W08.

YEAR(S): 1973-1974

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: Region

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 7041

VARIABLES PER RECORD: 4

CREATED/UPDATED: Mar. 1980

NEW DATA: As available

COMPILER: L K Mann, J T Kitchings

VARIABLE	LABEL AND UNITS OF MEASURE

AOU_CODE	AOU bird species code number
SBRD_N	BBS strata bird route occurrences
SBRD_TOT	BBS strata average bird count
STR_CODE	BBS strata code

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TITLE: W08 - BBS BIRD COUNTS FOR ROUTES

DESCRIPTION: Route statistics for each species are based on the 1973-1974 average counts from the Breeding Bird Survey data tapes. The average count is calculated as the total count for the two years divided by two. All routes are included. Data set W01 provides location, type, and identifiers of strata, ecoregion, and vegetation types associated with each route.

SOURCE(S): Robbins, C. 1975. 1966-1974 BBS Magnetic Tape Files. U. S. Fish and Wildlife Service, Laurel, MD.

YEAR(S): 1973-1974

TEMPORAL RESOLUTION: Norms

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: Points

STATUS: Offline

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 110613

VARIABLES PER RECORD: 5

CREATED/UPDATED: Mar. 1980

NEW DATA: As available

COMPILER: R J Olson

VARIABLE	LABEL AND UNITS OF MEASURE

AOU_CODE	AOU bird species code number
COUNT	Mean count based on 1973 and 1974
FIPS_ST	FIPS state number
BBS_RT	BBS route number within a state
BBS_ST	BBS strata code

TITLE: W09 - ENDANGERED SPECIES CODES DICTIONARY

DESCRIPTION: Federally designated endangered and threatened species information has been compiled by Brookhaven National Laboratory. They continually update and expand their file as new information becomes available. Thus our file, W10, may be out-of-date. Species are identified by 3-digit numeric codes. This data set provides English names for the codes along with species type information, e.g. mammal, bird, fish, etc. Data sets W10 and W11 contain county-level distribution data for each species. W11 has been supplemented at ORNL to include additional species and more specific species range data. Data set W09 contains the national counts (number of county occurrences) for both W10 and W11.

SOURCE(S): Calef, C. March, 1978. 1978 ESEA Magnetic Tape File. Brookhaven National Laboratory, Upton, NY.

REFERENCE(S): Calef and Nagy 1979.

COMMENTS: An updated file with more species, better distribution definitions, and endangered plant data is anticipated in 1980.

YEAR(S): 1977

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 204

CREATED/UPDATED: Mar. 1980

COMPILER: C E Calef, J Nagey

TEMPORAL RESOLUTION:

SPATIAL RESOLUTION:

DATA SET TYPE: Dictnry

VARIABLES PER RECORD: 6

NEW DATA: As available

VARIABLE	LABEL AND UNITS OF MEASURE
EAT_CODE	Endangered species numeric code
EAT_DSCP	Endangered species description
EAT_GRP	Endangered species type group code
EAT_TYPE	Endangered species type description
EATN_BNL	Endangered species national counts-BNL
EATN_OR	Endangered species national counts-ORNL

W09.1 Endangered Species Codes Dictionary

EAT_CODE	DESCRIPTION	EAT_CODE	DESCRIPTION
001	SHORTNOSE STURGEON	087	HAWAIIAN DARK-RUMPED PETREL
002	EASTERN COUGAR	088	MAUI AKEPA
003	GRAY BAT	089	MAUI NUKUPUU
004	INDIANA BAT	090	CRESTED HONEYCREEPER
005	DELMARVA PENINSULA FOX SQUIR	091	MOLOKAI THRUSH
006	MARYLAND DARTER	092	HAWAIIAN GALLINULE
007	AMERICAN ALLIGATOR	093	HAWAII AKEPU
008	FLORIDA PANTHER	094	N MEXICAN RIDGENOSE RATTLER
009	AM PEREGRINE FALCON	095	AKIAPOLAUA
010	SO BALD EAGLE	096	HAWAIIAN CROW
011	DUSKY SEASIDE SPARROW	097	HAWAIIAN STILT
012	FLORIDA EVERGLADE KITE	098	HAWAIIAN COTY
013	CAPE SABLE SPARROW	099	HAWAIIAN HAWK
014	KEY DEER	100	HAWAIIAN DUCK
015	VA BIG EARED BAT	101	OAHU CREEPER
016	OKALOOSA DARTER	102	LITTLE KERN GOLDEN TROUT
017	MATFRCRFS DARTER	103	KEY MUD TURTLE
018	MISSISSIPPI SANDHILL CRANE	104	PLYMOUTH RED BELLED TURTLE
019	LONGJAW CISCO	105	FURBISH LOUSEWORT
020	EASTERN TIMBERWOLF	106	PAINTED SNAKE COILED SNAIL
021	KIRTLAND'S WARBLER	107	IOWA PLEISTOCENE SNAIL
022	BLUE PIKE	108	MOONDAY SNAIL
023	RED WOLF	109	STOCK TREE ISLAND SNAIL
024	GRIZZLY BEAR	110	VIRGINIA FRINGED MTN SNAIL
025	N ROCKY MT WOLF	111	CHITTENANGO IVATE AMBER SNAI
026	BLACK-FOOTED FERRET	112	FLAT SPIRED THREE TOOTH SNAI
027	GAPPBACK CUTTHROAT TROUT	113	CANADA SHINER
028	HOUSTON TOAD	114	PYGMY SUNFISH
029	ATTWATER'S GREATER PRAIRIE C	115	GOLDLINE DARTER
030	CLEAR CREEK GAMBUSIA	116	PYGMY SCULPIN
031	FOUNTAIN DARTER	117	WACCANAW DARTER
032	TX BLIND SALAMANDER	118	WACCANAW KILLIFISH
033	WHODDING CRANE	119	WACCANAW SILVERTIDE
034	MEXICAN DUCK	120	QUACHITA MADTOM
035	BIG BEND GAMBUSIA	121	BARRENS TOPMINNOW
036	PECOS GAMBUSIA	122	SAN FRAN LUPINE MOTH
037	COMANCHE SPRINGS PUFFISH	123	DAKOTA SKIPPER BUTTERFLY
038	HUMPBACK CHUB	124	PAWNEE MONTANE SKIPPER BFLY
039	KENDALL WARM SPRINGS DACE	125	CALLIPPEE SILVERSPOT
040	COLORADO RIVER SQUANFISH	126	GREAT BASIN SILVERSPOT
041	ARIZONA TROUT	127	BLUEBLACK SILVERSPOT
042	PAHRANGAT BONYTAIL	128	OREGON SILVERSPOT
043	MOAPA DACE	129	KARNER BLUE
044	WOUNDOIN	130	ILLINOIS MUD TURTLE
045	YUMA CLAPPER RAIL	131	SAN MARCOS SALAMANDER
046	UTAH PRAIRIE DOG	132	SAN MARCOS GAMBUSIA
047	SANDBAR PRONGHORN	133	HAIRY RATTLEWEED
048	GILA TROUT	134	VIRGINIA ROUND LEAF BIRCH
049	GILA TOPMINNOW	135	SANTA BARBARA LIVEFOREVER
050	MASKED BOBWITE	136	LEOPARD DARTER
051	PAHRUMP KILLIFISH	137	PERSISTENT TRILLUM
052	DEVIL'S HOLE PUFFISH	138	TEXAS WILDRICE
053	WARM SPRINGS PUFFISH	139	NO WILD MONKSHOOD
054	LAWONTAN CUTTHROAT TROUT	140	RYDBERG MILK VETCH
055	CUT-UI	141	CONTRA COSTA WALLFLOWER
056	ALEUTIAN CANADA GOOSE	142	ANTIOCH DUNES PRIMROSE
057	COLUMBIAN WHITE-TAILED DEER	143	EUREKA EVENING PRIMROSE
058	CALIFORNIA CLAPPER RAIL	144	HIGGINS' EYE PEARLY MUSSEL
059	SALT MARSH HARVEST MOUSE	145	CURTIS' PEARLY MUSSEL
060	BLUNT-NOSED LEOPARD LIZARD	146	FAT POCKETBOOK PEARLY MUSSEL
061	CALIFORNIA CONDOR	147	WHITE CAT'S PAW PEARLY MUSSE
062	SAN JOAQUIN KIT FOX	148	PINK MUCKET PEARLY MUSSEL
063	SAN FRANCISCO GARTER SNAKE	149	TUBERCULED BLOSSOM PEARLY MU
064	CALIFORNIA LEAST TERN	150	BLINKING PEARLY MUSSEL
065	UNARMORED THREESPIKE STICKLE	151	TURBID-BLOSSOM PEARLY MUSSEL
066	SANTA CRUZ LONG-TIRED SALAMAN	152	PINE-RAVED PIGTOE PEARLY MUG
067	LIGHT-FOOTED CLAPPER RAIL	153	SHINY PIGTOE PEARLY MUSSEL
068	MOHAVE CHUB	154	ALABAMA LAMP PEARLY MUSSEL
069	DESERT SIENDER SALAMANDER	155	WHITE WARTYBACK PEARLY MUSSE
070	SANTA BARBARA SPARROW	156	ORANGE-FOOTED PIMPLEBACK
071	PAIUTE CUTTHROAT TROUT	157	ROUGH PIGTOE PEARLY MUSSEL
072	OWENS RIVER PUFFISH	158	PALE LILLIPUT PEARLY MUSSEL
073	TECOPA PUFFISH	159	CUMBERLAND BEAN PEARLY MUSSE
074	HAWAIIAN HOARY BAT	160	SAMPSON'S PEARLY MUSSEL
075	OU	161	DROMEDARY PEARLY MUSSEL
076	PALILA	162	GREEN-BLOSSOM PEARLY MUSSEL
077	OZARK BIG EARED BAT	163	CUMBERLAND MONKEYFACE PEARLY
078	LARGE KAUAI THRUSH	164	APPALACHIAN MONKEYFACE PEARL
079	SMALL KAUAI THRUSH	165	YELLOW-BLOSSOM PEARLY MUSSEL
080	BLACK TOAD	166	BAHAMA SWALLOWTAIL
081	MAUI PARROTBILL	167	SCHAUS SWALLOWTAIL
082	MOLOKAI CREEPER	168	SNAIL DARTER
083	EASTERN TIMBERWOLF	169	SCOTO MADTOM
084	KAUAI AKIALOA	170	AMERICAN CROCODILE
085	KAUAI DO	171	WEST INDIAN NIMATEE
086	HAWAIIAN GOOSE	172	MORRO, BAY KANGAROO RAT
		173	
		174	
		175	
		176	
		177	

W09.1 (continued)

EAT_CODE	DESCRIPTION	EAT_CODE	DESCRIPTION
178	ATLANTIC SALT MARSH WATERSNAKE		
179	PINE BARRENS TREE FROG		
180	ALABAMA CAVEFISH		
181	SLENDER CHUB		
182	SPOTFIN CHUB		
183	BAYOU DARTER		
184	SLACKWATER DARTER		
185	YELLOWFIN MADTOM		
186	RED HILLS SALAMANDER		
187	ISLAND NIGHT LIZARD		
188	ATLANTIC RIDLEY SEA TURTLE		
190	LEATHERBACK SEA TURTLE		
191	HAWAIIAN MONK SEAL		
193	MEXICAN WOLF		
194	SOUTHERN SEA OTTER		
195	HAWAII CREEPER		
196	THICKBILLED PARROT		
197	PO'DO ULI		
198	SAN CLEMENTE LOGGERHEAD SHRI		
199	NEWELL'S MANX SHEARWATER		
200	SAN CLEMENTE SAGE SPARROW		
201	TAN RIFFLE SHELL		
202	EL SEGUNDO BLUE BUTTERFLY		
203	LOTIS BLUE BUTTERFLY		
204	MISSION BLUE BUTTERFLY		
205	SMITH'S BLUE BUTTERFLY		
206	SAN BRUNO ELFIN BUTTERFLY		
207	LANGE'S METALMARK BUTTERFLY		
208	SAN CLEMENTE I. INDIAN PAINT		
209	SAN CLEMENTE I. BROOM		
210	SAN CLEMENTE I. LARKSPUR		
211	SAN CLEMENTE I. BUSHMALLOW		

TITLE: W10 - ENDANGERED SPECIES (BNL FILE)

DESCRIPTION: County-level distribution data for federally designated endangered species of the United States were compiled by Brookhaven National Laboratory. Although this data set contains only the counties of historic occurrence, more recent data are available from BNL on species distribution according to four levels: designated critical habitat, present range, potential range, and historic range. See W09 for species names associated with code designations.

SOURCE(S): Calef, C. March, 1978. 1978 ESUSA Magnetic Tape File. Brookhaven National Laboratory, Upton, NY.

REFERENCE(S): Shreeve, Calef, and Nagy 1978. Calef and Nagy 1979. Nagy and Calef 1978.

YEAR(S): 1977

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 6916

CREATED/UPDATED: Mar. 1980

COMPILER: C E Calef, J Nagey

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 3

NEW DATA: As available

VARIABLE	LABEL AND UNITS OF MEASURE
EAT_CODE	Endangered species numeric code
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number

W10.1. Endangered Species Concentrations in the South.

TITLE: W11 - ENDANGERED SPECIES (ORNL MODIFIED)

DESCRIPTION: County-level distribution data for federally designated endangered species of the United States were compiled by Brookhaven National Laboratory. This data set consists of file W10 which has been supplemented by ORNL. Additional state-designated endangered species have been added. Historic range, proposed or designated critical habitat, and significant sightings information was also added for each species. Remarks were included to better describe a species occurrence in a county. See file W09 for species names.

SOURCE(S): W10. Species range data.

REFERENCE(S): USDI 1976, USDI 1977, USDI 1978, USDI 1979, Federal Register 1977.

YEAR(S): 1978

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 7034

VARIABLES PER RECORD: 7

CREATED/UPDATED: Mar. 1980

NEW DATA: As available

COMPILER: J T Kitchings, L K Mann

VARIABLE	LABEL AND UNITS OF MEASURE

EAT_CODE	Endangered species numeric code
EAT_DSGN	Designation: E-endangered, T-threatened
EAT_LEVL	Regulation level: F-federal, S-state
EAT_RMRK	Remarks about this specie in this county
EAT_STAT	Habitat status: propos, design, occupied
FIPS_CO	FIPS county number
FIPS_ST	FIPS state number

TITLE: W12 - MAMMAL CODES DICTIONARY

DESCRIPTION: County-level species range data were compiled from several sources for mammals of the United States. This data set supplies the scientific and common names for each of the 270 species. The STORER program (Schreiber et al. 1974) was used to digitize the species range maps. This program uses a six-character mnemonic code name to identify each species. The mnemonic name consists of the first three consonants of the genus and species names with some variations to ensure that all codes are unique (Goff et al. 1974).

SOURCE(S): Kitchings, J. T. 1976. Mnemonic name file. Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.

YEAR(S):	TEMPORAL RESOLUTION:
GEOCOVERAGE:	SPATIAL RESOLUTION:
STATUS: Online	DATA SET TYPE: Dictnry
NUMBER OF RECORDS: 280	VARIABLES PER RECORD: 3
CREATED/UPDATED: Mar. 1980	NEW DATA: Not anticipated
COMPILER: J T Kitchings	

VARIABLE	LABEL AND UNITS OF MEASURE
MAM_CODE	Mammal mnemonic species code
MAM_DSCP	Mammal common name
MAM_SPEC	Mammal genus-species scientific name

TITLE: W13 - MAMMAL NATIONAL & REGIONAL STATS

DESCRIPTION: National and regional statistics of county-level mammal occurrences were calculated from data set W15. Historic species range data were compiled from published species range maps. A set of parameters was calculated for each region for each species. The first part of the SAS variable name designates the region while the last part indicates the parameter. The parameters and their codes are: N-number of county occurrences, and P-fraction of counties in a region occupied by a species. The mammal key is a sequential numeric code assigned to the 270 species in the data set.

SOURCE(S): W15

YEAR(S): 1978

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION:

STATUS: Online

DATA SET TYPE: Dictnry

NUMBER OF RECORDS: 270

VARIABLES PER RECORD: 12

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: J T Kitchings, L K Mann

VARIABLE	LABEL AND UNITS OF MEASURE
MAM_C_N	Central mammal county occurrences
MAM_C_P	Fraction of county occurrences in cent.
MAM_CODE	Mammal mnemonic species code
MAM_DSCP	Mammal common name
MAM_E_N	Eastern mammal county occurrences
MAM_E_P	Fraction of county occurrences in east
MAM_KEY	Mammal species code number
MAM_N_N	National mammal county occurrences
MAM_N_P	Fraction of county occurrences in nation
MAM_SPEC	Mammal genus-species scientific name
MAM_W_N	Western mammal county occurrences
MAM_W_P	Fraction of county occurrences in west

W13.1 Mammal Species Codes Dictionary

MAM_KEY	MAM_CODE	COMMON NAME	MAM_KEY	MAM_CODE	COMMON NAME
1	ALCALC	MOOSE	87	MARPEN	FISHER
2	AMMINT	TEXAS ANTELOPE SQUIRREL	88	MEPMAC	HOODED SKUNK
3	ANTAME	PRONGHORN	89	MEPMEP	STRIPED SKUNK
4	ANTPAL	PALLID BAT	90	MICCAL	CALIFORNIA VOLE
5	APLRUF	APLODONTIA	91	MICCHR	YELLOWBACK VOLE
6	RASAST	RINGTAIL	92	MICHOY	PYGMY SHREW
7	BLABRE	SHORTTAIL SHREW	93	MICLUD	LOUISIANA VOLE
8	CANLAT	COYOTE	94	MICMEG	DARK KANGAROO MOUSE
9	CANLUP	GRAY WOLF	95	MICMEX	MEXICAN VOLE
10	CANRUF	RED WOLF	96	MICMON	MONTANA VOLE
11	CASCAN	BEAVER	97	MICOCN	PRAIRIE VOLE
12	CERCAN	ELK	98	MICORE	CREeping VOLE
13	CERDAM	FALLOW DEER	99	MICPAL	PALE KANGAROO MOUSE
14	CLEGAP	RED-BACK VOLE	100	MICPEN	MEADOW VOLE
15	CLEOCC	WESTERN RED-BACK VOLE	101	MICPIN	PINE MOUSE
16	CONCRT	STAR-NOSED MOLE	102	MICRTC	WATER VOLE
17	CONNES	HOG-NOSED SKUNK	104	MICTOW	TOWNSEND'S VOLE
18	CORTOW	TOWNSEND'S BIG-EARED BAT	105	MUSERM	ERMINE
19	CRACAS	YELLOW-FACED POCKET GOPHER	106	MUSEVE	EVERGLADES MINK
20	CRYPAR	LEAST SHREW	107	MUSFRE	LONG-TAIL WEASEL
21	CYNGUM	GUNNISON'S PRAIRIE DOG	108	MUSMUS	HOUSE MOUSE
22	CYNLEU	WHITE-TAIL PRAIRIE DOG	110	MUSRIX	LEAST WEASEL
23	CYNLUD	BLACK TAIL PRAIRIE DOG	111	MUSVTS	MINK
24	CYNPAR	UTAH PRAIRIE DOG	112	MYDAUS	SOUTHEASTERN MYOTIS
25	DASFLO	FLORIDA YELLOW BAT	113	MYOCAL	CALIFORNIA MYOTIS
26	DASINT	YELLOW BAT	114	MYOCOY	MUTRITA
27	DASNOV	NINE-BANDED ARMADILLO	115	MYOEVO	LONG-EARED MYOTIS
28	ODIVIR	OPPOSSUM	117	MYOKEE	KEEN'S BAT
29	DIPAGI	AGILE KANGAROO RAT	118	MYOLEI	LEIB'S BAT
30	DIPDER	DESERT KANGAROO RAT	119	MYOLUC	LITTLE BROWN BAT
31	DIPELE	BIG-EARED KANGAROO RAT	120	MYOCC	ARIZONA MYOTIS
32	DIPHER	HEERMANN'S KANGAROO RAT	122	MYOSUB	SMALL-FOOTED MYOTIS
33	DIPMER	MERRIAM'S KANGAROO RAT	123	MYOTHY	FRINGED MYOTIS
34	DIPNIC	CHISEL TOOTH KANGAROO RAT	124	MYOVEL	CAVE MYOTIS
35	DIPORD	ORD'S KANGAROO RAT	125	MYOVOL	LONG-LEGGED MYOTIS
36	DIPPAN	PANAMINT KANGAROO RAT	126	MYOYUM	YUMA MYOTIS
37	DIPSPE	BANNER-TAILED KANGAROO RAT	127	NAPINS	WOODLAND JUMPING MOUSE
38	DIPVEN	NARROW-FACED KANGAROO RAT	128	NEFLSH	KEY LARGO WOODRAT
39	EPTFUS	BIG BROWN BAT	129	NEDALB	WHITE-THROATED WOODRAT
40	EREDOR	PORCUPINE	130	NEDALL	ROUND-TAIL MUSKRAT
41	EUDRAC	SPOTTED BAT	131	NEOCIN	BUSHY TAIL WOODRAT
42	EUMPER	GREATER HASTIFF BAT	132	NEOFLA	WOOD RAT
43	EUTALP	ALPINE CHIPMUNK	133	NEOFUS	DUSKY-FOOTED WOODRAT
44	EUTAMO	YELLOW-PINE CHIPMUNK	134	NEOFUS	DUSKY FOOTED WOODRAT
45	EUTCIN	GRAY-COLLARED CHIPMUNK	135	NEOLEP	DESERT WOODRAT
46	EUTDOR	CLIFF CHIPMUNK	136	NEOMEX	MEXICAN WOODRAT
47	EUTHER	MERRIAM'S CHIPMUNK	137	NEOMIC	SO. PLAINS WOODRAT
48	EUTRIN	LEAST CHIPMUNK	138	NEUGTB	SHREW-MOLE
49	EUTPAN	PANAMINT CHIPMUNK	139	NOTCRA	CRAWFORD'S DESERT SHREW
50	EUTQUA	LONG-EARED CHIPMUNK	140	NYCHUM	EVENING BAT
51	EUTQUA	COLORADO CHIPMUNK	141	OCHNUT	GOLDEN MOUSE
52	EUTQUR	LONG-EARED CHIPMUNK	142	OCHPRI	PIKA
53	EUTRUF	RED-TAILED CHIPMUNK	143	ODOHEM	MULE DEER
54	EUTSON	SONOMA CHIPMUNK	144	ODOVIR	WHITE-TAIL DEER
55	EUTSPE	LOGGPOLE CHIPMUNK	146	ONDZIB	MUSKRAT
56	EUTTOW	TOWNSEND'S CHIPMUNK	147	ONYLEU	NO. GRASSHOPPER MOUSE
57	EUTUMB	UINTA CHIPMUNK	148	ONYTOR	SO. GRASSHOPPER MOUSE
59	FECOCY	FLORIDA PANTHER	149	OREAME	MOUNTAIN GOAT
60	GEOARE	DESERT POCKET GOPHER	150	ORYPAL	RICE RAT
61	GEOBUR	PLAINS POCKET GOPHER	151	OYICAN	MOUNTAIN SHEEP
62	GEOCOL	COLONIAL POCKET GOPHER	152	OZYZCK	CUDOE KEY RICE RAT
63	GEOCUM	CUMBERLAND ISLAND POCKET GOPHER	153	PARBRE	HAIKY TAIL MOLE
64	GEOFON	SHERMAN'S POCKET GOPHER	154	PEGOAL	KEY LARGO COTTON MOUSE
65	GEOPIN	SOUTHEASTERN POCKET GOPHER	155	PENABA	PRAIRIE DEER MOUSE
66	GEPIGO	GOFF'S POCKET GOPHER	156	PENAMU	CLOUDLAND DEER MOUSE
67	GLASAR	NORTH FLYING SQUIRREL	157	PERPME	PALLID BEACH MOUSE
68	GLAVOL	SOUTH FLYING SQUIRREL	158	PERAMP	ARIZONA POCKET MOUSE
69	GULLUS	WOLVERINE	159	PERAPA	APACHE POCKET MOUSE
70	LAGCUR	SAGEBRUSH VOLE	160	PERBAT	BATLEY'S POCKET MOUSE
71	LASBOR	RED BAT	161	PERBOY	BRUSH MOUSE
72	LASCIN	HOARY BAT	162	PERCAL	CALIFORNIA MOUSE
73	LASINT		163	PERCAL	CALIFORNIA POCKET MOUSE
74	LASNOC	SILVER-HAIRED BAT	164	PERCRI	CANYON MOUSE
75	LASSCH	JENINOLE BAT	165	PERERE	CACTUS MOUSE
76	LEPAME	SHOWSHOE RABBIT	166	PERFAS	OLIVE-BACKED POCKET MOUSE
77	LEPPAL	BLACKTAIL JACKRABBIT	167	PERFLA	FLORIDA MOUSE
78	LEPTOW	WHITE-TAIL JACKRABBIT	168	PERFLO	PLAINS POCKET MOUSE
79	LUTCAN	RIVER OTTER	169	PERFLV	SILKY POCKET MOUSE
80	LYNCAN	LYNX	170	PERFOR	LONG-TAILED POCKET MOUSE
81	LYNRUF	BOBCAT	171	PERGOS	COTTON MOUSE
82	MACCAL	CALIFORNIA LEAF-NOSED BAT	172	PERHIS	HISPID POCKET MOUSE
83	MARAME	MARTEN	173	PERINO	SAN JOAQUIN POCKET MOUSE
84	MARCAL	HOARY MARMOT	174	PERINT	ROCK POCKET MOUSE
85	MARFLA	YELLOW-BELLIED MARMOT	175	PERLEU	WHITE-FOOTED MOUSE
86	MARMON	WOODCHUCK	176	PERLOW	LITTLE POCKET MOUSE

W13.1 (continued)

MAN_KEY	MAN_CODE	COMMON NAME	MAN_KEY	MAN_CODE	COMMON NAME
177	PERMAN	DEER MOUSE	266	TAMHUD	RED SQUIRREL
178	PERMER	MERRIAM'S POCKET MOUSE	267	TAMSTR	CHIPMUNK
179	PERNAS	ROCK MOUSE	268	TAXTAX	BADGER
180	PERPAR	GREAT BASIN POCKET MOUSE	269	THOBAT	BAILEY'S POCKET GOPHER
181	PERPEC	WHITE ANKLED MOUSE	270	THOMON	MOUNTAIN POCKET GOPHER
182	PERPEN	DESERT POCKET MOUSE	271	THOTAL	NO. POCKET GOPHER
183	PERPOL	OLD-FIELD MOUSE	272	THOTOW	TOWNSEND'S POCKET GOPHER
184	PERTRU	PINON MOUSE	273	THOLMB	SO. POCKET GOPHER
185	PHEINT	HEATHER VOLE	274	UROCTN	GRAY FOX
186	PHOLON	RED TREE VOLE	275	URSAME	BLACK BEAR
187	PIPHES	WESTERN PIPISTRELLE	277	VULFUL	RED FOX
188	PIPSUB	EASTERN PIPISTRELLE	278	VULMAC	KIT FOX
189	PITPAR	FLORIDA PINE MOUSE	279	ZAPHUD	MEADOW JUMPING MOUSE
190	PLERAF	RAFINESQUE'S BIG-EARED BAT	280	ZAPPRI	WESTERN JUMPING MOUSE
193	PRLOAU	KEY VACA RACCOON	281	ZAPTRI	PACIFIC JUMPING MOUSE
194	PRLOIN	KEY VACA RACCOON			
195	PROLOT	RACCOON			
198	REIFUL	FULVUS HARVEST MOUSE			
199	REIHUM	EASTERN HARVEST MOUSE			
200	REINEG	WESTERN HARVEST MOUSE			
201	REINON	PLAINS HARVEST MOUSE			
202	SCAAQU	EASTERN MOLE			
203	SCALAT	BROAD FOOT MOLE			
204	SCAORA	COAST MOLE			
205	SCATOW	TOWNSEND'S MOLE			
206	SCCAMA	KEY LARGE GRAY SQUIRREL			
207	SCIABE	ALBERT'S SQUIRREL			
208	SCIAUR	RED-BELLIED GRAY SQUIRREL			
209	SCICAR	GRAY SQUIRREL			
210	SCIGRI	WESTERN GRAY SQUIRREL			
211	SCIKAI	KAI BAB SQUIRREL			
212	SCINIG	FOX SQUIRREL			
213	SCNIAY	EVERGLADES FOX SQUIRREL			
214	SCNISH	SHERMAN'S FOX SQUIRREL			
215	SCNIVU	EASTERN FOX SQUIRREL			
216	SIGHIS	COTTON RAT			
217	SIMIEK	LOWER KEYS COTTON RAT			
218	SORARC	ARCTIC SHREW			
219	SORBEM	PACIFIC WATER SHREW			
220	SORCIN	MASKED SHREW			
221	SORDIS	LONG-TAIL SHREW			
222	SORFUM	SMOKEY SHREW			
223	SORLON	SOUTHEASTERN SHREW			
224	SORMER	MERRIAM'S SHREW			
225	SORNAN	DWARF SHREW			
226	SORORN	ORNATE SHREW			
227	SORPAL	WATER SHREW			
228	SORTRO	TROWBRIDGE'S SHREW			
229	SORVAG	VAGRANT SHREW			
230	SPEARM	UINTA GROUND SQUIRREL			
231	SPEBEE	CALIFORNIA GROUND SQUIRREL			
232	SPEBEL	BELDING'S GROUND SQUIRREL			
233	SPEBRU	IDAH0 GROUND SQUIRREL			
234	SPECOL	COLUMBIAN GROUND SQUIRREL			
235	SPEFRA	FRANKLIN'S GROUND SQUIRREL			
236	SPEHAR	HARRIS ANTELOPE SQUIRREL			
237	SPEHAR	HARRIS' ANTELOPE SQUIRREL			
238	SPELAT	GOLDEN MANTLED GROUND SQUIRREL			
239	SPELEU	WHITE-TAIL ANTELOPE SQUIRREL			
240	SPEHEX	MEXICAN GROUND SQUIRREL			
241	SPENDH	MOHAVE GROUND SQUIRREL			
242	SPERIC	RICHARDSON'S GROUND SQUIRREL			
243	SPESAT	CASCADE GOLDEN-MANTLED GROUND SQUIRREL			
244	SPESPI	SPOTTED GROUND SQUIRREL			
245	SPETER	ROUNDTAIL GROUND SQUIRREL			
246	SPETOW	TOWNSEND'S GROUND SQUIRREL			
247	SPETRI	13-LINED GROUND SQUIRREL			
248	SPEVAR	ROCK GROUND SQUIRREL			
249	SPEWAS	WASHINGTON'S GROUND SQUIRREL			
250	SPIGRA	W. SPOTTED SKUNK			
251	SPIPUT	E. SPOTTED SKUNK			
252	SYLAQU	SWAMP RABBIT			
253	SYLAUD	DESERT COTTONTAIL			
254	SYLBAC	BRUSH RABBIT			
255	SYLFLO	EASTERN COTTONTAIL			
256	SYLIDA	PYGMY RABBIT			
257	SYLNUT	NUTTALL'S COTTONTAIL			
258	SYLPAL	MARSH RABBIT			
259	SYLTRA	WOOD RABBIT			
260	SYNBOR	NORTHERN BOG LEMMING			
261	SYNCOO	SOUTHERN BOG LEMMING			
262	YADORA	BRAZILIAN FREE-TAIL BAT			
263	YADFEM	POCKETED FREE-TAIL BAT			
264	YADNOL	BIG FREE-TAIL BAT			
265	YAMDOU	DOUGLAS' SQUIRREL			

TITLE: W14 - MAMMAL-ECOREGION STATS

DESCRIPTION: Ecoregion statistics of county-level mammal occurrences were calculated from data set W15. Historic species range data were compiled from published species range maps. A set of parameters was calculated for each ecoregion. The last part of the SAS variable name indicates the parameter. The parameters included for each species in each ecoregion include: N-number of county occurrences, and P-fraction of counties in a region occupied by a species.

SOURCE(S): W15

YEAR(S): 1978

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: Ecorgn

STATUS: Online

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 5786

VARIABLES PER RECORD: 4

CREATED/UPDATED: Mar. 1980

NEW DATA: Not anticipated

COMPILER: J T Kitchings, L K Mann

VARIABLE	LABEL AND UNITS OF MEASURE

ECO_CODE	Ecoregion section code, Bailey 1976
EMAM_N	Ecoregion mammal county occurrences
EMAM_P	Fraction of county occurrences by ecorgn
MAM_CODE	Mammal mnemonic species code

TITLE: W15 - MAMMAL SPECIES RANGES

DESCRIPTION: Historic species range data for mammals of the United States were compiled from published species range maps. The STORER program (Schreiber et al. 1974) was used to record the county-level occurrences. This program allows several shortcuts in the digitizing process based on the geographic contiguity of species ranges. The output from the STORER program was then converted to be compatible with the other Geoecology files.

SOURCE(S): Barbour and Davis 1974. Brown 1970. Findley et al. 1975. Golley 1962. Golley 1966. Hall and Kelson 1959. Hamilton 1943. Lowery 1974. Wyoming Game and Fish Dept. 1977. Brown 1970.

REFERENCE(S): Kitchings, Anderson and Olson 1976.

YEAR(S): 1978

TEMPORAL RESOLUTION: Hist.

GEOCOVERAGE: U. S.

SPATIAL RESOLUTION: County

STATUS: Offline

DATA SET TYPE: Multiple

NUMBER OF RECORDS: 151936

VARIABLES PER RECORD: 4

CREATED/UPDATED: Mar. 1980

NEW DATA: Infrequently

COMPILER: J T Kitchings

VARIABLE

LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
MAM_CODE	Mnemonic mammals species code
RGN	Region - E, C, W

TITLE: W16 - MAMMAL SPECIES RANGES (RARE SPECIES)

DESCRIPTION: Historic species range data for mammals of the United States were compiled from published species range maps; see the description of W15. This data set includes the endangered and threatened species contained in the W15 data set.

SOURCE(S): W15

YEAR(S): 1978

GEOCOVERAGE: U. S.

STATUS: Online

NUMBER OF RECORDS: 4079

CREATED/UPDATED: Mar. 1980

COMPILER: J T Kitchings

TEMPORAL RESOLUTION: Hist.

SPATIAL RESOLUTION: County

DATA SET TYPE: Multiple

VARIABLES PER RECORD: 4

NEW DATA: Infrequently

VARIABLE	LABEL AND UNITS OF MEASURE

FIPS_CO	FIPS county number
FIPS_ST	FIPS state number
MAM_CODE	Mnemonic mammals species code
RGN	Region - E, C, W

APPENDIX B. INDEX OF DATA SET VARIABLES

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APPENDIX B. INDEX OF DATA SET VARIABLES

Table B.1. Index of Geoecology Data Base Variables

VARIABLE	LABEL AND UNITS OF MEASURE	DSN	VARIABLE	LABEL AND UNITS OF MEASURE	DSN
ALPT_A	ALPISOL SOIL	HA T13	BRD_E_R	EASTERN BANKS OF BIRDS	W04
ALL_LAND	APPROXIMATE LAND AREA	HA A01	BRD_IND	TRACT SCORE - BIRDS	N06
ALL_SP_G	GROWING STOCK VOL. OF ALL SPECIES	P02	BRD_KEY	BIRD KEY NUMBER, 1-470, BARE II SUBSET	W04
ALL_SP_S	SAWTINDER VOLUME OF ALL SPECIES	P03	BRD_N_N	NATIONAL AVER. BIRD COUNT, 1973-74	W04
ANN_M_I	ANNUAL MOISTURE INDEX	C10	BRD_N_P	FRACTION OF NATIONAL TOTAL	W04
ANN_P_P	ANNUAL POTENTIAL EVAPOTRANS	CM C09	BRD_N_R	NATIONAL RANKS OF BIRDS	W04
ANN_PAVE	ANNUAL AVERAGE PRECIPITATION	CM C14	BRD_RANK	TRACT RANK - BIRDS	N06
ANN_PMAX	ANNUAL MAXIMUM PRECIPITATION	CM C15	BRD_W_N	WESTERN AVER. BIRD COUNT, 1973-74	W04
ANN_PMIN	ANNUAL MINIMUM PRECIPITATION	CM C16	BRD_W_P	FRACTION OF WESTERN TOTAL	W04
ANN_RAIN	ANNUAL PRECIPITATION	CM C09	BRD_W_R	WESTERN RANKS OF BIRDS	W04
ANN_RAIN	ANNUAL RAINFALL, 1941-1970 NORMS,	CM C20	BRD_W_S	WESTERN RANKS OF BIRDS	W04
ANN_TAVE	ANNUAL AVERAGE TEMPERATURE	C DEGREES C11	BRD_W_S	WESTERN RANKS OF BIRDS	W04
ANN_TEMP	ANNUAL AVERAGE TEMPERATURE	C DEGREES C07	BRD_W_S	WESTERN RANKS OF BIRDS	W04
ANN_THAX	ANNUAL MAXIMUM TEMPERATURE	C DEGREES C12	BRD_W_S	WESTERN RANKS OF BIRDS	W04
ANN_THIN	ANNUAL MINIMUM TEMPERATURE	C DEGREES C13	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AOU_CODE	AOU BIRD SPECIES CODE NUMBER	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AOU_CODE	AOU BIRD SPECIES CODE NUMBER	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AOU_CODE	AOU BIRD SPECIES CODE NUMBER	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AOU_CODE	AOU BIRD SPECIES CODE NUMBER	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AOU_SEQ	AOU SEQUENCE NUMBERS	W03	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AOU_SEQ	AOU SEQUENCE NUMBERS	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_M_I	APRIL MOISTURE INDEX	C10	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_P_P	APRIL POTENTIAL EVAPOTRANS	CM C09	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_PAVE	APRIL AVERAGE PRECIPITATION	CM C14	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_PMAX	APRIL MAXIMUM PRECIPITATION	CM C15	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_PMIN	APRIL MINIMUM PRECIPITATION	CM C16	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_RAIN	APRIL PRECIPITATION	CM C09	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_TAVE	APRIL AVERAGE TEMPERATURE	C DEGREES C11	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_TEMP	APRIL AVERAGE TEMPERATURE	C DEGREES C07	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_THAX	APRIL MAXIMUM TEMPERATURE	C DEGREES C12	BRD_W_S	WESTERN RANKS OF BIRDS	W04
APR_THIN	APRIL MINIMUM TEMPERATURE	C DEGREES C13	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQ_MAX	AIR QUALITY MAXIMUM VALUE	MCG/M3 K01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQ_MEAN	AIR MEAN SO2/M2, GROM MEAN TSP	MCG/M3 K01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQ_MIN	AIR QUALITY MINIMUM VALUE	MCG/M3 K01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQ_NUM	AIR QUALITY NUMBER OF OBSERVATIONS	K01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQ_SD	AIR QUALITY STANDARD DEVIATION	MCG/M3 K01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQ_RGN	AIR QUALITY REGION CODES (EPA)	B02	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQCR	AIR QUALITY CONTROL REGION NUMBER - EPA	B03	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQCR	AIR QUALITY CONTROL REGION NUMBER - EPA	B06	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AQCR	AIR QUALITY CONTROL REGION NUMBER - EPA	B01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AREA_69	TOTAL SURFACE AREA - 1969 C OF AG	HA A01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AREA_77	TOTAL SURFACE AREA - 1977	HA L09	BRD_W_S	WESTERN RANKS OF BIRDS	W04
ARID_A	ARIDISOL SOIL	HA T13	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_M_I	AUGUST MOISTURE INDEX	C10	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_P_P	AUGUST POTENTIAL EVAPOTRANS	CM C09	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_PAVE	AUGUST AVERAGE PRECIPITATION	CM C14	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_PMAX	AUGUST MAXIMUM PRECIPITATION	CM C15	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_PMIN	AUGUST MINIMUM PRECIPITATION	CM C16	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_RAIN	AUGUST PRECIPITATION	CM C09	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_TAVE	AUGUST AVERAGE TEMPERATURE	C DEGREES C11	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_TEMP	AUGUST AVERAGE TEMPERATURE	C DEGREES C07	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_THAX	AUGUST MAXIMUM TEMPERATURE	C DEGREES C12	BRD_W_S	WESTERN RANKS OF BIRDS	W04
AUG_THIN	AUGUST MINIMUM TEMPERATURE	C DEGREES C13	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_CMNT	COMMENTS ABOUT BBS ROUTE	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_LAT	LATITUDE OF START OF BBS ROUTE	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_LONG	LONGITUDE OF START OF BBS ROUTE	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_NAME	BBS ROUTE NAME	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_RT	BBS ROUTE NUMBER WITHIN A STATE	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_RT_N	BBS NUMBER OF ROUTES WITHIN A STRATA	W02	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_ST	BREEDING BIRD SURVEY STATE CODES	B02	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_ST	BBS STATE CODE NUMBER	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_ST	BBS STRATA CODE	W09	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_65	BBS ROUTE TYPE, 1965	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_66	BBS ROUTE TYPE, 1966	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_67	BBS ROUTE TYPE, 1967	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_68	BBS ROUTE TYPE, 1968	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_69	BBS ROUTE TYPE, 1969	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_70	BBS ROUTE TYPE, 1970	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_71	BBS ROUTE TYPE, 1971	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_72	BBS ROUTE TYPE, 1972	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_73	BBS ROUTE TYPE, 1973	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_74	BBS ROUTE TYPE, 1974	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_75	BBS ROUTE TYPE, 1975	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_76	BBS ROUTE TYPE, 1976	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_T_77	BBS ROUTE TYPE, 1977	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BBS_TAG	TAG, * - BBS ROUTE WITHIN ONE STRATA	W01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BEA_CODP	BEA ECONOMIC AREA CODE	P02	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BERRY_A	BERRIES AND SMALL FRUITS	HA A01	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BRD_C_N	CENTRAL AVER. BIRD COUNT, 1973-74	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BRD_C_P	FRACTION OF CENTRAL TOTAL	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BRD_C_R	CENTRAL RANKS OF BIRDS	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BRD_DSCP	COMMON BIRD NAMES	W03	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BRD_DSCP	COMMON BIRD NAMES	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BRD_E_N	EASTERN AVER. BIRD COUNT, 1973-74	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04
BRD_E_P	FRACTION OF EASTERN TOTAL	W04	BRD_W_S	WESTERN RANKS OF BIRDS	W04

Table B.1 (continued)

VARIABLE	LABEL AND UNITS OF MEASURE	DSN	VARIABLE	LABEL AND UNITS OF MEASURE	DSN
EBRD_TOT	ECOREGION BIRD TOTAL, ALL SPECIES	W05	PIPS_CO	PIPS COUNTY NUMBER	DC2
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	D07	PIPS_CO	PIPS COUNTY NUMBER	D04
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	D08	PIPS_CO	PIPS COUNTY NUMBER	D06
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	D09	PIPS_CO	PIPS COUNTY NUMBER	D08
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	D10	PIPS_CO	PIPS COUNTY NUMBER	D10
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	D11	PIPS_CO	PIPS COUNTY NUMBER	F01
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	D12	PIPS_CO	PIPS COUNTY NUMBER	F02
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	N05	PIPS_CO	PIPS COUNTY NUMBER	F03
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	N06	PIPS_CO	PIPS COUNTY NUMBER	F04
ECO_CODE	ECOREGION PROVINCE LEVEL CODE, BAILEY	N07	PIPS_CO	PIPS COUNTY NUMBER	F06
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	W01	PIPS_CO	PIPS COUNTY NUMBER	F07
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	W05	PIPS_CO	PIPS COUNTY NUMBER	K04
ECO_CODE	ECOREGION SECTION CODE, BAILEY 1976	W14	PIPS_CO	PIPS COUNTY NUMBER	K05
ECO_DSCP	ECOREGION SECTION DESCRIPTION	D07	PIPS_CO	PIPS COUNTY NUMBER	LC1
ECO_DSCP	ECOREGION SECTION DESCRIPTION	D11	PIPS_CO	PIPS COUNTY NUMBER	LC2
ECO_KEY	ECOREGION SECTION NUMERIC KEY, 1-54	D07	PIPS_CO	PIPS COUNTY NUMBER	LC3
ECO_KEY	ECOREGION SECTION NUMERIC KEY, 1-54	D09	PIPS_CO	PIPS COUNTY NUMBER	LC4
ECOA_A	ADJUSTED ECOREGION AREA	HA D09	PIPS_CO	PIPS COUNTY NUMBER	LC5
ECOA_N_A	ADJ. ECOREGION NATIONAL AREA	HA D07	PIPS_CO	PIPS COUNTY NUMBER	LC6
ECOA_N_H	ADJ. ECOREGION NATIONAL NO. OF COUNTIES	HA D07	PIPS_CO	PIPS COUNTY NUMBER	LC7
ECOA_N_P	FRACTION OF ADJ. ECOREGION IN NATION	D07	PIPS_CO	PIPS COUNTY NUMBER	LC8
ECOP_A	POTENTIAL ECOREGION AREA	HA U08	PIPS_CO	PIPS COUNTY NUMBER	M02
ECOP_N_A	POT. ECOREGION NATIONAL AREA	HA D07	PIPS_CO	PIPS COUNTY NUMBER	M03
ECOP_N_H	POT. ECOREGION NATIONAL NO. OF COUNTIES	D07	PIPS_CO	PIPS COUNTY NUMBER	M04
ECOP_N_P	FRACTION OF POT. ECOREGION IN NATION	D07	PIPS_CO	PIPS COUNTY NUMBER	P01
ELBY_AVE	AVERAGE ELEVATION	T06	PIPS_CO	PIPS COUNTY NUMBER	P02
ELBY_1	AREA BETWEEN 0 AND 150 M	HA T06	PIPS_CO	PIPS COUNTY NUMBER	T01
ELBY_2	AREA BETWEEN 150 AND 300 M	HA T06	PIPS_CO	PIPS COUNTY NUMBER	T02
ELBY_3	AREA BETWEEN 300 AND 600 M	HA T06	PIPS_CO	PIPS COUNTY NUMBER	T03
ELBY_4	AREA BETWEEN 600 AND 1500 M	HA T06	PIPS_CO	PIPS COUNTY NUMBER	T04
ELBY_5	AREA BETWEEN 1500 AND 2700 M	HA T06	PIPS_CO	PIPS COUNTY NUMBER	T05
ELN_A_A	ELN-ASH-COTTONWOOD FOREST	HA F01	PIPS_CO	PIPS COUNTY NUMBER	T06
ENAT_H	ECOREGION NATIONAL COUNTY OCCURRENCES	W14	PIPS_CO	PIPS COUNTY NUMBER	T11
ENAT_P	FRACTION OF COUNTY OCCURRENCES BY ECOREG	W14	PIPS_CO	PIPS COUNTY NUMBER	T12
ENTI_A	ENTISOL SOIL	HA T13	PIPS_CO	PIPS COUNTY NUMBER	T13
EPA_CO	EPA COUNTY NUMBER	B06	PIPS_CO	PIPS COUNTY NUMBER	W01
EPA_ST	EPA STATE NUMBER	B06	PIPS_CO	PIPS COUNTY NUMBER	W10
EVGA_A	ECORGN/ADJ. VEG. AREA	HA D09	PIPS_CO	PIPS COUNTY NUMBER	W11
EVGA_A	ADJUSTED ECORGN/VEGETATION AREA	HA D10	PIPS_CO	PIPS COUNTY NUMBER	W15
EVGA_P	ECORGN/ADJ. VEG NO. OF COUNTIES	D09	PIPS_CO	PIPS COUNTY NUMBER	W16
EVGA_P	FRACTION IN ECOREGION OF ADJ. VEG. TYPE	D09	PIPS_ST	PIPS STATE NUMBER	A01
EVGP_A	ECORGN/POT. VEG. AREA	HA D09	PIPS_ST	PIPS STATE NUMBER	A02
EVGP_A	POTENTIAL ECORGN/VEGETATION AREA	HA D10	PIPS_ST	PIPS STATE NUMBER	A03
EVGP_A	ECOREGION/VEGETATION POTENTIAL AREA	HA M05	PIPS_ST	PIPS STATE NUMBER	A04
EVGP_P	ECORGN/POT. VEG NO. OF COUNTIES	D09	PIPS_ST	PIPS STATE NUMBER	A05
EVGP_P	FRACTION IN ECOREGION OF POT. VEG. TYPE	D09	PIPS_ST	PIPS STATE NUMBER	B01
EVGP_P	VEGETATION WITHIN AN ECOREGION, PERCENT	D12	PIPS_ST	PIPS STATE NUMBER	B02
FALPROST	FIRST FALL FROST, JULIAN DATE	C19	PIPS_ST	PIPS STATE NUMBER	B03
FALLOW	SUMMER FALLOW	HA L01	PIPS_ST	PIPS STATE NUMBER	B05
FALLOW	SUMMER FALLOW	HA L03	PIPS_ST	PIPS STATE NUMBER	B06
FARM_A	FARMLAND	HA A01	PIPS_ST	PIPS STATE NUMBER	C07
FARM_LND	FARMSTEADS, FEEDLOTS, ROADS	HA L01	PIPS_ST	PIPS STATE NUMBER	C08
FARM_LND	FARMSTEADS, FEEDLOTS, ROADS	HA L03	PIPS_ST	PIPS STATE NUMBER	C09
FEB_M_I	FEBRUARY MONTHLY INDEX	C10	PIPS_ST	PIPS STATE NUMBER	C10
FEB_P_E	FEBRUARY POTENTIAL EVAPOTRANS	CM C09	PIPS_ST	PIPS STATE NUMBER	C11
FEB_PAVE	FEBRUARY AVERAGE PRECIPITATION	CM C14	PIPS_ST	PIPS STATE NUMBER	C12
FEB_PMAX	FEBRUARY MAXIMUM PRECIPITATION	CM C15	PIPS_ST	PIPS STATE NUMBER	C13
FEB_PMIN	FEBRUARY MINIMUM PRECIPITATION	CM C16	PIPS_ST	PIPS STATE NUMBER	C14
FEB_RAIN	FEBRUARY PRECIPITATION	CM C08	PIPS_ST	PIPS STATE NUMBER	C15
FEB_TAVE	FEBRUARY AVERAGE TEMPERATURE	C DEGREES C11	PIPS_ST	PIPS STATE NUMBER	C16
FEB_TEMP	FEBRUARY AVERAGE TEMPERATURE	C DEGREES C07	PIPS_ST	PIPS STATE NUMBER	C17
FEB_TMAX	FEBRUARY MAXIMUM TEMPERATURE	C DEGREES C12	PIPS_ST	PIPS STATE NUMBER	C18
FEB_TMIN	FEBRUARY MINIMUM TEMPERATURE	C DEGREES C13	PIPS_ST	PIPS STATE NUMBER	C19
FED_LAND	FEDERALLY OWNED LAND	HA L01	PIPS_ST	PIPS STATE NUMBER	C20
FED_LAND	FEDERALLY OWNED LAND	HA L03	PIPS_ST	PIPS STATE NUMBER	D02
FED_LAND	FEDERALLY OWNED LAND	HA L07	PIPS_ST	PIPS STATE NUMBER	D04
FED_RGN	FEDERAL REGION CODE	B02	PIPS_ST	PIPS STATE NUMBER	D06
FED_RGN	FEDERAL REGION NUMBER	B06	PIPS_ST	PIPS STATE NUMBER	D08
FEDRL_77	TOTAL FEDERAL LAND AREA - 1977	HA L04	PIPS_ST	PIPS STATE NUMBER	D10
FERT_A	TOTAL FERTILIZED LAND	HA A01	PIPS_ST	PIPS STATE NUMBER	F01
FERT_AMT	TOTAL FERTILIZER USED (DRY & LIQUID)	KG A01	PIPS_ST	PIPS STATE NUMBER	F02
PIPS_CO	PIPS COUNTY NUMBER	A01	PIPS_ST	PIPS STATE NUMBER	F03
PIPS_CO	PIPS COUNTY NUMBER	A02	PIPS_ST	PIPS STATE NUMBER	F04
PIPS_CO	PIPS COUNTY NUMBER	A03	PIPS_ST	PIPS STATE NUMBER	F06
PIPS_CO	PIPS COUNTY NUMBER	A04	PIPS_ST	PIPS STATE NUMBER	F07
PIPS_CO	PIPS COUNTY NUMBER	A05	PIPS_ST	PIPS STATE NUMBER	K04
PIPS_CO	PIPS COUNTY NUMBER	B01	PIPS_ST	PIPS STATE NUMBER	K05
PIPS_CO	PIPS COUNTY NUMBER	B03	PIPS_ST	PIPS STATE NUMBER	L01
PIPS_CO	PIPS COUNTY NUMBER	B05	PIPS_ST	PIPS STATE NUMBER	L02
PIPS_CO	PIPS COUNTY NUMBER	B06	PIPS_ST	PIPS STATE NUMBER	L03
PIPS_CO	PIPS COUNTY NUMBER	C07	PIPS_ST	PIPS STATE NUMBER	L04
PIPS_CO	PIPS COUNTY NUMBER	C08	PIPS_ST	PIPS STATE NUMBER	L05
PIPS_CO	PIPS COUNTY NUMBER	C09	PIPS_ST	PIPS STATE NUMBER	L06
PIPS_CO	PIPS COUNTY NUMBER	C10	PIPS_ST	PIPS STATE NUMBER	L07
PIPS_CO	PIPS COUNTY NUMBER	C17	PIPS_ST	PIPS STATE NUMBER	L08
PIPS_CO	PIPS COUNTY NUMBER	C19	PIPS_ST	PIPS STATE NUMBER	M02
PIPS_CO	PIPS COUNTY NUMBER	C20	PIPS_ST	PIPS STATE NUMBER	M03

Table B.1 (continued)

VARIABLE	LABEL AND UNITS OF MEASURE	DSN	VARIABLE	LABEL AND UNITS OF MEASURE	DSN
PIPS_ST	PIPS STATE NUMBER	N04	HIWAY_P	HIGHWAYS ON RURAL-FEDERAL	HA L08
PIPS_ST	PIPS STATE NUMBER	P01	HIWAY_N	HIGHWAYS ON RURAL-NONFEDERAL	HA L08
PIPS_ST	PIPS STATE NUMBER	P02	HORSES_I	HORSES, PONIES AND MULES INVENTORY	A02
PIPS_ST	PIPS STATE NUMBER	T02	HORSES_S	HORSES, PONIES AND MULES SALES	A02
PIPS_ST	PIPS STATE NUMBER	T03	HYDR_1	VERY IMPORTANT HYDROELECTRIC RESOURCES	N08
PIPS_ST	PIPS STATE NUMBER	T04	HYDR_2	IMPORTANT HYDROELECTRIC RESOURCES	N08
PIPS_ST	PIPS STATE NUMBER	T05	HYDR_3	COMMERCIAL POTENTIAL HYDROELECTRIC	N08
PIPS_ST	PIPS STATE NUMBER	T06	HYDR_4	NO COMMERCIAL HYDROELECTRIC RESOURCES	N08
PIPS_ST	PIPS STATE NUMBER	T11	HYDR_5	INDIRECTLY SIGNIFICANT HYDROELECTRIC	N08
PIPS_ST	PIPS STATE NUMBER	T12	INCEPT_A	INCEPTOSOL SOIL	HA T13
PIPS_ST	PIPS STATE NUMBER	T13	INTERST_P	INTERSTATES ON RURAL-FEDERAL	HA L08
PIPS_ST	PIPS STATE NUMBER	W01	INTERST_N	INTERSTATES ON RURAL-NONFEDERAL	HA L08
PIPS_ST	PIPS STATE NUMBER	W08	IRR_LAND	IRRIGATED LAND: CROPLAND & PASTURE	HA A01
PIPS_ST	PIPS STATE NUMBER	W10	IRR_WATR	IRRIGATION WATER USED	CU M A01
PIPS_ST	PIPS STATE NUMBER	W11	ITENS	NUMBER OF VARIABLES	G01
PIPS_ST	PIPS STATE NUMBER	W15	JAN_M_I	JANUARY MOISTURE INDEX	C10
PIPS_ST	PIPS STATE NUMBER	W16	JAN_P_E	JANUARY POTENTIAL EVAPOTRANS	CM C09
PLD_CROP	CLOSE GROWN FIELD CROPS	HA L01	JAN_PAVE	JANUARY AVERAGE PRECIPITATION	CM C14
PLD_CROP	CLOSE GROWN FIELD CROPS	HA L03	JAN_PMAX	JANUARY MAXIMUM PRECIPITATION	CM C15
FOREST	TOTAL OF ALL FOREST LAND	HA L01	JAN_PMIN	JANUARY MINIMUM PRECIPITATION	CM C16
FOREST	TOTAL OF ALL FOREST LAND	HA L03	JAN_RAIN	JANUARY PRECIPITATION	CM C08
FOREST	TOTAL OF ALL FOREST LAND	HA L07	JAN_TAVE	JANUARY AVERAGE TEMPERATURE	C DEGREES C11
FOREST_A	FOREST LAND - COMMERCIAL	HA P01	JAN_TEMP	JANUARY AVERAGE TEMPERATURE	C DEGREES C07
FOREST_C	COMMERCIAL FOREST (.6 CU M/HA/YR)	HA L01	JAN_TMAX	JANUARY MAXIMUM TEMPERATURE	C DEGREES C12
FOREST_C	COMMERCIAL FOREST (.6 CU M/HA/YR)	HA L03	JAN_TMIN	JANUARY MINIMUM TEMPERATURE	C DEGREES C13
FOREST_NC	NONCOMMERCIAL FOREST	HA L01	JUL_M_I	JULY MOISTURE INDEX	C10
FOREST_NC	NONCOMMERCIAL FOREST	HA L03	JUL_P_E	JULY POTENTIAL EVAPOTRANS	CM C09
FRUIT_A	FRUIT ORCHARDS	HA A01	JUL_PAVE	JULY AVERAGE PRECIPITATION	CM C14
FS_CP_A	AREA OF CO. IN COMMERCIAL FOREST	HA P07	JUL_PMAX	JULY MAXIMUM PRECIPITATION	CM C15
FS_CO_A	AREA OF COUNTY BASED ON USFS ESTIMATES	P07	JUL_PMIN	JULY MINIMUM PRECIPITATION	CM C16
FS_POR_A	AREA OF COUNTY IN FOREST	HA P07	JUL_RAIN	JULY PRECIPITATION	CM C08
P00_04	FEMALES BETWEEN BIRTH AND 4 YEARS OF AGE	P01	JUL_TAVE	JULY AVERAGE TEMPERATURE	C DEGREES C11
P05_09	FEMALES BETWEEN 5 AND 9 YEARS OF AGE	P01	JUL_TEMP	JULY AVERAGE TEMPERATURE	C DEGREES C07
P10_14	FEMALES BETWEEN 10 AND 14 YEARS OF AGE	P01	JUL_TMAX	JULY MAXIMUM TEMPERATURE	C DEGREES C12
P15_19	FEMALES BETWEEN 15 AND 19 YEARS OF AGE	P01	JUL_TMIN	JULY MINIMUM TEMPERATURE	C DEGREES C13
P20_24	FEMALES BETWEEN 20 AND 24 YEARS OF AGE	P01	JUN_M_I	JUNE MOISTURE INDEX	C10
P25_29	FEMALES BETWEEN 25 AND 29 YEARS OF AGE	P01	JUN_P_E	JUNE POTENTIAL EVAPOTRANS	CM C09
P30_34	FEMALES BETWEEN 30 AND 34 YEARS OF AGE	P01	JUN_PAVE	JUNE AVERAGE PRECIPITATION	CM C14
P35_39	FEMALES BETWEEN 35 AND 39 YEARS OF AGE	P01	JUN_PMAX	JUNE MAXIMUM PRECIPITATION	CM C15
P40_44	FEMALES BETWEEN 40 AND 44 YEARS OF AGE	P01	JUN_PMIN	JUNE MINIMUM PRECIPITATION	CM C16
P45_49	FEMALES BETWEEN 45 AND 49 YEARS OF AGE	P01	JUN_RAIN	JUNE PRECIPITATION	CM C08
P50_54	FEMALES BETWEEN 50 AND 54 YEARS OF AGE	P01	JUN_TAVE	JUNE AVERAGE TEMPERATURE	C DEGREES C11
P55_59	FEMALES BETWEEN 55 AND 59 YEARS OF AGE	P01	JUN_TEMP	JUNE AVERAGE TEMPERATURE	C DEGREES C07
P60_64	FEMALES BETWEEN 60 AND 64 YEARS OF AGE	P01	JUN_TMAX	JUNE MAXIMUM TEMPERATURE	C DEGREES C12
P65_69	FEMALES BETWEEN 65 AND 69 YEARS OF AGE	P01	JUN_TMIN	JUNE MINIMUM TEMPERATURE	C DEGREES C13
P70_74	FEMALES BETWEEN 70 AND 74 YEARS OF AGE	P01	KARST_A	AREA IN KARST TERRAIN CLASS	HA T05
P75_79	FEMALES BETWEEN 75 AND 79 YEARS OF AGE	P01	KARST_C	KARST TERRAIN CLASS CODE	T05
P80_84	FEMALES BETWEEN 80 AND 84 YEARS OF AGE	P01	KARST_P	PORTION IN KARST TERRAIN CLASS	T05
P85_89	FEMALES 85 YEARS OF AGE AND GREATER	P01	LABEL	VARIABLE LABEL AND UNITS OF MEASURE	G02
GEO_RGN	GEOECOLOGY REGIONS OF COVERAGE - S,B,N	B05	LAND_A_A	AREA IN LAND SURFACE FORM CODE	HA T01
GEOCOVER	GEOGRAPHIC COVERAGE	G01	LAND_DST	TOTAL LAND DISTURBED	HA L05
GEOUNIT	SPATIAL RESOLUTION	G01	LAND_NOT	LAND NOT REQUIRING RECLAMATION	HA L05
GLACL_A	AREA IN GLACIAL GEOLOGY CLASS	ACRES T04	LAND_S_P	PORTION IN LAND SURFACE FORM CODE	T01
GLACL_C	GLACIAL GEOLOGY CLASS CODE	T04	LAND_S_R	LAND SURFACE LOCAL RELIEF CLASS CODE	T01
GLACL_T	FLAG, AREA REPRESENTS 0.001 OF COUNTY	T04	LAND_S_S	LAND SURFACE GENTLE SLOPE CLASS CODE	T01
GRAIN_A	SMALL GRAINS EXCLUDING WHEAT	HA A01	LAND_S_T	LAND SURFACE PROFILE TYPE CLASS CODE	T01
GRAZ_CP	GRAZED PORTION OF COMM. FORESTS	HA L01	LAND_77	LAND AREA - 1977	HA L08
GRAZ_CP	GRAZED PORTION OF COMM. FORESTS	HA L03	LAT_D	LATITUDE OF AREA	DEGREE N01
GRAZ_NCF	GRAZED PORTION OF NONCOMM. FORESTS	HA L01	LAT_N	LATITUDE OF AREA	MINUTE N01
GRAZ_NCF	GRAZED PORTION OF NONCOMM. FORESTS	HA L03	LATITUDE	LATITUDE OF COUNTY CENTROID	B01
GROW_DAY	GROWING SEASON LENGTH IN DAYS	C19	LCC_CODE	LAND CAPABILITY CLASS CODE	L03
GSG_CODE	GREAT SOILS GROUP CODE	T08	LCC_1	SOIL WITH NO LIMITS	HA L02
GSG_CODE	GREAT SOILS GROUP WITHIN SOILS MAP UNIT	T09	LCC_2C	SOIL WITH SOME LIMITS - TEMP/DRYNESS	HA L02
GSG_DSCP	GREAT SOILS DESCRIPTION	T09	LCC_2E	SOIL WITH SOME LIMITS - EROSION	HA L02
GSG_RANK	GREAT SOILS GROUP RANK WITHIN MAP UNIT	T09	LCC_2S	SOIL WITH SOME LIMITS - POOR SOIL	HA L02
GUM_G	GROWING STOCK VOL. OF GUM	P02	LCC_2W	SOIL WITH SOME LIMITS - EXCESS WATER	HA L02
GUM_S	SAWTIMBER VOLUME OF GUM	P03	LCC_3C	SOIL WITH SEVERE LIMITS - TEMP/DRYNESS	HA L02
H_TONS	HYDROGEN ION LOADING FACTOR - H TONS/M2	C20	LCC_3E	SOIL WITH SEVERE LIMITS - EROSION	HA L02
HARD_H_G	GROWING STOCK VOL. OF HARD HARDWOODS	P02	LCC_3S	SOIL WITH SEVERE LIMITS - POOR SOIL	HA L02
HARD_H_S	SAWTIMBER VOLUME OF HARD HARDWOODS	P03	LCC_3W	SOIL WITH SEVERE LIMITS - EXCESS WATER	HA L02
HARD_S_G	GROWING STOCK VOL. OF SOFT HARDWOODS	P02	LCC_4C	SOIL W/ VERY SEVERE LIMITS-TEMP/DRYNESS	HA L02
HARD_S_S	SAWTIMBER VOLUME OF SOFT HARDWOODS	P03	LCC_4E	SOIL W/ VERY SEVERE LIMITS-EROSION	HA L02
HARDWD_A	HARDWOOD FOREST	HA P01	LCC_4S	SOIL W/ VERY SEVERE LIMITS-POOR SOIL	HA L02
HARDWD_G	GROWING STOCK VOL. OF ALL HARDWOODS	P02	LCC_4W	SOIL W/ VERY SEVERE LIMITS-EXCESS WATER	HA L02
HARDWD_S	SAWTIMBER VOLUME OF ALL HARDWOODS	P03	LCC_5C	SOIL LEVEL BUT WET/STONE - TEMP/DRYNESS	HA L02
HARV_A	HARVESTED CROPLAND	HA A01	LCC_5E	SOIL LEVEL BUT WET/STONE - EROSION	HA L02
HAY_A	HAY OR GRASS SILAGE	HA A01	LCC_5S	SOIL LEVEL BUT WET/STONE - POOR SOIL	HA L02
HAY_A	HAY AREA HARVESTED	HA A03	LCC_5W	SOIL LEVEL BUT WET/STONE - EXCESS WATER	HA L02
HAY_PAST	ROTATION HAY AND PASTURE	HA L01	LCC_6C	SOIL FOR RANGE, FOREST, ETC - TEMP/DRYNESS	HA L02
HAY_PAST	ROTATION HAY AND PASTURE	HA L03	LCC_6E	SOIL FOR RANGE, FOREST, ETC - EROSION	HA L02
HAY_Y	HAY OR GRASS SILAGE YIELD	KG A01	LCC_6S	SOIL FOR RANGE, FOREST, ETC - POOR SOIL	HA L02
HAY_Y	HAY YIELD	KG A03	LCC_6W	SOIL FOR RANGE, FOREST, ETC - EXCESS WATER	HA L02
HAYLAND	PERMANENT FORAGE PRODUCTION	HA L01	LCC_7C	SOIL FOR FOREST, WILDLIFE - TEMP/DRYNESS	HA L02
HAYLAND	PERMANENT FORAGE PRODUCTION	HA L03	LCC_7E	SOIL FOR FOREST, WILDLIFE - EROSION	HA L02
HENS_I	HENS AND PULLETS INVENTORY	A02	LCC_7S	SOIL FOR FOREST, WILDLIFE - POOR SOIL	HA L02
HENS_S	HENS AND PULLETS SALES	A02	LCC_7W	SOIL FOR FOREST, WILDLIFE - EXCESS WATER	HA L02
HISTO_A	HISTOSOL SOIL	HA T13	LCC_8C	SOIL W/ CULTIVATED EXCLUDED-TEMP/DRYNESS	HA L02

VARIABLE	LABEL AND UNITS OF MEASURE	DSM	VARIABLE	LABEL AND UNITS OF MEASURE	DSM		
LCC_88	SOIL W/ CULTIVATN PRECLUDED-BROSION	HA	L02	NOV_PNAI	NOVEMBER MAXIMUM PRECIPITATION	CM	C15
LCC_89	SOIL W/ CULTIVATN PRECLUDED-POOR SOIL HA	L02	NOV_PRAI	NOVEMBER MINIMUM PRECIPITATION	CM	C16	
LCC_8W	SOIL W/ CULTIVATN PRECLUDED-EXCESS WATER	L02	NOV_RAIN	NOVEMBER PRECIPITATION	CM	C08	
LITHOL_A	AREA IN BEDROCK LITHOLOGIC CLASS	HA	T02	NOV_TAVE	NOVEMBER AVERAGE TEMPERATURE	C DEGREES	C11
LITHOL_C	BEDROCK LITHOLOGIC CLASS CODE	702	NOV_TEMP	NOVEMBER AVERAGE TEMPERATURE	C DEGREES	C07	
LITHOL_P	POSITION IN BEDROCK LITHOLOGIC CLASS	T02	NOV_THAI	NOVEMBER MAXIMUM TEMPERATURE	C DEGREES	C12	
LND_CODE	LAND SURFACE FCN CODE, HARMOND	N07	NOV_THIN	NOVEMBER MINIMUM TEMPERATURE	C DEGREES	C13	
LND_IS_A	OTHER LAND, PASTORED OR NOT	HA	A01	NURSRY_A	NURSERY AND GREENHOUSE PRODUCTS	HA	A01
LONGITUDE	LONGITUDE OF COUNTY CENTROID	301	OAGS_1	VERY IMPORTANT OIL AND GAS RESOURCES	N08	C10	
LONG_P_A	LONGIPAP-SLASH PINE FOREST	HA	301	OAGS_2	IMPORTANT OIL AND GAS RESOURCES	N08	C10
LOBL_P_A	LOBLCILLY-SHORTLEAF PINE FOREST	HA	301	OAGS_3	COMMERCIAL POTENTIAL OIL AND GAS	N08	C10
LONG_D	LONGITUDE OF AREA	DEGREE	N01	OAGS_4	NO COMMERCIAL OIL AND GAS RESOURCES	N08	C10
LONG_H	LONGITUDE OF AREA	MINUTE	N01	OAGS_5	INDIRECTLY SIGNIFICANT OIL AND GAS	N08	C10
LRA_CODE	SCS LAND RESOURCE AREA CODE	L06	OAK_G	GROWING STOCK VOL. OF SELECT OAKS	F02	C10	
LRG_LAKE	LARGE LAKES (>40ACRES)	HA	A01	OAK_G_A	OAK-GUM-CYPRESS FOREST	HA	F01
LRR_CODE	SCS LAND RESOURCE REGION CODE	L06	OAK_H_A	OAK-HICKORY FOREST	HA	F01	
NAM_C_W	CENTRAL NARHAL COUNTY OCCURRENCES	W13	OAK_P_A	OAK-PINE FOREST	HA	F01	
NAM_C_P	FRACTION OF COUNTY OCCURRENCES IN CENT.	W13	OAK_S	SAWTIMBER VOLUME OF SELECT OAKS	F03	C10	
NAM_CODE	NARHAL NHEONIC SPECIES CODE	W12	OCT_H_I	OCTOBER MOISTURE INDEX	N08	C09	
NAM_CODE	NARHAL NHEONIC SPECIES CODE	W13	OCT_P_E	OCTOBER POTENTIAL EVAPOTRANS	CM	C09	
NAM_CODE	NARHAL NHEONIC SPECIES CODE	W14	OCT_PAVE	OCTOBER AVERAGE PRECIPITATION	CM	C14	
NAM_CODE	NHEONIC NARHALS SPECIES CODE	W15	OCT_PNAI	OCTOBER MAXIMUM PRECIPITATION	CM	C15	
NAM_CODE	NHEONIC NARHALS SPECIES CODE	W16	OCT_PRAI	OCTOBER MINIMUM PRECIPITATION	CM	C16	
NAM_DSCP	NARHAL COMMON NAME	W12	OCT_RAIN	OCTOBER PRECIPITATION	CM	C08	
NAM_DSCP	NARHAL COMMON NAME	W13	OCT_TAVE	OCTOBER AVERAGE TEMPERATURE	C DEGREES	C11	
NAM_P_E	EASTERN NARHAL COUNTY OCCURRENCES	W13	OCT_TEMP	OCTOBER AVERAGE TEMPERATURE	C DEGREES	C07	
NAM_P_P	FRACTION OF COUNTY OCCURRENCES IN EAST	W13	OCT_THAI	OCTOBER MAXIMUM TEMPERATURE	C DEGREES	C12	
NAM_IDX	TRACT SCORE - NARHALS	N06	OCT_THIN	OCTOBER MINIMUM TEMPERATURE	C DEGREES	C13	
NAM_KEY	NARHAL SPECIES CODE NUMBER	W13	OET_IDX	TRACT SCORE - OVERALL ECOLOGICAL INDEX	N06	C10	
NAM_N_W	NATIONAL NARHAL COUNTY OCCURRENCES	W13	OET_RANK	TRACT RANK - OVERALL ECOLOGICAL INDEX	N06	C10	
NAM_N_P	FRACTION OF COUNTY OCCURRENCES IN NATION	W13	OPEN_LND	OPEN LAND WITHOUT RECENT USE	HA	L01	
NAM_RANK	TRACT RANK - NARHALS	N06	OPEN_LND	OPEN LAND WITHOUT RECENT USE	HA	L03	
NAM_SPEC	NARHAL GENUS-SPECIES SCIENTIFIC NAME	W12	ORCH_LND	ORCHARDS, VINEYARDS, BUSH BERRIES	HA	L01	
NAM_SPEC	NARHAL GENUS-SPECIES SCIENTIFIC NAME	W13	ORCH_LND	ORCHARDS, VINEYARDS, BUSH BERRIES	HA	L03	
NAM_W_H	WESTERN NARHAL COUNTY OCCURRENCES	W13	OTHR_H_G	GROWING STOCK VOL. OF MISC. HARDWOODS	F02	C10	
NAM_W_P	FRACTION OF COUNTY OCCURRENCES IN WEST	W13	OTHR_H_S	SAWTIMBER VOLUME OF MISC. HARDWOODS	F03	C10	
NAP_B_A	NAPLE-BEECH-BIRCH FOREST	HA	301	OTHR_MBC	OTHER MINES - RECLAMATION NECESSARY	HA	L05
NARCB_I	NARCB MOISTURE INDEX	C10	009	OTHR_RQD	OTHER MINES - RECLAM REQUIRED BY LAW	HA	L05
NARCB_P_E	NARCB POTENTIAL EVAPOTRANS	CM	C09	OTHR_S_G	GROWING STOCK VOL. OF MISC. SOFTWOODS	F02	C10
NARCB_PAVE	NARCB AVERAGE PRECIPITATION	CM	C14	OTHR_S_S	SAWTIMBER VOLUME OF MISC. SOFTWOODS	F03	C10
NARCB_PNAI	NARCB MAXIMUM PRECIPITATION	CM	C15	OTHR_LND	OTHR LAND-HOUSES, SWAMPS, ETC	HA	L01
NARCB_PRAI	NARCB MINIMUM PRECIPITATION	CM	C16	OTHR_LND	OTHR LAND-HOUSES, SWAMPS, ETC	HA	L03
NARCB_RAIN	NARCB PRECIPITATION	CM	C09	OTHR_LND	OTHR LAND-HOUSES, SWAMPS, ETC	HA	L07
NARCB_TAVE	NARCB AVERAGE TEMPERATURE	C DEGREES	C11	OVER_1	OVERALL - VERY IMPORTANT FOR ENERGY	N08	C09
NARCB_TEMP	NARCB AVERAGE TEMPERATURE	C DEGREES	C07	OVER_2	OVERALL - IMPORTANT FOR ENERGY	N08	C09
NARCB_THAI	NARCB MAXIMUM TEMPERATURE	C DEGREES	C12	OVER_3	OVERALL - COMMERCIAL POTENTIAL	N08	C09
NARCB_THIN	NARCB MINIMUM TEMPERATURE	C DEGREES	C13	OVER_4	OVERALL - NO COMMERCIAL POTENTIAL	N08	C09
NAY_I_I	NAY MOISTURE INDEX	C10	009	OVER_5	OVERALL - INDIRECT SIGNIFICANCE	N08	C09
NAY_P_E	NAY POTENTIAL EVAPOTRANS	CM	C09	P_1970A	1970 TOTAL POPULATION	F01	C01
NAY_PAVE	NAY AVERAGE PRECIPITATION	CM	C14	P_1970P	1970 FEMALE POPULATION	F01	C01
NAY_PNAI	NAY MAXIMUM PRECIPITATION	CM	C15	P_1970H	1970 MALE POPULATION	F01	C01
NAY_PRAI	NAY MINIMUM PRECIPITATION	CM	C16	P_1985A	1985 TOTAL POPULATION	F02	C01
NAY_RAIN	NAY PRECIPITATION	CM	C09	P_1985F	1985 FEMALE POPULATION	F02	C01
NAY_TAVE	NAY AVERAGE TEMPERATURE	C DEGREES	C11	P_1985N	1985 MALE POPULATION	F02	C01

Table B.1 (continued)

VARIABLE	LABEL AND UNITS OF MEASURE	DSN	VARIABLE	LABEL AND UNITS OF MEASURE	DSN
PROB_WTR	PROBABILITY OF BEING COVERED BY WATER	D05	SOIL_ON	SOIL ORGANIC MATTER PERCENT	T12
PUB_REF	PUBLICATION REFERENCE	F07	SOIL_PH	SOIL PH	T10
PVEG_C	VEGETATION CODE, KUCHLER 1964	D05	SOIL_PH	SOIL PH	T12
PVEG_C	VEGETATION CODE, KUCHLER 1964	D12	SOIL_S_C	SOILS SUBORDER CODE	T07
RAILR_77	TOTAL RAILROAD AREA - 1977	HA L09	SOIL_S_D	SOILS SUBORDER DESCRIPTION	T07
RAILRD_F	RAILROADS ON RURAL-FEDERAL	HA L08	SOILS_A	AREA IN SOILS MAP UNIT CODE	HA T03
RAILRD_N	RAILROADS ON RURAL-NONFEDERAL	HA L08	SOILS_C	SOILS CODE FOR MAP UNIT IN NATL ATLAS	T03
RAIN_PH	PH OF RAINFALL AS OF 1974	C20	SOILS_P	PORTION IN SOILS MAP UNIT	T03
RANG_LND	RANGELAND WITH NATURAL FORAGE	HA L01	SORG_G_A	SORGHUM FOR GRAIN	HA A01
RANG_LND	RANGELAND WITH NATURAL FORAGE	HA L03	SORG_G_A	SORGHUM FOR GRAIN AREA HARVESTED	HA A03
RANG_LND	RANGELAND WITH NATURAL FORAGE	HA L07	SORG_G_Y	SORGHUM FOR GRAIN YIELD	KG A01
RECORDS	NUMBER OF RECORDS	G01	SORG_G_Y	SORGHUM FOR GRAIN YIELD	KG A03
RGH	REGION - E, C, W	D07	SORG_S_A	SORGHUM FOR SILAGE OR GRAZING	HA A01
RGH	REGION - E, C, W	D09	SOYBN_A	SOYBEANS FOR BEANS	HA A01
RGH	REGION - E, C, W	W15	SOYBN_A	SOYBEAN AREA HARVESTED	HA A03
RGH	REGION - E, C, W	W16	SOYBN_Y	SOYBEANS FOR BEANS YIELD	KG A01
ROAD_D_F	DIRT ROADS ON RURAL-FEDERAL	HA L08	SOYBN_Y	SOYBEAN YIELD	KG A03
ROAD_D_N	DIRT ROADS ON RURAL-NONFEDERAL	HA L08	SO2_1975	ESTIMATED SO2 AMBIENT LEVELS FOR 1975	K05
ROAD_G_F	GRAVEL ROADS ON RURAL-FEDERAL	HA L09	SO2_1985	PROJECTED SO2 AMBIENT LEVELS FOR 1985	K05
ROAD_G_N	GRAVEL ROADS ON RURAL-NONFEDERAL	HA L08	SO2_2000	PROJECTED SO2 AMBIENT LEVELS FOR 2000	K05
ROAD_P_F	PAVED ROADS ON RURAL-FEDERAL	HA L08	SP_FIR_A	SPRUCE-FIR FOREST	HA F01
ROAD_P_N	PAVED ROADS ON RURAL-NONFEDERAL	HA L08	SPECL_A	SPECIAL CLASSIFICATION WILDERNESS	HA F07
ROADS_77	FEDERAL AND STATE ROAD AREA - 1977	HA L09	SPODO_A	SPODOSOL SOIL	HA T13
ROW_CROP	OTHER ROW CROPS - NOT CORN, WHEAT	HA L01	SPRFRST	LAST SPRING FROST, JULIAN DATE	C18
ROW_CROP	OTHER ROW CROPS - NOT CORN, WHEAT	HA L03	ST	STATE 2 LETTER CODE	N01
RUR_F_77	RURAL FEDERAL LAND AREA - 1977	HA L08	ST	STATE 2 LETTER CODE	N07
RUR_N_77	RURAL NONFEDERAL LAND AREA - 1977	HA L08	ST	STATE 2 LETTER CODE	N08
RURAL_77	TOTAL RURAL LAND AREA - 1977	HA L09	ST_CODE	STATE CODE LETTERS	B01
S_BASE_C	SOIL BASE CODE	T09	ST_CODE	STATE TWO-LETTER CODE	B02
S_MOIS_C	SOIL MOISTURE CODE	T08	STATE	STATE NAME	D02
S_ORGN_C	SOIL ORGANIC MATTER CODE	T09	STATUS	DATA SET STATUS	G01
S_PAN_C	SOIL PAN CODE	T08	STR_CODE	BBS STRATA CODE	W01
S_TEMP_C	SOIL TEMPERATURE CODE	T08	STR_CODE	BBS STRATA CODE	W02
S_TEXTURE_C	SOIL TEXTURE CODE	T09	STR_CODE	BBS STRATA CODE	W06
SAND_REC	SAND AND GRAVEL RECLAM NECESSARY	HA L05	STR_DSCP	PHYSIOGRAPHIC STRATA DESCRIPTION	W02
SAND_RQD	SAND AND GRAVEL - RECLAM REQ BY LAW	HA L05	SUL_1975	ESTIMATED SULFATE AMBIENT LEVELS, 1975	K05
SBRD_N	BBS STRATA BIRD ROUTE OCCURRENCES	W06	SUL_1985	PROJECTED SULFATE AMBIENT LEVELS, 1985	K05
SBRD_TOT	BBS STRATA AVERAGE BIRD COUNT	W06	SUL_2000	PROJECTED SULFATE AMBIENT LEVELS, 2000	K05
SCD_A_WT	AREA WEIGHTED VALUE	C19	SVCH	STATE VISUAL CONTINUITY NUMBER	B01
SCD_ARFA	AREA OF COUNTY IN SCD	HA C17	T_S_BIO	TOTAL STAND BIOMASS	N. TH/HA F07
SCD_CODE	STATE CLIMATIC DIVISION CODE	C11	T_S_GSV	TOTAL STAND GROWING STOCK VOLUME M**3/HA	F07
SCD_CODE	STATE CLIMATIC DIVISION CODE	C12	TEMPORAL	TEMPORAL RESOLUTION	G01
SCD_CODE	STATE CLIMATIC DIVISION CODE	C13	TRENE	THEMATIC SECTOR TITLE	G01
SCD_CODE	STATE CLIMATIC DIVISION CODE	C14	TITLE	DATA SET TITLE	G01
SCD_CODE	STATE CLIMATIC DIVISION CODE	C15	TMP_IDLE	TEMPORARILY IDLE WITH RECENT USE	HA LC1
SCD_CODE	STATE CLIMATIC DIVISION CODE	C16	TMP_IDLE	TEMPORARILY IDLE WITH RECENT USE	HA L03
SCD_CODE	STATE CLIMATIC DIVISION CODE	C17	TOBAC_A	TOBACCO	HA A01
SCD_CODE	STATE CLIMATIC DIVISION CODE	C19	TOBAC_Y	TOBACCO YIELD	KG A01
SCD_NAME	STATE CLIMATIC DIVISION NAME	C19	TOT_AREA	TOTAL AREA EXCLUDING >40AC LAKES	HA L01
SCD_P_WT	POPULATION WEIGHTED VALUE	C19	TOT_AREA	TOTAL AREA EXCLUDING >40AC LAKES	HA L03
SCD_PART	PORTION OF COUNTY IN SCD	C17	TOT_AREA	TOTAL AREA EXCLUDING >16HA LAKES	HA L07
SECTOR	SECTOR CODE LETTER	G01	TREE_BIO	TREE BIOMASS IN COMMERCIAL FOREST TH/HA	F06
SEISM_1A	LOW SEISMIC RISK AREA	HA L04	TREE_DSC	TREE SPECIES COMMON NAME	D01
SEISM_2A	Moderate Seismic Risk Area	HA L04	TREE_DSC	TREE SPECIES COMMON NAME	F05
SEISM_3A	HIGH SEISMIC RISK AREA	HA L04	TREE_GSV	TREE GROWING STOCK VOLUME 10**6 FT**3	F06
SEP_M_I	SEPTEMBER MOISTURE INDEX	C10	TREE_KEY	TREE SPECIES NUMERIC CODE	F06
SEP_P_E	SEPTEMBER POTENTIAL EVAPOTRANS	CM C09	TREE_SPC	TREE GENUS-SPECIES SCIENTIFIC NAME	D01
SEP_PAVE	SEPTEMBER AVERAGE PRECIPITATION	CM C14	TREE_SPC	TREE GENUS-SPECIES SCIENTIFIC NAME	F05
SEP_PMAX	SEPTEMBER MAXIMUM PRECIPITATION	CM C15	TREE_VOL	TREE VOLUME IN COMMERCIAL FOREST M**3/HA	F06
SEP_PMIN	SEPTEMBER MINIMUM PRECIPITATION	CM C16	TREECODE	TREE SPECIES NUMERIC CODE	D01
SEP_RAIN	SEPTEMBER PRECIPITATION	CM C09	TREECODE	TREE SPECIES NUMERIC CODE	D02
SEP_TAVE	SEPTEMBER AVERAGE TEMPERATURE	C DEGREES C11	TREECODE	TREE SPECIES NUMERIC CODE	F05
SEP_TEMP	SEPTEMBER AVERAGE TEMPERATURE	C DEGREES C07	TURKEY_I	TURKEY INVENTORY	A02
SEP_THAI	SEPTEMBER MAXIMUM TEMPERATURE	C DEGREES C12	TURKEY_S	TURKEY SALES	A02
SEP_THIN	SEPTEMBER MINIMUM TEMPERATURE	C DEGREES C13	TYPE	DATA SET TYPE	G01
SHEEP_I	SHEEP AND LAMBS INVENTORY	A02	ULTI_A	ULTISOL SOIL	HA T13
SHEEP_S	SHEEP AND LAMBS SALES	A02	UPDATES	ANTICIPATED UPDATE INTERVAL	G01
SNL_LAKE	SMALL LAKES (<16HA) AND RIVERS	HA L01	URAN_1	VERY IMPORTANT URANIUM RESOURCES	N08
SNL_LAKE	SMALL LAKES (<16HA) AND RIVERS	HA L03	URAN_2	IMPORTANT URANIUM RESOURCES	N08
SNL_LAKE	SMALL LAKES (<16HA) AND RIVERS	HA L07	URAN_3	COMMERCIAL POTENTIAL URANIUM	N08
SND_50_A	AREA COVERED BY SAND (>.5 COVERAGE)	HA T11	URAN_4	NO COMMERCIAL URANIUM RESOURCES	N08
SOFTWD_A	SOFTWOOD FOREST	HA F01	URAN_5	INDIRECTLY SIGNIFICANT URANIUM	N08
SOFTWD_G	GROWING STOCK VOL. OF ALL SOFTWOODS	F02	URB_F_77	URBAN-FEDERAL LAND AREA - 1977	HA L08
SOFTWD_S	SAWTIMBER VOLUME OF ALL SOFTWOODS	F03	URB_LAND	URBAN AREAS	HA L01
SOIL_BS	SOIL BASE SATURATION PERCENT	T10	URB_LAND	URBAN AREAS	HA L03
SOIL_BS	SOIL BASE SATURATION PERCENT	T12	URB_LAND	URBAN AREAS	HA L07
SOIL_CC	SOIL CLAY CONTENT PERCENT	T10	URB_N_77	URBAN NONFEDERAL LAND AREA - 1977	HA L09
SOIL_CC	SOIL CLAY CONTENT PERCENT	T12	URBAN_77	TOTAL URBAN LAND AREA - 1977	HA L08
SOIL_CEC	SOIL CATION EXCHANGE CAPACITY MEQ/100G	T10	USFS_CO	COUNTY CODE - USFS	F07
SOIL_CEC	SOIL CATION EXCHANGE CAPACITY MEQ/100G	T12	USFS_LAT	LATITUDE OF COUNTY OR SURVEY UNIT	F07
SOIL_H_C	SOILS MAP UNIT CODE	T07	USFS_LNG	LONGITUDE OF COUNTY OR SURVEY UNIT	F07
SOIL_H_C	SOILS MAP UNIT CODE	T09	USFS_REG	USFS SURVEY REGION CODE WITHIN A SECTION	F04
SOIL_H_C	SOILS MAP UNIT CODE	T10	USFS_RGN	USFS REGION CODE	N01
SOIL_H_D	SOILS MAP UNIT DESCRIPTION	T07	USFS_SEC	USFS SECTION CODE, 1-4	F04
SOIL_O_C	SOILS ORDER CODE	T07	USFS_ST	STATE CODE - USFS	F07
SOIL_O_D	SOILS ORDER DESCRIPTION	T07	USFS_UNT	USFS SURVEY UNIT CODE WITHIN A STATE	F04
SOIL_ON	SOIL ORGANIC MATTER PERCENT	T10	VARIABLE	VARIABLE NAME	G02

Table B.1 (continued)

VARIABLE	LABEL AND UNITS OF MEASURE	DSN
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	D03
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	D04
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	D05
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	D06
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	D09
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	D10
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	D12
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	H05
VEG_CODE	VEGETATION CODE, KUCHLER 1966, 001-106	H07
VEG_DSCP	VEGETATION DESCRIPTION	D03
VEG_DSCP	VEGETATION DESCRIPTION	D05
VEG_INDI	TRACT SCORE - VEGETATION	H06
VEG_KEY	VEGETATION NUMBER, KUCHLER 1966, 1-106	D09
VEG_RANK	TRACT RANK - VEGETATION	H06
VEG_TYPE	GENERAL VEGETATION DESCRIPTION - KUCHLER	D05
VEGA_A	ADJUSTED VEGETATION AREA	HA U04
VEGA_C_A	ADJ. VEGETATION CENTRAL AREA	HA D03
VEGA_C_N	ADJ. VEGETATION NO. COUNTIES IN CENTRAL	D03
VEGA_C_P	FRACTION OF ADJ. VEGETATION IN CENTRAL	D03
VEGA_E_A	ADJ. VEGETATION EASTERN AREA	HA U03
VEGA_E_N	ADJ. VEGETATION NO. COUNTIES IN EAST	D03
VEGA_E_P	FRACTION OF ADJ. VEGETATION IN EAST	D03
VEGA_N_A	ADJ. VEGETATION NATIONAL AREA	HA D03
VEGA_N_N	ADJ. VEGETATION NATIONAL NO. COUNTIES	D03
VEGA_N_P	FRACTION OF ADJ. VEGETATION IN NATION	D03
VEGA_W_A	ADJ. VEGETATION WESTERN AREA	HA D03
VEGA_W_N	ADJ. VEGETATION NO. COUNTIES IN WEST	D03
VEGA_W_P	FRACTION OF ADJ. VEGETATION IN WEST	D03
VEGET_A	VEGETABLES HARVESTED FOR SALE	HA A01
VEGP_A	POTENTIAL VEGETATION AREA	HA D04
VEGP_C_A	POT. VEGETATION CENTRAL AREA	HA D03
VEGP_C_N	POT. VEGETATION NO. COUNTIES IN CENTRAL	D03
VEGP_C_P	FRACTION OF POT. VEGETATION IN CENTRAL	D03
VEGP_E_A	POT. VEGETATION EASTERN AREA	HA D03
VEGP_E_N	POT. VEGETATION NO. COUNTIES IN EAST	D03
VEGP_E_P	FRACTION OF POT. VEGETATION IN EAST	D03
VEGP_N_A	POT. VEGETATION NATIONAL AREA	HA D03
VEGP_N_N	POT. VEGETATION NATIONAL NO. COUNTIES	D03
VEGP_N_P	FRACTION OF POT. VEGETATION IN NATION	D03
VEGP_W_A	POT. VEGETATION WESTERN AREA	HA D03
VEGP_W_N	POT. VEGETATION NO. COUNTIES IN WEST	D03
VEGP_W_P	FRACTION OF POT. VEGETATION IN WEST	D03
VEG1_C	VEGETATION CROSSED BY BBS ROUTE, KUCHLER	W01
VEG2_C	VEGETATION CROSSED BY BBS ROUTE, KUCHLER	W01
VEG3_C	VEGETATION CROSSED BY BBS ROUTE, KUCHLER	W01
VERTI_A	VERTISOL SOIL	HA T13
WATER_77	CENSUS WATER AREA - 1977	HA L09
WHEAT_A	WHEAT	HA A01
WHEAT_A	WHEAT AREA HARVESTED	HA A03
WHEAT_Y	WHEAT YIELD	KG A01
WHEAT_Y	WHEAT YIELD	KG A03
WLD_AWHL	WILDERNESS ASSOCIATED WILDLIFE SPECIES	H07
WLD_ARCA	WILDERNESS GROSS AREA	HA H01
WLD_ARCA	WILDERNESS AREA - GROSS	HA H03
WLD_CO_A	WILDERNESS AREA - COUNTY PORTION	HA H03
WLD_CODE	WILDERNESS AREA CODE NUMBER - USFS	H01
WLD_CODE	WILDERNESS AREA CODE NUMBER - USFS	H03
WLD_CODE	WILDERNESS AREA CODE NUMBER - USFS	H04
WLD_CODE	WILDERNESS AREA CODE NUMBER - USFS	H05
WLD_CODE	WILDERNESS AREA CODE NUMBER - USFS	H06
WLD_CODE	WILDERNESS AREA CODE NUMBER - USFS	H07
WLD_CODE	WILDERNESS AREA CODE NUMBER - USFS	H09
WLD_FDRL	WILDERNESS AREA FEDERAL OWNERSHIP	HA H01
WLD_NAME	WILDERNESS AREA NAME	H01
WLD_NAME	WILDERNESS AREA NAME	H03
WLD_PLAN	WILDERNESS PLANNING DESIGNATION - USFS	H01
WLD_RATE	WILDERNESS ATTRIBUTE RATING-USFS APR 197	H01
WLD_RATE	WILDERNESS ATTRIBUTE RATING, USFS APR 79	H07
WLD_RMSK	REMARKS ON INDIRECT ENERGY VALUES	H09
WLD_STAT	WILDERNESS STATUS-EX,EN,SW,ST,LN,IN	H01
WLD_STAT	WILDERNESS STATUS-EX,EN,SW,ST,LN,IN	H03
WOODY_A	WOODLAND PASTURED OR NOT	HA A01
WP_HER_A	WHITE PINE-HEMLOCK FOREST	HA F01
WPINE_A	WHITE PINE FOREST	HA F01
WRS_75	WATER RESOURCE COUNCIL SUBAREAS - 1975	D03
WRS_76	WATER RESOURCE COUNCIL SUBAREAS - 1976	D03
WRS_CODE	SCS WATER RESOURCE REGION CODE	L06
WTR_30_A	AREA OCCUPIED BY WATER (.1-.5)	HA T11
WTR_50_A	AREA OCCUPIED BY WATER (>.5)	HA T11
YEAR	1975 YEAR OF RSCS ESTIMATE	A09
YEAR	YEAR OF DATA	H01
YEARS	REFERENCE YEAR(S) OF THE DATA	G01

APPENDIX C. SPATIAL UNITS

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APPENDIX C. SPATIAL UNITS

Table C.1. State areas (ha), numbers of counties, average county sizes (ha), and minimum/maximum county sizes (ha)

PIPS_ST	STATE	TOT_AREA	N_COUNTY	AVE_AREA	MINIMUM	MAXIMUM
01	ALABAMA	13,133,700	67	196,000	141,400	408,700
04	ARIZONA	29,375,400	14	2,098,200	322,700	4,801,900
05	ARKANSAS	13,455,200	75	179,400	125,900	271,900
06	CALIFORNIA	40,496,900	58	698,200	11,700	5,210,300
08	COLORADO	26,875,500	63	426,600	24,600	1,241,600
09	CONNECTICUT	1,259,400	8	157,400	96,300	239,600
10	DELAWARE	513,200	3	171,100	113,400	246,000
11	WASH., D. C.	15,800	1	15,800	15,800	15,800
12	FLORIDA	14,010,300	67	209,100	67,400	528,900
13	GEORGIA	15,043,700	159	94,600	30,000	236,200
16	IDAHO	21,413,100	44	486,700	104,100	2,205,600
17	ILLINOIS	14,440,600	102	141,600	41,400	303,800
18	INDIANA	9,350,000	92	101,600	22,500	173,800
19	IOWA	14,490,000	99	146,400	98,400	253,600
20	KANSAS	21,185,000	105	201,800	39,400	373,500
21	KENTUCKY	10,270,400	120	85,600	25,900	202,500
22	LOUISIANA	11,637,700	64	181,800	51,000	373,200
23	MAINE	8,008,000	16	500,500	66,600	1,766,600
24	MARYLAND	2,562,100	23	111,400	56,200	175,100
25	MASSACHUSETTS	2,026,900	14	144,800	11,900	390,800
26	MICHIGAN	14,717,600	83	177,300	81,800	473,500
27	MINNESOTA	20,536,400	87	236,100	40,100	1,577,800
28	MISSISSIPPI	12,250,800	82	149,400	104,400	242,900
29	MISSOURI	17,871,200	114	156,800	69,200	306,400
30	MONTANA	37,707,200	56	673,300	185,200	1,437,700
31	NEBRASKA	19,809,600	93	213,000	61,900	1,545,200
32	NEVADA	28,461,000	17	1,674,200	38,800	4,678,600
33	NEW HAMPSHIRE	2,338,300	10	233,800	97,400	471,400
34	NEW JERSEY	1,948,100	21	92,800	12,200	212,100
35	NEW MEXICO	31,446,000	32	982,700	28,000	1,786,300
36	NEW YORK	12,388,400	62	199,800	6,000	716,900
37	NORTH CAROLINA	12,640,400	100	126,400	44,800	245,800
38	NORTH DAKOTA	17,943,800	53	338,600	164,500	708,400
39	OHIO	10,614,000	88	120,600	59,800	181,300
40	OKLAHOMA	17,814,900	77	231,400	94,800	588,400
41	OREGON	24,911,700	36	692,000	109,600	2,633,000
42	PENNSYLVANIA	11,646,800	67	173,800	33,400	314,900
44	RHODE ISLAND	271,900	5	54,400	6,500	107,700
45	SOUTH CAROLINA	7,828,900	46	170,200	93,200	298,900
46	SOUTH DAKOTA	19,673,500	67	293,600	104,900	897,400
47	TENNESSEE	10,704,400	95	112,700	29,500	195,500
48	TEXAS	67,893,700	254	267,300	38,100	1,606,800
49	UTAH	21,262,400	29	733,200	76,900	1,996,100
50	VERMONT	2,399,900	14	171,400	21,500	249,200
51	VIRGINIA	10,304,600	100	103,000	10,600	263,700
53	WASHINGTON	17,242,200	39	442,100	46,400	1,373,000
54	WEST VIRGINIA	6,234,000	55	113,300	21,500	268,300
55	WISCONSIN	14,106,900	72	195,900	60,900	410,800
56	WYOMING	25,176,500	23	1,094,600	523,700	2,701,100
US		767,707,900	3071	250,000	6,000	5,210,300

Table C.2. County unit areas (ha) and geographic centroid (degrees)

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
PIPS_ST = 01 ALABAMA					023	SANTA CRUZ	322,700	31.5372	110.8636
001	AUTAUGA	155,100	32.5403	86.6444	025	TAYAPAT	2,095,600	34.5979	112.5877
003	BALDWIN	408,700	30.7372	87.7272	027	TUHA	2,585,600	33.2165	113.5445
005	BARBOUR	230,800	31.8757	85.3978	PIPS_ST = 05 ARKANSAS				
007	BIBB	161,900	32.9986	87.1266	001	ARKANSAS	262,900	34.2980	91.3736
009	BLOUNT	165,500	33.9994	86.5645	003	ASHLEY	240,400	33.1896	91.7722
011	BULLOCK	159,300	32.1066	85.7206	005	BAKTER	139,100	36.2904	92.3432
013	BUTLER	200,200	31.7590	86.6868	007	BENTON	220,400	36.3401	94.2648
015	CALHOUN	158,200	33.7765	85.8311	009	BOONE	151,800	36.3083	93.0882
017	CHAMBERS	154,600	32.9167	85.3953	011	BRADLEY	168,600	33.4651	92.1679
019	CHEROKEE	144,000	34.1001	85.6058	013	CALHOUN	162,900	33.5544	92.1111
021	CHILTON	191,000	32.8505	86.7156	015	CARROLL	162,100	36.3375	93.2453
023	CHOCTAW	235,900	32.0208	88.2594	017	CRAWFORD	166,500	33.2624	91.2970
025	CLARKE	319,100	31.6737	87.8287	019	CLARK	227,400	34.0574	93.1758
027	CLAY	156,200	33.2731	85.8547	021	CLAY	165,500	36.3718	90.4242
029	CLEBURNE	148,700	33.6772	85.5264	023	CLEBURNE	143,500	35.5299	92.0414
031	COFFEE	175,300	31.3994	85.9942	025	CLEVELAND	155,700	33.9013	92.1820
033	COLBERT	154,400	34.7035	87.8092	027	COLUMBIA	198,900	33.2162	93.2292
035	CONECUH	220,100	31.4373	86.9924	029	CONWAY	145,300	35.2545	92.6990
037	COOSA	168,300	32.9402	86.2460	031	CRAIGHEAD	185,400	35.8297	90.4431
039	COVINGTON	254,900	31.2592	86.4576	033	CRAWFORD	154,400	35.5844	94.2515
041	CRESSKAW	158,200	31.7369	86.3210	035	CRITTENDEN	157,500	35.2025	90.3022
043	CULLMAN	189,100	34.1384	86.8651	037	CROSS	161,900	35.2900	90.7747
045	DALE	144,800	31.4341	85.6170	039	DALLAS	174,000	33.9727	92.4888
047	DALLAS	252,400	32.3277	87.0989	041	DESHA	190,600	33.8332	91.2714
049	DE KALE	201,500	34.4560	85.8127	043	DREW	215,500	33.5860	91.7233
051	ELMORE	161,600	32.6700	86.1535	045	PAULKNER	166,000	35.1420	92.3347
053	ESCAMBIA	249,200	31.1345	87.1592	047	FRANKLIN	158,800	35.5056	93.6984
055	ETOWAH	143,700	34.0533	86.0341	049	FULTON	157,500	36.3819	91.6245
057	FAYETTE	162,400	33.7243	87.7358	051	GARLAND	170,400	34.5789	93.1479
059	FRANKLIN	166,800	34.4437	87.8456	053	GRANT	163,400	34.2974	92.4246
061	GENEVA	149,400	31.1007	85.9459	055	GREENE	150,000	36.1173	90.5631
063	GREENE	162,400	32.8658	87.9481	057	HEMPSTEAD	188,000	33.7364	93.6687
065	HALE	171,500	32.7668	87.6218	059	HOT SPRING	160,800	34.3244	92.5395
067	HENRY	143,500	31.5151	85.2534	061	HOWARD	147,400	34.0952	93.9982
069	HOUSTON	148,900	31.1537	85.3173	063	INDEPENDENCE	194,800	35.7350	91.7783
071	JACKSON	279,500	34.7782	85.9985	065	IZARD	148,700	36.0860	91.5244
073	JEFFERSON	288,800	33.5631	86.8905	067	JACOBUS	162,400	35.5931	91.2214
075	LAMAR	156,700	33.7841	88.0981	069	JEFFERSON	226,100	34.2765	91.5320
077	LAUDERDALE	171,500	34.9049	87.6517	071	JOHNSON	174,300	35.5641	93.4711
079	LAURENS	177,400	34.5257	87.3061	073	LAFAYETTE	135,500	33.2392	93.0080
081	LEE	158,500	32.6105	85.3551	075	LAWRENCE	152,800	36.0379	91.1168
083	LIMESTONE	141,400	34.8117	86.9732	077	LEE	157,500	34.7853	90.7754
085	LOWNDES	185,200	32.1608	86.6508	079	LINCOLN	145,800	33.9635	91.7263
087	MACON	159,500	32.3941	85.6948	081	LITTLE RIVER	125,900	33.7097	94.2428
089	MADISON	208,000	34.7657	86.5439	083	LOGAN	186,000	35.2115	93.7251
091	MARBLE	253,300	32.2506	87.7793	085	LOHOK	206,200	34.7570	91.6912
093	MARTIN	192,400	34.1384	87.8936	087	MADISON	215,500	36.0056	93.7313
095	MARSHALL	147,900	34.3700	86.3068	089	MARION	151,300	36.2630	92.4816
097	MOBILE	321,200	30.8128	88.2084	091	MILLER	161,400	33.3104	93.6968
099	MONROE	267,300	31.5730	87.3642	093	MISSISSIPPI	234,100	35.7570	90.5571
101	MONTGOMERY	204,600	32.2281	86.2092	095	MONROE	157,200	34.6776	91.2081
103	MORGAN	147,600	34.4576	86.8483	097	MONTGOMERY	200,700	34.5474	93.6598
105	PERRY	190,100	32.6389	87.2849	099	NEVADA	159,500	33.6645	93.3072
107	PICKENS	229,700	33.2810	88.0907	101	NEWTON	212,900	35.9119	93.2216
109	PIKE	174,300	31.8069	85.9431	103	OVACHITA	190,600	33.6004	92.6867
111	RANDOLPH	150,500	33.2944	85.4595	105	PERRY	142,700	34.9428	92.5423
113	RUSSELL	162,400	32.2961	85.1944	107	PHILLIPS	177,700	34.4363	90.6501
115	ST CLAIR	165,800	33.7246	86.3150	109	PIKE	155,400	34.1717	93.6591
117	SHELBY	144,700	34.2443	86.6476	111	POINT	136,000	33.3687	90.6813
119	SUMTER	237,000	32.5890	88.1920	113	POLK	222,500	34.4970	94.2381
121	TALLADEGA	194,200	33.3864	86.1651	115	POPE	210,300	35.4415	93.0350
123	TALLAPOOSA	182,300	32.8681	85.8024	117	PRAIRIE	171,200	34.8324	91.5531
125	TUSCALOOSA	345,200	33.2972	87.5189	119	PULASKI	190,100	34.7734	92.2139
127	WALKER	208,500	33.8145	87.2392	121	RANDOLPH	167,600	36.3460	91.0403
129	WASHINGTON	276,100	31.4129	88.2054	123	ST FRANCIS	164,500	35.0188	90.7600
131	WILCOX	232,800	31.9934	87.2944	125	SALINE	187,500	34.6498	92.4732
133	WINSTON	159,300	34.1542	87.3689	127	SCOTT	232,600	34.8669	94.0761
PIPS_ST = 04 ARIZONA					129	SEARCY	172,000	35.9050	92.6985
001	APACHE	2,893,300	35.3943	109.4904	131	SEBASTIAN	136,500	35.2055	94.2821
003	COCHISE	1,620,300	31.8886	109.7638	133	SEVIER	135,200	34.0017	94.2534
005	COCONINO	4,801,900	35.8310	111.7658	135	SHARP	150,500	36.1525	91.4940
007	GILA	1,229,700	33.7993	110.8111	137	STONE	157,500	35.8532	92.1600
009	GRAHAM	1,196,100	32.9367	109.8994	139	UNION	271,900	33.1725	92.4037
011	GREENLEE	486,700	33.2095	109.2466	141	VAN BUREN	181,000	35.5745	92.5262
013	GRAND	2,371,100	33.3536	112.4928	143	WASHINGTON	248,100	35.9762	94.2222
015	HAVAS	3,423,200	35.7004	113.7572	145	WHITE	269,600	35.2529	91.7482
017	NAVAJO	2,566,700	35.3822	110.3216	147	WOODRUFF	153,100	35.1843	91.2462
019	PIMA	2,393,200	32.1081	111.8004	149	YELL	240,600	35.0049	93.4144
021	PINAL	1,389,300	32.9089	111.3526					

Table C.2 (continued)

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
PIPS_ST = 06 CALIFORNIA					041	EL PASO	558,700	38.8278	104.5180
001	ALAMEDA	189,800	37.6459	121.9493	043	FREMONT	404,300	38.4675	105.4388
003	ALPINE	188,300	38.5951	119.8183	045	GARFIELD	776,000	39.5989	107.5084
005	AMADOR	151,000	38.4534	120.6394	047	GILPIN	38,300	39.8608	105.5246
007	EUTTE	426,100	39.6691	121.5997	049	GRAND	480,200	40.0981	106.1223
009	CALAVERAS	265,200	38.2087	120.5556	051	GUNNISON	834,000	38.6632	107.4008
011	COLUSA	298,400	39.1833	122.2427	053	HINSDALE	273,000	37.8295	107.3020
013	CONTRA COSTA	190,400	37.9189	121.9161	055	HUERFANO	407,700	37.6853	104.5603
015	DEL NORTE	260,800	41.7599	123.9050	057	JACKSON	420,100	40.6677	106.2522
017	EL DORADO	444,200	38.7817	120.5306	059	JEFFERSON	202,800	39.5922	105.2466
019	FRESNO	1,545,200	36.7541	119.6463	061	KIOWA	457,700	38.4262	102.7479
021	GLENN	340,300	39.6055	122.3909	063	KIT CARSON	562,300	39.3112	102.4072
023	HUMBOLDT	928,800	40.7055	121.8767	065	LAKE	98,200	39.1930	106.2521
025	IMPERIAL	1,098,400	33.0471	115.3742	067	LA PLATA	435,900	37.2832	107.4387
027	INYO	2,623,700	36.5155	117.4111	069	LARIMER	676,200	40.6732	105.4683
029	KERN	2,111,400	35.3442	118.7301	071	LAS ANIMAS	1,241,600	37.3061	104.4891
031	KINGS	361,600	36.0658	119.8066	073	LINCOLN	671,600	38.9876	103.5168
033	LAKE	326,600	39.1099	122.7630	075	LOGAN	471,900	40.7290	103.1087
035	LASSEN	1,191,300	40.6892	120.6029	077	MESA	855,000	39.0183	108.4674
037	LOS ANGELES	1,053,900	34.3719	118.2130	079	MINERAL	238,500	37.6604	106.5288
039	MADERA	555,600	37.2137	119.7649	081	MOFFAT	1,228,400	40.6232	108.2056
041	MARIN	134,700	38.0716	122.6954	083	MONTEZUMA	542,300	37.3442	108.4089
043	MARTIPOSA	376,300	37.5815	119.8971	085	MONTEZUMA	579,600	38.3979	108.2772
045	MENDOCINO	909,300	39.4551	123.3849	087	MORGAN	331,000	40.2722	103.4053
047	MERCED	507,100	37.1851	120.7229	089	OTERO	324,800	37.8976	103.7187
049	MODOC	1,061,100	41.6102	120.7389	091	OURAY	139,900	38.1546	107.7714
051	MONO	794,000	37.9383	118.9988	093	PARK	560,000	39.1187	105.7199
053	MONTEREY	860,900	36.2093	121.2114	095	PHILLIPS	176,100	40.6019	102.2660
055	NAPA	203,800	38.5093	122.3386	097	PITKIN	252,000	39.2130	106.5173
057	NEVADA	252,000	39.3057	120.7713	099	PROBERS	419,800	37.9486	102.2980
059	ORANGE	202,500	33.7179	117.7537	101	PUEBLO	622,900	38.1670	104.4058
061	PLACER	370,600	39.0671	120.7200	103	RIO BLANCO	845,100	39.9818	108.2141
063	PLUMAS	664,600	40.0157	120.9491	105	RIO GRANDE	237,000	37.5734	106.3909
065	RIVERSIDE	1,958,600	33.7494	116.0109	107	ROUTT	603,500	40.4917	106.4941
067	SACRAMENTO	252,500	38.4518	121.3382	109	SAGUACHE	814,300	38.0737	106.2816
069	SAN BENITO	361,600	36.6031	121.0713	111	SAN JUAN	101,300	37.7587	107.4771
071	SAN BERNARDINO	5,210,300	34.8475	116.1709	113	SAN MIGUEL	332,300	38.0032	108.4138
073	SAN DIEGO	1,103,600	33.0424	116.7207	115	SEDGWICK	140,900	40.8807	102.3611
075	SAN FRANCISCO	11,700	37.7548	122.4088	117	SUNSHINE	156,400	39.6278	106.1223
077	SAN JOAQUIN	365,700	37.9407	121.2705	119	TELLER	143,200	38.6809	105.1585
079	SAN LUIS OBISPO	824,400	35.3808	120.3722	121	WASHINGTON	658,200	39.9748	103.4992
081	SAN MATEO	115,800	37.4370	122.2972	123	WELD	1,036,500	40.5622	104.3922
083	SANTA BARBARA	708,900	34.7340	120.0123	125	YUMA	616,200	40.0084	102.4236
085	SANTA CLARA	336,700	37.2305	121.6918					
087	SANTA CRUZ	114,000	37.0657	121.9937					
089	SHASTA	981,100	40.7811	122.0553					
091	SIEBFA	248,100	39.5833	120.5141					
093	SISKIYOU	1,621,900	41.6054	122.5626					
095	SOLANO	213,200	38.2799	121.9215					
097	SONOMA	415,400	38.5335	122.8763					
099	STANISLAUS	391,300	37.5590	120.9994					
101	SUTTER	156,200	39.0351	121.6911					
103	TEHAMA	772,300	40.1381	122.2463					
105	TRINITY	821,800	40.6724	123.1301					
107	TULARE	1,246,300	36.2187	118.7931					
109	TUOLUMNE	583,300	38.0294	119.9590					
111	VENTURA	492,500	34.4891	119.0716					
113	YOLO	266,300	38.6935	121.9063					
115	YUBA	165,500	39.2648	121.3534					
PIPS_ST = 08 COLORADO									
001	ADAMS	320,400	39.8820	104.3685					
003	ALAMOSA	196,200	37.5611	105.7997					
005	ARAPAHOE	206,400	39.6557	104.3598					
007	ARCHULETA	353,300	37.1963	107.0346					
009	BACA	663,800	37.3156	102.5633					
011	BENT	393,400	37.9451	103.0784					
013	BOULDER	193,700	40.0902	105.3494					
015	CHAFFEE	268,800	39.7475	106.2033					
017	CHEYENNE	458,900	38.8286	102.6119					
019	CLEAR CREEK	102,000	39.6871	105.6467					
021	CONEJOS	328,400	37.1913	106.1908					
023	COSTILLA	314,200	37.2769	105.4370					
025	CROWLEY	207,700	38.3242	103.7825					
027	CUSTER	190,900	38.1043	105.3707					
029	DELTA	298,900	38.8472	107.8751					
031	DENVER	24,600	39.7345	104.9754					
033	DOLORES	265,700	37.7572	109.4989					
035	DOUGLAS	218,300	39.3273	104.9249					
037	EAGLE	435,400	39.6194	106.6989					
039	ELBERT	482,800	39.2877	104.1307					
PIPS_ST = 09 CONNECTICUT									
					001	FAIRFIELD	162,100	41.2819	73.3922
					003	HARTFORD	191,400	41.8048	72.7325
					005	LITCHFIELD	239,600	41.7962	73.2522
					007	MIDDLESEX	96,300	41.4666	72.5339
					009	NEW HAVEN	156,400	41.4124	72.5286
					011	NEW LONDON	172,800	41.4890	72.1003
					013	TOLLAND	107,700	41.8575	72.2378
					015	WINDHAM	133,100	41.8335	71.5856
PIPS_ST = 10 DELAWARE									
					001	KENT	153,800	39.0894	75.5743
					003	NEW CASTLE	113,400	39.5854	75.4543
					005	SUSSEX	246,000	38.6652	75.4068
PIPS_ST = 11 WASH., D. C.									
					001	WASHINGTON	15,800	38.9027	77.0369
PIPS_ST = 12 FLORIDA									
					001	ALACHUA	237,200	29.6710	82.3559
					003	BAKER	151,500	30.3244	82.2809
					005	BAY	193,500	30.2970	85.6263
					007	BRADFORD	76,100	29.9425	82.1704
					009	BREVARD	261,800	28.1775	80.7574
					011	BROWARD	315,700	26.1439	80.4973
					013	CALHOUN	145,300	30.4153	85.2139
					015	CHARLOTTE	182,100	26.9036	81.4904

Table C.2 (continued)

PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
017	CITRUS	145,000	29.8517	82.4599	047	CATOOSA	43,300	34.8909	85.1451
019	CLAY	153,600	29.9747	81.9468	049	CHARLTON	206,200	30.7908	82.1623
021	COLLIER	519,600	26.1144	81.3571	051	CHATHAM	115,300	32.0046	81.1356
023	COLUMBIA	203,100	30.2155	82.6203	053	CHATTahoochee	65,500	32.3423	84.7830
025	DADE	528,900	25.6073	80.5891	055	CHATTOOGA	82,100	34.4614	85.5539
027	DE SOTO	167,800	27.1833	81.8492	057	CHEROKEE	107,500	34.2396	84.4850
029	DEKALB	179,200	29.6088	83.1566	059	CLARK	30,000	33.9505	83.3684
031	DUVAL	198,400	30.3167	81.6661	061	CLAY	51,800	31.6160	84.5925
033	ESCAMBIA	172,200	30.7212	87.3985	063	CLAYTON	38,600	33.5357	84.3696
035	FLAGLER	126,100	29.4608	81.3150	065	CLINCH	206,400	30.9047	82.7333
037	FRANKLIN	138,800	29.3120	80.8001	067	COBB	98,800	33.9370	84.5915
039	GADSDEN	132,600	30.5815	84.6207	069	COFFEE	159,500	31.5384	82.6873
041	GILCHRIST	89,600	29.7242	82.8022	071	COLQUITT	145,800	31.1721	83.7900
043	GLADES	195,000	26.9474	81.2129	073	COLUMBIA	75,100	33.5663	82.2734
045	GULF	146,300	29.9596	85.2480	075	COOK	60,300	31.1492	83.4871
047	HAMILTON	133,100	30.4004	82.3300	077	COWETA	114,500	33.3835	84.1787
049	HARDEE	162,900	27.4912	81.8113	079	CRAWFORD	81,600	32.7248	83.9940
051	HENDRY	307,400	26.5377	81.1717	081	CRISP	75,600	31.9175	83.6105
053	HERNANDO	125,400	28.5555	82.4307	083	DADE	43,500	34.8410	85.5033
055	HIGHLANDS	270,100	27.3433	81.5371	085	DAWSON	54,600	34.4324	84.5853
057	HILLSBOROUGH	268,800	27.9276	82.3094	087	DECATUR	148,900	30.8763	84.1784
059	HOLMES	124,800	30.8852	85.9280	089	DE KALB	69,700	33.7666	84.2350
061	INDIAN RIVER	131,100	27.6826	80.6172	091	DODGE	129,000	32.1698	83.1969
063	JACKSON	242,200	30.4005	85.2268	093	DOOLY	102,300	32.1486	81.6295
065	JEFFERSON	156,700	30.4404	83.4487	095	DOUGHERTY	81,900	31.5187	84.7240
067	JEFFERSON	142,200	29.9857	83.1423	097	DOUGLAS	52,300	33.6891	84.7717
069	LAKE	248,900	29.7484	81.7024	099	EARLY	135,700	31.3149	84.5195
071	LEE	203,300	26.5800	81.8033	101	ECHOLS	110,100	30.7034	82.6020
073	LEWIS	173,500	30.4609	84.2741	103	EFFINGHAM	124,300	32.3711	81.3408
075	LEVY	280,500	29.3254	82.7334	105	ELBERT	92,700	34.1126	82.8394
077	LIBERTY	217,300	30.2484	84.8962	107	EMANUEL	177,700	32.6027	82.3201
079	LINCOLN	182,100	30.4412	83.4608	109	EVANS	48,200	32.1616	81.6909
081	MANATEE	191,400	27.4731	82.3039	111	FANNIN	102,000	34.8568	84.3370
083	MARION	414,400	29.2044	82.9561	113	FAYETTE	51,500	33.4031	84.5109
085	MARTIN	144,000	27.0784	80.3876	115	FLOYD	133,100	34.2485	85.2249
087	MONROE	267,800	25.5348	81.0719	117	FORSYTH	56,700	34.2254	84.1370
089	NASSAU	168,300	30.6018	81.8238	119	FRANKLIN	68,100	34.3771	83.2299
091	OKALOOSA	244,500	30.6990	86.5660	121	FULTON	137,300	33.7924	84.4707
093	OSCEOLA	201,200	27.4291	80.8977	123	GILMER	113,700	34.6760	84.4652
095	OSCEOLA	235,700	28.5013	81.3065	125	GLASCOCK	37,000	33.2254	82.6265
097	OSCEOLA	340,100	28.0567	81.1494	127	GLYNN	106,700	31.2435	81.5935
099	PALM BEACH	524,000	26.6898	80.5128	129	GORDON	92,700	34.4918	84.8921
101	PASCO	192,200	28.3089	82.3972	131	GRADY	120,700	30.8693	84.2440
103	PINELLAS	68,600	27.9494	82.7318	133	GREENE	104,400	33.5753	83.1721
105	POLK	481,200	27.9435	81.6967	135	WINNETT	113,200	33.9495	84.3352
107	PULHAM	201,000	27.6014	81.7412	137	HABERSHAM	13,000	34.6265	83.5357
109	ST JOHNS	156,700	29.8945	81.4286	139	HALL	97,900	34.3090	83.8296
111	ST LUCIE	151,300	27.3706	80.4840	141	HANCOCK	123,800	33.2678	83.6108
113	SANTA ROSA	267,300	30.7468	81.0344	143	HARALSON	73,800	33.7921	85.2191
115	SARASOTA	152,000	27.1783	82.1506	145	HARRIS	120,400	32.7314	84.5144
117	SEMINOLE	79,000	28.7027	81.2209	147	HART	59,800	34.3516	84.5669
119	SUNTER	143,700	28.6922	82.0795	149	HEARD	76,900	33.2903	85.1393
121	SUWANNEE	177,700	30.1894	82.9853	151	HENRY	85,700	33.4498	84.1608
123	TAYLOR	272,200	30.0496	83.6008	153	HOUSTON	98,400	32.4590	83.6950
125	UNION	62,400	30.0416	82.3706	155	IRWIN	96,300	31.6019	83.3082
127	VOLUSIA	275,100	29.0524	81.1997	157	JACKSON	89,600	34.1299	83.5641
129	WAKULLA	155,700	30.1763	84.4111	159	JASPER	96,600	33.3144	83.6952
131	WALTON	277,700	30.4724	84.1720	161	JEFF DAVIS	05,700	31.7932	82.4530
133	WASHINGTON	151,500	30.6271	85.6834	163	JEFFERSON	137,300	33.0605	82.4283
PIPS_ST = 13 GEORGIA					165	JENKINS	90,900	32.7960	81.5717
001	APPLING	132,900	31.7445	82.3106	167	JOHNSON	81,100	32.7104	82.6822
003	ATKINSON	82,400	31.2794	82.9012	169	JONES	104,100	33.0302	83.5665
005	BACON	77,400	31.4443	82.4746	171	KANAWHA	40,500	33.0882	84.1824
007	BAKER	91,900	31.3097	84.4663	173	LANIER	45,800	31.0203	83.6602
009	BALDWIN	66,000	33.0692	83.2552	175	LAURENS	209,800	32.4653	82.5444
011	BANKS	59,800	34.3530	83.4946	177	LEE	91,900	31.7731	84.1743
013	BARNES	44,100	33.9915	83.7233	179	LIBERTY	133,100	31.8305	81.4957
015	BARTON	119,400	34.2282	84.8548	181	LINCOLN	50,000	33.7895	82.4580
017	BEE HILL	66,000	31.7618	83.2572	183	LONG	104,100	31.7643	81.7603
019	BENNING	121,200	31.2673	83.2436	185	LOWMYER	131,600	30.8298	83.2784
021	BIBB	65,400	32.8149	83.7182	187	LUMPKIN	75,600	34.5655	84.4111
023	BLECKLEY	56,700	32.4348	83.3581	189	MCDUFFIE	65,500	33.4880	82.4933
025	BRANTLEY	115,800	31.1911	82.0026	191	MCINTOSH	110,300	31.5171	81.4259
027	BROOKS	127,200	30.8388	83.6020	193	MALONE	104,400	32.3469	84.0580
029	BRYAN	114,700	32.0200	81.4494	195	MAZURE	72,800	34.1299	83.2074
031	BULLOCH	177,400	32.4023	81.7491	197	MARTIN	94,500	32.3455	84.5349
033	BURKE	215,200	33.0622	82.0063	199	MEWETHES	129,200	33.0355	84.7009
035	BUTTS	47,900	33.2830	83.9627	201	MILLEN	74,300	31.1543	84.7439
037	CALHOUN	74,400	31.5165	84.6416	203	MITCHELL	132,100	31.2122	84.2141
039	CANDLER	169,100	30.9404	81.6938	205	MURKIN	103,100	33.0160	83.3350
041	CANDLER	64,700	32.4052	82.0973	207	MONTGOMERY	61,400	32.1740	82.5811
043	CANDLER	128,200	33.5769	85.0870	209	MORGAN	92,200	33.5887	83.4998
045	CARROLL				211	MURRAY	89,600	34.7797	84.7639
					213	NEWTON	70,200	33.5568	83.8589
					215	OCONEE	48,200	33.8301	83.4455
					217	OGLETHORPE	112,700	33.8776	83.0912
					219	FAULTING	82,400	33.9116	84.6770

Table C.2 (continued)

PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
225	PEACH	39,100	32.5749	83.8333	063	LINCOLN	311,600	43.0018	114.1458
227	PICKENS	58,300	34.4555	84.4778	065	MADISON	122,500	43.7795	111.6624
229	PIERCE	88,600	31.3552	82.2382	067	MINIDOKA	194,200	42.8570	113.4820
231	PIKE	59,600	33.0806	84.4053	069	NEZ PERCE	218,600	46.3195	116.7331
233	POLK	80,800	33.9973	85.1952	071	ONEIDA	308,500	42.1982	112.5508
235	PULASKI	65,500	32.2284	83.5172	073	OWYHEE	1,979,000	42.5914	116.1768
237	PUTNAM	87,800	33.3222	83.3786	075	PAYETTE	104,100	44.0035	116.7537
239	QUITMAN	40,400	31.8554	85.0285	077	POWER	366,000	42.6948	112.8820
241	RABUN	95,300	34.8788	83.4146	079	SHOSHONE	675,700	47.3382	115.6770
243	RANDOLPH	112,900	31.7523	84.7629	081	TETON	118,400	43.7547	111.2203
245	RICHMOND	83,700	33.3603	82.0830	083	TWIN FALLS	504,300	42.3662	114.6872
247	ROCKDALE	33,200	33.6498	84.0370	085	VALLEY	952,100	44.7608	115.5620
249	SCHLEY	42,000	32.2553	84.3395	087	WASHINGTON	378,700	44.4521	116.7746
251	SCREVEN	168,600	32.7556	81.6165					
253	SEMINOLE	63,700	30.9337	84.8793					
255	SPALDING	52,100	33.2542	84.2963					
257	STEPHENS	44,800	34.5551	83.2992					
259	STEWART	117,100	32.0705	84.8518					
261	SUMTER	126,400	32.0395	84.2265					
263	TALBOT	101,000	32.6988	84.5409					
265	TALIAFERRO	50,500	33.5627	82.8877	001	ADAMS	223,300	39.9908	91.1870
267	TATE	126,900	32.0460	82.0713	003	ALEXANDER	59,300	37.2070	89.3428
269	TAYLOR	104,400	32.5519	84.2493	005	BOND	97,900	38.8860	89.4859
271	TELFORD	114,000	31.9213	82.9647	007	BOONE	73,300	42.3295	88.8212
273	TERRELL	85,200	31.7715	84.4546	009	BROWN	79,300	39.9598	90.7536
275	THOMAS	140,100	30.8597	83.9379	011	BUREAU	224,300	41.4089	89.5189
277	TIFT	68,900	31.4511	83.5504	013	CALHOUN	64,000	39.1621	90.6772
279	TOOHBS	95,300	32.1048	82.3492	015	CARROLL	118,100	42.0746	89.5320
281	TOWNS	43,000	34.9075	83.7515	017	CASS	96,100	39.9699	90.2490
283	TRENTON	50,200	32.3990	82.5721	019	CHAMPAIGN	259,000	40.1336	88.2050
285	TROUP	107,500	33.0244	85.0370	021	CHRISTIAN	183,600	39.5459	89.2824
287	TURNER	75,900	31.7160	83.6561	023	CLARK	130,800	39.3339	87.7963
289	TWIGGS	94,300	32.6714	83.4525	025	CLAY	120,200	38.7503	88.4962
291	UNION	40,000	34.8298	84.0943	027	CLINTON	112,400	38.6021	89.4246
293	UPSON	46,500	32.7765	84.3099	029	COLUMBIA	131,100	39.5203	88.7267
295	WALKER	115,700	34.7223	85.1033	031	COOK	247,100	41.8438	87.6206
297	WALTON	45,500	31.7762	82.7416	033	CRAWFORD	114,700	39.0033	87.7640
299	WARF	236,200	31.0313	82.4573	035	CUMBERLAND	97,900	39.2731	88.2473
301	WARREN	73,600	33.4074	82.6986	037	DE KALB	164,700	41.8973	88.7652
303	WASHINGTON	174,600	32.9737	82.8127	039	DE WITT	103,300	40.1732	88.5000
305	WAYNE	167,100	31.5516	81.9310	041	DOUGLAS	108,800	39.7684	88.2218
307	WEBSTER	50,500	32.0406	84.5739	043	DUPAGE	85,700	41.8502	88.0954
309	WHEELER	79,300	32.1115	82.7456	045	EDGAR	162,700	39.6771	87.7495
311	WHITE	62,900	34.6415	83.7518	047	EDWARDS	58,300	38.4083	88.6550
313	WHITFIELD	72,800	34.7968	84.9738	049	EFFINGHAM	124,600	39.0599	88.5932
315	WILCOX	99,200	31.9691	83.4711	051	FAYETTE	182,100	39.0001	89.3354
317	WILKES	121,200	33.7836	82.7560	053	FORD	126,400	40.5887	88.7213
319	WILKINSON	118,600	32.8024	83.1965	055	FRANKLIN	112,400	37.9904	88.5286
321	WORTH	150,000	31.5465	83.8785	057	FULTON	227,100	40.4720	90.2083
510	COLUMBUS	57,000	32.5045	84.8787	059	GALLATIN	85,000	37.7654	88.2340
					061	GREENE	140,600	39.3572	90.2994
					063	GRUNDY	111,900	41.2853	88.4219
					065	HAMILTON	112,700	38.0786	88.4454
					067	HANCOCK	206,400	40.4090	91.1632
					069	HARDIN	47,400	37.5277	88.2658
					071	HENDERSON	97,400	40.8137	90.5305
					073	HENRY	213,900	41.3548	90.1230
					075	IROQUOIS	290,600	40.7470	87.6260
					077	JACKSON	156,700	37.7872	89.3827
					079	JASPER	128,200	39.0136	88.1618
					081	JEFFERSON	148,400	38.2939	88.5275
					083	JERSEY	97,400	39.0868	90.3614
					085	JU DAVIES	157,000	42.3892	90.2097
					087	JOHNSON	89,400	37.4681	88.6833
					089	KANE	134,700	41.9415	88.4296
					091	KANKAKEE	175,600	41.1392	87.6640
					093	KENDALL	82,900	41.5944	88.4312
					095	KNOX	188,600	40.9316	90.2156
					097	LAKE	118,400	42.3305	88.6070
					099	LA SALLE	297,800	41.3439	88.6856
					101	LAWRENCE	96,900	38.7191	87.7349
					103	LEE	188,600	41.7498	89.2986
					105	LIVINGSTON	270,100	40.8852	88.5613
					107	LOGAN	161,100	40.1232	89.3639
					109	MCDONOUGH	150,700	40.4512	90.6783
					111	MCHENRY	158,000	42.3307	88.4546
					113	MCLEAN	303,800	40.4853	88.6515
					115	MACON	140,700	39.8533	88.5633
					117	MACOUPIN	225,900	39.2651	89.5259
					119	MADISON	189,800	38.8300	89.5059
					121	MARION	150,000	38.6483	88.5242
					123	MARSHALL	101,300	41.0350	89.3419
					125	MASON	140,100	40.2373	89.5161
					127	MASSAC	63,500	37.2305	88.7157
					129	MEHARD	80,800	40.0268	89.6015
					131	MERCER	144,000	41.2027	90.7359
					133	MORRIS	98,900	38.2762	90.1899
					135	MONTGOMERY	182,600	39.2314	89.4809

PIPS_ST = 17 ILLINOIS

PIPS_ST = 16 IDAHO

Table C.2 (continued)

Table C.2 (continued)

Table C.2 (continued)

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
PIPS_ST = 21 KENTUCKY					165	METCALFE	76,700	36.9943	85.4373
001	ADAIR	95,900	37.0908	85.2968	171	MONROE	86,500	36.7133	85.7216
003	ALLEN	90,000	36.7576	86.1842	173	MONTGOMERY	52,800	38.0340	83.9074
005	ANDERSON	53,400	38.0014	84.9942	175	MORGAN	95,600	37.9173	83.2517
007	BALLARD	67,100	37.0740	89.0019	177	MUHLENBERG	124,600	37.2134	87.1415
009	BARRON	121,200	36.9721	85.9301	179	NELSON	113,200	37.8098	85.4864
011	BATH	74,300	38.1530	83.7346	181	NICHOLAS	52,800	38.3379	84.0053
013	BELL	95,800	36.7270	83.6764	183	OHIO	154,400	37.4780	86.4493
015	BOONE	64,500	38.9640	84.7302	185	OLDHAM	47,700	38.3937	85.4559
017	BOURBON	77,700	38.2058	84.2105	187	OWEN	90,900	38.5078	84.4226
019	BOYD	41,200	38.3637	82.6770	189	OWSLEY	51,000	37.4213	83.4780
021	BOYLE	47,400	37.6237	84.9694	191	PENDLETON	72,300	38.6911	84.3521
023	BRACKEN	52,800	38.6965	84.0870	193	PERCY	88,300	37.2478	83.2134
025	BREATHITT	127,900	37.5265	83.3157	195	PIKE	202,500	37.4686	82.3923
027	BRECKINRIDGE	143,500	37.7952	86.4353	197	POWELL	44,800	37.0316	03.0206
029	BULLITT	77,700	37.9694	85.6977	199	PULASKI	169,100	37.1108	84.5610
031	BUTLER	114,700	37.2106	86.4764	201	ROBERTSON	26,200	38.5160	84.0366
033	CADWELL	92,500	37.1420	87.9640	203	ROCKCASTLE	80,500	37.3670	84.3142
035	CALLOWAY	99,500	36.6257	88.2712	205	ROWAN	75,180	30.2013	83.4044
037	CAMPBELL	38,600	38.9514	84.3751	207	RUSSELL	61,600	36.9804	85.0662
039	CARLISLE	50,500	36.8613	88.9600	209	SCOTT	73,600	38.2863	84.5820
041	CARROLI	13,700	38.6603	85.1272	211	SHELBY	99,200	38.2071	85.1994
043	CARTER	102,800	38.3223	83.0340	213	SIMPSON	61,900	36.7414	86.5792
045	CASEY	112,700	37.3004	84.9393	215	SPENCER	50,000	38.0285	85.3230
047	CHRISTIAN	187,800	36.8925	87.4857	217	TAYLOR	71,700	37.3600	85.3361
049	CLARK	67,100	37.9695	84.1432	219	TODD	97,400	36.8356	87.1765
051	CLAY	122,800	37.1652	83.7087	221	TRIGG	105,700	36.8026	87.4710
053	CLINTON	49,200	36.7287	85.1375	223	TRIMBLE	37,800	38.6047	85.3451
055	CRITTENDEN	94,500	37.3532	88.1011	225	UNION	88,100	37.6558	87.5459
057	CUMBERLAND	80,300	36.7923	85.3940	227	WARREN	141,400	36.9977	86.4222
059	DAVIES	119,700	37.7306	87.0902	229	WASHINGTON	79,500	37.7612	85.1804
061	EDMONSON	77,200	37.2126	86.2362	231	WAYNE	114,000	36.8069	84.6258
063	ELLIOTT	62,200	38.1168	81.0989	233	WEBSTER	87,800	37.5168	87.6812
065	ESTILL	67,300	37.6913	83.9605	235	WHITLEY	118,900	36.7616	84.1471
067	FAYETTE	72,500	38.0394	84.4557	237	WOLFE	50,800	37.7409	83.4882
069	FLEMING	90,600	38.3747	83.6839	239	WOODFORD	50,000	38.0359	84.7429
071	FLOYD	103,300	37.5641	82.7368	PIPS_ST = 22 LOUISIANA				
073	FRANKLIN	54,600	38.2304	84.8786	001	ACADIA	171,700	30.2981	92.4079
075	FULTON	52,600	36.5768	89.1229	003	ALLEN	200,500	30.6542	92.8245
077	GALLATIN	25,400	38.7469	84.8549	005	ASCENSION	78,000	30.2042	90.4143
079	GARRARD	61,100	37.6408	84.5371	007	ASSUMPTION	92,200	29.9038	91.0664
081	GRANT	64,500	38.6416	84.6116	009	AVOYELLES	215,500	31.0790	92.0059
083	GRAVES	145,000	36.7265	88.6483	011	BEAUREGARD	305,900	30.6550	93.3502
085	GRAYSON	128,500	37.4716	86.3430	013	BIENVILLE	215,500	32.3505	93.0492
087	GREEN	73,000	37.2668	85.5664	015	BOSSIER	219,900	32.6804	93.0445
089	GREENUP	90,900	38.5505	82.4104	017	CADDO	232,800	32.5907	93.0882
091	HANCOCK	48,400	37.8471	86.7933	019	CALCASIEU	206,200	30.2370	93.3499
093	HARDIN	159,500	37.7046	85.4721	021	CALDWELL	142,700	32.0907	92.1202
095	HARLAN	121,500	36.4590	83.2092	023	CANEBOURNE	373,300	29.0915	93.1510
097	HARRISON	74,800	38.4387	84.3310	025	CATAHOULA	192,200	31.6656	91.6497
099	HART	108,800	37.3041	85.0009	027	CLAIBORNE	197,600	32.8250	92.9954
101	HENDERSON	112,100	37.7449	87.5712	029	CONCORDIA	186,000	31.4454	91.6475
103	HENRY	74,900	38.4385	85.1223	031	DE SOTO	231,500	32.0658	93.7386
105	HICKMAN	63,700	36.6808	88.9299	033	EAST BATON ROUGE	118,900	30.5379	91.0995
107	HOPKINS	143,200	37.3084	87.5421	035	EAST CARROLL	112,900	32.7309	91.2445
109	JACKSON	87,300	37.4228	84.0041	037	EAST FELICIANA	117,600	30.8466	91.0479
111	JEFFERSON	97,100	38.1823	85.6659	039	EVANGELINE	173,300	30.7341	92.4054
113	JESSAMINE	45,800	37.8712	84.5784	041	FRANKLIN	167,800	32.1366	91.6777
115	JOHNSON	68,400	37.8484	82.8272	043	LAHART	114,500	31.6042	93.5563
117	KENTON	42,700	38.9317	84.5300	045	IBERIA	152,600	29.9697	91.6971
119	KNOTT	92,200	37.3618	82.9508	047	IBERVILLE	162,400	30.2585	91.3609
121	KNOX	76,600	36.8969	83.9419	049	JACKSON	150,700	29.7044	93.0690
123	LARUE	67,300	37.5480	85.7096	051	JEFFERSON	95,600	29.7205	90.1201
125	LAUREL	115,500	37.1142	84.1103	053	JEFFERSON DAVIS	170,400	30.2690	92.0609
127	LAWRENCE	110,100	38.0684	82.7264	055	LAFAYETTE	73,300	30.2136	92.0611
129	LEE	54,400	37.5976	83.7039	057	LAFORCHÉ	295,500	29.5749	90.4352
131	LESLIE	105,900	37.0958	83.3744	059	LA SALLE	166,500	31.6798	92.1645
133	LETCHER	87,800	37.1249	82.8498	061	LINCOLN	121,500	32.6062	92.6645
135	LEWIS	125,900	38.5413	83.3683	063	LIVINCOTON	167,400	30.4433	92.7207
137	LINCOLN	88,100	37.4576	84.6633	065	MADISON	171,200	32.3733	91.2487
139	LIVINGSTON	80,500	37.2073	88.3589	067	MOREHOUSE	208,200	32.8258	91.0079
141	LOGAN	141,800	38.4442	84.4144	069	NATCHITOCHES	334,600	31.7274	93.0924
143	LYON	55,900	37.0184	88.0773	071	ORLEANS	51,000	30.0357	89.9317
145	MCCRACKEN	64,700	37.0601	88.7105	073	OUACHITA	165,200	32.4034	92.1605
147	MCCRACKEN	108,300	36.7454	84.4940	075	PLAQUEMINS	266,800	29.4500	89.6233
149	MCLAIN	66,600	37.5281	87.2669	077	POINTE COUPEE	145,800	30.7165	91.6095
151	MADISON	115,500	37.7211	84.2764	079	RAPIDES	341,400	31.2050	92.5307
153	MAGOFFIN	78,500	37.7079	83.0574	081	RED RIVER	105,200	32.0897	93.7399
155	MARTIN	98,800	37.5584	85.2757	083	RICHLAND	149,200	32.4230	91.7725
157	MARSHALL	78,500	36.8810	88.1282	085	SABINE	226,100	31.5702	93.5569
159	MARTIN	59,800	37.8027	82.5081	087	ST BERNARD	133,100	29.8968	89.5383
161	MASON	61,600	38.6016	83.4086	089	ST CHARLES	76,100	29.8971	90.3621
163	MEADE	79,000	37.9849	86.2173					
165	MENEFEE	54,400	37.9482	83.5977					
167	MERCER	66,300	37.8101	84.8761					

Table C.2 (continued)

PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
091	ST HELENA	108,800	30.8210	90.7108	023	PLYMOUTH	169,400	41.9574	70.8151
093	ST JAMES	65,500	30.0275	90.7953	025	SUPPFLK	14,500	42.3107	71.1056
095	ST JOHN THE BAPTIST	58,800	30.0994	90.5473	027	WORCESTER	390,800	42.3521	71.5075
097	ST LANERY	241,400	30.6023	92.0058					
099	ST MARTIN	170,600	29.8760	91.2700					
101	ST MARY	161,600	29.7231	91.4398					
103	ST TAMMANY	229,700	30.4689	89.9454					
105	TANGIPAHOA	209,300	30.6535	90.4142					
107	TENSAS	162,100	32.0077	91.3338					
109	TERRIBECNE	354,300	29.4312	90.9401					
111	UNION	229,200	32.8357	92.3797					
113	VERMILION	312,100	29.8612	92.3237					
115	VERNON	349,900	31.1057	93.1930					
117	WASHINGTON	172,200	30.8593	90.0340					
119	WEBSTER	159,300	32.7171	93.3355					
121	WEST BATH ROUGE	52,600	30.4631	91.3277					
123	WEST CARROLL	92,200	32.7881	91.4645					
125	WEST FFLICIANA	104,900	30.8833	91.4220					
127	WINN	246,000	31.9472	92.6350					
PIPS_ST = 23 MAINE					PIPS_ST = 26 MICHIGAN				
001	ANDROSCOGGIN	122,800	44.1714	70.2038	001	ALCONA	175,600	44.6880	83.5948
003	AROSTOC	1,766,600	46.6633	68.5990	003	ALGER	234,400	46.4070	86.6212
005	CUMBERLAND	227,700	43.8724	70.4291	005	ALLEGAN	213,900	42.5916	85.8863
007	FRANKLIN	442,600	44.9794	70.4433	007	ALPENA	146,300	45.0394	83.6287
009	HANCOCK	347,800	44.7139	68.3606	009	ANTRIM	123,300	45.0826	85.1358
011	KENNEBEC	225,800	44.4202	69.7667	011	ARENAC	95,100	44.0705	83.6937
013	KNOX	95,600	44.1833	69.2402	013	BAPAGA	233,400	46.6627	88.3766
015	LINCOLN	117,600	44.0891	69.5444	015	BARRY	148,500	42.5974	85.3194
017	OXFORD	538,700	44.5156	70.7630	017	BAY	115,800	43.7045	83.5877
019	PENOBSCOT	878,000	45.4004	68.5567	019	BENZIE	81,800	44.6422	86.0078
021	FISCATAQUIS	1,008,000	45.8356	69.2890	021	BERRIEN	150,200	41.9588	86.4201
023	SAGADAEC	66,600	43.9897	69.8690	023	BRANCH	131,100	41.9279	85.6650
025	SOMERSET	1,008,500	45.5166	69.9607	025	CALHOUN	183,600	42.2496	85.0047
027	WALDO	190,900	44.5187	69.1626	027	CASS	127,200	41.9207	85.5961
029	WASHINGTON	661,500	45.0498	67.6462	029	CHARLEVOIX	107,200	45.2268	85.0348
031	YORK	259,300	43.4873	70.7140	031	CHEBOYGAN	186,700	45.4508	84.5044
PIPS_ST = 24 MARYLAND					033	CHIPPewa	411,800	46.3291	84.7239
001	ALLEGANY	110,900	39.6230	78.6990	035	CLARE	147,900	43.9925	84.8445
003	ANNE ARUNDEL	109,600	39.0047	76.6263	037	CLINTON	148,100	42.9508	84.5954
005	BALTIMORE	175,100	39.4731	76.6497	039	CRAWFORD	145,300	44.6851	84.6020
009	CALVERT	56,200	38.5530	76.5879	041	DELTA	304,800	45.9256	86.9359
011	CAROLINE	83,100	39.8724	75.8420	043	DICKINSON	196,100	46.0119	87.6827
013	CARROLL	118,100	39.5643	77.0317	045	EATON	147,900	42.5991	84.6398
015	CECIL	93,800	39.5850	75.9482	047	EMMET	119,400	45.5139	84.8890
017	CHARLES	118,900	39.4999	77.0441	049	GENESEE	166,300	43.0288	83.7056
019	CHESTER	153,800	39.4854	76.0079	051	GLADWIN	130,800	43.9931	84.2811
021	FREDERICK	172,200	39.4775	77.4076	053	GOGEBIC	286,700	46.4019	89.6851
023	GARRETT	170,700	39.5410	79.2738	055	GRAND TRAVERSE	119,700	44.6747	85.5556
025	HARFORD	117,300	39.5654	76.3272	057	GRATTOT	146,600	43.2977	84.6054
027	HOWARD	65,000	39.2498	76.9363	059	HILLSDALE	155,400	41.8984	84.5952
029	KENT	72,800	39.2583	76.0359	061	HOUGHTON	263,400	46.8969	88.6858
031	MONTGOMERY	128,200	39.1387	77.2207	063	HURON	212,100	43.8397	83.1152
033	PRINCE GEORGES	125,600	38.8278	76.8643	065	INGHAM	144,800	42.6048	84.3706
035	QUEEN ANNES	97,100	39.0840	75.9900	067	IONIA	149,900	42.9470	85.6718
037	ST MARYS	96,600	38.3039	76.6307	069	IOSCO	140,900	44.3587	83.6369
039	SOMERSET	87,800	38.1232	75.7375	071	IRON	303,300	46.2118	88.5371
041	TALBOT	67,600	38.7727	76.0938	073	ISABELLA	188,100	43.6418	84.6461
043	WASHINGTON	118,900	39.6121	77.8216	075	JACKSON	180,800	42.2523	84.4176
045	WICOMICO	98,700	38.3740	75.6292	077	KALAMAZOO	145,600	42.2486	85.2486
047	WORCESTER	124,100	38.2249	75.3459	079	KALKASKA	146,600	44.6885	85.0821
PIPS_ST = 25 MASSACHUSETTS					081	KENT	222,000	43.0334	85.5476
001	BARNSTABLE	101,800	41.7379	70.2881	083	KEWEENAW	139,300	47.3570	88.1183
003	BERKSHIRE	243,700	42.3675	73.2057	085	LAKE	147,900	43.9940	85.6056
005	BRISTOL	143,500	41.8051	71.1090	087	LAPEER	170,400	43.0982	83.2229
007	DORSET	26,900	41.3851	70.6376	089	LEEANAU	89,400	44.9210	85.7713
009	ESSEX	127,900	42.6687	70.9627	091	LENAWEE	195,000	41.9076	84.6663
011	FRANKLIN	183,400	42.5832	72.5917	093	LIVINGSTON	144,100	42.6078	83.5099
013	HAMPDEN	160,300	42.1368	72.6280	095	LUCE	234,700	46.4680	85.5480
015	HAMPSHIRE	137,000	42.3398	72.6595	097	MACKINAC	262,600	46.0956	85.1247
017	MIDDLESEX	213,700	42.4873	71.3929	099	MACOMB	124,300	42.7042	82.5284
019	NANTUCKET	11,900	41.2997	70.0511	101	MANISTEE	143,200	44.3363	86.0541
021	NORFOLK	102,000	42.1576	71.2253	103	MARQUETTE	473,500	46.4331	87.6468
					105	MASON	126,900	43.9947	86.2471
					107	MCCOSTA	145,000	43.6409	85.3265
					109	MENOMINEE	268,800	45.5744	87.5665
					111	MIDLAND	134,700	43.6445	84.3864
					113	MISSAUKEE	146,300	44.3412	83.5835
					115	MONROE	144,300	41.9430	83.5366
					117	MONTCALM	184,400	43.3105	85.1556
					119	MONTMORENCY	143,700	45.0299	84.1214
					121	MUSKEGON	129,800	43.2883	86.1371
					123	NEWAYGO	219,900	43.5533	85.6051
					125	OAKLAND	224,600	42.6684	83.3844
					127	OCEANA	138,800	43.6377	86.2550
					129	OGENAW	147,900	44.3394	84.1216
					131	ONTONAGON	340,800	46.6649	89.3194
					133	OSCEOLA	150,500	43.9928	85.3245
					135	OSCODA	145,800	44.6843	84.1235
					137	OTSEGO	136,500	45.0212	84.5943
					139	OTTAWA	145,800	42.9612	85.9875
					141	PRESQUE ISLE	167,800	45.3455	83.5143
					143	ROSCOMMON	134,900	44.3384	84.5999
					145	SAGINAW	210,800	43.3374	84.0514
					147	ST CLAIR	190,100	42.9577	82.6983
					149	ST JOSEPH	131,100	41.9256	85.5303
					151	SANTLAC	248,900	43.4287	82.8210
					153	SCHOOLCRAFT	305,900	46.1969	86.2136
					155	SHIAWASSEE	134,900	42.9576	84.1393

Table C.2 (continued)

PIPS_CC	COUNTY	CO_ARFA	LATITUDE	LONGITUDE	PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE
157	TOSCOLA	211,100	43.4713	83.4160	153	TODD	244,000	46.0771	94.4943
159	VAN ROSEN	156,200	42.2513	86.0174	155	TRAVERSE	147,100	45.7772	96.4643
161	WASHTENAW	184,100	42.2604	83.9346	157	WABASHA	135,200	44.2944	92.2229
163	WAYNE	156,700	42.2956	83.2951	159	WADENA	139,800	46.5885	94.1589
165	WEXFORD	144,800	44.3434	85.5707	161	WASECA	107,500	44.0344	93.5946
					163	WASHINGTON	100,000	45.0408	92.8893
					165	WATONWAN	112,100	43.9900	94.4190
					167	WILKIN	198,800	46.3632	96.4560
					169	WISNKA	160,600	43.9986	91.7804
					171	WRIGHT	174,600	45.1835	93.9641
					173	YELLOW MEDICINE	195,000	44.7278	95.6580
PIPS_S1 = 27 MINNESOTA									
001	AITKIN	473,500	46.6080	93.4069					
003	ANOKA	109,800	45.2852	93.2478					
005	BECKER	335,900	46.9342	95.6585					
007	BELTRAMI	644,300	47.4660	94.9143					
009	BENTON	104,100	45.7120	94.0057					
011	BIG STONE	126,900	45.4277	96.3914					
013	BLUE EARTH	190,400	44.0487	94.0736					
015	BROWN	144,000	44.2552	94.7271					
017	CARTER	222,200	46.6038	92.6776					
019	CARVER	93,000	44.8324	93.8044					
021	CASS	517,500	46.9558	94.3163					
023	CHIPPewa	150,700	45.0285	95.5626					
025	CHISAGO	108,500	45.5117	92.9191					
027	CLAY	270,700	46.8931	96.4741					
029	CLEARWATER	259,000	47.5789	95.3690					
031	COOK	144,600	47.9039	90.5085					
033	COTTONWOOD	164,700	44.0204	95.1897					
035	CROW WING	257,700	46.4812	94.0644					
037	DAKOTA	149,200	44.6852	93.0696					
039	DODGE	112,700	44.0307	92.8627					
041	DOUGLAS	167,600	45.9399	95.4534					
043	FARIBAULT	194,100	43.6837	93.9570					
045	FILLMORE	222,500	43.6846	92.0491					
047	FREEDOM	181,600	43.6851	93.3530					
049	GOODHUE	195,000	44.4189	92.7284					
051	GRANT	141,400	45.9414	96.0058					
053	HENNEPIN	146,900	45.0164	93.4776					
055	HOUSTON	146,300	43.6835	91.4877					
057	HUBBARD	241,400	47.1053	94.9077					
059	ISANTI	113,400	45.5735	93.2960					
061	ITASCA	681,900	47.5027	93.6092					
063	JACKSON	180,300	43.6837	95.1664					
065	KANABEC	135,700	45.9560	93.2925					
067	KANDIYUCHI	202,400	45.1572	95.0016					
069	KITTSON	290,900	44.7775	96.7654					
071	KOOCHICING	809,900	48.2436	93.7594					
073	LAC QUI PARLE	144,900	45.0035	96.1647					
075	LAKE	534,100	47.6361	91.4304					
077	LAKE OF THE WOODS	339,500	48.7746	94.8858					
079	LE SUEUR	114,000	44.3460	93.7240					
081	LINCOLN	137,500	44.4255	96.2456					
083	LYON	183,600	44.4276	95.8274					
085	MCLUD	126,400	44.8308	94.2725					
087	MAHONOME	145,800	47.3251	95.7385					
089	MARSHALL	463,400	48.3578	96.3674					
091	MARTIN	102,100	43.6029	94.5042					
093	MECKER	160,300	45.1286	94.5245					
095	MILLE LACS	147,900	45.9464	93.6337					
097	MORRISCH	291,900	46.0225	94.2687					
099	MOWER	192,100	43.6805	92.7596					
101	MURRAY	182,100	44.0370	95.7401					
103	NICOLLET	111,900	44.3647	94.7449					
105	NOBLE	144,400	43.6820	95.7594					
107	NORMAN	229,200	47.3276	96.4400					
109	CLAYTON	169,900	44.0152	92.4018					
111	OTTUMBA	500,200	46.4111	95.6447					
113	PENNINGTON	161,100	48.0671	96.0058					
115	PINE	366,200	46.1272	92.7374					
117	PIPESTONE	120,200	44.0345	96.2404					
119	POLK	521,400	47.7763	96.1914					
121	POPE	173,300	45.5934	95.4436					
123	RANSBY	40,100	45.0315	93.0461					
125	RED LAKE	111,900	47.8736	96.0764					
127	REDWOOD	226,400	44.4208	95.2531					
129	SPWVILLE	253,600	44.7374	94.9426					
131	RICE	128,500	44.3656	93.2991					
133	ROCK	125,600	43.6769	92.2376					
135	ROSEAU	434,100	48.7753	95.7865					
137	ST LOUIS	1,577,000	47.6647	92.4602					
139	SCOTT	41,400	44.6617	93.5333					
141	SHERBURNE	111,600	45.4571	93.7801					
143	STRIK	151,000	44.5915	94.2266					
145	STEARNS	347,600	45.5603	94.6138					
147	STERLE	110,100	44.0329	93.2317					
149	STEVENS	144,500	45.5926	95.9951					
151	SWIFT	191,400	45.2881	95.6754					
PIPS_ST = 28 MISSISSIPPI									
001	ADAMS	114,300	31.4973	91.2637					
003	ALCON	104,900	34.8811	88.5825					
005	AMITE	188,800	31.1760	90.4097					
007	ATTALA	187,500	33.0859	89.5840					
009	BENTON	106,700	34.8180	89.1886					
011	BOLIVAR	239,100	33.8011	90.4874					
013	CALHOUN	148,900	33.9402	89.2347					
015	CARROLL	165,000	33.4510	89.5227					
017	CHICKASAW	131,100	33.9227	88.5452					
019	CHOCTAW	108,000	33.3457	89.2477					
021	CLAIBORNE	126,700	31.9814	90.5152					
023	CLARKE	180,500	32.0445	88.6866					
025	CLAY	107,200	33.6591	88.7832					
027	COAHONA	147,400	34.2362	90.6088					
029	COPIAH	202,000	31.8731	90.4598					
031	COVINGTON	107,700	31.6420	89.5590					
033	DE SOTO	123,300	34.8780	89.5924					
035	FORREST	121,200	31.1932	89.2601					
037	FRANKLIN	147,100	31.4809	90.5044					
039	GEORGE	124,600	30.8637	88.4442					
041	GREENE	188,600	31.2131	88.4391					
043	GRENADE	111,600	33.7722	89.6009					
045	HANCOCK	124,800	30.4277	89.4900					
047	HARRISON	151,500	30.5258	89.1198					
049	HINDS	226,900	32.2694	90.4534					
051	HOLMES	199,200	33.1278	90.4961					
053	HUMPHREYS	109,000	33.1344	90.5725					
055	ISSAQUEHUA	107,200	32.7369	90.5907					
057	ITAWAMBA	140,100	34.2768	88.2631					
059	JACKSON	190,400	30.5619	88.4357					
061	JASPER	176,900	32.0249	89.1156					
063	JEFFERSON	134,900	31.7387	91.4374					
065	JEFFERSON DAVIS	107,200	31.5772	89.4306					
067	JONES	181,400	31.6298	89.1691					
069	KEMPER	196,100	32.7554	89.4409					
071	LAFAYETTE	173,000	34.3624	89.4850					
073	LAHAR	129,500	31.2161	89.5155					
075	LAUDERDALE	193,400	32.4055	88.6611					
077	LAWRENCE	112,100	31.5587	90.1161					
079	LEAKE	151,800	32.7584	89.5284					
081	LEE	117,800	34.2874	88.6789					
083	LEFLORE	153,300	33.5544	90.3065					
085	LINCOLN	151,400	31.5386	90.4628					
087	LINDSEY	131,600	33.4709	88.4440					
089	MAULSON	188,300	32.6375	90.4460					
091	MARION	142,400	31.2374	89.4322					
093	MARSHALL	183,900	34.7650	89.5028					
095	MONROE	199,200	33.8901	88.4771					
097	MONTGOMERY	104,400	33.4916	89.6143					
099	MUSKOGEE	147,100	32.7554	89.1164					
101	NEWTON	150,200	32.4024	89.1145					

Table C.2 (continued)

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE
141	TISHOMINGO	114,700	34.7421	88.2440	139	MONTGOMERY	138,300	38.9344	91.4630
143	TUNICA	118,600	34.6488	90.3680	141	MORGAN	153,300	38.4223	92.8825
145	UNION	109,300	34.4926	89.0058	143	NEW MADRID	175,900	36.5963	89.4432
147	WALTHAM	104,400	31.1509	90.1153	145	NEWTON	162,900	36.9201	94.3497
149	WARREN	150,500	32.3650	90.8481	147	NODAWAY	227,100	40.3786	94.4847
151	WASHINGTON	190,100	33.2782	90.9545	149	OREGON	203,100	36.6850	91.4159
153	WAYNE	214,200	31.6451	88.6442	151	OSAGE	157,500	38.4603	91.4554
155	WEBSTER	107,700	33.6136	89.2841	153	OZARK	189,600	36.6511	92.4439
157	WILKINSON	174,600	31.1632	91.3157	155	PEMISCOT	127,700	36.2121	89.7902
159	WINSTON	157,000	33.0897	89.0276	157	PERRY	122,000	37.7042	89.4310
161	YALOBUSHA	126,400	34.0315	89.7057	159	PETTIS	175,900	38.7303	93.2841
163	YAZOO	242,900	32.7479	90.4035	161	PHILIPS	175,300	37.8750	91.7908
					163	PIKE	176,400	39.3359	91.1676
					165	PLATTE	110,600	39.3897	94.7713
					167	POLK	165,000	37.6195	93.4105
					169	PULASKI	142,700	37.8212	92.2039
					171	POTNAM	134,200	40.4918	93.1112
					173	RALLS	123,800	39.5227	91.1101
					175	RANDOLPH	122,500	39.4383	92.4765
					177	RAY	149,400	39.3589	93.5925
					179	REYNOLDS	211,600	37.3522	90.7763
					181	RIPLEY	165,500	36.6514	90.4740
					193	ST CHARLES	142,700	38.7680	90.7150
					185	ST CLAIR	180,500	38.7833	90.4706
					187	ST FRANCOIS	118,400	37.8064	90.4745
					189	ST LOUIS	145,000	38.6421	90.4513
					191	STE GENEVIEVE	129,200	37.8907	90.1950
					195	SALINE	196,100	39.1407	93.1972
					197	SCHUYLER	79,300	40.4810	92.4077
					199	SCOTLAND	114,200	40.4621	92.1337
					201	SCOTT	109,000	37.0517	89.5656
					203	SHANNON	258,700	37.1524	91.4100
					205	SHELBY	129,800	39.7951	92.4555
					207	STODDARD	213,200	36.8562	89.4495
					209	STONE	116,300	36.7497	93.4712
					211	SULLIVAN	169,400	40.2128	93.1040
					213	TANEY	159,300	36.6613	93.4711
					215	TEXAS	306,400	37.3139	91.5690
					217	VERNON	217,000	37.8540	94.3505
					219	WARREN	110,300	38.7597	91.1471
					221	WASHINGTON	196,800	37.9575	90.4810
					223	WAYNE	198,400	37.1104	90.4742
					225	WEBSTER	152,800	37.2804	92.4907
					227	WORTH	69,200	40.4973	94.4254
					229	WRIGHT	177,200	37.2750	92.2665
PIPS_ST = 29 MISSOURI									
001	ADAIR	148,100	40.1976	92.5966					
003	ANDREW	112,900	39.9968	94.7493					
005	ATCHISON	142,200	40.4515	95.4320					
007	AUDRAIN	179,200	39.2124	91.8268					
009	BARRY	202,800	36.7169	93.9417					
011	BARTON	153,400	37.5089	94.3547					
013	BATES	217,800	34.2584	94.3436					
015	BENTON	190,400	39.3001	93.2912					
017	BOLLINGER	160,400	37.3193	90.0308					
019	BOONE	177,400	38.9873	92.2992					
021	BUCHANAN	104,600	39.6709	94.9104					
023	BUTLER	185,200	36.7200	90.4133					
025	CALDWELL	111,400	39.6655	93.9938					
027	CALLAWAY	216,300	38.8376	91.9174					
029	CANDLER	165,800	39.0247	92.7621					
031	CAPE GIRARDEAU	148,700	37.3807	89.6423					
033	CARROLL	180,500	39.4344	93.5146					
035	CARTER	131,100	36.9323	90.4772					
037	CASS	180,800	38.6459	94.3566					
039	CEDAR	128,500	37.7228	93.8640					
041	CHARITON	195,300	39.5182	92.9528					
043	CHRISTIAN	146,900	36.9715	93.1968					
045	CLARK	131,100	40.4164	91.7194					
047	CLAY	106,700	39.3199	94.4175					
049	CLINTON	108,900	39.6104	94.4046					
051	COLE	99,500	38.5028	92.2742					
053	COOPER	146,600	38.8440	92.9040					
055	CRAWFORD	196,800	37.9720	91.3051					
057	DADE	130,500	37.4349	93.4539					
059	DALLAS	139,100	37.6766	93.0283					
061	DAVIESS	145,800	39.9706	93.4431					
063	DE KALE	109,600	39.9006	94.4003					
065	DENT	195,800	37.5599	91.5147					
067	DOUGLAS	209,500	36.9347	92.5046					
069	DUNKLIN	140,600	36.2768	90.0907					
071	FRANKLIN	241,900	39.4104	91.0743					
073	GASCONADE	134,400	38.4429	91.5061					
075	GEORGETOWN	126,400	40.2217	94.4063					
077	GREENE	175,300	37.2587	93.3510					
079	GRUNDY	112,700	40.1223	93.5611					
081	HARRISON	186,500	40.3705	93.9920					
083	HENRY	190,100	38.3897	93.7952					
085	HICKORY	97,600	37.9465	93.3211					
087	HOLT	110,600	40.1057	95.2094					
089	HOWARD	122,200	39.1433	92.6819					
091	HOWELL	238,300	36.7719	91.4927					
093	IRON	143,500	37.5515	90.7419					
095	JACKSON	156,200	39.0110	94.3501					
097	JASPER	166,300	37.2158	94.3517					
099	JEFFERSON	173,000	38.2566	90.5429					
101	JOHNSON	213,400	39.7454	93.8062					
103	KNOX	132,600	40.1307	92.1318					
105	LAKE	199,400	37.6558	92.5976					
107	LAFAYETTE	163,700	39.0662	93.7968					
109	LAWRENCE	160,300	37.1146	93.4404					
111	LEWIS	131,600	40.0980	91.7082					
113	LINCOLN	161,900	39.0537	90.9660					
115	LISS	161,100	39.8729	93.1038					
117	LIVINGSTON	137,300	39.7922	93.5498					
119	MCDONALD	139,900	36.6400	94.3583					
121	MASON	206,700	39.8316	92.5484					
123	MADISON	128,500	37.4751	90.3441					
125	MARIES	136,000	38.1601	91.4183					
127	MARION	113,400	39.8023	91.6128					
129	MERCER	117,800	40.4379	93.5674					
131	MILLER	155,400	38.2119	92.4197					
133	MISSISSIPPI	107,500	36.8287	89.2737					
135	MONTEAU	108,500	38.6314	92.5764					
137	MONROE	173,300	39.4915	91.9441					
PIPS_ST = 30 MONTANA									
001	BEAVERHEAD	1,437,700	45.1294	112.4962					
003	BIG HORN	1,301,000	45.4228	107.4871					
005	BLAINE	1,107,200	48.4286	108.5583					
007	BROADWATER	309,000	46.3306	111.4934					
009	CARBON	535,100	45.2244	109.4367					
011	CARTER	858,100	45.5197	104.5341					
013	CASCADE	689,200	47.3020	111.3365					
015	CHOTEAU	1,017,100	47.8761	110.4278					
017	CUSTER	972,800	46.2572	105.5476					
019	DANIELS	373,700	48.7853	105.5390					
021	DAWSON	613,800	47.2664	104.4873					
023	DEER LODGE	191,700	46.0542	113.6636					
025	FALLON	422,900	46.3362	104.4102					
027	FERGUS	1,098,700	47.2632	109.2182					
029	FLATHEAD	1,330,500	48.2843	114.4382					
031	GALLATIN	651,900	45.5567	111.1766					
033	GARFIELD	1,153,800	47.2826	106.5852					
035	GLACIER	767,700	48.6952	112.5919					
037	GOLDEN VALLEY	304,600	46.3781	109.1751					
039	GRANITE	448,800	46.3926	113.4250					
041	HILL	754,100	48.6211	110.1105					
043	JEFFERSON	427,900	46.1469	112.4909					
045	JUDITH BASIN	486,900	47.0336	110.2581					
047	LAKE	386,900	47.6397	114.6729					
049	LEWIS AND CLARK	900,300	47.1145	112.2833					
051	LIBERTY	372,700	48.5508	111.4256					
053	LINCOLN	961,900	48.5347	115.2926					
055	MCCONE	675,200	47.6533	105.1948					
057	MADISON	913,800	45.3037	111.5186					
059	MEAGHER	609,700	46.5938	110.4871					
061	MINERAL	316,500	47.1413	114.5948					
063	MISSOULA	676,500	47.0269	113.5219					
065	MUSSELSHELL	488,700	46.4947	108.2953					
067	PARK	749,800	45.5143	110.5241					
069	PETROLEUM	428,600	47.1198	108.2475					
071	PHILLIPS	1,350,200	48.2569	107.9154					

Table C.2 (continued)

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
073	PONDERA	426,100	48.2206	112.2162	123	MORRILL	363,100	41.7154	103.0015
075	POWDER RIVER	851,600	45.3981	105.6110	125	NANCE	113,700	41.3933	97.5938
077	POWELL	605,000	46.8492	112.9294	127	NEMAHA	103,600	40.3862	95.6541
079	PRAIRIE	448,100	46.8644	105.3561	129	NUCKOLLS	150,000	40.1747	98.6560
081	PAVALLI	616,900	46.0798	114.1166	131	OTOE	160,300	40.6381	96.1354
093	RICHLAND	538,500	47.7884	104.5633	133	PAWNEE	112,100	40.1289	96.2843
095	ROOSEVELT	617,700	48.2969	104.9997	135	PERKINS	229,200	40.8509	101.6601
097	ROSEBUD	1,304,600	46.2267	106.7092	137	PHIELPS	140,900	40.5102	99.4198
099	SANDERS	719,500	47.6729	115.1286	139	PIERCE	148,400	42.2507	97.6004
091	SHERIDAN	438,700	48.7225	104.5018	141	PLATTE	172,800	41.5646	97.5264
093	SILVER BOW	185,200	45.8939	112.6488	143	POLK	111,900	41.1816	97.5729
095	STILLWATER	464,600	45.6694	109.3944	145	RED WILLOW	177,700	40.1776	100.4721
097	SWEET GRASS	476,600	45.8144	109.9445	147	RICHARDSON	142,400	40.1318	95.7187
099	TETON	594,100	47.8314	112.2243	149	ROCK	261,300	42.4211	99.4536
101	TOOLE	505,000	48.6549	111.6953	151	SALINE	148,400	40.5149	97.1421
103	TREASURE	255,100	46.2096	107.2559	153	SARPY	61,900	41.1041	96.1138
105	VALLEY	1,288,300	48.3694	106.6641	155	SAUNDERS	196,600	41.2166	96.6331
107	WHEATLAND	367,800	46.4604	109.8468	157	SCOTTS BLUFF	188,000	41.8549	103.7043
109	WIBAUT	230,500	46.9643	104.2439	159	SEWARD	147,900	40.8637	97.1403
111	YELLOWSTONE	684,300	45.9379	108.2701	161	SHERIDAN	637,700	42.5065	102.4022
PIPS_ST = 31 NEBRASKA					163	SHERMAN	146,900	41.2179	98.5828
001	ADAMS	145,600	40.5197	98.5125	165	SIOUX	534,300	42.4864	103.7618
003	ANTHONY	220,900	42.1634	99.0696	167	STANTON	111,600	41.9035	97.1954
005	ARTHUR	102,300	41.5660	101.6444	169	THAYER	149,400	40.1744	97.6991
007	BAWNER	191,100	41.5503	101.7058	171	THOMAS	145,400	41.9156	100.5533
009	ELAINE	133,900	41.9163	99.9770	173	THURSTON	100,500	42.1449	96.6380
011	BOONE	176,900	41.6574	98.0725	175	VALLEY	147,400	41.5647	98.5876
013	BOX BUTTE	275,800	42.2193	103.0764	177	WASHINGTON	100,000	41.5178	96.2157
015	BOYD	139,300	42.9975	99.7612	179	WAYNE	114,700	42.1924	97.1125
017	BROWN	114,900	42.4321	99.9341	181	WEBSTER	148,900	40.1749	98.5060
019	BUFFALO	245,900	40.9519	99.0806	183	WHEELER	144,200	41.9108	98.5274
021	BURT	125,100	41.8421	96.3316	195	YORK	149,400	40.8647	97.6052
023	BUTLER	150,700	41.2182	97.1298	PIPS_ST = 32 NEVADA				
025	CASS	143,700	40.9003	96.1430	001	CHURCHILL	1,264,700	39.5812	118.2521
027	CEDAR	192,200	42.5876	97.2512	003	CLARK	2,039,400	36.2216	115.6196
029	CHASE	230,500	40.5236	101.7041	005	DOUGLAS	182,100	38.4053	119.6127
031	CHERRY	1,545,200	42.5445	101.1219	007	ELKO	4,445,000	41.1562	115.3554
033	CHEYENNE	307,200	41.2197	102.9440	009	ESMERALDA	924,600	37.7841	117.6369
035	CLAY	147,600	40.5192	98.0649	011	EUREKA	1,083,100	39.9590	116.2361
037	COLPAX	105,200	41.5644	97.0988	013	HUNDOLDT	2,512,800	41.4150	118.1103
039	CUMING	147,900	41.9027	96.7867	015	LANDER	1,455,800	39.9373	117.1431
041	CUSTER	662,500	41.3943	99.7347	017	LINCOLN	2,758,100	37.6372	114.6737
043	LAKOTA	66,000	42.3787	96.5603	019	LYON	525,800	39.0175	119.1946
045	CAWES	359,000	42.7169	103.1323	021	MINERAL	975,100	38.5309	118.6377
047	DAWSON	252,500	40.8682	99.8231	023	NYE	4,678,600	38.0420	116.8706
049	DEUEL	112,900	41.1105	102.3149	025	ODORING	1,554,300	40.4560	118.8116
051	ELKON	171,000	42.4791	96.9632	027	STOREY	67,900	39.4444	119.5332
053	DODGE	136,800	41.5677	96.6503	031	WASHOE	1,648,800	40.6622	119.6667
055	DOUGLAS	86,800	41.2833	96.1409	033	WHITE PINE	2,306,100	39.4395	116.6648
057	DUNDY	238,500	40.1805	101.6993	510	CARSON CITY	38,800	39.1509	119.7417
059	FILLMORE	149,400	40.5178	97.6049	PIPS_ST = 33 NEW HAMPSHIRE				
061	FRANKLIN	149,700	40.1751	98.9521	001	BELKNAP	103,600	43.5187	71.8234
063	FRONTIER	249,200	40.5300	100.3952	003	CARROLL	242,900	43.8817	71.6023
065	FURNAS	187,000	40.1780	99.9086	005	CHESHIRE	185,200	42.9194	72.2547
067	GAGE	222,200	40.2573	96.6872	007	COOS	471,400	44.7053	71.5075
069	GARDEN	414,600	41.6176	102.3321	009	GRAPTON	448,600	43.9359	71.8183
071	GARFIELD	147,400	41.9132	98.9931	011	HILLBOROUGH	223,700	42.9191	71.7142
073	GOSPER	120,200	40.5154	99.8356	013	MERRIMACK	240,900	43.2990	71.6807
075	GRANT	197,900	41.9106	101.7441	015	ROCKINGHAM	179,000	42.9907	71.1235
077	GREELEY	147,600	41.5624	98.5256	017	STRAFFORD	97,400	43.3030	71.6320
079	HALL	139,100	40.8691	98.5147	019	SULLIVAN	139,600	43.3617	72.2231
081	HAMILTON	139,100	40.8657	98.0110	PIPS_ST = 34 NEW JERSEY				
083	HARLAN	144,000	40.1747	99.4045	001	ATLANTIC	147,400	39.4823	74.6757
085	HAYES	184,100	40.5267	101.0588	003	BERGEN	60,600	40.9618	74.6744
087	HITCHCOCK	184,400	40.1817	101.0422	005	BURLINGTON	212,100	39.8834	74.6638
089	HOLT	622,900	42.4529	98.7908	007	CAMDEN	57,200	39.7987	74.5480
091	HOOKER	187,000	41.9156	101.1343	009	CAPE MAY	69,200	39.1513	74.6083
093	HOWARD	146,100	41.2151	98.5260	011	CAMPBELL	129,500	39.3697	75.1113
095	JEFFERSON	149,400	40.1717	97.1426	013	ESSEX	33,700	40.7919	74.2493
097	JOHNSON	97,600	40.3834	96.2750	015	GLOUCESTER	85,200	39.7160	75.1387
099	KEARNEY	132,600	40.5031	98.9552	017	HUDSON	12,200	40.7421	74.6928
101	KEITH	267,300	41.1949	101.6673	019	HUNTERDON	109,600	40.5738	74.5142
103	KEYA PAHA	198,900	42.8812	99.7177					
105	KIMBALL	246,800	41.2000	103.7152					
107	KNOX	286,700	42.6250	97.8929					
109	LAMCASTER	210,900	40.7741	96.6469					
111	LINCOLN	653,200	41.0476	100.7514					
113	LOGAN	147,600	41.5696	100.4809					
115	LOUP	148,700	41.4142	99.4582					
117	MCPHERSON	221,700	41.5707	101.0565					
119	NADISON	148,100	41.9049	97.6015					
121	NERRICK	124,300	41.1593	98.0539					

[illegible]

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE
103	JONES	121,000	35.0331	77.3765	065	OLIVER	186,700	47.1163	101.3275
105	LEE	66,300	35.4697	79.1773	067	PEMBINA	291,100	48.7700	97.5407
107	LENOIR	103,600	35.2565	77.6482	069	PIERCE	268,800	48.2503	99.5705
109	LINCOLN	76,900	35.4962	81.2456	071	RAMSEY	323,200	48.2675	98.7219
111	MCDOWELL	112,900	35.6843	82.0627	073	RAMSEY	223,000	46.4540	97.6515
113	MADISON	112,900	35.1505	83.4225	075	RENNVILLE	229,500	48.7199	101.6577
115	MADISON	116,500	35.8620	82.7104	077	RICHLAND	375,300	46.2674	96.5402
117	MARTIN	117,800	35.8390	77.1000	079	ROLETTE	236,500	48.7747	99.6423
119	MECKLENBURG	137,300	35.2516	80.9375	081	SARGENT	220,900	46.1095	97.6244
121	MITCHELL	55,700	36.0121	82.1666	083	SHERIDAN	256,200	47.5771	100.3384
123	MONTGOMERY	126,400	35.3383	79.8956	085	SIOUX	285,700	46.1134	101.6339
125	MOORE	182,300	35.2976	79.4494	087	SLOPE	317,300	46.4460	103.4541
127	NASH	140,900	35.9599	77.9821	089	STARK	340,800	46.8081	102.6545
129	NEW HANOVER	47,900	34.2417	77.8858	091	STEELE	183,900	47.4511	97.7122
131	NORTHAMPTON	138,800	36.4180	77.3982	093	STUTSMAN	586,400	46.9802	98.6881
133	UNSWILL	198,100	34.7387	77.4139	095	TOWNER	270,100	48.6857	99.2451
135	CHANCE	103,600	36.0555	79.1293	097	TRAIL	223,000	47.4523	97.1496
137	PANHANDLE	87,500	35.1442	76.7333	099	WALSH	333,100	48.3729	97.7201
139	PASQUOTANK	59,100	36.3010	76.2853	101	WARD	529,400	48.2198	101.5354
141	PENNS	225,600	34.5033	77.0060	103	WELLS	336,400	47.5893	99.6639
143	PERKINS	63,700	36.2073	76.4401	105	WILLIAMS	534,600	48.3440	103.4778
145	PERSON	103,900	36.3840	78.9706					
147	FITT	169,600	35.9556	77.3803					
149	POLK	61,900	35.2464	82.1830					
151	RANDOLPH	206,700	35.7107	79.7976					
153	RICHMOND	123,000	35.0041	79.7171					
155	ROBERTS	245,800	34.6336	79.0954					
157	ROCKINGHAM	107,400	36.1952	79.7677					
159	ROSWELL	135,500	35.6414	80.5267					
161	RUTHERFORD	145,800	35.4085	81.9275					
163	SAMPSON	244,900	34.9892	78.1682					
165	SCOTLAND	82,600	34.8324	79.0844					
167	STANLEY	103,100	35.3151	80.2574					
169	STOKES	118,400	36.4027	80.2400					
171	SURRY	138,800	36.4156	80.6908					
173	SWAIN	135,700	35.4854	83.4981					
175	TRANSYLVANIA	98,900	35.2039	82.4038					
177	TYNDALE	101,000	35.4106	76.2143					
179	UNION	165,500	34.9876	80.5376					
181	VANCE	64,500	36.3614	78.4010					
183	WAKE	222,200	35.7874	78.6495					
185	WARREN	109,900	36.3476	78.0961					
187	WASHINGTON	98,800	35.8182	76.5777					
189	WATAUGA	82,100	36.2310	81.6959</					

Table C.2 (continued)

PIPS_CO	COUNTY	CO_ARA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_ARA	LATITUDE	LONGITUDE
121	NOBLE	103,100	39.7814	81.4508	107	OKFUSKEE	165,000	35.4654	96.3105
123	OTTAWA	67,600	41.5457	83.1413	109	OKLAHOMA	181,300	35.5395	97.4030
125	FAULDING	108,000	41.1241	84.5640	111	OKMULGEE	181,300	35.6569	95.9610
127	PERRY	106,200	39.7472	82.2370	113	CSAGE	589,400	36.6343	96.4040
129	PICKAWAY	130,500	39.6458	83.0164	115	OTTAWA	120,200	36.8521	94.1194
131	FIKE	114,700	39.0392	83.0572	117	PAWEE	145,300	36.3180	96.6999
133	PORTAGE	128,200	41.1842	81.1948	119	PAYNE	179,700	36.0709	96.5749
135	PREBLE	110,600	39.7486	84.6550	121	PITTSBURG	321,400	34.9494	95.7447
137	POTNAM	125,900	41.0288	84.1379	123	PONTOTOC	184,900	34.7320	96.6746
139	RICHLAND	128,500	40.7920	82.5346	125	FOTTAWATOMIE	205,600	35.2019	96.5443
141	ROSS	177,900	39.3453	83.0485	127	PUSHMATAHA	367,900	34.4497	95.3856
143	SANDUSKY	105,900	41.3679	83.1472	129	ROGER HILLS	295,300	35.6832	99.6994
145	SCIOTO	157,500	38.8206	82.9805	131	ROGERS	177,400	36.3996	95.6113
147	SENECA	142,700	41.1341	83.1241	133	SEMINOLE	163,200	35.1699	96.5998
149	SHELBY	105,700	40.3381	84.2048	135	SEQUOYAH	180,300	35.5225	94.7634
151	STARK	149,200	40.8311	81.3589	137	STEPHENS	230,800	34.4971	97.6459
153	SUMMIT	105,700	41.1402	81.5301	139	TEXAS	534,100	36.7447	101.4791
155	TRUMBULL	157,500	41.3230	80.7630	141	TILLMAN	233,400	34.3761	98.9210
157	TUSCARAWAS	147,400	40.4567	81.4714	143	TOLSA	144,400	36.1324	95.5029
159	UNION	112,400	40.3097	83.3700	145	WAGONER	145,800	35.9861	95.5391
161	VAN WERT	105,900	40.8592	84.5921	147	WASHINGTON	109,800	36.7275	95.9138
163	VINTON	106,400	39.2632	82.4770	149	WASHITA	261,300	35.2922	98.5909
165	WARREN	105,700	39.4337	84.1659	151	WOODS	336,200	36.7703	98.6717
167	WASHINGTON	166,000	39.4731	81.4903	153	WOODWARD	324,000	36.4174	99.2605
169	WAYNE	145,300	40.8451	81.8862					
171	WILLIAMS	109,000	41.5709	84.5639					
173	WOOD	160,300	41.3718	83.6286					
175	WYANDOT	105,200	40.8542	83.3042					

PIPS_ST = 41 OREGON

001	BAKER	794,600	44.7167	117.6734	001	BAKER	794,600	44.7167	117.6734
003	BENTON	173,000	44.4906	123.4184	003	BENTON	173,000	44.4906	123.4184
005	CLACKAMAS	488,000	45.1781	122.2104	005	CLACKAMAS	488,000	45.1781	122.2104
007	CLATSOP	208,500	45.9768	123.4006	007	CLATSOP	208,500	45.9768	123.4006
009	COLUMBIA	165,500	45.9339	123.6891	009	COLUMBIA	165,500	45.9339	123.6891
011	COOS	415,400	43.1644	124.0449	011	COOS	415,400	43.1644	124.0449
013	CROOK	770,500	44.1379	120.3500	013	CROOK	770,500	44.1379	120.3500
015	CURRY	421,400	42.4602	124.1359	015	CURRY	421,400	42.4602	124.1359
017	DESCHUTES	785,000	43.9084	121.2215	017	DESCHUTES	785,000	43.9084	121.2215
019	DOUGLAS	1,311,300	43.2686	123.1593	019	DOUGLAS	1,311,300	43.2686	123.1593
021	GILLIAM	312,900	45.3756	120.2180	021	GILLIAM	312,900	45.3756	120.2180
023	GRANT	1,173,300	44.4887	119.0027	023	GRANT	1,173,300	44.4887	119.0027
025	HARNEY	2,633,000	43.0636	118.5663	025	HARNEY	2,633,000	43.0636	118.5663
027	HOOD RIVER	135,500	45.5139	121.6448	027	HOOD RIVER	135,500	45.5139	121.6448
029	JACKSON	728,300	42.4315	122.7333	029	JACKSON	728,300	42.4315	122.7333
031	JEPPERSON	864,400	44.6260	121.1696	031	JEPPERSON	864,400	44.6260	121.1696
033	JOSEPHINE	420,900	42.3673	123.5598	033	JOSEPHINE	420,900	42.3673	123.5598
035	KLAMATH	1,546,200	42.6927	121.5541	035	KLAMATH	1,546,200	42.6927	121.5541
037	LAKE	2,131,800	42.7977	120.2810	037	LAKE	2,131,800	42.7977	120.2810
039	LANE	1,179,000	43.9343	122.6363	039	LANE	1,179,000	43.9343	122.6363
041	LINCOLN	255,400	44.4870	122.5327	041	LINCOLN	255,400	44.4870	122.5327
043	LINN	591,300	44.6289	123.8391	043	LINN	591,300	44.6289	123.8391
045	MAHEUR	2,553,500	43.1950	117.6245	045	MAHEUR	2,553,500	43.1950	117.6245
047	MARION	302,000	44.8979	122.5824	047	MARION	302,000	44.8979	122.5824
049	MORROW	533,500	45.4183	119.5846	049	MORROW	533,500	45.4183	119.5846
051	MULTNOMAH	109,600	45.5354	122.3872	051	MULTNOMAH	109,600	45.5354	122.3872
053	POLK	190,600	44.8955	123.4019	053	POLK	190,600	44.8955	123.4019
055	SHEEMAN	215,000	45.3940	120.6933	055	SHEEMAN	215,000	45.3940	120.6933
057	TILLAMOOK	288,800	45.4491	123.6793	057	TILLAMOOK	288,800	45.4491	123.6793
059	UNATILLA	835,800	45.5936	118.7356	059	UNATILLA	835,800	45.5936	118.7356
061	UNION	526,300	45.3193	118.0339	061	UNION	526,300	45.3193	118.0339
063	WALLUWA	823,100	45.9872	117.1723	063	WALLUWA	823,100	45.9872	117.1723
065	WASCO	616,700	45.1534	121.1625	065	WASCO	616,700	45.1534	121.1625
067	WASHINGTON	185,400	45.5507	123.0841	067	WASHINGTON	185,400	45.5507	123.0841
069	WHEELER	442,100	44.7233	120.0184	069	WHEELER	442,100	44.7233	120.0184
071	YAMHILL	184,100	45.2237	123.2903	071	YAMHILL	184,100	45.2237	123.2903

PIPS_ST = 42 PENNSYLVANIA

001	ADAMS	136,200	39.8770	77.2181	001	ADAMS	136,200	39.8770	77.2181
003	ALLEGHENY	188,600	40.4697	79.5805	003	ALLEGHENY	188,600	40.4697	79.5805
005	ARMSTRONG	168,900	40.8170	79.4651	005	ARMSTRONG	168,900	40.8170	79.4651
007	BEAVER	114,000	40.6814	80.2492	007	BEAVER	114,000	40.6814	80.2492
009	BEDFORD	263,700	40.0093	78.4891	009	BEDFORD	263,700	40.0093	78.4891
011	BERKS	223,300	40.4201	75.5290	011	BERKS	223,300	40.4201	75.5290
013	BLAIR	137,300	40.4829	78.3499	013	BLAIR	137,300	40.4829	78.3499
015	BRADFORD	297,300	41.7891	76.5269	015	BRADFORD	297,300	41.7891	76.5269
017	BUCKS	159,000	40.3451	75.1068	017	BUCKS	159,000	40.3451	75.1068
019	BUTLER	205,600	40.9102	79.5147	019	BUTLER	205,600	40.9102	79.5147
021	CAMBERTA	179,200	40.4977	78.7106	021	CAMBERTA	179,200	40.4977	78.7106
023	CAMERON	103,900	41.4327	78.2061	023	CAMERON	103,900	41.4327	78.2061
025	CARSON	104,600	40.9202	75.7081	025	CARSON	104,600	40.9202	75.7081
027	CENTRE	288,800	40.9227	77.6298	027	CENTRE	288,800	40.9227	77.6298
029	CHESTER	197,100	39.9812	75.7445	029	CHESTER	197,100	39.9812	75.7445

Table C.2 (continued)

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE
031	CLARION	154,600	41.1943	79.4197	037	EDGEFIELD	124,800	33.7799	81.5785
033	CLARKEFIELD	295,000	41.0015	78.4779	039	FAIRFIELD	180,300	34.3981	81.1208
035	CLINTON	232,800	41.2335	77.6417	041	FLORENCE	208,500	34.0249	79.6889
037	COLUMBIA	125,400	41.0446	76.4048	043	GEORGETOWN	210,300	33.4441	79.3328
039	CRAWFORD	262,100	41.6767	80.1135	045	GREENVILLE	205,100	34.8950	82.3713
041	CUMBERLAND	143,700	40.1690	77.2687	047	GREENWOOD	115,500	34.1586	82.1192
043	CAUFERIN	134,200	40.4133	76.7812	049	HAMPTON	145,600	32.7789	81.1834
045	DELAWARE	47,700	39.9212	75.4006	051	HORRY	299,900	33.9217	78.5869
047	ELK	209,000	41.4207	78.6456	053	JASPER	169,900	32.4712	81.0364
049	ERIE	210,600	41.9849	80.0340	055	KERSHAW	202,300	34.3574	80.5854
051	FAYETTE	207,700	39.9231	79.6463	057	LANCASTER	130,000	34.7085	80.7063
053	FOREST	108,500	41.5030	79.2264	059	LAURENS	180,100	34.6908	82.0068
055	FRANKLIN	195,300	39.9258	77.7185	061	LEE	105,900	34.1658	80.2494
057	FULTON	112,700	39.9260	70.1120	063	LESLINGTON	185,400	33.9060	81.2756
059	GREENE	149,700	39.8551	80.2212	065	MCCORMICK	93,200	33.9114	82.3195
061	HUNTINGDON	231,800	40.4223	77.9742	067	MARION	126,100	34.0865	78.7497
063	INDIANA	213,700	40.6586	79.0806	069	MARLBORO	125,100	34.5958	79.6654
065	JEFFERSON	160,400	41.1237	78.9983	071	NEWBERRY	164,500	34.2951	81.6024
067	JUNIATA	100,000	40.5235	77.4079	073	ORANBURG	169,400	34.7472	80.6706
069	LACKAWANNA	117,600	41.4347	75.6166	075	ORANGEBURG	286,500	33.4468	80.8003
071	LANCASTER	245,000	40.0465	76.2477	077	PICKENS	127,400	34.8946	82.3360
073	LAWRENCE	95,100	40.9914	80.3305	079	RICHLAND	193,700	34.0254	80.6921
075	LEBANON	94,300	40.3685	76.4637	081	SALUDA	118,600	34.0095	81.7262
077	LEHIGH	90,100	40.6171	75.5912	083	SPARTANBURG	215,200	34.9400	81.5916
079	LUZERNE	229,500	41.1770	75.9994	085	SUMTER	174,000	33.9139	80.2749
081	LYCOMING	314,900	41.3332	77.0670	087	UNION	133,100	34.6948	81.6175
083	MCKEAN	256,900	41.4067	78.5736	089	WILLIAMSBURG	242,200	33.6268	79.7202
085	MERCER	173,500	41.2484	80.2593	091	YORK	177,200	34.9807	81.1876
087	MIFFLIN	111,600	40.6079	77.6073					
089	MONROE	158,200	41.0601	75.3395					
091	MONTGOMERY	128,500	40.2183	75.3651					
093	MONTGOMERY	13,700	41.0205	76.6599					
095	NORTHAMPTON	97,400	40.7594	75.3107					
097	NORTHAMPTON	117,300	40.8428	76.7089					
099	PERRY	142,700	40.4031	77.2532					
101	PHILADELPHIA	13,400	39.9920	75.1210					
103	PIKE	140,400	41.3327	75.0503					
105	POTTER	282,900	41.7454	77.9020					
107	SCHUYLKILL	203,100	40.7079	76.2145					
109	SHYDER	84,700	40.7688	77.0663					
111	SOMERSET	279,200	39.9772	79.0249					
113	SULLIVAN	123,800	41.4408	76.5247					
115	SUSQUEHANNA	215,700	41.8219	75.9078					
117	TIOGA	206,900	41.7649	77.2637					
119	UNION	82,400	40.9612	77.0652					
121	VENANGO	175,600	41.3923	79.7602					
123	WARREN	234,400	41.8091	79.2766					
125	WASHINGTON	222,000	40.1887	80.2477					
127	WAYNE	191,900	41.6519	75.3115					
129	WESTMORELAND	265,200	40.3147	79.4637					
131	WYOMING	103,100	41.5158	76.0294					
133	YORK	235,400	39.9263	76.7308					

PIPS_ST = 46 SOUTH DAKOTA									
003	AUDUBON	183,600	43.7147	98.5597	005	BEADLE	326,100	44.4128	98.2736
005	BENNETT	305,900	43.1936	101.6666	007	BON HOMME	145,000	42.9837	97.6811
009	BROOKINGS	207,200	44.3744	96.7778	011	BROWN	433,600	45.5893	98.3511
013	BROWN	211,900	43.7141	99.0891	015	BUENA VISTA	124,800	44.0723	99.2116
017	BUTTE	582,700	44.9021	103.5086	019	CAMPBELL	184,400	45.7696	100.0471
021	CLARK	294,100	44.2016	98.5890	023	CLAY	249,700	44.8548	97.7292
025	CLAY	104,900	44.9053	96.5759	027	CODINGTON	177,900	44.9807	97.1900
029	CORSON	639,700	45.7041	101.1946	031	CUSTER	403,300	43.6738	103.4541
033	DAVIS	111,900	43.6730	98.1299	035	DAY	266,800	45.3674	97.6045
037	DEUEL	165,500	44.7629	96.6577	039	DEUEL	608,900	45.1508	100.6677
041	DODGE	112,700	43.3833	98.3716	043	DODGE	230,700	45.4140	94.2136
045	FALL RIVER	451,400	43.2376	103.5367	047	FALL RIVER	258,000	45.0654	99.1432
049	FAULK	176,400	45.1712	96.7521	051	GREGORY	258,200	43.1927	99.1985
053	GRAND	470,300	44.2888	101.5006	055	HAakon	132,300	44.6744	97.1444
057	HAND	370,900	44.5434	99.0027	059	HAND	111,400	43.6749	97.7688
061	HARDING	694,600	45.5783	103.6911	063	HARDING	193,700	44.3828	99.6979
065	HUGHES	211,100	43.3337	97.7495	067	HUTCHINSON	223,500	44.5435	99.4863
069	JACKSON	209,300	43.8599	101.6009	071	JACKSON	136,500	44.0693	98.6313
073	JEROME	252,000	43.9544	100.6926	075	JONES	211,400	44.3731	97.4841
077	KINGSBURY	146,900	44.0282	97.1109	079	LAKE	207,200	44.3504	103.7785
081	LAWRENCE	149,200	43.2743	96.7128	083	LINCOLN	435,900	43.8891	99.6520
085	LYMAN	148,900	43.6743	97.3520	087	MCCOOK	297,100	45.7646	99.2187
089	MCCOOK	219,600	45.7595	97.5953	091	MARSHALL	897,400	44.5619	102.7059
093	MEADE	338,300	43.5755	100.7618	095	MEADE	147,600	44.0258	97.6010
097	MINER	210,600	43.6735	96.7685	099	MINER	135,500	44.0258	96.6857
101	MOODY	719,800	43.9994	102.6269	103	PENNINGTON	740,700	45.4836	102.4716
105	PERKINS	225,100	45.0587	99.5576	107	POTTER			

PIPS_ST = 45 RHODE ISLAND									
001	BRISTOL	6,500	41.7133	71.2541	003	KENT	44,800	41.6783	71.5795
005	NEWPORT	29,400	41.5656	71.2315	007	PROVIDENCE	107,700	41.8761	71.5773
009	WASHINGTON	82,100	41.4887	71.6253					

PIPS_ST = 45 SOUTH CAROLINA									
001	ABBEVILLE	111,100	34.2296	82.4602	003	AIKEN	281,500	33.5517	81.6472
005	ALLendale	108,300	32.9949	81.3575	007	ANDERSON	144,000	34.5211	82.4444
009	BAMBERG	102,300	33.2168	81.0468	011	BARNWELL	143,200	33.2689	81.4412
013	BEAUFORT	150,000	32.3720	80.7827	015	BERKELEY	287,500	33.2038	79.9483
017	CALHOUN	97,600	33.6860	80.7775	019	CHARLESTON	243,200	32.8399	79.9714
021	CHEROKEE	102,000	35.0564	81.6247	023	CHESTER	151,300	34.6932	81.1567
025	CHESTERFIELD	208,600	34.6364	80.1412	027	CLARENDON	155,100	33.6727	80.2040
029	COLLETON	271,700	32.8726	80.6707	031	DARLINGTON	140,600	34.3334	79.9498
033	DILLON	105,400	34.3871	79.3655	035	DORCHESTER	147,400	33.0767	80.3995

Table C.2 (continued)

PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
109	ROBERTS	287,000	45.6250	96.9349	135	PERRY	106,400	35.6421	87.6642
111	SANBORN	147,600	44.0241	98.0861	137	FICKETT	40,900	36.5629	85.6687
113	SHANNON	543,900	43.3324	102.5556	139	POLK	112,400	35.1189	84.5286
115	SPINK	389,800	44.9348	98.3435	141	PUTHAM	104,900	36.1455	85.5054
117	STANLEY	366,200	44.4052	100.7372	143	RHEA	80,800	35.6066	84.5281
119	SOLLY	260,000	44.7054	100.1369	145	BOANE	90,600	35.8524	84.5138
121	TODD	359,500	43.1911	100.7209	147	ROBERTSON	123,300	36.5281	86.7720
123	TRIPP	419,600	43.3424	99.8995	149	RUTHERFORD	158,500	35.8506	86.4050
125	TURNER	158,500	43.3071	97.1406	151	SCOTT	140,900	36.4323	84.4954
127	UNION	117,100	42.8273	96.6475	153	SEQUATCHIE	70,700	35.3829	85.4202
129	WALWORTH	186,000	45.4237	100.0306	155	SEVIER	154,600	35.7903	83.5213
131	WASHBAUGH	274,800	43.5566	101.6579	157	SHELBY	195,500	35.1879	89.6841
135	YANKTON	134,400	43.0027	97.3948	159	SMITH	83,700	36.2606	85.5571
137	ZIEBACH	513,100	44.9752	101.6648	161	STEWART	121,700	36.5004	87.6357
PIPS_ST = 47 TENNESSEE					163	SULLIVAN	107,000	36.5136	82.3032
001	ANDERSON	86,800	36.1213	84.1987	165	SUNNER	138,300	36.4701	86.4537
003	BEDFORD	124,800	35.5260	86.4571	167	TIPTON	118,900	35.4973	89.7386
005	BENTON	101,500	36.0759	88.0742	169	TROUSDALE	29,500	36.3893	86.1498
007	BLEDSON	104,600	35.6013	85.2072	171	UNICOI	47,900	36.1020	82.4430
009	BLOUNT	148,900	35.6895	83.9238	173	UNION	54,900	36.2851	83.6313
011	BRADLEY	86,500	35.1526	84.8629	175	VAN BUREN	65,400	35.6991	85.4489
013	CAMPBELL	116,800	36.3967	84.1452	177	WARREN	113,700	35.6811	85.7656
015	CARROLL	70,200	35.8144	86.0524	179	WASHINGTON	83,700	36.2968	82.4970
017	CARTER	154,400	35.9712	88.4536	181	WAYNE	191,400	35.2491	87.7913
019	CARTER	90,100	36.2925	82.1274	183	WEAVER	149,200	36.3004	88.7245
021	CHEATHAM	79,000	36.2617	87.0932	185	WHITE	98,900	35.9267	85.4617
023	CHESTER	73,900	35.4231	89.6176	187	WILLIAMSON	153,600	35.8975	86.6951
025	CLATSOP	115,000	36.4826	93.6711	189	WILSON	146,900	36.1567	86.2919
027	CLAY	60,300	36.5513	85.5344	PIPS_ST = 48 TEXAS				
029	COCKE	109,800	35.9256	83.1152	001	ANDERSON	277,600	31.8293	95.6584
031	COFFEY	112,400	35.4931	86.0631	003	ANDREWS	389,500	32.2984	102.4389
033	CROCKETT	69,700	35.8171	89.1399	005	ANGELINA	191,100	31.2763	94.6156
035	CUMBERLAND	175,600	35.9501	85.0092	007	ARANSAS	71,200	28.2362	96.9504
037	DAVIDSON	131,600	36.1755	86.7796	009	ARCHER	236,500	33.6130	98.6835
039	DECATUR	87,300	35.6186	88.1131	011	ARMSTRONG	234,900	34.9654	101.2530
041	DE KALE	72,000	35.9894	85.9403	013	ATASCOSA	312,400	28.8991	98.5303
043	DICKSON	125,600	36.1483	87.3637	015	AUSTIN	171,700	29.8903	96.2800
045	DYER	137,000	36.0538	89.4128	017	BAILEY	216,300	34.0614	102.6332
047	FAYETTE	142,300	35.2005	89.4168	019	BANDERA	197,600	29.7468	99.2465
049	FENTRESS	129,000	36.3771	84.9326	021	BASTROP	230,500	30.1000	97.2183
051	FRANKLIN	143,200	35.1535	86.0841	023	BAYLOR	218,400	33.6086	99.2103
053	GIBSON	157,200	35.9952	88.9333	025	BEE	218,100	28.4205	97.7424
055	GILES	160,300	35.2093	87.0282	027	BELL	271,200	31.0401	97.4831
057	GRAINGER	73,000	36.2749	83.4961	029	BEXAR	322,700	29.4518	98.6267
059	GREENE	158,800	36.1761	82.8461	031	BLANCO	186,200	30.2664	98.3936
061	GRUNDY	92,700	35.3841	85.7182	033	BORDEN	234,900	32.7384	101.4413
063	HAMBLE	40,100	36.2244	83.2377	035	BOSQUE	256,400	31.9052	97.6354
065	HAMILTON	142,400	35.1790	85.1718	037	BOWIE	230,800	33.4733	94.4331
067	HANCOCK	59,600	36.5214	83.2121	039	BRAZORIA	368,600	29.2146	95.8678
069	HARDEN	169,900	35.2096	88.9951	041	BRAZOS	151,800	30.6630	96.2100
071	HARDIN	152,000	35.2045	88.1926	043	BREWSTER	1,606,800	29.8044	103.2535
073	HAWKINS	124,300	36.4440	82.9327	045	BRISCOE	226,400	34.5284	101.1175
075	HAYWOOD	134,400	35.5864	89.2684	047	BROOKS	234,100	27.0397	98.2246
077	HENDERSON	133,400	35.6532	88.3889	049	BROWN	242,900	31.7825	99.0006
079	HENRY	146,900	36.3353	88.3067	051	BURLESON	173,500	30.4940	96.6213
081	HICKMAN	158,000	35.8094	87.4818	053	BURNET	258,000	30.7850	98.1848
083	HOOVER	52,100	36.2841	87.7370	055	CALDWELL	140,400	29.8411	97.6247
085	HUMPHREYS	137,300	36.0326	87.7822	057	CALHOUN	136,500	28.5242	96.6949
087	JACKSON	83,700	36.3712	85.6734	059	CALLAHAN	221,700	32.2983	99.3726
089	JEFFERSON	71,000	36.0566	83.4340	061	CAMERON	232,100	26.1519	97.5467
091	JOHNSON	75,900	36.4597	81.8450	063	CAMP	49,700	33.0037	94.5855
093	KNOX	131,600	35.9938	83.9384	065	CARSON	233,100	35.3991	101.2509
095	LAKE	43,300	36.3557	89.4947	067	CASS	243,700	33.1037	94.3460
097	LAUDERDALE	123,500	35.7586	89.6236	069	CASTRO	227,900	34.5260	102.2760
099	LAWRENCE	164,200	35.2202	87.3928	071	CHAMBERS	159,500	29.7510	94.6095
101	LEWIS	73,800	35.5345	87.4903	073	CHEROKEE	271,700	31.8553	95.1686
103	LINCOLN	150,200	35.1451	86.5775	075	CHILDRESS	181,000	34.5302	100.2042
105	LOUDON	61,400	35.7349	84.3144	077	CLAY	285,400	33.7826	98.2063
107	MCINCH	111,900	35.4269	84.6143	079	COCHRAN	202,800	33.6044	102.6327
109	MCNAIR	147,400	35.1773	88.5735	081	COKE	235,900	31.8855	100.6320
111	MACON	78,700	36.5300	86.0300	083	COLEMAN	331,500	31.7757	99.4611
113	MADISON	145,000	35.6136	98.3404	085	COLLIN	216,500	33.1920	96.7724
115	MARION	131,100	35.1269	85.6170	087	COLLINGSWORTH	231,500	34.9634	100.2729
117	MARSHALL	97,600	35.4777	86.7619	089	COLORADO	245,800	29.6216	96.6361
119	MAURY	159,000	35.6299	87.0780	091	CONAL	146,900	29.8164	98.2795
121	MEIGS	49,500	35.5181	84.8055	093	COMANCHE	244,500	31.9533	98.5500
123	MONROE	170,900	35.4467	84.2526	095	CONCHO	260,000	31.3282	99.6807
125	MONTGOMERY	139,600	36.4966	87.3446	097	COOKE	234,400	33.6360	97.2107
127	MOORE	32,100	35.2926	86.3566	099	CORYELL	270,100	31.3952	97.6063
129	MORGAN	139,600	36.1279	84.6487	101	COTTLE	233,100	34.0803	100.2717
131	OSION	144,000	36.3528	89.1564	103	CRANE	205,900	31.4279	102.5198
133	OSVERTON	114,200	36.3408	85.2448	105	CROCKETT	723,600	30.7051	101.4110

Table C.2 (continued)

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
107	CROSBY	235,900	33.6110	101.2850	281	LAMPASAS	188,000	31.1936	98.2461
109	CULBERSON	997,400	31.4393	104.5166	283	LA SALLE	388,500	28.3475	99.1093
111	DALLAM	306,900	36.2694	102.6053	285	LAVACA	252,500	29.3754	96.5376
113	DALLAS	222,500	32.7677	96.7783	287	LEF	165,000	30.3127	96.5756
115	DAWSON	233,600	32.7395	101.9557	289	LEON	285,400	31.3104	96.0105
117	DEAF SMITH	391,100	34.9614	102.6055	291	LIBERTY	305,600	30.1597	94.8141
119	DELTA	71,500	33.4167	95.6760	293	LIMESTONE	241,100	31.5501	96.5799
121	DENTON	235,900	33.2040	97.1173	295	LIPSOMB	241,900	36.2681	100.2736
123	DE WITT	235,700	29.0742	97.3603	297	LIVE OAK	273,200	28.3507	98.1278
125	DICKENS	241,100	33.6119	100.7655	299	LIANC	243,700	30.7014	98.6891
127	DIMMIT	348,100	28.4223	99.7599	301	LOVING	167,800	31.8492	103.5934
129	CONLEY	234,400	34.9649	100.8126	303	LUBBOCK	231,300	33.6102	101.6037
131	CUVAL	469,900	27.6801	98.5153	305	LYNN	237,000	33.1727	101.6040
133	EASTLAND	246,600	32.3798	98.8278	307	MCCULLOCH	276,100	31.2018	99.3660
135	ECTOR	234,900	31.8655	102.5494	309	MCLENNAN	259,000	31.5578	97.2016
137	EDWARDS	537,700	29.4596	100.3128	311	MCULLEN	300,200	28.3509	98.5756
139	ELLIS	243,500	32.3508	96.7975	313	MADISON	124,300	30.9736	95.5416
141	EL PASO	271,800	31.7591	106.3061	315	MARION	44,400	32.8281	94.3694
143	ERATH	281,000	32.2406	98.2070	317	MARTIN	215,900	32.2022	101.5536
145	FALLS	147,400	31.2552	96.4338	319	MASON	242,200	30.7123	99.2822
147	FANNIN	234,400	33.5973	96.1103	321	MATAGORDA	299,700	28.8765	95.5969
149	FAYETTE	241,900	29.8829	96.9157	323	MAVERICK	333,400	28.7388	100.3228
151	FISHER	234,100	32.7397	100.4007	325	MEDINA	350,200	29.3517	99.1156
153	FLOYD	257,200	34.0724	101.2930	327	MENARD	236,700	30.8824	99.6344
155	FOARD	175,100	33.9840	99.7712	329	MIDLAND	243,200	31.8649	102.0244
157	FORT BEND	225,100	29.5377	95.7826	331	MILAM	266,300	30.7849	96.5866
159	FRANKLIN	75,900	33.1983	95.2226	333	MILLS	190,100	31.4984	98.6069
161	FREESTONE	224,000	31.7154	96.1538	335	MITCHELL	238,300	32.3008	100.5184
163	FRIO	289,000	24.8653	99.1123	337	MONTAGUE	241,400	33.6752	97.7242
165	GAINES	385,700	32.7341	102.6405	339	MONTGOMERY	282,300	30.3181	95.5135
167	GALVESTON	103,300	29.3770	94.9400	341	MOORE	235,400	35.8347	101.6938
169	GARZA	236,700	33.1725	101.2836	343	MORRIS	67,300	33.1401	94.7330
171	GILLESPIE	273,200	30.3013	98.9372	345	MOTLEY	253,800	34.0760	100.7708
173	GLASSCOCK	223,500	31.8650	101.5149	347	NACOGDOCHES	233,600	31.6442	94.6299
175	GOLIAD	225,600	28.6578	97.4284	349	NAVARRO	277,100	32.0503	96.4750
177	GONZALES	273,500	29.4547	97.4995	351	NEWTON	245,800	30.8057	93.7517
179	GRAY	241,900	35.3991	100.4091	353	NCLAN	238,800	32.3008	100.3992
181	GRAYSON	243,500	33.6285	96.6836	355	NUECES	217,800	27.7325	97.6693
183	GREGG	73,000	32.5058	94.8234	357	OCHILTREE	234,900	36.2696	100.6088
185	GRIMES	207,500	30.5440	95.9953	359	OLDHAM	382,800	35.3954	102.0041
187	GUADALUPE	184,900	29.5880	97.9548	361	ORANGE	93,000	30.1424	93.6908
189	HALE	253,600	34.0684	101.4074	363	PAJO PINTO	245,500	32.7528	98.3148
191	HALL	229,200	34.5314	100.6786	365	PANOLA	225,100	32.1871	94.3199
193	HAMILTON	218,600	31.7028	98.1242	367	DARKED	233,900	32.7736	97.6063
195	HANSFORD	234,900	36.2698	101.3499	369	FARMER	222,500	34.5203	102.7865
197	HARDEN	177,900	34.2991	99.7390	371	PECOS	1,227,700	30.7774	102.7257
199	HARDIN	232,300	30.3480	94.1986	373	POLK	284,900	30.8118	94.8391
201	HARRIS	846,300	29.8733	95.4207	375	POTTER	232,600	35.3986	101.6915
203	HARRISON	231,500	32.5816	94.1801	377	PRESIDIO	1,008,000	29.9867	104.2392
205	HARTLEY	385,400	35.8313	102.6037	379	RAINS	54,400	32.8845	95.1935
207	HASKELL	227,100	33.1729	99.7286	381	RANDALL	236,700	34.9664	101.6903
209	HAYS	168,300	30.0532	98.0294	383	REAGAN	293,200	31.3605	101.5166
211	HEMPHILL	234,100	35.8316	100.2724	385	REAL	161,100	29.8199	99.6282
213	HENDERSON	244,200	32.2287	95.9657	387	RED RIVER	267,500	33.6489	95.5752
215	HIDALGO	399,600	26.4026	98.1957	389	REEVES	675,500	31.3179	103.6909
217	HILL	261,600	31.9941	97.1249	391	REFUGIO	209,600	28.3393	97.1674
219	HOCKLEY	245,200	31.6106	102.3310	393	ROBERTS	232,800	35.8315	100.6088
221	HOOD	110,300	32.4328	97.9273	395	ROBERTSON	227,100	31.0246	96.5212
223	HOPKINS	205,400	33.1727	95.5645	397	ROCKWALL	38,100	32.9037	96.4110
225	HOUSTON	320,400	31.3356	95.4288	399	ROSNELLS	274,000	31.8259	99.9811
227	HOWARD	235,900	32.3009	101.4416	401	RUSK	243,200	32.1313	98.7714
229	BUDSPETH	1,179,500	31.4434	105.3924	403	SABINE	118,100	31.3583	93.6673
231	HUNT	213,900	33.1342	96.0941	405	SAN ANGELO	122,500	31.4237	94.1837
233	HUTCHINSON	226,600	35.8338	101.3513	407	SAN JACINTO	161,600	30.6018	95.1831
235	IRION	277,900	31.3003	100.9458	409	SAN PATRICIO	177,400	28.0196	97.5232
237	JACK	244,800	33.2256	98.1745	411	SAN SARA	200,100	31.1547	98.6181
239	JACKSON	220,100	28.9310	96.5764	413	SCHLEICHER	344,700	30.8886	100.5443
241	JASPER	234,900	30.7557	94.0258	415	SCURRY	234,100	32.7384	100.5172
243	JEFF DAVIS	595,100	30.7061	104.1435	417	SHACKELFORD	229,700	32.7403	99.2586
245	JEPPERSON	246,300	29.9115	94.1701	419	SHERLY	201,500	31.8115	94.1502
247	JIM HOGG	296,000	27.0530	98.7057	421	SHERMAN	237,200	36.2726	101.6938
249	JIM WELLS	218,900	27.7294	98.0962	423	SMITH	241,900	32.3959	95.2765
251	JOHNSON	191,700	32.3700	97.3494	425	SOMERVILLE	51,000	32.2307	97.7699
253	JONES	247,600	32.7405	99.9862	427	STARR	313,600	26.5687	98.7844
255	KARNES	196,300	20.9035	97.8590	429	STEPHENS	232,800	32.7420	98.6346
257	KAUFMAN	211,100	32.6114	96.2950	431	STERLING	236,700	31.8256	101.0527
259	KENDALL	173,500	29.9285	98.7104	433	STONEWALL	239,800	33.1726	100.2451
261	KENEDY	361,000	26.9323	97.7476	435	SUTTON	386,700	30.4759	100.5429
263	KENT	227,900	33.1704	100.7641	437	SWISHER	232,100	34.5273	101.7636
265	KERR	285,200	30.0416	99.3580	439	TARRANT	223,000	32.7681	97.2929
267	KIMBLE	330,000	30.4617	99.7454	441	TAYLOR	236,200	32.3000	99.6865
269	KING	244,500	33.6110	100.2474	443	TERRELL	619,300	30.2146	102.0745
271	KINNEY	360,800	29.3412	100.4256	445	TERRY	232,800	33.1739	102.3287
273	KLEBERG	220,400	27.4433	97.7677	447	THROCKMORTON	238,300	33.1749	99.2080
275	KNOX	220,400	33.6003	99.7372	449	TITUS	108,300	33.2452	94.5687
277	LANAM	231,500	33.6933	95.5751	451	TC GREEN	388,500	31.4001	100.4683
279	LANE	264,700	34.0664	102.3364	453	TRAVIS	262,100	30.3284	97.7772

Table C.2 (continued)

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE
455	TRINITY	193,100	31.1043	95.1443	003	ALBEMARLE	194,200	38.0235	78.5562
457	TYLER	238,000	30.7913	94.3862	005	ALLEGHANY	117,100	37.7807	80.0103
459	UPSHUR	151,300	32.7643	94.9463	007	AMELIA	94,800	37.3344	77.9808
461	UPTON	339,800	31.3590	102.0333	009	AMHERST	121,700	37.6001	79.1963
463	VALDE	411,300	29.3484	99.7630	011	APPOMATTOX	89,400	37.3678	78.6124
465	VAL VERDE	839,400	29.8757	101.1499	013	ARLINGTON	10,600	38.8810	77.1030
467	VAN ZANDT	218,900	32.5844	95.9477	015	AUGUSTA	259,500	38.1607	79.1326
469	VICTORIA	231,000	28.7904	96.9779	017	BATH	139,900	38.0577	79.7443
471	WALKER	204,600	30.7545	95.5923	019	BEDFORD	190,100	37.3188	79.5226
473	WALLER	131,900	30.0075	95.9921	021	BLAND	95,600	37.1275	81.1329
475	WARD	214,200	31.5151	103.1133	023	BOTETOURT	141,900	37.5531	79.6119
477	WASHINGTON	153,800	30.2186	96.4023	025	BRUNSWICK	150,000	36.7660	77.6602
479	WEBB	856,300	27.7642	99.3466	027	BUCHANAN	131,600	37.2627	82.0066
481	WHARTON	278,700	29.2789	96.2426	029	BUCKINGHAM	150,700	37.5662	78.5318
483	WHEELER	236,700	35.3983	100.2711	031	CAMPBELL	143,500	37.2199	79.1028
485	WICHITA	158,200	33.9898	98.7003	033	CAROLINE	141,200	38.0322	77.3501
487	WILBARGER	246,600	34.0797	99.2377	035	CARROLL	129,800	36.7257	80.7300
489	WILLACI	153,100	26.4829	97.6954	036	CHARLES CITY	46,900	37.3597	77.6760
491	WILLIAMSON	285,900	30.6494	97.6960	037	CHARLOTTE	121,700	37.0138	78.6663
493	WILSON	207,700	29.1787	98.0942	041	CHESTERFIELD	114,500	37.3896	77.5771
495	WINKLER	229,700	31.8475	103.0699	043	CLARKE	45,100	39.1181	78.0071
497	WISE	238,400	33.2120	97.6571	045	CRAIG	87,000	37.4710	80.2130
499	WOOD	146,700	32.9096	95.3938	047	CULPEPPER	100,800	38.9111	77.5546
501	YACUM	215,000	33.1678	102.9302	049	CUMBERLAND	75,400	37.5082	78.2487
503	YOUNG	230,300	33.1790	98.6953	051	DICKENSON	86,000	37.1201	82.3559
505	ZAPATA	247,900	27.0075	99.1775	053	DIMWIDDER	135,500	37.0817	77.6275
507	ZAVALA	334,400	28.8612	99.7622	057	ESSEX	64,700	37.9377	76.5564
PIPS_ST = 49 UTAH					059	FAIRFAX	105,400	38.8359	77.8336
001	BEAVER	669,300	38.3692	113.2333	061	FAUQUIER	170,900	38.7404	77.6091
003	BOX ELDER	1,451,200	41.5265	113.0942	063	FLOYD	99,200	36.9292	80.3673
005	CACHE	304,100	41.7266	111.7527	065	FLUVANNA	74,600	37.8340	78.2815
007	CARBON	382,300	39.6508	110.5918	067	FRANKLIN	185,400	36.9895	79.6878
009	CAGGETT	176,600	40.9806	109.5125	069	FREDERICK	105,700	39.2125	78.2771
011	DAVIS	76,900	40.9963	112.1188	071	GILES	94,000	37.3087	80.7052
013	DECHESNE	843,000	40.3004	110.4366	073	GLOUCESTER	59,100	37.4218	76.5467
015	EMERY	1,149,700	38.9970	110.7009	075	GOOCHLAND	74,900	37.7227	77.5236
017	GARFIELD	1,335,900	37.8587	111.4340	077	GRAYSON	117,100	36.6527	81.2073
019	GRAND	953,600	38.9868	109.5739	079	GREENE	39,600	38.2985	78.4672
021	IRON	854,700	37.8647	113.2906	081	GREENSVILLE	78,000	36.6777	77.5595
023	JOAB	893,700	39.7044	112.7941	083	HALIFAX	207,500	36.7630	78.5296
025	KANE	1,011,100	37.2841	111.4876	085	HANOVER	120,400	37.7632	77.4895
027	KILLARE	1,759,400	39.0771	113.0978	087	HENRICO	74,900	37.5434	77.4155
029	MORGAN	156,200	41.0896	111.5981	089	HENRY	101,500	36.6787	79.8926
031	PIUTE	195,300	38.3413	112.1226	091	HIGHLAND	107,700	38.3649	79.5782
033	RICH	265,000	41.6313	111.2534	093	ISLE OF WIGHT	82,100	36.8887	76.7292
035	SALT LAKE	197,900	40.6781	111.9279	095	JAMES CITY	40,700	37.3126	76.7784
037	SAN JUAN	1,996,100	37.6246	109.7388	097	KING AND QUEEN	82,400	37.7244	76.9008
039	SANPETE	413,600	39.3804	111.5790	099	KING GEORGE	45,600	38.2713	77.1664
041	SEVIER	499,600	38.7497	111.9081	101	KING WILLIAM	72,000	37.7059	77.6885
043	SUNNIT	478,900	40.8726	110.9624	103	LANCASTER	35,500	37.7397	76.4721
045	TOOELE	1,793,100	40.4517	113.1289	105	LEE	113,400	36.7046	81.1223
047	UINTAH	1,162,100	40.1208	109.5265	107	LOUDOUN	133,900	39.0933	77.6491
049	UTAH	521,600	40.1261	111.6741	109	LOUISA	133,900	37.9787	77.5587
051	WASATCH	308,500	40.3311	111.1744	111	LUNENBURG	114,500	36.9499	78.2416
053	WASHINGTON	628,600	37.2822	113.5007	113	MADISON	94,700	38.4200	78.2837
055	WAYNE	641,900	39.3276	110.8996	115	MATHEWS	23,100	37.4261	76.3507
057	WEBER	150,500	41.2707	111.9424	117	MECKLENBURG	158,500	36.6826	78.3518
PIPS_ST = 50 VERMONT					119	MIDDLESEX	33,700	37.6251	76.5720
001	ADDISON	203,100	44.0326	73.1458	121	MONTGOMERY	103,300	37.1685	80.3884
003	BENNINGTON	174,000	43.0362	73.0993	125	NELSON	122,000	37.7856	78.8891
005	CALEDONIA	158,500	44.4624	72.0947	127	NEW KENT	54,400	37.5027	77.0054
007	CHITTENDEN	138,000	44.4627	73.0963	131	NORTHAMPTON	57,000	37.3705	75.5065
009	ESSEX	171,700	44.7236	71.7395	133	NORTHUMBRIA	49,200	37.8879	76.4243
011	FRANKLIN	170,900	44.8570	72.9173	135	NOTTOWAY	79,800	37.1412	78.0542
013	GRAND ISLE	21,500	44.9045	73.3027	137	ORANGE	91,900	38.2518	78.0114
015	LANOILLE	122,800	44.6053	72.6429	139	PAGE	81,800	38.6240	78.4889
017	CHARGE	178,700	44.0094	72.3905	141	PATRICK	120,200	36.6851	80.3035
019	CHLEANS	185,200	44.8374	72.2402	143	PITTSYLVANIA	263,700	36.8163	79.3991
021	BUTLAND	240,100	43.5806	71.0476	145	POWHATAN	69,700	37.5520	77.5135
023	WASHINGTON	183,100	44.2784	72.6125	147	PRINCE EDWARD	92,500	37.2231	78.4438
025	WINDHAM	203,100	42.9913	72.7182	149	PRINCE GEORGE	73,800	37.1907	77.2405
027	WINDSOR	249,200	43.5835	72.5963	153	PRINCE WILLIAM	89,900	38.7080	77.4842
PIPS_ST = 51 VIRGINIA					155	PULASKI	85,000	37.0550	80.7091
001	ACCOMACK	123,300	37.7704	75.6312	157	RAPPAHANNOCK	64,200	38.6906	78.1612
					159	RICHMOND	49,200	37.9411	76.7279
					161	ROANOKE	78,500	37.2645	80.0548
					163	ROCKBRIDGE	157,200	37.8092	79.4509
					165	ROCKINGHAM	225,600	38.5161	78.8848
					167	RUSSELL	125,100	36.9309	82.0927
					169	SCOTT	139,600	36.7114	82.0605
					171	SHERANDOAH	131,300	38.8651	78.5753
					173	SMYTH	112,700	36.8322	81.5249
					175	SOUTHAMPTON	157,000	36.7209	77.1005
					177	SPOTSYLVANIA	107,500	38.1949	77.6477
					179	STAFFORD	69,900	38.4236	77.4599
					181	SURRY	71,700	37.1046	76.5042
					183	SUSSEX	127,900	36.9236	77.2616

PIPS_CC	COUNTY	CO_AREA	LATITUDE	LONGITUDE	PIPS_CO	COUNTY	CO_AREA	LATITUDE	LONGITUDE
185	TAZEWELL	135,200	37.1203	91.5642	049	MARION	80,500	39.5120	80.2386
197	WARREN	56,700	38.9179	78.2128	051	MARSHALL	74,700	39.8694	80.6665
191	WASHINGTON	149,700	36.7240	91.7644	053	MASON	112,100	38.7741	82.2250
193	WESTMORELAND	59,300	39.1104	76.8322	055	MERCER	108,000	37.4025	81.1097
195	WISE	107,700	36.9705	82.6209	057	MINERAL	85,500	39.4110	78.5510
197	WYTHE	119,100	36.9066	81.0709	059	MINGO	109,600	37.7237	82.1354
199	YORK	33,400	37.2159	76.5371	061	MONONGALIA	94,500	39.6329	80.3375
550	NORFOLK/CHESAPEAKE	109,600	36.6998	76.3073	063	MONROE	122,500	37.5609	80.5456
650	HAMPTON	14,200	37.0436	76.3477	065	MORGAN	60,100	39.5573	78.2732
700	NEWPORT NEWS	17,900	36.9722	76.4168	067	NICHOLAS	166,300	38.2951	80.7966
900	SUPPOLL/NANSENCNC	105,700	36.6908	76.6386	069	CHO	27,500	40.1049	80.6246
910	VIRGINIA BEACH	67,100	36.7362	76.2254	071	PENDLETON	180,000	38.6806	79.2618
					073	PLEASANTS	33,400	39.3743	81.1727
					075	POTOMAC/HOMES	244,200	38.3329	80.0095
					077	PRESTON	167,100	39.4691	79.6717
					079	PUTNAM	90,100	38.5089	81.5052
					081	RALEIGH	156,700	37.7699	81.2466
					083	RANDOLPH	200,300	36.7161	79.6823
JULI	AUAMS	490,500	46.9825	110.5549	085	RITCHIE	117,100	39.1877	81.6601
003	BARTON	163,900	46.2004	117.1493	087	ROANE	125,900	38.7161	81.3420
005	BENTON	446,000	46.2348	119.5162	089	SUMMERS	90,600	37.6492	80.6564
007	CHELAN	755,800	47.8698	120.6199	091	TAYLOR	45,100	39.3368	80.0471
009	CLALLAM	454,000	48.0609	123.9196	093	TUCKER	109,000	39.1140	79.5605
011	CLARK	162,400	45.7697	122.4990	095	TYLER	66,300	39.4709	80.6877
013	COLUMBIA	220,900	46.3032	117.9165	097	UPSHUR	91,200	38.9046	80.2353
015	COWLITZ	296,300	46.1866	122.6826	099	WAYNE	132,900	38.1535	82.0202
017	DOUGLAS	474,200	47.7277	119.7006	101	WEBSTER	142,700	38.4973	80.4176
019	FERRY	570,300	48.4666	118.5182	103	WETZEL	94,000	39.6124	80.6353
021	FRANKLIN	324,500	46.5366	118.9042	105	WIRT	60,900	39.0265	81.3761
023	GARFIELD	183,600	46.4298	117.5490	107	WOOD	95,300	39.2193	81.5168
025	GRANT	692,800	47.1993	119.0567	109	WYOMING	130,500	37.6090	81.5048
027	GRAYS HARBOR	494,700	47.1600	123.7405					
029	ISLAND	54,900	48.1453	122.5267					
031	JEFFERSON	467,500	47.7629	123.5523					
033	KING	551,200	47.4794	121.7762					
035	KITSAP	101,800	47.5558	122.6507					
037	KITTITAS	600,100	47.1152	120.6822					
039	KLICKITAT	494,200	45.8735	120.7902	001	ADAMS	167,300	43.9711	89.7612
041	LEWIS	627,600	46.5739	122.3978	003	ASHLAND	268,800	46.2660	90.6743
043	LINCOLN	597,300	47.5726	118.4141	005	BARRON	223,800	45.4325	91.6535
045	MASON	249,200	47.3447	123					

Table C.2 (continued)

PIPS_CC	COUNTY	CO_ARPA	LATITUDE	LONGITUDE
099	BRICE	326,300	45.6936	90.3581
101	BACINE	87,300	42.7494	88.0573
103	RICHLAND	151,000	43.3817	90.4270
105	ROCK	186,700	42.6727	89.0757
107	RUSK	234,700	45.4837	91.1272
109	ST CROIX	190,100	45.0423	92.4658
111	SAUK	217,800	43.4289	89.9460
113	SAWYER	326,100	45.8850	91.1392
115	SHAWANC	238,000	44.8372	88.7627
117	SHEROYGAN	130,800	43.7185	87.9420
119	TAYLOR	252,500	45.2155	90.4961
121	TREMPEALEAU	190,400	44.3085	91.3609
123	VERNON	207,700	43.5955	90.8341
125	VILAS	224,600	46.0463	89.5071
127	WALWORTH	144,300	42.6719	88.5457
129	WASHBURN	211,600	45.9020	91.7941
131	WASHINGTON	111,100	41.3716	88.3284
133	WAUKESHA	143,500	43.0193	88.3055
135	WAUPACA	194,500	44.4683	88.9612
137	WAUSHARA	162,400	44.1122	89.2350
139	WINNEBAGO	116,000	44.0699	88.6398
141	WOOD	209,000	44.4555	90.0348

PIPS_S1 = 56 WYOMING

001	ALBANY	1,100,200	41.6543	105.7222
003	BIG HORN	817,700	44.5279	107.9895
005	CAMPBELL	1,231,800	44.2468	105.5381
007	CARBON	2,047,400	41.7022	106.9246
009	CONVERSE	1,108,300	42.9694	105.5009
011	CROOK	746,400	44.5939	104.5658
013	FREMONT	2,381,800	43.0360	108.6192
015	GOSHEN	577,100	42.0862	104.3562
017	HOT SPRINGS	523,700	43.7171	108.4295
019	JOHNSON	1,081,300	44.0339	106.5747
021	LARAMIE	700,100	41.3114	104.6927
023	LINCOLN	1,058,000	42.2499	110.6552
025	NATRONA	1,383,600	42.9650	106.7969
027	NIJBRARA	677,000	43.0557	104.4929
029	PARK	1,802,400	44.4434	109.3058
031	PLATTE	540,300	42.1309	104.9635
033	SHERIDAN	655,800	44.7924	106.8765
035	SUBLETTE	1,256,400	42.7663	109.9093
037	SWEETWATER	2,701,100	41.6567	108.4802
039	TETON	1,036,000	43.7132	110.5703
041	UINTA	540,300	41.2891	110.5524
043	WASHAKIE	585,900	43.9095	107.6788
045	WESTON	623,400	43.8435	104.5556

Table C.3. Subcounty unit (SCU) areas (ha), county areas (ha), percentages of the county, and geographic centroids (degrees) for selected eastern counties

PIPS STATE NUMBER=12 STATE=FLORIDA							
PIPS_CC	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
021	A	COLLIER-A	270,200	519,600	52.0	26.2257	81.5562
021	B	COLLIER-B	249,400	519,600	48.0	26.0087	81.1333
025	A	DADE-A	222,100	528,900	42.0	25.7708	80.5825
025	B	DADE-B	306,800	528,900	58.0	25.4058	80.6247
069	A	LAKE-A	94,600	248,900	38.0	28.9485	81.5788
069	B	LAKE-B	154,300	248,900	62.0	29.6422	81.8506
083	A	MARION-A	198,900	414,400	48.0	29.1677	82.3437
083	B	MARION-B	215,500	414,400	52.0	29.1847	81.9102
097	A	OSCEOLA-A	180,300	340,100	53.0	28.2042	81.2203
097	B	OSCEOLA-B	159,800	340,100	47.0	27.8914	81.1105
099	A	PALM BEACH-A	273,500	524,000	52.0	26.6345	80.6775
099	B	PALM BEACH-B	251,500	524,000	48.0	26.6429	80.2510
105	A	POLK-A	264,700	481,200	55.0	28.0899	81.8559
105	B	POLK-B	216,500	481,200	45.0	27.8157	81.5162

PIPS STATE NUMBER=23 STATE=MAINE							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
003	A	AROSTOOK-A	194,300	1,766,600	11.0	47.1477	69.1752
003	B	AROSTOOK-B	282,700	1,766,600	16.0	46.7597	69.4418
003	C	AROSTOOK-C	265,000	1,766,600	15.0	46.6431	68.7032
003	D	AROSTOOK-D	154,000	1,766,600	9.0	47.0426	68.6453
003	E	AROSTOOK-E	229,700	1,766,600	13.0	47.0519	68.0896
003	F	AROSTOOK-F	229,700	1,766,600	13.0	46.5948	68.0627
003	G	AROSTOOK-G	194,300	1,766,600	11.0	46.1701	68.0709
003	H	AROSTOOK-H	212,000	1,766,600	12.0	45.7920	68.0763
007	A	FRANKLIN-A	132,800	442,600	30.0	45.2479	70.6073
007	B	FRANKLIN-B	163,800	442,600	37.0	44.9379	70.4606
007	C	FRANKLIN-C	146,100	442,600	33.0	44.6485	70.2279
009	A	HANCOCK-A	123,300	397,800	31.0	44.9942	68.2464
009	B	HANCOCK-B	274,500	397,800	69.0	44.4210	68.4722
017	A	OXFORD-A	161,600	538,700	30.0	44.9013	70.9180
017	B	OXFORD-B	145,400	538,700	27.0	44.4148	70.8290
017	C	OXFORD-C	172,400	538,700	32.0	44.2724	70.5029
017	D	OXFORD-D	59,300	538,700	11.0	43.8947	70.8719
019	A	PERNOBSCOT-A	131,700	878,000	15.0	46.1557	68.6217
019	B	PERNOBSCOT-B	166,800	878,000	19.0	45.6980	68.6324
019	C	PERNOBSCOT-C	122,900	878,000	14.0	45.3787	68.5867
019	D	PERNOBSCOT-D	96,600	878,000	11.0	45.4224	68.1871
019	E	PERNOBSCOT-E	122,900	878,000	14.0	45.0850	68.5986
019	F	PERNOBSCOT-F	96,600	878,000	11.0	44.9858	69.0115
019	G	PERNOBSCOT-G	140,500	878,000	16.0	44.7642	68.9090
021	A	PISCATAQUIS-A	151,200	1,008,000	15.0	46.3789	69.3801
021	B	PISCATAQUIS-B	282,200	1,008,000	28.0	46.1190	69.0613
021	C	PISCATAQUIS-C	211,700	1,008,000	21.0	45.7260	69.4471
021	D	PISCATAQUIS-D	121,000	1,008,000	12.0	45.5850	69.0654
021	E	PISCATAQUIS-E	121,000	1,008,000	12.0	45.2260	69.4424
021	F	PISCATAQUIS-F	110,900	1,008,000	11.0	45.2387	69.0009
025	A	SOMERSET-A	100,900	1,008,500	10.0	46.3551	69.9141
025	B	SOMERSET-B	131,100	1,008,500	13.0	46.0832	69.9697
025	C	SOMERSET-C	211,800	1,008,500	21.0	45.7127	70.1002
025	D	SOMERSET-D	191,600	1,008,500	19.0	45.3997	69.9460
025	E	SOMERSET-E	201,700	1,008,500	20.0	45.0369	69.9539
025	F	SOMERSET-F	171,400	1,008,500	17.0	44.7983	69.5715
029	A	WASHINGTON-A	99,200	661,500	15.0	45.5430	67.7488
029	B	WASHINGTON-B	105,000	661,500	16.0	45.2524	67.8723
029	C	WASHINGTON-C	218,300	661,500	33.0	44.7638	67.8048
029	D	WASHINGTON-D	238,100	661,500	36.0	45.0243	67.3987

PIPS STATE NUMBER=26 STATE=MICHIGAN							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
033	A	CHIPPEWA-A	177,100	411,800	43.0	46.3370	85.0321
033	B	CHIPPEWA-B	160,600	411,800	39.0	46.2538	84.5299
033	C	CHIPPEWA-C	74,100	411,800	18.0	45.9747	83.9478
083	A	KEMSENAW-A	72,400	139,300	52.0	47.3372	88.1174
083	B	KEMSENAW-B	66,900	139,300	48.0	47.9718	88.9114
097	A	HACKINAC-A	120,800	262,600	46.0	46.1098	85.5256
097	B	HACKINAC-B	141,800	262,600	54.0	46.0075	84.7298
103	A	HARQUETTE-A	293,600	473,500	62.0	46.5297	87.8148
103	B	HARQUETTE-B	179,900	473,500	38.0	46.2116	87.3720

Table C.3 (continued)

PIPS STATE NUMBER=27 STATE=MINNESOTA							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
001	A	AITKIN-A	251,000	473,500	53.0	46.7755	93.3757
001	B	AITKIN-B	222,500	473,500	47.0	46.3792	93.3271
007	A	BELTRAMI-A	136,400	649,300	21.0	48.2718	95.4180
007	B	BELTRAMI-B	259,700	649,300	40.0	48.1129	94.8190
007	C	BELTRAMI-C	253,200	649,300	39.0	47.6051	94.7885
021	A	CASS-A	346,700	517,500	67.0	47.0985	94.1775
021	B	CASS-B	170,800	517,500	33.0	46.5412	94.5502
031	A	COOK-A	163,900	348,600	47.0	47.9778	90.7326
031	B	COOK-B	184,900	348,600	53.0	47.8331	90.3990
061	A	ITASCA-A	218,200	681,000	32.0	47.5894	94.0776
061	B	ITASCA-B	245,500	681,000	36.0	47.6402	93.4385
061	C	ITASCA-C	218,200	681,000	32.0	47.2036	93.3830
071	A	KOOCHICHING-A	210,600	809,900	26.0	48.4242	94.0447
071	B	KOOCHICHING-B	178,200	809,900	22.0	48.4158	93.3240
071	C	KOOCHICHING-C	202,500	809,900	25.0	48.0375	93.3512
071	D	KOOCHICHING-D	218,700	809,900	27.0	49.0275	94.0300
075	A	LAKE-A	170,900	534,100	32.0	47.9273	91.3599
075	B	LAKE-B	192,300	534,100	36.0	47.6147	91.5454
075	C	LAKE-C	170,900	534,100	32.0	47.3499	91.4031
077	A	LAKE OF WOODS-A	118,800	339,500	35.0	49.1333	94.9313
077	B	LAKE OF WOODS-B	220,700	339,500	65.0	48.6040	94.8216
089	A	MARSHALL-A	250,200	463,400	54.0	48.3493	96.6948
089	B	MARSHALL-B	213,200	463,400	46.0	48.3309	95.9268
111	A	OTTER TAIL-A	208,400	508,200	41.0	46.3768	95.9986
111	B	OTTER TAIL-B	299,800	508,200	59.0	46.4043	95.4131
119	A	POLK-A	260,700	521,400	50.0	47.8762	96.7164
119	B	POLK-B	260,700	521,400	50.0	47.6361	95.9764
135	A	ROSEAU-A	221,400	434,100	51.0	48.7699	96.0699
135	B	ROSEAU-B	212,700	434,100	49.0	48.7919	95.4531
137	A	ST LOUIS-A	268,200	1,577,800	17.0	48.2837	92.7745
137	B	ST LOUIS-B	126,200	1,577,800	8.0	48.1265	92.1117
137	C	ST LOUIS-C	220,900	1,577,800	14.0	47.7429	92.1367
137	D	ST LOUIS-D	236,700	1,577,800	15.0	47.7193	92.7560
137	E	ST LOUIS-E	173,600	1,577,800	11.0	47.2949	92.7328
137	F	ST LOUIS-F	205,100	1,577,800	13.0	46.8907	92.7658
137	G	ST LOUIS-G	236,700	1,577,800	15.0	47.2823	92.1703
137	H	ST LOUIS-H	110,400	1,577,800	7.0	46.9090	92.0582
145	A	STEARNS-A	146,000	347,600	42.0	45.5610	94.8522
145	B	STEARNS-B	201,600	347,600	58.0	45.5204	94.3541

PIPS STATE NUMBER=31 STATE=NEBRASKA							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
031	A	CHERRY-A	278,100	1,545,200	18.0	42.8191	101.7214
031	B	CHERRY-B	185,400	1,545,200	12.0	42.8276	101.1136
031	C	CHERRY-C	278,100	1,545,200	18.0	42.8388	100.4968
031	D	CHERRY-D	293,600	1,545,200	19.0	42.3610	100.4911
031	E	CHERRY-E	262,700	1,545,200	17.0	42.3826	101.1134
031	F	CHERRY-F	247,200	1,545,200	16.0	42.3687	101.7171
041	A	CUSTER-A	195,500	662,500	28.0	41.6228	99.9385
041	B	CUSTER-B	159,000	662,500	24.0	41.6286	99.4034
041	C	CUSTER-C	145,800	662,500	22.0	41.2776	99.4225
041	D	CUSTER-D	172,300	662,500	26.0	41.2663	99.9293
089	A	HOLT-A	174,400	622,900	28.0	42.7251	98.9915
089	B	HOLT-B	130,800	622,900	21.0	42.7165	98.5205
089	C	HOLT-C	162,000	622,900	26.0	42.3650	98.5083
089	D	HOLT-D	155,700	622,900	25.0	42.3571	98.9961
111	A	LINCOLN-A	169,800	653,200	26.0	41.2754	101.0021
111	B	LINCOLN-B	156,900	653,200	24.0	41.2692	100.4696
111	C	LINCOLN-C	163,300	653,200	25.0	40.9028	100.9775
111	D	LINCOLN-D	163,300	653,200	25.0	40.9020	100.4478
161	A	SHERIDAN-A	299,700	637,700	47.0	42.8175	102.3928
161	B	SHERIDAN-B	138,000	637,700	53.0	42.3347	102.3560

PIPS STATE NUMBER=33 STATE=NEW HAMPSHIRE							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
007	A	COOS-A	231,300	471,400	49.0	44.9266	71.2693
007	B	COOS-B	240,400	471,400	51.0	44.4044	71.3292
009	A	GRAFTON-A	219,800	448,600	49.0	44.0670	71.7054
009	B	GRAFTON-B	228,800	448,600	51.0	43.7012	71.8974

Table C.3 (continued)

PIPS STATE NUMBER=36 STATE=NEW YORK							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
031	A	ESSEX-A	280,800	472,200	51.0	44.2324	73.6513
031	B	ESSEX-B	231,400	472,200	49.0	43.8743	73.8292
033	A	FRANKLIN-A	193,100	433,600	33.0	44.8152	74.3803
033	B	FRANKLIN-B	290,500	433,600	67.0	44.4019	74.2782
041	A	HAMILTON-A	211,200	449,400	47.0	43.8449	74.5471
041	B	HAMILTON-B	238,200	449,400	53.0	43.4427	74.5554
043	A	HERKIMER-A	204,400	371,700	55.0	43.6535	74.9751
043	B	HERKIMER-B	167,300	371,700	45.0	43.0771	74.9553
049	A	LEWIS-A	150,500	334,400	45.0	43.9309	75.3256
049	B	LEWIS-B	183,900	334,400	55.0	43.6462	75.5332
089	A	ST LAWRENCE-A	222,200	716,900	31.0	44.6992	74.9364
089	B	ST LAWRENCE-B	258,100	716,900	36.0	44.7414	74.8870
090	C	ST LAWRENCE-C	236,600	716,900	33.0	44.3852	75.4467
PIPS STATE NUMBER=38 STATE=NORTH DAKOTA							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
025	A	DUNN-A	211,500	515,900	41.0	47.5099	102.5409
025	B	DUNN-B	104,400	515,900	59.0	47.1609	102.4870
053	A	MCKENZIE-A	347,100	708,400	49.0	47.0611	102.4442
053	B	MCKENZIE-B	361,300	708,400	51.0	47.5520	103.5460
055	A	MCLEAN-A	246,000	534,800	46.0	47.6812	101.6607
055	B	MCLEAN-B	288,800	534,800	54.0	47.5007	100.9451
091	A	STUTSMAN-A	322,800	586,400	38.0	46.9012	99.2469
091	B	STUTSMAN-B	363,600	586,400	62.0	46.9655	98.7642
105	A	WILLIAMS-A	229,900	534,600	43.0	48.4823	103.2548
105	B	WILLIAMS-B	304,700	534,600	57.0	48.1675	103.4451
PIPS STATE NUMBER=40 STATE=OKLAHOMA							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
007	A	BEAVER-A	236,400	463,600	51.0	36.7575	100.6999
007	B	BEAVER-B	227,200	463,600	49.0	36.7632	100.2149
079	A	LE FLORE-A	173,700	404,000	43.0	35.1838	94.7013
079	B	LE FLORE-B	230,300	404,000	57.0	34.7896	94.7350
089	A	MCCURTAIN-A	223,800	466,200	48.0	34.3530	94.7899
089	B	MCCURTAIN-B	242,400	466,200	52.0	33.9714	94.7807
113	A	OSAGE-A	353,000	588,400	60.0	36.6858	96.6170
113	B	OSAGE-B	235,400	588,400	40.0	36.6342	96.1790
139	A	TEXAS-A	277,700	534,100	52.0	36.7641	101.7522
139	B	TEXAS-B	256,400	534,100	40.0	36.7615	101.2043
PIPS STATE NUMBER=46 STATE=SOUTH DAKOTA							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
019	A	BUTTE-A	285,500	582,700	49.0	44.8926	103.7213
019	B	BUTTE-B	297,200	582,700	51.0	44.8705	103.1399
031	A	CORSON-A	345,400	639,700	54.0	45.6981	101.5450
031	B	CORSON-B	294,300	639,700	46.0	45.6961	100.7310
041	A	DEWEY-A	316,600	608,900	52.0	45.2564	101.0813
041	B	DEWEY-B	292,300	608,900	48.0	44.9899	100.6637
063	A	HARDING-A	354,200	694,600	51.0	45.7578	102.4325
063	B	HARDING-B	340,400	694,600	49.0	45.3876	103.4212
093	A	MEADE-A	359,000	897,400	40.0	44.8093	102.4639
093	B	MEADE-B	305,100	897,400	34.0	44.4008	102.4843
093	C	MEADE-C	233,300	897,400	26.0	44.3897	103.1711
103	A	PENNINGTON-A	237,500	719,800	33.0	44.0108	103.5119
103	B	PENNINGTON-B	482,300	719,800	67.0	44.0190	102.2931
105	A	PERKINS-A	305,200	740,700	52.0	45.7100	102.4448
105	B	PERKINS-B	355,500	740,700	48.0	45.2452	102.4727
137	A	ZIEBACH-A	210,400	513,100	41.0	45.2099	101.6817
137	B	ZIEBACH-B	302,700	513,100	59.0	44.7866	101.5758
PIPS STATE NUMBER=48 STATE=TEXAS							
PIPS_CO	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
043	A	DREWSTER-A	289,200	1,606,800	18.0	30.3491	103.3467
043	B	DREWSTER-B	385,600	1,606,800	24.0	29.9983	102.8306
043	C	DREWSTER-C	321,400	1,606,800	20.0	29.5385	103.1051
043	D	DREWSTER-D	353,500	1,606,800	22.0	29.2987	103.5031
043	E	DREWSTER-E	257,100	1,606,800	16.0	29.9248	103.5352
105	A	CROCKETT-A	188,100	723,600	26.0	30.8747	101.7545
105	B	CROCKETT-B	246,000	723,600	34.0	30.8618	101.2675
105	C	CROCKETT-C	159,200	723,600	22.0	30.4552	101.1597
105	D	CROCKETT-D	130,200	723,600	18.0	30.3882	101.5315
109	A	CULBERSON-A	279,300	997,400	28.0	31.7292	104.5652
109	B	CULBERSON-B	159,600	997,400	16.0	31.7563	104.0883
109	C	CULBERSON-C	389,000	997,400	39.0	31.1941	104.4548

Table C.3 (continued)

PIFS STATE NUMBER=48 STATE=TEXAS							
PIFS_CC	SCU	COUNTY	SCU_AREA	CO_AREA	PERCENT	LATITUDE	LONGITUDE
109	D	CULBERSON-D	169,600	997,400	17.0	30.8625	104.7094
229	A	HUDSPETH-A	424,600	1,179,500	36.0	31.7859	105.3869
229	B	HUDSPETH-B	271,300	1,179,500	23.0	31.4133	105.0392
229	C	HUDSPETH-C	294,900	1,179,500	25.0	30.9929	105.1825
229	D	HUDSPETH-D	188,700	1,179,500	16.0	31.3971	105.6619
243	A	JEFF DAVIS-A	265,100	585,100	46.0	30.6750	104.3227
243	B	JEFF DAVIS-B	316,000	585,100	54.0	30.6402	103.8291
371	A	PECOS-A	356,000	1,227,700	29.0	31.0895	102.8880
371	B	PECOS-B	282,400	1,227,700	23.0	30.7972	102.5531
371	C	PECOS-C	257,800	1,227,700	21.0	30.6363	102.2172
371	D	PECOS-D	331,500	1,227,700	27.0	30.5112	103.0137
377	A	PRESIDIO-A	312,500	1,008,000	31.0	30.1491	104.0466
377	B	PRESIDIO-B	302,400	1,008,000	30.0	29.5954	103.9874
377	C	PRESIDIO-C	393,100	1,008,000	39.0	30.0834	104.4834
389	A	REEVES-A	164,800	675,500	24.0	31.4241	103.7933
389	B	REEVES-B	310,700	675,500	46.0	31.1015	103.4540
443	A	TARRANT-A	266,300	619,300	43.0	30.4434	101.9837
443	B	TARRANT-B	353,000	619,300	57.0	30.0360	102.0719
465	A	VAL VERDE-A	335,800	939,400	40.0	29.9707	101.4386
465	B	VAL VERDE-B	260,200	939,400	31.0	30.0397	100.9613
465	C	VAL VERDE-C	243,400	939,400	29.0	29.6051	100.8800
479	A	WEBB-A	291,100	956,300	34.0	28.0045	99.6900
479	B	WEBB-B	565,200	956,300	66.0	27.6773	99.1269
PIFS STATE NUMBER=55 STATE=WISCONSIN							
PIFS_CO	SCU	COUNTY	SCU_ARPA	CO_ARPA	PERCENT	LATITUDE	LONGITUDE
003	A	ASHLAND-A	78,000	268,800	29.0	46.8139	90.6683
003	B	ASHLAND-B	190,800	268,800	71.0	46.1667	90.7179
007	A	BAYFIELD-A	155,000	378,100	41.0	46.7274	91.1435
007	B	BAYFIELD-B	223,100	378,100	59.0	46.3737	91.2659
073	A	MARATHON-A	209,500	410,800	51.0	44.9884	90.0329
073	B	MARATHON-B	201,300	410,800	49.0	44.9000	89.5140
075	A	MARINETTE-A	217,700	356,900	61.0	45.5436	88.1328
075	B	MARINETTE-B	139,200	356,900	39.0	45.1900	87.9005

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145. Duane F. Marble, Geographic Information Systems Laboratory, State University of New York at Buffalo, Amherst, NY 14260
146. William T. Mason, Jr., Eastern Energy and Land Use Team, U.S. Fish and Wildlife Service, Route 3, Box 44 Leetown, Kearneysville, WV 25430
- 147-151. Ron Matheny, Regional Impacts Division, Office of Environmental Impacts, Germantown E201, Department of Energy, Washington, DC 20545
152. Helen McCammon, Office of Health and Environmental Research, Department of Energy, Germantown, MD 20767
153. Susan McCue, Ketrion, Inc., 17000 N. Moore St., Rosslyn Center, Arlington, VA 22209
154. Deane Merrill, Computer Science and Applied Math Department, 1 Cyclotron Road, Lawrence Berkeley Laboratory, University of California, Berkeley, CA 94720
155. Laurance J. Milask, Information and Scientific Applications Division, Sigma Data Computing Corp., Suite 207, 2021 K St., NW, Washington, DC 20006
156. David Moody, EGS-Mail Stop 409, Geological Survey, National Center, Reston, VA 22092
157. John Nagy, Biomedical and Environmental Assessment Division, Bldg. 475, Brookhaven National Laboratory, Upton, NY 11973
158. A. M. Neuner, Association of Systematics Collections, Museum of Natural History, University of Kansas, Lawrence, KS 66045
159. William S. Osburn, Office of Health and Environmental Research, Germantown E201, Department of Energy, Washington, DC 20545
160. Daniel Ries, Computation Dept. L-316, Lawrence Livermore Laboratory, University of California, Livermore, CA 94550
161. T. H. Ripley, Division of Forestry, Fisheries and Wildlife Development, Tennessee Valley Authority, Norris, TN 37828
162. Paul G. Risser, Department of Botany and Microbiology, University of Oklahoma at Norman, Norman, OK 73019
163. Charles A. Roswell, Department of Geography, University of Maryland, College Park, MD 20742
164. Keith O. Schmude, Soil Conservation Service, P.O. Box 2890, Washington, DC 20013

165. R. Kent Schrieber, National Power Plant Team, U.S. Fish and Wildlife Service, 2929 Plymouth Road, Ann Arbor, MI 48105
166. David Sharpe, Geography Dept., Southern Illinois University, Carbondale, IL 62901
167. Roger Shull, Environmental Impacts Division, Office of Technical Impacts, Germantown E201, Department of Energy, Washington, DC 20545
168. Caby Smith, Science Information Division, National Park Service, Washington, DC 20240
169. Ethan T. Smith, Resource Planning and Analysis Office, EGS-Mail Stop 750, National Center, Geological Survey, Reston, VA 22092
170. Ann Stroup, MS 603, Los Alamos Scientific Laboratory, University of California, P.O. Box 1663, Los Alamos, NM 87545
171. John Suich, Management Services Section, Savannah River Laboratory, Aiken, SC 29801
172. Susan Sutter, Nashville District Corps of Engineers, P.O. Box 1070, Nashville, TN 37202
173. Eric Teicholz, Laboratory for Computer Graphics and Spatial Analysis, Harvard University, 520 Gund Hall, 48 Quincy St., Cambridge, MA 02138
174. John Thomas, Ecology Department, Box 999, Pacific Northwest Laboratories, Richland, WA 99352
175. Maurice Warner, 6652 I Bldg. 600 Area, Box 999, Pacific Northwest Laboratories, Richland, WA 99352
176. Richard H. Waring, Department of Forest Science, Oregon State University, Corvallis, OR 97331
177. Charles Watson, Ecology Department, Box 999, Pacific Northwest Laboratories, Richland, WA 99352
178. Thompson Webb, III, Department of Geological Sciences, Brown University, Providence, RI 02912
179. Helmut Wedow, Science Applications, Inc., Jackson Plaza, Oak Ridge, TN 37830
180. Al Wehe, Mail Drop 12, Energy Strategies Branch, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711
181. William O. Wilen, National Wetland Inventory, U.S. Fish and Wildlife Service, Suite 217, Dade Bldg., 9620 Executive Center Drive, St. Petersburg, FL 33702
182. John H. Wilson, Jr., Scientific and Technical Information Branch, National Aeronautics and Space Administration, Reporters Bldg., Room 825, 7th and D Street NW, Washington, DC 20546
183. John Wilson, Texas Natural Resources Information System, P.O. Box 13087, Austin, TX 78711
184. Richard E. Witmer, Geography Program, EGS-Mail Stop 710, National Center, Geological Survey, Reston, VA 22092
185. Carl E. Youngmann, Cartography Laboratory, University of Washington, Geography DP-10, Seattle, WA 98195
186. Office of Assistant Manager for Energy Research and Development, DOE-ORO
- 187-213. Technical Information Center, Oak Ridge, TN 37830

READER'S COMMENTS

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Richard J. Olson
Bldg 1505, Environmental Sciences Division
Box X, Oak Ridge National Laboratory
Oak Ridge, TN 37830

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