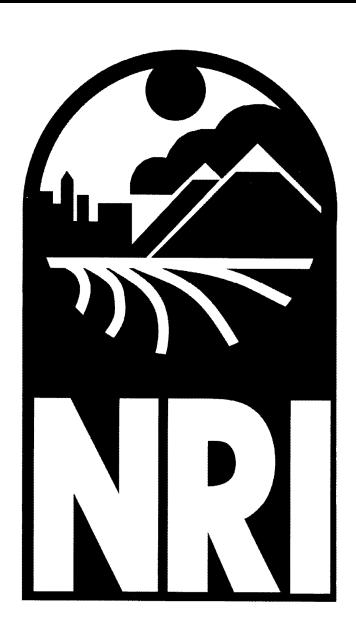


low a State University Center for Survey Statistics and Methodology

# Alaska Summary Report 2007 National Resources Inventory





#### December 2012

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#### **Contents**

Introduction	1
Background	1
NRI Sur wey Process	1
Use and Interpretation of 2007 NRI Data	4
Availability of the Data	6
Metric Conversion	6
Overview of Survey Findings	6
Glossary of Selected Terms	12
Explanation of the Tables	20
Table 1 - Surface area of non-Federal and Federal land and water areas in 2007, by Reporting Area	21
Table 2 A - Land cover/use of Federal and non-Federal rural land in 2007, by Reporting Area	22
Table 2 B - Land cover/use of Federal and non-Federal rural land in 2007	23
Table 3 - Cropland use on non-Federal land in 2007	23
Table 4 - Land cover/use on non-Federal rural land in 2007, by land capability class	24
Table 12 and 13 - Estimated average annual sheet and rill and winderosion on non-Federal rural land in 2007	24
Table 16 - Wetlands and deepwater habitats on water areas and Federal and non-Federal land in 2007, by Reporting Area	25
Table 17 - Palustrine and Estuarine wetlands on water areas and Federal and Non-Federal land in 2007, by land cover/use and Reporting Area	26
Table 21 - Scrub Shrub subcategory on Federal and non-Federal land in 2007, by Reporting Area	27
Table 22 - Alaska Forest Type Group on Federal and Non-Federal forest land in 2007, by Reporting Area	30

\*Table numbering follows that of companion 2007 NRI Summary Reports for consistency. Tables not applicable to this inaugural release of Alaska data are intentionally omitted since they involve changes over time or prime farmland. Future reports of Alaska NRI data will include trending data over time.



# Alaska Summary Report 2007 National Resources Inventory

#### Introduction

This report presents summary results from the 2007 National Resources Inventory (NRI) for Alaska. This is the inaugural release of data for Alaska, which is being incorporated into the standard periodic NRI reporting system. This report is a companion to the *Summary Report*, 2007 National Resources Inventory (referred to as the 2007 NRI Summary Report) for the 48 coterminous States and supplemental reports for Hawaii and the Caribbean Area (Puerto Rico and the U.S. Virgin Islands). All released NRI materials are available on the NRI Web site at <a href="http://www.nrcs.usda.gov/technical/nri/">http://www.nrcs.usda.gov/technical/nri/</a> and on the Soil and Water Resources Conservation Act (RCA) Interactive Data Website at <a href="http://soils.usda.gov/survey/rca/viewer/">http://soils.usda.gov/survey/rca/viewer/</a>.

The data in this report are part of a baseline for Alaska that will allow for future reporting of natural resources trends at regular NRI intervals. The establishment of Alaska as a regular part of the NRI survey program has been a long and challenging effort due to cost and special sample design issues, imagery acquisition, data collection, and statistical estimation procedures as described in later sections of this report.

The 2007 NRI is the latest in a series of natural resource inventories conducted by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). It provides updated information on the status, condition, and trends of land, soil, water, and related resources on the Nation's non-Federal lands. Non-Federal lands include privately owned lands, tribal and trust lands, and lands controlled by State and local governments.

The 2007 NRI provides nationally consistent data for the nation except Alaska for the 25-year period 1982–2007. The initial baseline inventory for Alaska will allow for trending in the future. The 2007 NRI Summary Report containing data for the rest of the Nation is available at the web sites listed in the first paragraph. Basic NRI data themes include changes and trends in land cover/use, irrigation, land capability class

and subclass, prime farmland, soil erosion, and wetlands.

The NRI survey program is scientifically based, employing recognized statistical sampling methods. The 2007 NRI was conducted by NRCS in cooperation with Iowa State University's Center for Survey Statistics and Methodology (ISU-CSSM), which serves as the NRI Statistical Unit providing statistical and survey methods support for the NRI survey program.

#### **Background**

The results of the 1934 National Erosion Reconnaissance Survey, the first formal study of erosion in the United States, were instrumental in the passage of the Soil Conservation Act of 1935. That Act established the Soil Conservation Service (SCS), NRCS's predecessor agency. Since its founding, SCS/NRCS has conducted periodic inventories of the Nation's natural resources.

Numerous legislative acts have mandated that NRCS collect natural resources data. The Rural Development Act of 1972 directed the Secretary of Agriculture to implement a land inventory and monitoring program and to issue a report on the conditions and trends of soil, water, and related resources at intervals not exceeding 5 years. The Soil and Water Resources Conservation Act (RCA) of 1977 and other supporting legislation augmented the statutory mandate for periodic assessment of the Nation's natural resources. To fulfill this requirement, the NRI program was developed to provide critical information regarding natural resources and to supplement the NRCS Soil Survey Program. Further background information is included in the 2007 NRI Summary Report.

#### **NRI Survey Process**

The process for the 48 coterminous States, Hawaii and the Caribbean Area is described in the 2007 NRI Summary Report. Initial efforts to incorporate Alaska into the national NRI data collection began in 2004.

#### Alaska Summary Report 2007 National Resources Inventory December 2012



#### Sample design

The unique nature of Alaska presented several challenges for sample design. In addition to being the largest State (388 million acres), Alaska has an extensive and irregular coastline, numerous islands, and a limited road network. The design recognizes that onsite data collection will be essentially impossible in some areas and very expensive in most other areas. The design also takes into account the cost structure for obtaining imagery - sampling units are clustered to maximize information per unit of cost. A primary intent of the new design was to develop an Alaska sample to be consistent with data collection and statistical processing procedures developed for other states in the Annual NRI; sampling units selected for Alaska during the 1980's and 1990's had been developed by various strategies and observation units were not uniform.

For sample selection, the State was divided into four sampling categories: high-intensity, medium-intensity, low-intensity and agricultural. The high-intensity regions are areas with relatively high population density or anticipated development. Medium-intensity sampling regions are areas adjacent to the high-intensity regions. The agricultural strata include areas with current or anticipated agricultural activity. The low-intensity sampling regions account for 98 percent of the state's area, typically including areas that are remote with little or no road access. The basic sampling rates are highest in the high intensity regions and lowest in the low intensity regions, but actual sampling rates vary across the 14 NRI Reporting Areas (See Figure 1) depending upon size of the reporting area and the nature of activity in the area.

A total of 92 regions were identified to group the high, medium and agricultural intensity sampling categories (See Figure 2). Many of these were defined as the area surrounding a village. The three largest regions are the corridor regions of Anchorage, Fairbanks, and Kenai are between 1.6 million and 680,000 acres in size; the next largest high intensity regions, Bethel and Juneau, are around 150,000 acres in size.

The creation of a digital geographic database was a considerable part of the sample selection effort. A first component of this database was the establishment of the state boundary and the sampling universe. The

sampling universe is the area within the U.S. Geological Survey coastline with minor deviations to include some bays and waterways. A second component of this database was establishment of the boundaries for the 14 NRI Reporting Areas. A third component was the definition of the Public Land Survey System (PLSS) townships and sections, using a computer program from the State of Alaska; this township-section grid served as the basis for defining possible sampling and observation units as is the case for other PLSS states. A fourth component of the database was establishing the boundaries for the high-, medium-, and low- intensity sampling regions; this included delineation of the 92 villages and population areas.

The basic observation unit for the sample is a quarter section of 160 acres, called a segment. In the medium and high-intensity sampling areas, a sample of segments is selected directly. In the low-intensity area, a sample of quarter townships is first selected and then a sample of nine segments is selected from the 36 segments in the quarter township. This clustering of segments in the low-intensity sampling area was used to reduce unit cost of NRI observations; quarter townships are convenient "footprints" for 1-meter satellite data.

The segment sample is a probability sample, with the selection procedure designed so that the sample is spread out over the study area. As a general rule, each segment contains 3samplepoints that are spread out within the segments. The 14 reporting areas contain a total of about 17,500 sample segments (quarter sections).

Conducting the 2007 A laska survey hinged on acquisition of suitable imagery and processing of diverse imagery sources to meet NRI standards. Strenuous efforts over many years by Alaska and national staff have assembled multispectral digital imagery from satellite sensors and film-based aerial photography from fixed-wing aircraft. Due to problems with imagery sources, sensors, costs, and flying seasons and conditions in Alaska, large numbers of segments had no suitable imagery. Further, significant delays projected for imagery delivery indicated that a large portion of the original sample, primarily in low-intensity areas, would not have imagery soon enough to

#### Alaska Summary Report 2007 National Resources Inventory December 2012



meet survey goals. Subsampling was a necessary response; the segment sample was reduced to just over 10,000 segments. Subsampling significantly reduced the number of segments in the Bush but most or all original samples in areas of high interest, including villages and corridors, were retained.

#### Data collection

Data collection for Alaska required some adjustments to the standard data gathering process for the rest of the Nation (see 2007 NRI Summary Report).

Acquisition of imagery suitable for photo interpretation of NRI data was challenging. Preparing the imagery for photo interpretation in the NRI survey system proved to be equally challenging; for example, image quality, differing image scales, learning about the ecology of an arctic landscape and how to interpret this on different kinds and new sources of imagery. Imagery sources ranged in dates from 2004 to 2010 and included both satellite and conventional airborne acquisitions.

Some acquisitions delivered high quality 9x9 natural color film positives and orthoimages that were processed per standard procedures. An additional library of digital imagery, primarily from satellite sensors, was assembled. New geospatial and image processing algorithms were developed. The complexity of the properties of the satellite imagery was unexpected and unprecedented in the NRI survey. In addition, major hurdles were encountered in the multistage processing of heterogeneous sources of multispectral imagery for storage and survey software applications.

National procedures and Alaska supplements to national protocols were examined in light of imagery considerations and a goal of augmenting national data collection protocols was established so that resource conditions of specific interest in Alaska could be observed as part of the NRI survey (e.g., tall, low and mid, dwarf scrub shrub, braided rivers, forest types, and additional resource concerns). Special procedures and supplements to national protocols for data collection and statistical estimation were developed and implemented.

Local survey data collection including information on cropping rotations and tillage was performed on cropland, hayland, and managed grassland. Auxiliary State level data were collected for sheet and rill erosion, wind erosion, and cropping systems.

A primary business requirement for the Alaska NRI is that standard NRI procedures and protocols will be utilized as the foundation for the Alaska survey. Some accommodations were needed because of the unique nature of Alaska, but these accommodations were done in a way so that data can be collected, processed, and analyzed in the same manner as data from the other 49 states, vet still offer flexibility to produce additional results needed to meet Alaska's unique needs. In contrast to standard NRI procedures, a much higher portion of local data elements were remotely interpreted from imagery and very few segments were actually visited on the ground. Slope Percent/Slope Length were verified only on agricultural segments using site visits conducted in the summer of 2007. Photo interpreted data were more heavily relied upon for the collection of data where ancillary data sources could be used as reference material in the Continental U.S. (CONUS) surveys. For example, in Alaska detailed soil surveys and wetlands inventories were not complete, National Hydrology Datasets are not as detailed as they are in CONUS, and typographical maps were more likely to be outdated.

#### Features of the NRI system

The NRI, in general, is unique because of established linkages to the NRCS Soil Survey Program. Identifying soil occurrences and patterns and utilizing this knowledge to provide technical assistance in the development of conservation plans for landowners are primary agency functions. The NRI data gathering process normally relies heavily upon information contained in the NRCS Soil Survey Database. Information about specific properties and characteristics of the soil and surrounding landscapes is utilized to develop NRI data elements and interpretations. In addition, analysis and assessments utilizing NRI data can take advantage of the many soil interpretations and characteristics contained in the Soil Survey Database because each NRI sample point is linked to a specific soil in the database. In Alaska, however, detailed level soil surveys were only available

#### Alaska Summary Report 2007 National Resource's Inventory December 2012



for approximately 30 percent of the overall NRI sample. Furthermore, site visits were only made on agricultural segments; therefore soil components were not verified at points but instead were remotely interpreted using imagery and landscape position. The NRI survey systemutilizes points as the sampling units rather than farms or fields; land use and land unit boundaries change frequently in some parts of the country, and factors such as soil type do not follow human-induced boundaries such as land unit boundaries. Using points has allowed the NRI survey process to produce a database with dozens of factors (data elements) that are properly correlated over multiple years for the Nation (except Alaska), so that analyses and inferences based upon the data are using proper combinations of longitudinal data. Once additional data are collected for Alaska, longitudinal data providing trends will be available.

Because the NRI survey program is based upon scientific and rigorous sample survey protocols, it is of utmost importance to maintain and protect the integrity and confidentiality of the NRI data gathering sites. USDA and NRCS policy states that "the NRI program will be conducted so as to "Maintain confidentiality of and administer access to information and materials pertaining to locations of data collection sites, with site locations identified by coordinate systems, depicted on maps or photographs, described by direct observation of local conditions, and other materials assembled for inventories not constituting public information and to be used and managed only for official inventory purposes or for such purpose approved by the Secretary of Agriculture." All NRI leaders and data gatherers are required to sign a confidentiality agreement, which defines levels of access to program-sensitive information for staff involved in NRI data collection. NRI data that identify owners, operators, or data collection sites are not to be released to the public. Certain confidentiality provisions have also been specified in the Farm Security Act of 2002 and the Food, Conservation, and Energy Act of 2008.

## Use and Interpretation of 2007 NRI Data

The NRI survey program provides scientifically valid, comprehensive, and relevant data on how U.S. non-Federal rural lands are being used, and on natural resource and environmental conditions for these lands. with the specific goal of supporting agricultural and environmental policy development and program implementation. Information derived from the NRI is used by natural resource managers; policymakers and analysts; consultants; the media; other Federal agencies; State governments; universities; environmental, commodity, and farm groups; and the public. Historically, NRI information has been used to formulate effective public policies, to fashion agricultural and natural resources legislation, to develop State and national conservation programs, to allocate USDA financial and technical assistance in addressing natural resource concerns, and to enhance public understanding of natural resources and environmental issues.

NRI data are designed to be part of the core components of the agency's strategic planning and accountability efforts, and to help assess consequences of existing legislative mandates, such as the appraisals required by the RCA and the periodic Farm Bills. The 2007 NRI provided the analytical foundation for the RCA Appraisal that USDA delivered to Congress in 2011 and the update of the National Conservation Program, which together provide guidance to USDA on conservation activities needed to meet the Nation's long-term resource needs. The NRI will provide a statistical framework to evaluate proposed programs and policies relative to environmental considerations and various climate change scenarios, and relative to short- and long-term productivity and economic considerations.

#### Statistical considerations

Statistics derived from the NRI database are based upon data collected at sample sites located across all parts of the Nation. This means that all results are statistical estimates and contain some amount of statistical uncertainty. Interpretation of NRI results requires an understanding of the amount of this uncertainty associated with each estimate, as well as an understanding of the inventory procedures. Since the

#### Alaska Summary Report 2007 National Resource's Inventory December 2012



NRI employs recognized statistical methodology, it is possible to quantify this statistical uncertainty.

Margins of error are provided for all statistical estimates presented in this Summary Report; they are included below each estimate in smaller print as a plusor-minus value. The margin of error is a commonly used measure of statistical uncertainty and can be used to construct a 95-percent confidence interval for an estimate. The lower bound of the confidence interval is obtained by subtracting the margin of error from the estimate; adding the margin of error to the estimate forms the upper bound. Measures of uncertainty (e.g., margins of error, standard errors, confidence intervals. coefficients of variation) should be taken into consideration when using NRI estimates. The margin of error is calculated by multiplying the standard error by the factor 1.96: a coefficient of variation is the relative standard for an estimate, usually in terms of percentages, and is calculated by taking 100 times the standard error and then dividing by the estimate.

The precision of NRI estimates depends upon the number of samples within the region of interest, the distribution of the resource characteristics across the region, the sampling procedure, and the estimation procedure. Characteristics that are common and spread fairly uniformly over an area can be estimated more precisely than characteristics that are rare or unevenly distributed. Estimates of change between two points in time will be less precise (relatively) because the changes will be occurring on a smaller fraction of the landscape.

Release of NRI results is guided by NRCS policy and is in accordance with OMB and USDA Quality of Information Guidelines developed in 2001. NRCS is releasing NRI estimates only when they meet statistical standards and are scientifically credible in accordance with these policies; also, measures of statistical uncertainty are provided for all 2007 NRI estimates released to the public.

#### Interpretation of the data

NRI survey results are based upon a particular set of definitions, protocols, and instructions. These have been developed to support NRCS programs and USDA analytical needs, so they differ in some cases from

those used by other agencies. These differences need to be considered when analyzing and interpreting the data or when comparing estimates to those of other agencies.

Non-Federal Land: Most NRI estimates pertain only to non-Federal rural lands; non-Federal lands include privately owned lands, tribal and trust lands, and lands controlled by State and local governments. The Alaska NRI covers both non-Federal and Federal lands.

**Soil Erosion:** NRI erosion estimates are based upon erosion prediction models rather than on-site measuring of soil detachment, transport, and deposition. The erosion prediction models provide estimated average annual (or expected) rates based upon the cropping practices, management practices, and inherent resource conditions that occur at each NRI sample site. Climatic factors used in the erosion prediction equations (models) are based upon long-term average conditions and not upon one year's actual events. NRI estimates of sheet and rill erosion utilize standard Universal Soil Loss Equation (USLE) technology rather than revised USLE (RUSLE) methodology so that it is possible to make comparisons back to the year 1982 in the results reported for the 49 States with trending data. Erosion estimates are currently made only for cropland, CRP land, and pastureland. Erosion prediction models for rangeland are currently under development and evaluation.

Developed Land: The NRI category of developed land differs from that used by some other data collection entities. For the NRI, the intent is to identify which lands have been permanently removed from the rural land base, while other studies are interested in human populations (e.g., Census of Population) and housing units (e.g., American Housing Survey). The NRI developed land category includes (a) large tracts of urban and built-up land; (b) small tracts of built-up land of less than 10 acres; and (c) land outside of these built-up areas that is in a rural transportation corridor (roads, railroads, and associated rights-of-way).

Conservation Reserve Program (CRP) Land: For the NRI, CRP land is classified separately from cropland because it provides different resource and conservation issues than hayland, horticultural cropland, and cultivated cropland. Acres enrolled in General CRP

#### Alaska Summary Report 2007 National Resources Inventory December 2012



signups can be added to NRI cropland acres for analyses and reporting.

*Irrigation:* For the NRI, land is considered *irrigated* if irrigation occurs during the year of inventory, or during 2 or more of the 4 years prior to the inventory. Other entities typically consider land to be irrigated only if irrigation water is applied for the year of interest.

Wetlands: NRI classification of wetlands is slightly different than that used by the Fish & Wildlife Service (FWS) in their statistically based Wetlands Status and Trends study. The NRI and the FWS inventory have different legislative mandates; sampling methodology. inventory protocols, data handling, and analysis routines have evolved independently over the past three decades, even though both survey programs use the hierarchical Cowardin classification system. Recent collaborative efforts have resulted in enhanced classifications for both programs, but wetlands data collected by the two agencies are currently neither comparable nor interchangeable. The NRI multiresource approach is beneficial to USDA analysts and others who examine conservation and agri-environmental issues. Results from the FWS study are beneficial to analysts in the Department of the Interior and others.

#### Availability of the Data

This report presents selected NRI summary data for Alaska. Further information regarding the NRI and additional data summaries can be obtained from the national NRI Internet site at

http://www.nrcs.usda.gov/technical/NRI/ and on the Soil and Water Resources Conservation Act (RCA) Interactive Data Website at http://soils.usda.gov/survey/rca/viewer/.

Questions and requests for additional data summaries should be addressed to the NRI Help Desk at <a href="mailto:nri@wdc.usda.gov">nri@wdc.usda.gov</a>.

#### **Metric Conversion**

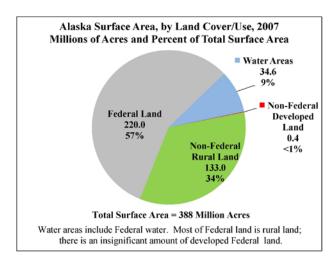
To convert acres to hectares, multiply the number of acres by 0.405.

To convert tons to metric tons, multiply the number of tons by 0.907.

To convert tons/acre to metric tons/hectare, multiply the number of tons/acre by 2.24.

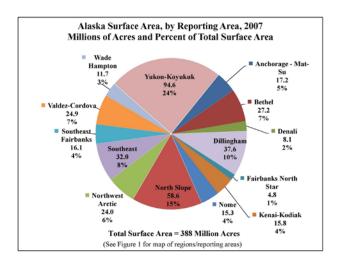
### **Overview of Survey Findings**

- Alaska covers 388 million acres, or 16.7 percent of the 2.33 billion acres of surface area of the 50 States. The following charts illustrate relative proportions of areas represented in the report tables.
- The majority of Alaska's rural land is Federal (220 million acres, or 62 percent of all rural land).
- Rangeland makes up 57 percent of Alaska's rural land and 52 percent of Alaska's surface area.





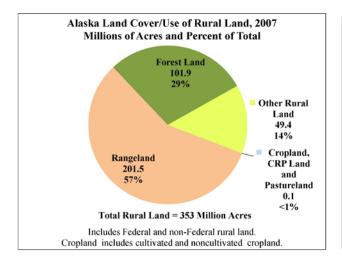
#### Chart 2



#### Chart 4



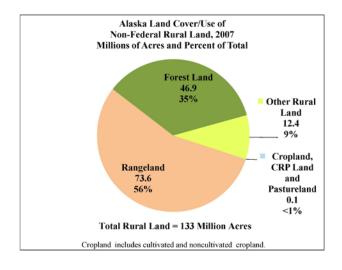
#### Chart 3



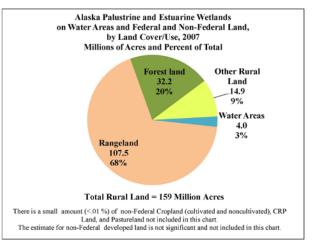




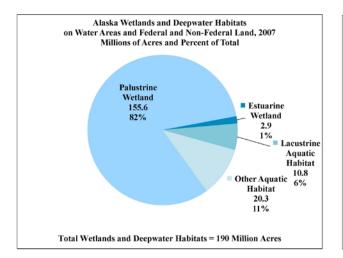
#### Chart 6

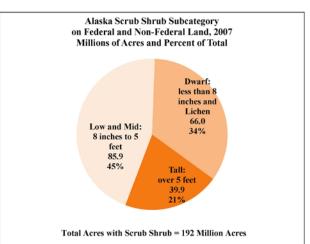


#### Chart 8

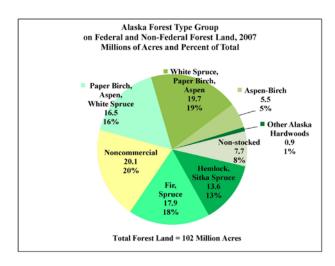


#### Chart 7











## **Figures**

Figure 1 – Alaska's 14 NRI Reporting Areas

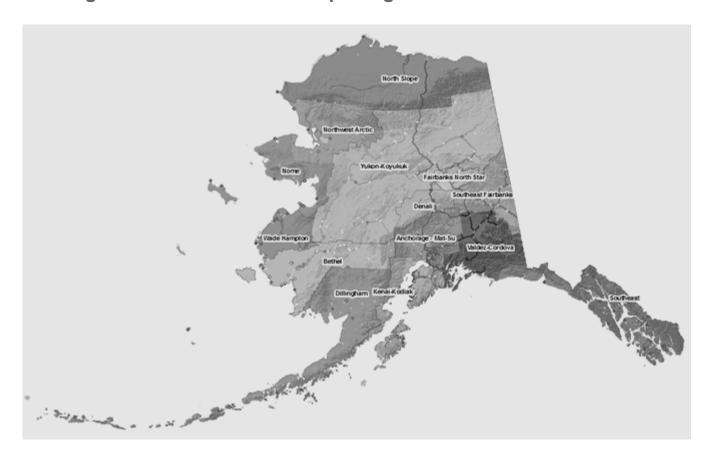




Figure 2 – Alaska NRI High-Intensity Sampling Areas – Identified for Sampling Design



1 Allahat	17 Conin	26 Vatabilean	EE Mantala	74 Camend
1 Allaket	17 Craig	36 Ketchikan	55 Noatak	74 Seward
2 Ambler	18 Dillingham	37 Kiana	56 Nome	75 Shishmaref
3 Anaktuvuk Pass	19 Elim	38 King Cove	57 Nondalton	76 Shungnak
4 Angoon	20 Emmonak	39 Kipnuk	58 Noorvik	77 Sitka
5 Aniak	21 Fort Yukon	40 Kivalina	59 Nuiqsut	78 Tanana
6 Atqasuk	22 Galena	41 Kodiak	60 Nulato	79 Teller
7 Barrow	23 Gambell	42 Kotlik	61 Petersburg	80 Thorne Bay
8 Bethel	24 Grayling	43 Kotzebue	62 Pilot Station	81 Togiak
9 Buckland	25 Haines	44 Koyuk	63 Point Hope	82 Tok
10 Chefornak	26 Healy	45 Lower Kalskag	64 PribilofIsland	83 Toksook Bay-
11 Chevak	27 Holy Cross	46 Manokotak	65 Quinhagak	Tununak
12 Cordova	28 Hoonah	47 Marshall	66 Ruby	84 Tuluksak
13 Corridor –	29 Hooper Bay	48 McGrath	67 Russian Mission	85 Tuntutuliak
Glennallen	30 Huslia	49 Metlakatla	68 Saint Mary's	86 Tyonek
14 Corridor –	31 Juneau	50 Minto	69 Saint Michael-	87 Unakakleet
Interior	32 Kake	51 Mountain Village	Stebbins	88 Unalaska
15 Corridor –	33 Kaktovik	52 Naknek-King	70 Sand Point	89 Valdez
Kenai	34 Kaltag	Sal mon	71 Savoonga	90 Wainwright
16 Corridor –	35 Kasigluk-	53 New Stuyahok	72 Scammon Bay	91 Wrangell
MatSu	Nunapit-Atmaut	54 Newtok	73 Selawik	92 Yakutat



### **Glossary of Selected Terms**

Terms in italics within a definition refer to terms defined elsewhere in this Glossary.

**Aerial photograph**. A photograph of the earth's surface taken from airborne equipment. So metimes called aerial photo or air photograph.

Built-up land. See Urban and built-up areas.

**Bush**. A term Alaskans use to describe portions of their state that are not connected to the North America road network.

C factor (USLE). See Cover and management factor.

C factor (WEQ). See Climatic factor.

Climatic factor (C factor - WEQ). Characterizes climatic erosivity, specifically wind speed and surface soil moisture. The factor for any given locality is expressed as a percentage of the C factor for Garden City, Kansas, which has a value of 100.

**Close-grown crops**. Crops that are generally drill-seeded or broadcast, such as wheat, oats, rice, barley, and flax..

**Conservation Reserve Program (CRP).** A Federal program established under the Food Security Act of 1985 to assist private landowners to convert highly erodible cropland to vegetative cover.

**CRP Land Cover/Use** category—For NRI, only land that has been enrolled in **CRP General Sign-Ups** is included in the CRP land cover/use classification. It does not include CRP land enrolled under **Continuous Sign-Ups**.

**CRP** General Sign-Up — Eligible lands must be highly erodible or in a State or National conservation priority area. Participants enroll in CRP General Sign-Up contracts for 10 to 15 years, with the opportunity to extend or re-enroll land into General CRP under designated sign-up periods.

**CRP** Continuous Sign-Up – Continuous CRP was introduced in the 1996 Farm Bill. Eligible lands must be suitable to serve as one of a number of conservation practices, such as a wetland restoration, filterstrip, riparian buffer, or field windbreak. For NRI, land enrolled in the continuous CRP is included in its respective land cover/use (i.e. cropland, grassland, forest, marsh, etc.)

**Corridor**. Areas within the Alaska Transportation System that connect the concentrated population areas. Major road corridors in Alaska include the Glenn Highway, Parks Highway, Seward Highway, Sterling Highway and the Richardson Highway. These corridors provide road and/or rail access and include the most intensive concentrations of private lands being utilized for farming, cattle production and other land uses.

**Cover and management factor (C factor - USLE).** The ratio of soil loss from an area with specific cover and management to that from an identical area in tilled continuous fallow.

**Cowar din system.** A classification system of *wetlands* and deepwater habitats of the United States, officially adopted by the U.S. Fish and Wildlife Service (FWS) used to develop wetland databases. The system was developed by Lewis M. Coward in of the U.S. Fish and Wildlife Service and others. The five major systems are Estuarine, Lacustrine, Marine, Palustrine, and Riverine. (Cowardin, L.M., V. Carter,



F.C. Golet, E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Department of the Interior, Fish and Wildlife Service.)

**Cropl and.** A *Land cover/use* category that includes areas used for the production of adapted crops for harvest. Two subcategories of cropland are recognized: cultivated and noncultivated. Cultivated cropland comprises land in *row crops* or *close-grown crops* and also other cultivated cropland, for example, hayland or pastureland that is in a rotation with row or close-grown crops. Noncultivated cropland includes permanent *hayland* and *horticultural cropland*.

Cultivated cropland. See Cropland.

**Deepwater habitat.** Any open water area in which the mean water depth exceeds 6.6 feet in nontidal areas or at mean low water in freshwater tidal areas, or is covered by water during extreme low water at spring tides in salt and brackish tidal areas, or covers the deepest emerging vegetation, whichever is deeper.

**Developed land.** A combination of land cover/use categories, *Large urban and built-up areas*, *Small built-up areas*, and *Rural transportation land*.

**Erosion.** The wearing away of the land surface by running water, waves, or moving ice and wind, or by such processes as mass wasting and corrosion (solution and other chemical processes). The term "geologic erosion" refers to natural erosion processes occurring over long (geologic) time spans. "Accelerated erosion" generically refers to erosion that exceeds what is presumed or estimated to be naturally occurring levels, and which is a direct result of human activities (e.g., cultivation and logging). Sheet and rill (water) erosion and wind erosion are combined in the Alaska Summary Report (Table 12 and 13).

**Es tuarine Wetland.** Wetlands occurring in the Estuarine System, one of five systems in the classification of wetlands and deepwater habitats (see Wetlands, Coward in et al. 1979). Estuarine wetlands are tidal wetlands that are usually semienclosed by land but have open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The most common example is where a river flows into the ocean.

Federal land. See Ownership.

**Field.** A cultivated area of land that is marked out for a particular crop or cropping sequence.

**Forest land.** A *Land cover/use* category that is at least 10 percent stocked by single-stemmed woody species of any size that will be at least 4 meters (13 feet) tall at maturity. Also included is land bearing evidence of natural regeneration of tree cover (cut over forest or abandoned farmland) and not currently developed for nonforest use. Ten percent stocked, when viewed from a vertical direction, equates to an areal canopy cover of leaves and branches of 25 percent or greater. The minimum area for classification as forest land is 1 acre, and the area must be at least 100 feet wide.

**Forest Type**. A classification of forest land based on the species presently forming a plurality of the live tree stocking.

**Growing season**. The period and/or number of days between the last freeze in the spring and the first frost in the fall for the freeze threshold temperature of the crop or other designated temperature threshold.

**Hayland.** A subcategory of *Cropland* managed for the production of forage crops that are machine harvested. The crop may be grasses, legumes, or a combination of both. Hayland also includes land in setaside or other short-term agricultural programs.



**Horticul tur al cropl and**. A subcategory of *Cropland* used for growing fruit, nut, berry, vineyard, and other bush fruit and similar crops. Nurseries and other ornamental plantings are included.

I factor (WEQ). See Soil erodibility index.

**Irrigated land.** Land that shows evidence of being irrigated during the year of the inventory or of having been irrigated during 2 or more of the last 4 years. Water is supplied to crops by ditches, pipes, or other conduits. For the purposes of the NRI, water spreading is not considered irrigation.

K factor (USLE). See Soil erodibility factor (USLE).

**K factor (WEQ).** See Ridge roughness factor (WEQ).

L factor (USLE). See Slope-length factor (USLE).

L factor (WEQ). See Unsheltered distance factor (WEQ).

Lacustrine System. Wetlands and deepwater habitats occurring in the Lacustrine System, one of five systems in the classification of wetlands and deepwater habitats (see Wetlands, Cowardin et al. 1979). The Lacustrine System includes wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergent plants, emergent mosses or lichens with greater than 30% areal coverage; and (3) total area exceeding 20 acres. Similar habitats totaling less than 20 acres are included if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 6.6 feet at low water.

**Lake**. A natural inland body of water, fresh or salt, extending over 40 acres or more and occupying a basin or hollow on the earth's surface, which may or may not have a current or single direction of flow.

Land capability classification. Land capability classification is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period. Capability class. The broadest category in the system. Class codes I to VIII indicate progressively greater limitations and narrower choices for agriculture. The numbers are used to represent both irrigated and nonirrigated land capability.

**Land cover/use.** A term that includes categories of land cover and categories of land use. Land cover is the vegetation or other kind of material that covers the land surface. Land use is the purpose of human activity on the land; it is usually, but not always, related to land cover. The NRI uses the term land cover/use to identify categories that account for all the surface area of the United States.

**Large urban and built-up areas.** A *Land cover/use* category composed of developed tracts of at least 10 acres—meeting the definition of *Urban and built-up areas*.

Margins of Error. Margins of error are reported for each NRI estimate. The margin of error is used to construct the 95 percent confidence interval for the estimate. The lower bound of the interval is obtained by subtracting the margin of error from the estimate; the upper bound is obtained by adding the margin of error to the estimate. Confidence intervals can be created for various levels of significance which is a measure of how certain we are that the interval contains the true value we are estimating. A 95 percent confidence interval means that in repeated samples from the same population, 95 percent of the time the true underlying population parameter will be contained within the lower and upper bounds of the interval.



Marine System. The open ocean overlying the continental shelf and its associated high energy coastline. Marine habitats are exposed to the waves and currents of the open ocean and the water regimes are determined primarily by the ebb and flow of oceanic tides. One of the five systems in the classification of wetlands and deepwater habitats. (See Wetlands, Cowardin et al. 1979.)

**Marshland.** A subcategory of the *Land cover/use* category Other rural land, described as a nonforested area of land partly or intermittently covered with water and usually characterized by the presence of such monocotyledons as sedges and rushes. These areas are usually in a wetland class and are not placed in another NRI land cover/use category, such as *rangeland* or *pastureland*.

Noncultivated cropland. See Cropland.

**Other aquatic habitats.** Includes wetlands and deepwater habitats occurring in the Riverine, Lacustrine, or *Marine Systems*, and deepwater habitats occurring in the Estuarine System as defined by Coward in et al. 1979 (see Wetlands).

**Other rural land.** A *Land cover/use* category that includes farmsteads and other farm structures, field windbreaks, barren land, and *marshland*.

**Ownership.** The separation of Federal and non-Federal lands and the distinction between administrative units of land. *Water areas* are not classified according to ownership. The six categories of ownership are:

**Private**. A type of ownership pertaining to land belonging to an individual person or persons, a partnership, or a corporation (all of which are persons in the legal sense), as opposed to the public or the government; private property.

**Munici pal**. A type of ownership pertaining to land belonging to the local government of a town or city.

**County** or **parish**. A type of ownership pertaining to land belonging to an administrative subdivision of a State in the United States, which is identified as a county or an equivalent administrative unit in areas where counties do not exist; examples are parishes in Louisiana and boroughs in Alaska.

**State**. A type of ownership pertaining to land belonging to one of the States, commonwealths, or territories of the United States of America.

**Feder al land**. A land ownership category designating land that is owned by the Federal Government. It does not include, for example, trust lands administered by the Bureau of Indian Affairs or Tennessee Valley Authority (TVA) land. No data are collected for any year that land is in this ownership.

**Indian tribal** and **individual Indian trust lands.** A type of ownership of land administered by officially constituted Indian tribal or individual Indian trust entities.

**P factor.** See Practice factor.

**Palustrine Wetland.** Wetlands occurring in the Palustrine System, one of five systems in the classification of wetlands and deepwater habitats (see Wetlands, Coward in et al. 1979). Palustrine wetlands include all nontidal wetlands dominated by trees, shrubs, persistent emergent plants, or emergent mosses or lichens, as well as small, shallow open water ponds or potholes. Palustrine wetlands are often called swamps, marshes, potholes, bogs, or fens.



**Pastureland.** A *Land cover/use* category of land managed primarily for the production of introduced forage plants for livestock grazing. Pastureland cover may consist of a single species in a pure stand, a grass mixture, or a grass-legume mixture. Management usually consists of cultural treatments: fertilization, weed control, reseeding or renovation, and control of grazing. For the NRI, includes land that has a vegetative cover of grasses, legumes, and/or forbs, regardless of whether or not it is being grazed by livestock.

**Photographic interpretation.** The act of examining photography images for the purpose of identifying objects and judging their significance.

**Practice factor (P factor - USLE).** The ratio of soil loss with a support practice like contouring, stripcropping, or terracing, to soil loss with straight-row farming up and down the slope.

**Railroads.** A category of *Rural transportation* areas that includes all operational rail systems and their rights-of-way. Abandoned railroad beds are not included as railroad areas.

**Rainfall and runoff (R factor - USLE).** The number of rainfall erosion index units, plus a factor for runoff from snowmelt or applied water where such runoff is significant.

Rangeland. A Land cover/use category on which the climax or potential plant cover is composed principally of native grasses, grasslike plants, forbs or shrubs suitable for grazing and browsing, and introduced forage species that are managed like rangeland. This would include areas where introduced hardy and persistent grasses, such as crested wheatgrass, are planted and such practices as deferred grazing, burning, chaining, and rotational grazing are used, with little or no chemicals or fertilizer being applied. Grasslands, savannas, many wetlands, some deserts, and tundra are considered to be rangeland. Certain communities of low forbs and shrubs, such as mesquite, chaparral, mountain shrub, and pinyon-juniper, are also included as rangeland.

**Reservoir.** A pond, *lake*, basin, or other space, created in whole or in part by the building of engineering structures, that is used for the storage, regulation, and control of water.

**Ridge roughness (K factor - WEQ).** A measure of the effect of ridges made by tillage and planting implements. It is expressed as a decimal from 0.5 to 1.0. Ridges, especially those at right angles to the prevailing wind direction, absorb and deflect wind energy and trap moving soil particles. See *Wind erosion equation (WEQ)*.

**Ri werine System.** All wetland and deepwater habitats contained within a channel, with two exceptions (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens; and (2) habitats with water containing ocean derived salts. One of the five systems in the classification of wetlands and deepwater habitats. (See Wetlands, Cowardin et al. 1979.)

**Row crops.** A subset of the *Land cover/use* category *Cropland* (subcategory, Cultivated) comprising land in row crops, such as corn, soybeans, peanuts, potatoes, sorghum, sugar beets, sunflowers, tobacco, vegetables, and cotton.

**Rural trans portation land.** A *Land cover/use* category which consists of all highways, roads, railroads and associated right-of-ways outside *urban and built-up areas*; also includes private roads to *farmsteads or ranch headquarters*, logging roads, and other private roads (field lanes are not included).

**S factor.** See Slope-steepness factor.



**Sample point.** The second-stage sample unit in the NRI two-stage sampling scheme. See also *Segment*.

**Scrub shrub.** Scrub shrub areas must have at least 30 percent canopy cover of woody plants that grow to a height of less than 4 meters at maturity and less than 25 percent canopy cover of trees that grow to a height of more than 4 meters at maturity. The minimum area for classification of scrub shrub land is 1 acre, and the area must be at least 100 feet wide.

#### Scrub shrub subcategories (Alaska only)

- Tall Scrub Shrub
- Low Mid Scrub Shrub
- Dwarf Scrub Shrub: less than 8 inches and Lichen

**Segment.** An area of land, typically square to rectangular in shape, that is approximately 40, 100, 160, or 640 acres in size. Within the segment, *sample points* are assigned. Certain data elements are collected for the entire segment, while others are collected at the segment points.

**Sheet and rill erosion.** The removal of layers of soil from the land surface by the action of rainfall and runoff. It is the first stage in water erosion.

**Slope.** The inclination of the soil surface from the horizontal. Slope percent is the vertical distance divided by the horizontal distance, then multiplied by 100.

**Slope length.** The distance from the point of origin of overland flow to the point where either the slope gradient decreases enough that deposition begins, or the runoff water enters a well-defined channel that may be part of a drainage network or a constructed channel. For the NRI, length of slope is taken through the *sample point*.

**Slope-length factor** (**L factor - USLE**). The ratio of soil loss from the field slope length to that from a 72.6-foot length under identical conditions.

**Slope-steepness factor (S factor - USLE).** The ratio of soil loss from the field slope gradient to that from a 9 percent slope under otherwise identical conditions. Used in *Universal soil loss equation* (USLE) calculations of *sheet and rill erosion*.

**Small built-up areas.** A *Land cover/use* category consisting of developed land units of 0.25 to 10 acres, which meet the definition of *Urban and built-up areas*.

**Soil erodibility factor (K factor - USLE).** An erodibility factor which quantifies the susceptibility of soil particles to detachment and movement by water. This factor is used in the *Universal soil loss equation* (USLE) to calculate soil loss by water.

**Soil erodi bility index (I factor - WEQ).** The potential soil loss, in tons per acre per year, from a wide, level, unsheltered, isolated field with a bare, s mooth, loose, and noncrusted surface, under climatic conditions like those in the vicinity of Garden City, Kansas.

**Soil loss tolerance factor** (**T factor - US LE**). The maximum rate of annual soil loss that will permit crop productivity to be sustained economically and indefinitely on a given soil.

**Soil survey.** The systematic examination, description, classification, and mapping of soils in an area. The USDA- NRCS Soil Survey Program produces Soil Survey Reports, which generally consist of four



principal parts: (1) maps, (2) a map legend, (3) a description of the soils in the survey area, and (4) a use and management report. The survey area commonly is a single county but may comprise parts of counties, physiographic regions, or other management areas.

T factor (USLE). See Soil loss tolerance factor.

**Universal soil loss equation (USLE).** An erosion model designed to predict the long-term average soil losses in runoff from specific field areas in specified cropping and management systems.

The equation is: A = RKLSCP

where A = Computed soil loss per unit area

 $R = Rainfall \ and \ runoff factor$ 

 $K = Soil \ erodibility \ factor$ 

L = Slope-length factor

S = Slope-steepness factor

C = *Cover and management* factor

P = Support *practice* factor

The NRI calculations use location-specific data for the field in which the NRI *sample point* falls or that portion of the field surrounding the point that would be considered in conservation planning.

**Unsheltered distance** (**L factor - WEQ**). The unsheltered distance along the prevailing wind erosion direction across the field or area to be evaluated. For the NRI, the unsheltered distance is expressed in feet, measured through the *sample point*, parallel to the prevailing wind direction during the critical wind erosion period.

**Urban and built-up areas.** A *Land cover/use* category consisting of residential, industrial, commercial, and institutional land; construction sites; public administrative sites; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures and spillways; other land used for such purposes; small parks (less than 10 acres) within urban and built-up areas; and highways, *railroads*, and other transportation facilities if they are surrounded by urban areas. Also included are tracts of less than 10 acres that do not meet the above definition but are completely surrounded by Urban and built-up land. Two size categories are recognized in the NRI: areas of 0.25 acre to 10 acres, and areas of at least 10 acres.

**V factor.** See Vegetative cover.

**Vegetative cover (V factor - WEQ).** The effect of vegetative cover in the Wind erosion equation is expressed by relating the kind, amount, and orientation of vegetative material to its equivalent in pounds per acre of small grain residue in reference condition (small grain equivalent).

Village. In Alaska, "village" is a colloquial term used to refer to small communities, which are mostly located in the rural areas of the state, often unconnected to the contiguous North American road system. Many of these communities are populated predominately by Alaska Natives and are federally recognized as villages under the Indian Reorganization Act and/or the Alaska Native Claims Settlement Act.

Water areas. A Land cover/use category comprising water bodies and streams that are permanent water.

Water body. A type of (permanent open) water area that includes ponds, *lakes*, reservoirs, bays or gulfs, and estuaries.

**Water spreading.** Diverting or collecting runoff from natural channels, gullies, or streams with a system of dams, dikes, ditches, or other means, and spreading it over a relatively flat area. (See *Irrigated land*.)



**Wetlands.** Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the *growing season* of each year. (Co wardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Department of the Interior, Fish and Wildlife Service.)

Winderosion. The process of detachment, transport, and deposition of soil by wind.

Wind er osion e quation (WEQ). An erosion model designed to predict long-term average annual soil losses from a field having specific characteristics. The equation is: E = f(IKCLV)

where E = Estimated average annual soil loss expressed in tons per acre per year

 $I = Soil\ erodibility\ index$ 

K = Soil *ridge roughness* factor

C = Climatic factor

L = Equivalent unsheltered distance across the field along the prevailing wind erosion direction

V = Equivalent *vegetative cover* 



#### Explanation of the Tables \*

On the following pages selected Alaska summary data are displayed in eight tables. Definitions of terms are included in the Glossary of Selected Terms above. Results for the 48 coterminous States, Hawaii, and the Caribbean area are available on the NRI web site at <a href="http://www.nrcs.usda.gov/technical/nri/">http://www.nrcs.usda.gov/technical/nri/</a> and on the Soil and Water Resources Conservation Act (RCA) Interactive Data Website at <a href="http://soils.usda.gov/survey/rca/viewer/">http://soils.usda.gov/survey/rca/viewer/</a>.

**Table 1** presents NRI findings on surface area by Alaska regions: Federal land, non-Federal land, water areas, Non-Federal developed land, and non-Federal rural land. Federal land includes Federal developed land, but excludes Federal water, which is included in water areas.

**Table 2** presents estimates of acreage by Alaska regions in four land cover/use components of Federal and Non-Federal rural land: aggregated cropland, land enrolled in the Conservation Reserve Program (CRP), pastureland; rangeland; forest land; and other rural land.

**Table 3** shows estimates of cropland on Non-Federal Alaska land classified as irrigated or nonirrigated, cultivated or noncultivated.

**Table 4** presents acres of Alaska land cover/use on non-Federal rural land by land capability class. See "Land capability classification" in the glossary for more details on this system. Much of Alaska does not have detailed soil mapping, therefore a large portion of the state has not been classified using the land capability classification system.

**Table 12 and 13** present estimates of soil erosion rates on Alaska non-Federal rural land for cultivated cropland, noncultivated cropland, CRP land, and pastureland. Rates are aggregations of estimates of sheet and rill erosion, which is erosion caused by water, and estimates of wind erosion rates.

**Table 16** shows acres of wetlands and deepwater habitats on water areas and Federal and non-Federal land, by Alaska region.

**Table 17** presents acres of Palustrine and Estuarine wetlands on water areas and Federal and Non-Federal land by land cover/use and Alaska region.

**Table 21** provides estimates of scrub shrub modifiers on Federal and non-Federal land and water areas, by Alaska region. See "Scrub shrub subcategories" in the glossary for more details of categories.

**Table 22** shows estimates of Alaska forest group types on Federal and Non-Federal rural land by region.

Tables 1, 2A, 16, 17, 21, and 22 include a Reporting Area for Anchorage – Mat-Su. Mat-Su is a shortened version of Matanuska-Susitna.

\*Table numbering follows that of companion 2007 NRI Summary Reports for consistency. Tables not applicable to this inaugural release of Alaska data are intentionally omitted since they involve changes over time or prime farmland. Future reports of Alaska NRI data will include trending data over time.



Table 1 - Surface area of non-Federal and Federal land and water areas in 2007, by Reporting Area In thousands of acres, with margins of error

Reporting Area	Federal land	Water eres	N	on-Federal land		Total surface
Reporting Area	rederailand	Water areas	Dev eloped	Rural	Total	area
Anchorage - Mat-Su	4,007.2	675.6 	126.9 ±33.7	12,418.4 ±52.4	12,545.3 ±35.4	17,228.1 
Bethel	13,394.4 	3,522.5 	5.5 ±3.3	10,327.3 ±92.6	10,332.8 ±91.9	27,249.7 
Denali	4,680.0	188.7	5.0 ±3.2	3,242.3 ±4.6	3,247.3 ±4.4	8,116.0 
Dillingham	16,044.2 	3,989.4	6.3 ±3.0	17,569.1 ±149.7	17,575.4 ±149.9	37,609.0 
Fairbanks North Star	899.2 	73.2 	62.8 ±12.0	3,729.4 ±22.3	3,792.2 ±16.9	4,764.6 
Kenai-Kodiak	8,753.5 	1,568.8 	52.6 ±11.8	5,434.9 ±29.9	5,487.5 ±29.3	15,809.8 
Nome	7,738.8 	1,039.6	4.3 ±4.9	6,559.1 ±84.3	6,563.4 ±84.8	15,341.8 
North Slope	39,048.3	4,926.0 	5.0 ±4.0	14,576.4 ±81.7	14,581.4 ±80.8	58,555.7 
Northwest Arctic	16,860.1 	1,887.6 	0.9 ±1.5	5,219.0 ±52.3	5,219.9 ±52.0	23,967.6
Southeast	21,481.3 	7,960.0	25.3 ±10.0	2,578.3 ±40.8	2,603.6 ±35.6	32,044.9
Southeast Fairbanks	5,968.1 	429.0 	20.9 ±12.9	9,645.5 ±75.5	9,666.4 ±75.2	16,063.5 
Valdez-Cordov a	15,193.4 	3,252.0	31.5 ±42.8	6,381.4 ±88.3	6,412.9 ±74.9	24,858.3
Wade Hampton	8,037.0 	1,893.3 	0.9 ±1.2	1,815.8 ±42.9	1,816.7 ±42.8	11,747.0 
Yukon-Koyukuk	57,897.0 	3,211.8	17.9 ±13.5	33,494.3 ±200.6	33,512.2 ±200.5	94,621.0
Total	220,002.5 	34,617.5 	365.8 ±52.9	132,991.2 ±335.8	133,357.0 ±312.7	387,977.0 

<sup>·</sup> Acreages for Federal land, water areas, and total surface area are established through geospatial processes and

administrative records; therefore, statistical margins of error are not applicable and shown as a dashed line (-).

• Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.



 $\label{thm:cover_loss} \textbf{Table 2A-Land cover} \textit{l} \textbf{use of Federal and non-Federal rural land in 2007}, \textbf{by Reporting Area In thousands of acres}, \textbf{with margins of error}$ 

Reporting Area	Cropland, CRP Land and Pastureland	Rangeland	Forest land	Other rural land	Total rural land
Anchorage - Mat-Su	19.3 ±6.5	6,767.4 ±1,102.7	4,667.0 ±2,336.9	4,970.3 ±1,822.2	16,424.0 ±53.0
Bethel	0.0	16,014.6	4,737.3	2,969.8	23,721.7
		±1,144.2	±1,146.6	±960.0	±249.5
Denali	0.0	4,198.9 ±641.9	1,967.2 ±653.4	1,754.6 ±712.4	7,920.7 ±20.7
Dillional and	0.0	24.670.0	4 940 6	4 000 7	22.640.2
Dillingham	0.0	24,679.9 ±1,796.4	4,840.6 ±1,133.1	4,089.7 ±1,383.3	33,610.2 ±169.5
Fairbanks North Star	11.7	1,347.7	3,208.8	56.6	4,624.8
	±6.5	±217.8	±202.2	±43.6	±22.1
Kenai-Kodiak	4.0 ±3.5	6,833.5 ±1,255.8	3,529.0 ±902.9	3,821.8 ±935.8	14,188.3 ±72.8
	0.0	40.004.7	4.004.4	4 704 0	442070
Nome	0.0	10,881.7 ±805.2	1,684.4 ±661.3	1,731.8 ±556.3	14,297.9 ±109.0
North Slope	0.0	47,342.8	23.0	6,258.9	53,624.7
		±1,357.0	±47.0	±1,297.2	±165.2
Northwest Arctic	0.0	16,614.1 ±1,114.7	3,812.5 ±1,016.2	1,652.5 ±709.3	22,079.1 ±149.0
Southeast	0.0	5,786.4	11,892.1	6,376.3	24,054.8
Journeast		±938.8	±987.4	±697.5	±71.0
Southeast Fairbanks	72.6	6,140.4	8,521.2	878.8	15,613.0
	±9.2	±976.9	±1,001.3	±434.7	±80.2
Valdez-Cordov a	1.1 ±1.1	6,309.9 ±1,016.7	6,127.3 ±1,268.4	9,108.7 ±953.7	21,547.0 ±108.4
Wade Hampton	0.0	6,386.3	1,902.7	1,563.8	9,852.8
		±880.0	±728.2	±442.4	±109.8
Yukon-Koyukuk	0.8 ±1.6	42,224.9 ±3,287.5	45,005.4 ±3,669.8	4,160.2 ±1,218.3	91,391.3 ±265.7
Total	109.5 ±13.6	201,528.5 ±5,698.7	101,918.5 ±5,201.9	49,393.8 ±4,435.1	352,950.3 ±531.9

#### Notes

- Cropland includes cultivated and non-cultivated cropland.
- When the estimate is 0.0, margins of error are not applicable and shown as a dashed line (--).
- Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.



Table 2 B - Land cover/use of Federal and non-Federal rural land in 2007 In thousands of acres, with margins of error

Туре	Cropland, CRP Land and Pastureland	Rangeland	Forest land	Other rural land	Total rural land
Federal	0.5	127,915.2	55,027.5	37,015.9	219,959.1
	±1.1	±4,484.5	±3,278.8	±3,849.1	±336.3
Non-Federal	109.0	73,613.3	46,891.0	12,377.9	132,991.2
	±13.8	±3,351.0	±3,077.4	±1,867.3	±335.8
Total	109.5	201,528.5	101,918.5	49,393.8	352,950.3
	±13.6	±5,698.7	±5,201.9	±4,435.1	±531.9

#### Notes:

- Cropland includes cultivated and non-cultivated cropland.
- When the estimate is 0.0, margins of error are not applicable and shown as a dashed line (--).
- Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero

Table 3 - Cropland use on non-Federal land in 2007 In thousands of acres, with margins of error

Cu	Cultivated cropland			cultivated cropland	Total cropland	
Irrigated	Nonirrigated	Total	Irrigated Nonirrigated Total		iotal cropianu	
0.7 ±1.3	25.4 ±7.3	26.1 ±7.1	0.0	32.6 ±8.1	32.6 ±8.1	58.7 ±11.2

#### Notes:

- When the estimate is 0.0, margins of error are not applicable and shown as a dashed line (--).
- Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.



Table 4 - Land cover/use on non-Federal rural land in 2007, by land capability class In thousands of acres, with margins of error

Land capability class	Cropland, CRP land and pastureland	Rangeland	Forest land	Other rural land	Total rural land
Not Classified	0.0	65,821.9 ±3,451.6	36,481.2 ±3,203.0	11,866.4 ±1,713.0	114,169.5 ±2,065.3
I	0.0	0.0	0.0	0.0	0.0
II	26.5	20.8	67.1	1.5	115.9
	±7.9	±8.4	±19.0	±1.8	±23.5
III	28.5	69.0	824.0	10.0	931.5
	±8.9	±36.7	±300.9	±8.8	±316.3
IV	16.1	331.5	1,238.3	5.9	1,591.8
	±8.1	±128.0	±382.7	±5.2	±472.5
V	3.3	385.5	292.0	4.5	685.3
	±3.0	±231.6	±121.8	±6.7	±272.7
VI	34.3	3,676.1	4,350.5	14.5	8,075.4
	±8.6	±961.7	±1,466.6	±14.4	±1,891.3
VII	0.3	3,081.3	3,607.6	461.5	7,150.7
	±0.8	±1,020.2	±698.3	±526.9	±1,895.6
VIII	0.0	227.2 ±258.6	30.3 ±37.5	13.6 ±9.4	271.1 ±258.0
Total	109.0	73,613.3	46,891.0	12,377.9	132,991.2
	±13.8	±3,351.0	±3,077.4	±1,867.3	±335.8

#### Notes:

- Cropland includes cultivated and noncultivated cropland.
- When the estimate is 0.0, margins of error are not applicable and shown as a dashed line (--).
- Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.

Table 12 and 13 - Estimated average annual sheet and rill and wind erosion on non-Federal rural land in 2007 Tons per acre per year, with margins of error

	Cropland	CPP land	Pactureland	Total		
Cultivated	Noncultivated	Total	CRP land Pastureland		iotai	
0.455 ±0.174	0.012 ±0.003	0.209 ±0.074	0.119 ±0.041	0.046 ±0.031	0.153 ±0.041	

#### Notes

• Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.



Table 16 - Wetlands and deepwater habitats on water areas and Federal and non-Federal land in 2007, by Reporting Area

In thousands of acres, with margins of error

Banantin a Assa	Palustrine	and Estuarine	wetlands	Other	aquatic habi	tats	Total
Reporting Area	Palustrine	Estuarine	Total	Lacustrine	Other (*)	Total	Total
Anchorage - Mat-Su	3,321.5	111.0	3,432.5	191.6	375.2	566.8	3,999.3
	±1,153.9	±13.9	±1,151.9	±14.5	±38.1	±45.9	±1,151.0
Bethel	14,198.1	175.2	14,373.3	2,210.2	646.3	2,856.5	17,229.8
	±1,513.1	±171.7	±1,522.2	±157.2	±189.1	±289.6	±1,555.0
Denali	2,723.2 ±870.6	0.0	2,723.2 ±870.6	41.3 ±6.4	150.3 ±32.0	191.6 ±34.5	2,914.8 ±894.1
Dillingham	9,940.3	231.7	10,172.0	2,494.7	1,166.3	3,661.0	13,833.0
	±1,908.2	±393.3	±1,845.6	±132.6	±416.2	±435.2	±1,919.5
Fairbanks North Star	1,789.7 ±274.5	0.0	1,789.7 ±274.5	10.5 ±2.8	61.9 ±17.3	72.4 ±16.9	1,862.1 ±280.1
Kenai-Kodiak	1,554.5	752.3	2,306.8	334.3	1,003.0	1,337.3	3,644.1
	±593.6	±426.6	±792.3	±30.3	±322.5	±320.0	±644.7
Nome	7,836.8	18.7	7,855.5	313.8	614.5	928.3	8,783.8
	±1,220.8	±80.2	±1,183.0	±86.6	±84.9	±142.9	±1,271.9
North Slope	39,151.4	139.1	39,290.5	2,276.9	2,310.8	4,587.7	43,878.2
	±2,300.3	±126.3	±2,308.6	±60.1	±269.7	±265.2	±2,399.0
Northwest Arctic	14,185.0	71.7	14,256.7	469.5	1,184.3	1,653.8	15,910.5
	±1,105.9	±243.0	±1,095.0	±28.9	±238.4	±237.6	±1,099.9
Southeast	5,450.4	378.6	5,829.0	285.2	7,257.8	7,543.0	13,372.0
	±1,066.0	±185.6	±1,104.2	±285.2	±193.0	±193.0	±1,101.1
Southeast Fairbanks	5,516.6 ±1,074.3	0.0	5,516.6 ±1,074.3	90.8 ±4.4	244.7 ±22.9	335.5 ±22.9	5,852.1 ±1,082.8
Valdez-Cordov a	3,484.5	28.6	3,513.1	308.3	2,862.7	3,171.0	6,684.1
	±858.9	±45.1	±870.4	±54.9	±52.6	±77.7	±877.0
Wade Hampton	6,868.8	991.2	7,860.0	807.2	594.6	1,401.8	9,261.8
	±881.0	±77.3	±891.1	±39.8	±89.2	±99.8	±901.0
Yukon-Koyukuk	39,610.6	22.5	39,633.1	953.3	1,828.5	2,781.8	42,414.9
	±3,256.6	±47.4	±3,258.9	±121.5	±203.3	±239.5	±3,224.9
Total	155,631.4	2,920.6	158,552.0	10,787.6	20,300.9	31,088.5	189,640.5
	±4,992.2	±717.2	±5,175.4	±238.7	±843.8	±875.4	±4,997.5

#### Notes

- (\*) includes Estuarine deepwater, and all Riverine and Marine systems.
- When the estimate is 0.0, margins of error are not applicable and shown as a dashed line (--).
- Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.



Table 17 - Palustrine and Estuarine wetlands on water areas and Federal and Non-Federal land in 2007, by land cover/use and Reporting Area In thousands of acres, with margins of error

Reporting Area	Cropland, CRP land and pastureland	Rangeland	Forest land	Other rural land	Developed land	Water areas	Total
Anchorage - Mat-Su	0.0	1,826.0 ±667.8	1,293.5 ±756.2	203.5 ±365.6	0.7 ±1.0	108.8 ±18.7	3,432.5 ±1,151.9
Bethel	0.0	9,455.0 ±1,201.5	1,913.9 ±861.5	2,325.4 ±844.1	0.0	679.0 ±244.1	14,373.3 ±1,522.2
Denali	0.0	1,787.9 ±682.7	814.0 ±467.3	110.1 ±104.5	0.0	11.2 ±8.2	2,723.2 ±870.6
Dillingham	0.0	7,150.8 ±1,688.0	649.2 ±231.4	1,935.7 ±1,019.0	0.0	436.3 ±385.7	10,172.0 ±1,845.6
Fairbanks North Star	2.1 ±2.3	667.7 ±146.1	1,113.1 ±206.1	4.8 ±11.4	1.2 ±0.9	0.8 ±0.8	1,789.7 ±274.5
Kenai-Kodiak	0.7 ±1.6	1,366.1 ±416.5	509.4 ±294.1	167.1 ±127.9	0.0	263.5 ±305.2	2,306.8 ±792.3
Nome	0.0	6,003.4 ±1,370.7	227.3 ±168.8	1,512.6 ±491.9	0.0	112.2 ±97.5	7,855.5 ±1,183.0
North Slope	0.0	34,781.0 ±2,143.0	0.0	3,982.3 ±1,225.3	0.0	527.2 ±242.3	39,290.5 ±2,308.6
Northwest Arctic	0.0	12,035.1 ±1,168.2	1,155.5 ±495.9	764.9 ±294.1	0.0	301.2 ±203.4	14,256.7 ±1,095.0
Southeast	0.0	958.9 ±283.5	4,432.0 ±941.8	21.1 ±37.5	0.0	417.0 ±180.2	5,829.0 ±1,104.2
Southeast Fairbanks	0.4 ±0.8	3,103.5 ±1,049.0	2,317.2 ±772.5	1.3 ±2.0	0.0	94.2 ±80.4	5,516.6 ±1,074.3
Valdez- Cordov a	0.0	1,756.4 ±495.5	1,606.3 ±585.2	68.2 ±82.1	0.0	82.2 ±68.3	3,513.1 ±870.4
Wade Hampton	0.0	4,840.8 ±662.9	965.4 ±528.1	1,562.3 ±442.6	0.0	491.5 ±98.6	7,860.0 ±891.1
Yukon- Koyukuk	0.0	21,807.1 ±2,227.3	15,156.2 ±2,831.8	2,204.6 ±1,004.7	4.7 ±9.7	460.5 ±153.3	39,633.1 ±3,258.9
Total	3.2 ±2.9	107,539.7 ±3,745.1	32,153.0 ±4,015.0	14,863.9 ±2,346.2	6.6 ±9.7	3,985.6 ±800.7	158,552.0 ±5,175.4

#### Notes:

- Cropland includes cultivated and noncultivated cropland.
- When the estimate is 0.0, margins of error are not applicable and shown as a dashed line (--).
- Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.



 $\label{thm:continuous} \textbf{Table 21 - Scrub Shrub subcategory on Federal and non-Federal land in 2007, by Reporting Area In thousands of acres, with margins of error$ 

Reporting Area	Туре	Tall: over 5 feet	Low and Mid: 8 inches to 5 feet	Dwarf: less than 8 inches and Lichen	Total
Anchorage - Mat- Su	Federal	5.7 ±5.0	132.8 ±316.3	253.5 ±593.3	392.0 ±323.2
	Non-Federal	1,849.4 ±446.1	2,088.4 ±842.3	2,000.7 ±638.1	5,938.5 ±868.8
	Total	1,855.1 ±446.8	2,221.2 ±866.0	2,254.2 ±804.7	6,330.5 ±942.3
Bethel	Federal	1,479.1 ±806.6	1,700.5 ±458.4	6,212.2 ±1,176.8	9,391.8 ±746.8
	Non-Federal	1,106.9 ±358.5	2,140.3 ±602.2	2,588.2 ±785.9	5,835.4 ±613.3
	Total	2,586.0 ±861.2	3,840.8 ±941.6	8,800.4 ±1,564.9	15,227.2 ±1,060.4
Denali	Federal	614.4 ±307.2	1,206.9 ±392.4	654.3 ±318.1	2,475.6 ±503.8
	Non-Federal	344.6 ±121.0	959.9 ±361.5	332.2 ±154.8	1,636.7 ±246.2
	Total	959.0 ±360.0	2,166.8 ±603.1	986.5 ±407.5	4,112.3 ±636.3
Dillingham	Federal	3,202.0 ±953.0	3,790.6 ±665.0	2,155.8 ±759.9	9,148.4 ±1,041.2
	Non-Federal	3,350.2 ±1,209.4	4,644.4 ±994.7	3,580.0 ±1,028.3	11,574.6 ±1,370.9
	Total	6,552.2 ±1,696.1	8,435.0 ±1,151.3	5,735.8 ±1,393.8	20,723.0 ±1,914.0
Fairbanks North Star	Federal	162.6 ±73.4	62.2 ±44.8	27.6 ±42.2	252.4 ±72.0
	Non-Federal	410.4 ±89.6	477.3 ±151.8	202.0 ±92.0	1,089.7 ±206.8
	Total	573.0 ±115.7	539.5 ±163.1	229.6 ±104.9	1,342.1 ±212.2
Kenai-Kodiak	Federal	1,694.3 ±809.5	1,027.5 ±391.1	887.9 ±353.5	3,609.7 ±1,037.5
	Non-Federal	1,115.1 ±285.5	591.1 ±385.1	503.6 ±257.9	2,209.8 ±599.4
	Total	2,809.4 ±879.6	1,618.6 ±458.2	1,391.5 ±478.1	5,819.5 ±1,167.8
Nome	Federal	793.1 ±323.0	3,537.2 ±639.9	1,352.5 ±549.8	5,682.8 ±670.0
	Non-Federal	498.0 ±260.6	2,401.4 ±620.4	1,649.7 ±327.3	4,549.1 ±497.0
	Total	1,291.1 ±429.2	5,938.6 ±657.3	3,002.2 ±720.5	10,231.9 ±784.4



 $\label{thm:continuous} \textbf{Table 21 - Scrub Shrub subcategory on Federal and non-Federal land in 2007, by Reporting Area In thousands of acres, with margins of error}$ 

			Scrub Shrub subca	tegory	
Reporting Area	Туре	Tall: over 5 feet	Low and Mid: 8 inches to 5 feet	Dwarf: less than 8 inches and Lichen	Total
North Slope	Federal	404.3 ±214.4	15,043.0 ±2,707.2	17,062.9 ±3,036.7	32,510.2 ±1,523.1
	Non-Federal	78.6 ±95.5	7,571.4 ±1,328.2	5,373.6 ±1,236.2	13,023.6 ±521.7
	Total	482.9 ±236.3	22,614.4 ±3,185.0	22,436.5 ±3,621.3	45,533.8 ±1,582.3
Northwest Arctic	Federal	1,174.8 ±347.2	6,975.9 ±1,214.7	4,786.1 ±929.2	12,936.8 ±1,097.2
	Non-Federal	421.3 ±355.8	1,490.3 ±630.5	1,519.6 ±710.1	3,431.2 ±412.8
	Total	1,596.1 ±425.3	8,466.2 ±1,510.1	6,305.7 ±1,150.6	16,368.0 ±1,175.9
Southeast	Federal	2,218.8 ±643.1	1,352.6 ±428.3	1,205.6 ±555.7	4,777.0 ±921.2
	Non-Federal	517.7 ±163.7	126.6 ±50.9	235.6 ±152.6	879.9 ±189.2
	Total	2,736.5 ±667.9	1,479.2 ±454.3	1,441.2 ±566.7	5,656.9 ±926.4
Southeast Fairbanks	Federal	701.1 ±358.4	1,434.4 ±612.4	383.7 ±269.0	2,519.2 ±688.1
	Non-Federal	1,205.6 ±459.0	1,615.5 ±615.1	667.1 ±404.2	3,488.2 ±847.7
	Total	1,906.7 ±552.6	3,049.9 ±719.1	1,050.8 ±453.1	6,007.4 ±977.8
Valdez-Cordov a	Federal	1,154.9 ±338.9	1,669.8 ±523.7	890.6 ±406.1	3,715.3 ±562.6
	Non-Federal	902.6 ±261.9	884.5 ±429.0	722.4 ±457.7	2,509.5 ±782.0
	Total	2,057.5 ±456.5	2,554.3 ±629.4	1,613.0 ±565.1	6,224.8 ±1,042.7
Wade Hampton	Federal	1,018.7 ±498.9	1,238.6 ±759.2	2,936.7 ±744.9	5,194.0 ±975.5
	Non-Federal	99.6 ±93.5	354.9 ±221.0	595.5 ±261.7	1,050.0 ±120.8
	Total	1,118.3 ±450.6	1,593.5 ±866.2	3,532.2 ±780.8	6,244.0 ±932.6
Yukon-Koyukuk	Federal	9,055.8 ±929.4	15,310.2 ±2,670.4	5,005.0 ±1,502.8	29,371.0 ±2,476.0
	Non-Federal	4,284.1 ±1,199.2	6,105.9 ±1,778.7	2,218.4 ±958.3	12,608.4 ±2,596.9
	Total	13,339.9 ±1,536.8	21,416.1 ±2,852.0	7,223.4 ±1,898.5	41,979.4 ±3,265.5



 $\label{thm:continuous} \textbf{Table 21-Scrub Shrub subcategory on Federal and non-Federal land in 2007, by Reporting Area In thousands of acres, with margins of error$ 

	Туре	Scrub Shrub subcategory				
Reporting Area		Tall: over 5 feet	Low and Mid: 8 inches to 5 feet	Dwarf: less than 8 inches and Lichen	Total	
Total	Federal	23,679.6 ±2,018.2	54,482.2 ±3,618.6	43,814.4 ±3,814.5	121,976.2 ±4,550.5	
	Non-Federal	16,184.1 ±2,570.8	31,451.9 ±2,785.4	22,188.6 ±2,069.0	69,824.6 ±3,755.8	
	Total	39,863.7 ±3,278.6	85,934.1 ±4,817.3	66,003.0 ±4,238.8	191,800.8 ±6,037.4	

#### Notes

<sup>•</sup> Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.



Table 22 - Alaska Forest Type Group on Federal and Non-Federal forest land in 2007, by Reporting Area In thousands of acres, with margins of error

	Alaska Forest Type Group								
Reporting Area	Hemlock, Sitka spruce	Fir, spruce	Non- commercial	Paper birch, aspen, white spruce (*)	White spruce, paper birch, aspen (**)	Aspen- birch	Other Alaska hardwoods	Non- stocked	Total
Anchorage - Mat-Su	6.2 ±4.8	495.7 ±411.1	482.3 ±316.0	1,321.3 ±388.6	1,930.7 ±1,711.2	348.3 ±132.9	66.2 ±69.4	16.3 ±7.8	4,667.0 ±2,336.9
Bethel	0.0	679.3 ±410.6	2,711.8 ±865.0	523.6 ±355.1	735.3 ±354.8	60.5 ±62.4	26.8 ±38.0	0.0	4,737.3 ±1,146.6
Denali	0.0	338.1 ±185.0	768.2 ±294.0	278.3 ±153.7	438.7 ±279.2	84.5 ±68.5	0.8 ±1.7	58.6 ±118.8	1,967.2 ±653.4
Dillingham	0.0	1,230.7 ±721.5	503.8 ±332.9	916.0 ±491.0	1,983.8 ±907.3	136.3 ±104.9	23.7 ±45.8	46.3 ±98.1	4,840.6 ±1,133.1
Fairbanks North Star	0.0	442.7 ±153.6	982.6 ±173.9	722.9 ±154.3	564.7 ±85.3	297.4 ±91.3	1.2 ±1.8	197.3 ±143.0	3,208.8 ±202.2
Kenai- Kodiak	1,412.4 ±655.3	316.6 ±286.0	175.5 ±140.7	464.8 ±196.9	643.7 ±359.8	288.6 ±352.7	64.8 ±82.1	162.6 ±151.9	3,529.0 ±902.9
Nome	0.0	932.2 ±683.9	622.3 ±417.7	15.1 ±31.0	114.8 ±139.2	0.0	0.0	0.0	1,684.4 ±661.3
North Slope	0.0	23.0 ±47.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0 ±47.0
Northwest Arctic	0.0	1,860.1 ±712.9	883.1 ±406.8	349.3 ±222.2	585.2 ±370.6	56.1 ±71.5	19.5 ±42.4	59.2 ±85.3	3,812.5 ±1,016.2
Southeast	11,136.4 ±973.4	0.0	402.4 ±168.9	0.0	0.0	0.0	24.2 ±50.1	329.1 ±205.8	11,892.1 ±987.4
Southeast Fairbanks	0.0	1,253.5 ±433.4	2,165.9 ±696.5	1,338.8 ±431.8	1,464.9 ±530.1	535.6 ±266.6	0.6 ±1.4	1,761.9 ±1,065.7	8,521.2 ±1,001.3
Valdez- Cordov a	1,007.5 ±865.5	1,621.0 ±452.7	1,355.8 ±619.9	614.6 ±271.7	1,414.3 ±509.1	108.5 ±82.4	4.2 ±5.5	1.4 ±2.8	6,127.3 ±1,268.4
Wade Hampton	0.0	673.1 ±459.9	229.7 ±325.5	354.6 ±235.6	145.0 ±180.0	59.4 ±96.2	440.9 ±388.6	0.0	1,902.7 ±728.2
Yukon- Koyukuk	0.0	8,038.3 ±1,361.4	8,847.7 ±1,630.5	9,638.0 ±1,419.8	9,693.9 ±1,074.3	3,544.9 ±914.5	224.5 ±184.4	5,018.1 ±2,253.6	45,005.4 ±3,669.8
Total	13,562.5 ±1,379.9	17,904.3 ±1,739.8	20,131.1 ±2,548.7	16,537.3 ±1,871.0	19,715.0 ±2,926.1	5,520.1 ±930.6	897.4 ±416.2	7,650.8 ±2,650.4	101,918.5 ±5,201.9

- \* Paper birch, aspen, white spruce (>50% birch and/or aspen).

- \*\* White spruce, paper birch, aspen (>50% white spruce).

  When the estimate is 0.0, margins of error are not applicable and shown as a dashed line (--).

  Instances where the margin of error is greater than or equal to the estimate are displayed in italics indicating that the confidence interval includes zero and that the estimate should not be used; however, it also indicates that the actual value is greater than zero.