SRS 1980

1980 Kansas Land Cover Enumerator Manual

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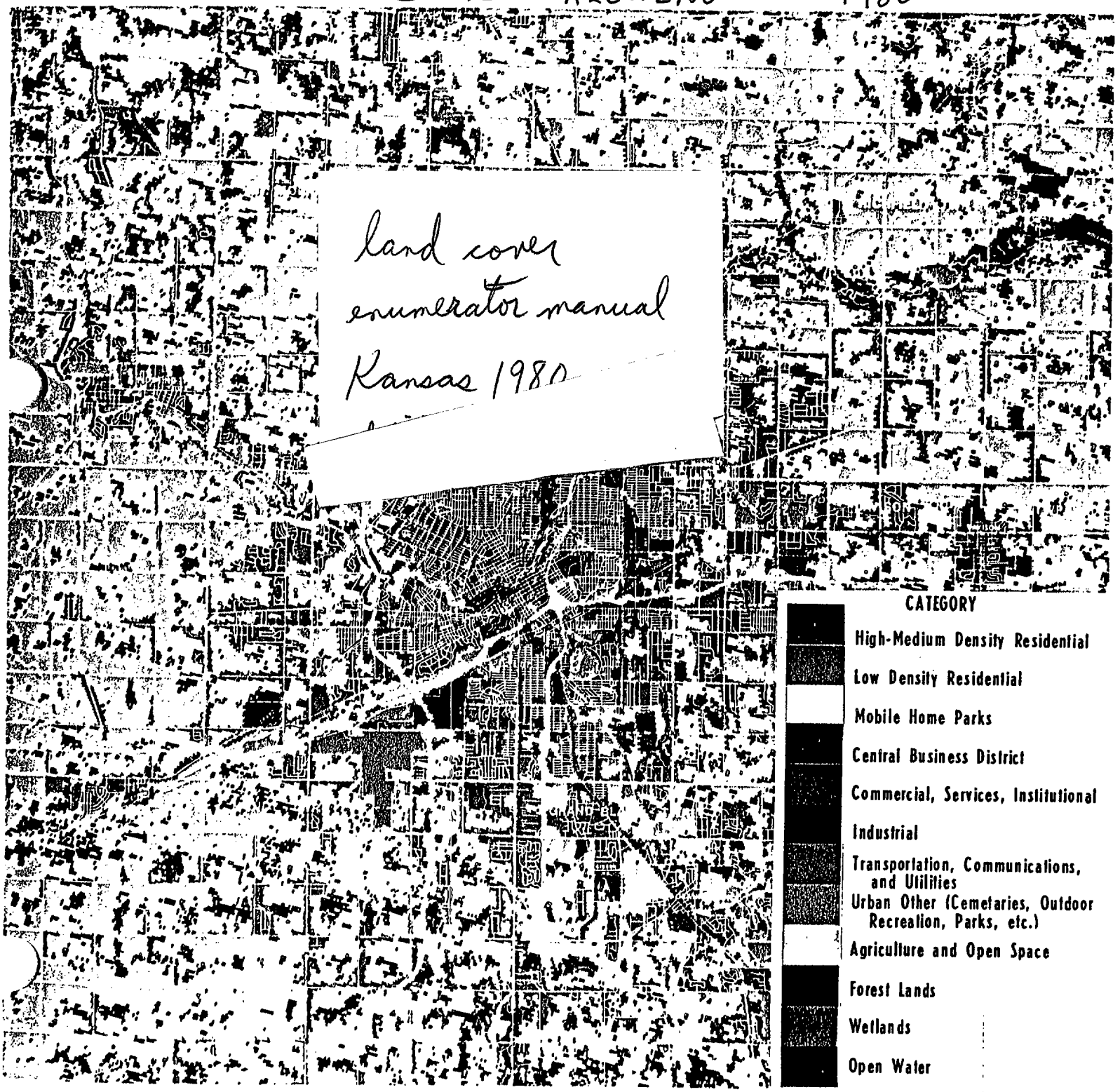
land cover enumerator manual Kansas 1980



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I. GENERAL BACKGROUND AND PURPOSE

A joint research program between USDA, NASA, NOAA, USDI and AID has been established to investigate the use of remote sensing to meet some of the information needs of agriculture in the 1980's. This program is called AgRISTARS (Agriculture and Resource Inventory Surveys Through Aerospace Remote Sensing).

AgRISTARS encompasses eight major areas one of which is domestic crops and land cover information needs. In 1980, major crop estimates will be done in Iowa and Kansas using both satellite and ground data. In addition, this program calls for assessing current land cover technology (aside from major crops) and identifying possible uses of LANDSAT data in land cover estimation and mapping. The Kansas Land Cover project will provide an opportunity to address this mandate by researching potential sources of land cover estimation.

The land cover study will serve as an extension of the June Enumerative Survey (JES). Several additional replications in strata 31, 32, 33, 40, and 50, of previously rotated out segments (76 - 79), will be used. The JES does not sample these strata heavily since they are basically non-agricultural and contribute very little to major crop estimates. However, for land cover estimation, sampling with greater intensity in these strata is needed.

This research will take four additional replications and determine if they provide the information necessary for making land cover estimates with reasonable sampling errors. Ultimately, it is possible that the JES, with added replications in the non-ag strata, would adequately estimate both crops and land cover area estimates.

III. DEFINITIONS

A. General Instructions

An attempt has been made to include sufficient detail in the definitions presented here to provide a general understanding of what is included in each category. This section should be thoroughly read before beginning work and then used as a reference during the survey.

B. Segments and Fields

SEGMENTS are outlined in RED on county highway maps and aerial photos. Segments generally range in size from one-half square mile to three square miles. As the intensity of agriculture increases the segment size will tend to decrease to one-half square mile.

A UNIT is a continuous area of land at least one acre in size inside a segment which is devoted to one land cover type. The land cover classes are described in detail under definitions. A unit may extend beyond the ownership or operating boundaries of a typical farm but must remain within the segment. Each unit is to be outlined and numbered in BLUE.

C. Urban or Build-Up Land

Urban or Build-Up Land is comprised of areas of intensive use with much of the land covered by structures. Included in this category are cities, towns, villages, strip developments along highways, transportation, power, and communication facilities, and areas such as those occupied by mills, shopping centers, industrial and commercial complexes, and institutions that may, in some instances, be isolated from urban areas.

As development progresses, land having less intensive or non-conforming use may be located in the midst of Urban or Build-up areas and will generally be included in the category. Agricultural land, forest, or water areas on the fringe of Urban or Build-up areas will not be included except where they are surrounded and dominated by urban development. The Urban or Build-up category takes precedence over others when the criteria for more than one category are met. For example, residential areas that have sufficient tree cover to meet Forest Land criteria will be placed in the Residential category.

Commercial and Services

Commercial areas are those used predominantly for the sale of products and services. They are often abutted by residential, agricultural, or other contrasting covers which help define them. Components of the Commercial and Services category are urban central business districts; shopping centers, usually in suburban and outlying areas; commercial strip developments along major highways and access routes to cities; junkyards; resorts; and so forth. The main buildings, secondary structures, and areas supporting the basic cover include office buildings, warehouses, driveways, sheds, parking lots, landscaped areas, and waste disposal areas.

Commercial areas may include some non-commercial uses too small to be separated out. Central business districts commonly include some institutions, such as churches and schools, and commercial strip developments may include some residential units. There is usually a major visible difference in the form of parking facilities, arrangements for traffic flow, and the general association of buildings and facilities. The intensively developed sections of recreation areas would be included in this category, but extensive parts of golf courses, riding areas, ski areas, and so forth would be included in the primarily vegetative cover category.

Institutional land uses, such as the various educational, religious, health, correctional, and military facilities are also components of this category. All buildings, grounds, and parking lots that comprise the facility are included within the institutional unit, but areas not specifically related to the purpose of the institution should be placed in the appropriate category. Auxiliary land uses, particularly residential, commercial and services, and other supporting land uses on a military base would be included in this category, but agricultural areas not specifically associated with correctional, educational, or religious institutions are placed in the appropriate agricultural category. Small institutional units, as for example, churches and some secondary and elementary schools, will usually be included in the Residential class.

Communications and utilities areas such as those involved in processing, treatment, and transportation of water, gas, oil, and electricity and areas used for airwave communications are also included in this category. Pumping stations, electric substations, and areas used for radio, or televeision antennas are the major types. Small facilities, or those associated with an industrial or commercial land use, are included within the larger category with which they are associated. Long-distance gas, oil, electric, telephone, water, or other transmission facilities rarely constitute the dominant use of the lands with which they are associated.

Industrial and Commercial Complexes

The Industrial and Commercial Complexes category includes those industrial and commercial land uses that typically occur together or in close functional proximity. Such areas commonly are labeled with terminology such as "Industrial Park," but since functions such as warehousing, wholesaling, and occasionally retailing may be found in the same structures or nearby, the most inclusive category title has been adopted.

D. Agricultural Land

Agricultural Land may be defined broadly as land used primarily for production of food and fiber. Distinguishing between Agricultural and Urban or Build-up Lands ordinarily should be possible on the basis of urban-activity indicators and the associated concentration of population. The number of building complexes is smaller and the density of the road and highway network is much lower in Agricultural Land than in Urban or Build-up Land. Some urban land uses, such as parks and large cemeteries, however, may be mistaken for Agricultural Land, especially when they occur on the periphery of the urban areas.

The interface of Agricultural Land with other categories of land cover may sometimes be a transition zone in which there is an intermixture of land covers.

Determining the major land cover is necessary in order to appropriately classify the land area. The Agricultural land covers are: Cropland; Orchards, Groves, Vineyards, Nurseries, and Ornamental Horticultural Areas; Confined Feeding Operations; Pasture; and Other Agricultural Land.

20. Cropland

The several components of Cropland now used for agricultural statistics include: cropland planted and harvested; cultivated summer fallow and idle cropland; land on which crop failure occurs; and cropland in soil-improvement grasses and legumes during the current crop year but not pasture.

Summarizing the basic difference between Cropland and Pasture: Cropland will have a rotational planting scheme from one year to the next, possibly changing crops and/or summer fallowing between years, while Pasture is planted such that the crop use, probably grazing, will remain basically unchanged from year to year.

It is now important to make a clear distinction between Pasture, Rangeland, Forest Land, and Cropland, since each could have similar uses. Grasses, legumes, and other forage crops which were solely planted or were interplanted with natural covers for the purpose of grazing are classified as Pasture. Pasture also includes wet land areas which are being grazed. Natural herbivory (Rangeland) altered by fertilizer, water, or other management practices is classified as Pasture and no longer Rangeland. If the dominant cover is forest growth and most activities are forest related, this land cover will be classified as Forest Land even though grazing may be present. Cropland in rotation pasture and all other cropland primarily used for grazing should be classified as Pasture. Further distinctions can be determined by reading the definition of each specific cover classification.

24. Other Agricultural Land

Other land uses typically associated with the first three categories of Agricultural Land are the principal components of the Other Agricultural Land category. They include farmsteads, holding areas for livestock such as corrals, breeding and training facilities on horse farms, farm lanes and roads, ditches and canals, small farm ponds, and similar uses. Such occurrences generally are quite small in area.

E. Rangeland

30. All Rangeland

Rangeland historically has been defined as land where the potential vegetation is predominatly grasses, grasslike plants, forbs, or shrubs and where natural herbivory was an important influence in its precivilization state. Management techniques which associate soil, water, and forage-vegetation resources are more suitable for rangeland management than are practices generally used in managing pastureland. Some rangelands have been or may be seeded to introduced or domesticated plant species. Most of the rangelands in the United States are in the western range, the area to the west of an irregular north-south line that cuts through the Dakotas, Nebraska, Kansas, Oklahoma, and Texas. Rangelands also are found in certain places historically not included in the western range, such as the Flint Hills, the Southeastern States, and Alaska. The historical connotation of Rangeland is expanded in this classification to include those areas in the Eastern States which commonly are called brushland.

Mixed Rangeland

When more than one-third intermixture of either herbaceious or shrub and brush rangeland species occurs in a specific area, it is classified as Mixed Rangeland. Where the intermixed land cover or covers total less than one-third of the specific area, the category appropriate to the dominant type of Rangeland is applied.

F. Forest Land

40. All Forest Land

Forest Lands have a tree-crown areal density (crown closure percentage) of 10 percent or more, are stocked with trees capable of producing timber or other wood products, and exert an influence on the climate or water regime. Forest Land generally can be identified rather easily, although the boundary between it and other categories of land may be difficult to delineate precisely.

Lands from which trees have been removed to less than 10 percent crown closure but which have not been developed for other uses also are included. For example, lands on which there are rotation cycles of clearcutting and blockplanting are part of Forest Land. On such lands, when trees reach marketable size, which for pulpwood in the Southeastern United States may occur in 2 to 3 decades, there will be large areas that have little or no visible forest growth. The pattern can sometimes be identified by the presense of cutting operations in the midst of a large expanse of forest. Unless there is evidence of other use, such areas of little or no forest growth should be included in the Forest Land category. Forest Land which is grazed extensively, as in the Southeastern States, would be included in this category because the dominant cover is forest and the dominant activities are forest related. Lands that meet the requirements for Forest Land and also for an Urban or Built-up category should be placed in the latter category.

Forest Land is divided into three categories: Deciduous, Evergreen, and Mixed. To differentiate these three categories effectively, sequential data, or at least data acquired during the period when deciduous trees are bare, generally will be necessary.

Deciduous Forest Land

Deciduous Forest Land includes all forested areas having a predominance of trees that lose their leaves at the end of the frost-free season or at the beginning of a dry season. In most parts of the United States, these would be the hardwoods such as oak, maple, or hickory and the "soft" hardwoods, such as aspen. Tropical hardwoods are included in the Evergreen Forest Land category.

Lakes

Lakes are nonflowing, naturally enclosed bodies of water, including regulated natural lakes but excluding reserviors. Islands that are too small to delineate should be included in the water area.

Reservoirs

Reservoirs are artificial impoundments of water used for irrigation, flood control, municipal water supplies, recreation, hydroelectric power generation, and so forth. Dams, levees, other water-control structures, or the excavation itself usually will be evident to aid in the identification, although the water-control structures themselves and spillways are included in the Other Urban or Build-up Land category.

In most cases, reservoirs serve multiple purposes and may include all of the land use functions just mentioned. In certain cases like the Tennessee River, the entire length of the trunk stream is impounded. In such a situation, the stream exists as a stairstep series of impoundments with waterway, flood control, recreation, and power-generation functions but is still considered a reservoir, since the additional functions are the result of impoundment.

Bays and Estuaries

Bays and Estuaries are inlets or arms of the sea that extend inland. They are included in this system only when they are considered to be inland water and therefore are included within the total area of the United States. Those bay and estuarine water areas classified as "Other than inland water" are not included within the total area of the United States. These "other than inland water" areas are adjacent to certain States and fall under their jurisdiction. They occur in primary bodies of water such as the Atlantic Ocean coastal waters. Chesapeake Bay, Delaware Bay, Long Island Sound, Gulf of Mexico, Pacific Ocean coastal waters, Puget Sound, the Straits of Georgia and Juan de Fuca, Gulf of Alaska, Bering Sea, Arctic Ocean coastal waters, and the Great Lakes. Only those bays and estuaries classified as inland water are included in this category. No category is applied to offshore waters beyond the limits of Bays and Estuaries.

H. Barren Land

60. All Barren Land

Barren Land is land of limited ability to support life and in which less than one-third of the area has vegetation or other cover. In general, it is an area of thin soil, sand, or rocks. Vegetation, if present, is more widely spaced and scrubby than that in the Shrub and Bush category of

Strip Mines, Quarries, and Gravel Pits

Those extractive mining activities that have significant surface expression are included in this category. Vegetative cover and overburden are removed to expose such deposits as coal, iron ore, limestone, and copper. Quarrying of building and decorative stone and recovery of sand and gravel deposits also result in large open surface pits. Current mining activity is not always distinguishable, and inactive, unreclaimed, and active strip mines, quarries, borrow pits, and gravel pits are included in this category until other cover or use has been established, after which the land would be classified in accordance with the resulting use or cover. Unused pits or quarries that have been flooded, however, are placed in the appropriate Water category.

Transitional Areas

The Transitional Areas category is intended for those areas which are in transition from one land cover to another. All that actually can be determined in these situations is that a transition is in progress, and inference about past or future use should be avoided. This transitional phase occurs when, for example, forest lands are cleared for agriculture, wetlands are drained for development, or when any type of land use ceases as areas become temporarily bare as construction is planned for such future uses as residences, shopping centers, industrial sites, or suburban and rural residential subdivisions. Land being altered by filling, such as occurs in spoil dumps or sanitary landfills, also is indicative of this transitional phase.

Mixed Barren Land

The Mixed Barren Land is used when a mixture of Barren Land features occurs and the dominant land use occupies less than two-thirds of the area. Such a situation arises, for example, in a desert region where combinations of salt flats, areal, bare rock, surface extraction, and transitional activities could occur in close proximity and in areal extent too small for each to be included at mapping scale. Where more than one-third intermixture of another cover occurs in a specific area, it is classified as Mixed Barren Land. Where the intermixed land totals less than one-third of the specific area, the category appropriate to the dominant type of Barren Land is applied.

V. ENUMERATION PROCEDURES

The following instruction oulines the materials to be used, procedures for enumerating, guidelines for completing questionaires and instructions for turning in completed work. This section should be studied carefully before beginning work and used as a reference during the survey period.

A. Organize Your Materials

(1) State highway map.
(2) County highway maps showing segment locations in red.
(3) Aerial photographs with segment boundaries outlined in red.
(4) Masonite board or a substitute method to hold photos (including large clips or rubber bands for holding photo to the board).
(5) Clipboard to hold questionnaire or a large clip to hold questionnaire to photo board.
(6) A small ruler or scale for measuring distances on the photo and map.
(7) Pencils--blue for marking on photo and black lead for recording information on questionnaires.
(8) Survey Materials:
  a. A large envelope with the State Statistician's address on the front and the segment number and county recorded on the back.
  b. Questionnaire.
(9) An envelope containing extra questionaires to be added to the segment envelope as needed.
(10) An envelope containing all necessary administrative forms.
  a. Several copies of Time and Mileage Certificate-201's and Travel Expenses Sheet ADM-009.
  b. Envelopes for mailing in the 201 and other materials.
(11) Photo box with return postage sticker to SSO.
(12) Enumerator Handbook
(13) NASDA Identification Card.

B. Plan Your Course of Action

Before beginning your unit enumeration, mark on a State highway map the location of your home and the location of all segments. Use this map to plan your daily route of travel. Minimize duplication of mileage so you make best use of your time.

C. Enumeration Instructions

Step 1: Using the state highway map, county map, and aerial photo, drive to the segment. Upon arrival at segment, orient your county highway map and photo with ground features. Identify your location on the photo from landmarks such as roads, ditches, streams, and buildings.

Step 5: Transfer the unit numbers from the photo to column one on the questionnaire. The appropriate land cover type code for each respective unit should then be placed in column two. Comments which clarify or provide additional information to the classification should be recorded. This includes problems encountered identifying and classifying a unit according to the established class definitions.

Step 6: Verify that each unit on photo is correctly recorded on the questionnaire. At this point all land area within segment should be accounted for under its respective land cover type.

Step 7: Return segment photo to photo mailing box. Questionnaire should be returned to SSO in pre-addressed envelope.

Step 8: Locate next segment and proceed as before. If questions arise, call your supervisor.

Step 9: After a thorough review has been made for content, clarity and accountability, mail all segment questionnaires and photos to SSO.