

# ENVIRON

## MEMORANDUM

**To:** Tom Moore and Lee Alter, Western Governors' Association  
**From:** Gerard Mansell and Abby Hoats  
**Date:** 15 July 2005  
**Subject:** Task 3 Summary – Draft GIS Data Documentation

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This memorandum documents the GIS data layers processed and archived as part Task 3 of the project. Based on the data evaluation efforts of Task 2, a selected set of GIS data layers were selected for further processing and archiving. Although only a limited number of data layers were considered under this task, all of the GIS data sets identified and collected during the project are being archived in their original formats. The data layers considered during this task (Task 3) were processed using ArcGIS and re-cast in a consistent coordinate projection system. In addition, the GIS layers were exported as both shapefiles (.SHP) and ArcINFO export (.E00) format coverages. Processed GIS data layers include administrative boundaries, population, transportation networks, land use/land cover (LULC) and surface characteristics, and soil properties. The GIS layers are documented herein with respect to the coverage names and descriptions, feature attributes and coverage type (line or polygon).

The documentation provided here is currently in draft form. Final documentation of GIS layers will be provided in the project Final Report.

### General Processing Applicable to all GIS Layers

The GIS data layers documented here were processed in a consistent manner to facilitate ease of use in a variety of applications. Depending on the data set and source, these GIS layers were obtained as ASCII raster grid files, ArcView shapefiles, or ArcINFO coverages. All data sets were reprocessed as ArcINFO coverages and re-cast into the National Inter-RPO coordinate project system. The Inter-RPO coordinate projection description is as follows:

#### COORDINATE SYSTEM DESCRIPTION

Projection	LAMBERT
Datum	NONE
Units	METERS
Spheroid	SPHERE
Parameters:	
1st standard parallel	33 0 0.000



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2nd standard parallel	45	0	0.000
central meridian	-97	0	0.000
latitude of projection's origin	40	0	0.000
false easting (meters)			0.00000
false northing (meters)			0.00000

For most layers, the resulting coverages were then overlaid with state and county boundaries and exported as ArcINFO export (.E00) files in order to facilitate transferring to other operating system platforms or other GIS software systems. The final GIS coverages were also converted to projected ArcView shapefiles and zipped for transfer.

### Administrative Boundary Layers

GIS layers for administrative boundaries were processed as polygon coverages. These include data layers for Class I Areas, State/County/Tribal boundaries, Federal lands, Canadian provinces and Mexican municipalities. Descriptions of these coverages, data sources and associated feature attributes are presented below.

#### Class I Areas owned/administered by the U.S. Forest Service, Fish and Wildlife Service, National Park Service and Bureau of Indian Affairs

CLASSI\_AREAS / Polygon

Source: National Park Service  
[www2.nature.nps.gov/air/Maps/classIloc.cfm](http://www2.nature.nps.gov/air/Maps/classIloc.cfm)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
CLASSI_AREAS#	4	5	B	-	Internal coverage #
CLASSI_AREAS-ID	4	5	B	-	Internal coverage id
NPS_NAME	80	80	C	-	Park name from NPS
FWS_NAME	80	80	C	-	Refuge name from FWS
FS_NAME	80	80	C	-	Wilderness area name from FS
BIA_NAME	80	80	C	-	Reservation name from BIA
CLASSI_NAME	80	80	C	-	Class I area name

Note: Polygons without names are artifacts of geoprocessing to union the four agencies' shapefiles.

#### Class I Areas administered by the U.S. Bureau of Indian Affairs

CL1\_BIA / Polygon

Source: National Park Service (list), [www.nationalatlas.gov](http://www.nationalatlas.gov) (polygons)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
CL1_BIA#	4	5	B	-	Internal coverage #
CL1_BIA-ID	4	5	B	-	Internal coverage id
FEATURE	80	80	C	-	Type of area (reservation)
ADMINSTRAT	5	5	C	-	Administering agency
NAME	80	80	C	-	Reservation name
STATE	14	14	C	-	2-letter state abbreviation
STATE_FIPS	14	14	C	-	State FIPS code

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**Class I Areas owned/administered by the U.S. Forest Service**

CL1\_FS / Polygon

Source: National Park Service

[www2.nature.nps.gov/air/Maps/classILoc.cfm](http://www2.nature.nps.gov/air/Maps/classILoc.cfm)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
CL1_FS#	4	5	B	-	Internal coverage #
CL1_FS-ID	4	5	B	-	Internal coverage id
PNAME	40	40	C	-	Wilderness area name

**Class I Areas owned/administered by the U.S. Fish and Wildlife Service**

CL1\_FWS / Polygon

Source: National Park Service

[www2.nature.nps.gov/air/Maps/classILoc.cfm](http://www2.nature.nps.gov/air/Maps/classILoc.cfm)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
CL1_FWS#	4	5	B	-	Internal coverage #
CL1_FWS-ID	4	5	B	-	Internal coverage id
FEATURE1	80	80	C	-	Primary type of area, e.g. National Wildlife Refuge Wilderness
FEATURE2	80	80	C	-	Secondary type of area
FEATURE3	80	80	C	-	Tertiary type of area
AGBUR	7	7	C	-	Owning or admin. agency
URL	150	150	C	-	URL (web address)
NAME1	80	80	C	-	Name for Feature1
NAME2	80	80	C	-	Name for Feature2
NAME3	80	80	C	-	Name for Feature3
STATE	14	14	C	-	2-letter state abbreviation
STATE_FIPS	14	14	C	-	State FIPS code

**Class I Areas owned/administered by the U.S. National Park Service**

CL1\_NPS / Polygon

Source: National Park Service

[www2.nature.nps.gov/air/Maps/classILoc.cfm](http://www2.nature.nps.gov/air/Maps/classILoc.cfm)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
CL1_NPS#	4	5	B	-	Internal coverage #
CL1_NPS-ID	4	5	B	-	Internal coverage id
ABREV	4	4	C	-	4-letter park abbreviation
PNAME	40	40	C	-	Park name
REGION	18	18	C	-	Region of the U.S. Alaska Mid Atlantic Midwest North Atlantic Pacific Northwest Rocky Mountain Southeast

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Southwest Western					
GEOG	4	4	C	-	ALAS, HAWA or USA
STFIPS	4	6	B	-	State FIPS code
STATE	2	2	C	-	2-letter state abbreviation
SCALE	10	10	C	-	Original map scale
DATE	4	6	B	-	Year of original map
SOURCE	20	20	C	-	Source of original map

**County boundaries of the US, PR and USVI (2001)**

COUNTY\_LCP / Polygon  
Source: www.nationalatlas.gov

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
COUNTY_LCP#	4	5	B	-	Internal coverage #
COUNTY_LCP-ID	4	5	B	-	Internal coverage id
STATE	2	2	C	-	State abbreviation
COUNTY	50	50	C	-	County name
FIPS	5	5	C	-	State/County FIPS code
STATE_FIPS	2	2	C	-	State FIPS code
SQUARE_MIL	8	19	F	3	County area (mi2)

**Federally-owned or administered lands of the US, PR and USVI**

FEDLAN\_LCP / Polygon  
Source: www.nationalatlas.gov

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
FEDLAN_LCP#	4	5	B	-	Internal coverage #
FEDLAN_LCP-ID	4	5	B	-	Internal coverage id
FEATURE1	80	80	C	-	Primary type of fed land
FEATURE2	80	80	C	-	Secondary type of fed land
FEATURE3	80	80	C	-	Tertiary type of fed land
AGBUR	7	7	C	-	Owning or admin. agency
URL	150	150	C	-	URL (web address)
NAME1	80	80	C	-	Name for Feature1
NAME2	80	80	C	-	Name for Feature2
NAME3	80	80	C	-	Name for Feature3
STATE	14	14	C	-	State abbreviation
STATE_FIPS	14	14	C	-	State FIPS code

**Indian lands of the US**

INDLAN\_LCP / Polygon  
Source: www.nationalatlas.gov

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
INDLAN_LCP#	4	5	B	-	Internal coverage #
INDLAN_LCP-ID	4	5	B	-	Internal coverage id
FEATURE	80	80	C	-	Type of feature



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ADMINSTRAT	5	5	C	-	Administering agency
NAME	80	80	C	-	Name of reservation
STATE	14	14	C	-	2-letter state abbreviation
STATE_FIPS	14	14	C	-	State FIPS code

### State boundaries of the US, PR and USVI

STATES\_LCP / Polygon  
Source: [www.nationalatlas.gov](http://www.nationalatlas.gov)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
STATES_LCP#	4	5	B	-	Internal coverage #
STATES_LCP-ID	4	5	B	-	Internal coverage id
STATE	20	20	C	-	State name
STATE_FIPS	2	2	C	-	State FIPS code

### Canadian Provinces

CANADA\_BND / Polygon  
Source: GIS Data Depot  
[data.geocomm.com](http://data.geocomm.com)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
CANADA_BND#	4	5	B	-	Internal coverage #
CANADA_BND-ID	4	5	B	-	Internal coverage id
CNTY_NAME	30	30	C	-	Province name
FIPSTCO	4	5	B	-	State and county FIPS code

### Mexican Municipalities

MEXICO\_BND / Polygon  
Source: Global Change Master Directory - Goddard Space Flight Center  
<ftp://ftp.ciesin.org/pub/data/Mexico>

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	8	18	F	5	Polygon area (m2)
PERIMETER	8	18	F	5	Polygon perimeter (m)
MEXICO_BND#	4	5	B	-	Internal coverage #
MEXICO_BND-ID	4	10	B	-	Internal coverage id
CNTY_NAME	50	50	C	-	Municipality name
FIPSTCO (FIPS)	4	5	B	-	State and county FIPS code

### Transportation Layers – Roads and Railways

GIS layers for transportation networks were processed as line coverages. These include data layers for roadways and railways within the United States, Canada and Mexico. Descriptions of these coverages, data sources and associated feature attributes are presented below.



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**United States Roads**

USRDS\_2000 / Line

Source: EPA SURROGATES

US Census Bureau - TIGER Data

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
FNODE#	4	5	B	-	From node #
TNODE#	4	5	B	-	To node #
LPOLY#	4	5	B	-	Left polygon #
RPOLY#	4	5	B	-	Right polygon #
LENGTH	4	12	F	3	Length (m)
USRDS_2000#	4	5	B	-	Internal coverage #
USRDS_2000-ID	4	5	B	-	Internal coverage id
CFCC	3	3	C	-	Census Bureau road class
UA	5	5	C	-	Urban area ID (Census Bureau)
NAME	90	90	C	-	Name of urban area
UA_TYPE	2	2	C	-	Urban area type
URBAN_FLAG	8	11	F	0	Urban area flag 1 Urban 2 Rural
NEWRD_CLAS	4	2	B	-	Road class derived from CFCC Code and urban areas 1 Urban primary 2 Rural primary 3 Urban secondary 4 Rural secondary
FIPSSTCO	5	5	C	-	State and county FIPS (char)
STATE	66	66	C	-	State name
COUNTY	66	66	C	-	County name
STFID	8	20	F	11	State and county FIPS (float)

**United States Railways**

US\_RAIL2K / Line

Source: EPA SURROGATES

Bureau of Transportation Statistics - Federal Railroad Administration

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
FNODE#	4	5	B	-	From node #
TNODE#	4	5	B	-	To node #
LPOLY#	4	5	B	-	Left polygon #
RPOLY#	4	5	B	-	Right polygon #
LENGTH	4	12	F	3	Length (m)
US_RAIL2K#	4	5	B	-	Internal coverage #
US_RAIL2K-ID	4	5	B	-	Internal coverage id
ABANDONED	1	1	C	-	Abandoned railroad flag A Abandoned
PASS	4	4	C	-	Type of passenger rail flag V VIA Line A Amtrak Line C Commuter Line T Tourist Line R Rapid Transit Line X Previous Passenger Line Y Undesignated Service
MILITARY	1	1	C	-	Type of military rail flag S line on STRACNET system

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FIELD	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
STATE	2	2	C	-	C connector to STRACNET State abbreviation
RR_CLASS	1	1	C	-	Railroad class 0 and U Unknown 1 Railroads with > \$250 million in revenues 2 Railroads with \$10-250 million in revenues 3 Railroads with < \$10 million in revenues A Abandoned
RAILROAD	31	31	C	-	Railroad name
CLASS1_LEN	4	13	F	3	Length of Class 1 railroad
CLASS2_LEN	4	13	F	3	Length of Class 2 railroad
CLASS3_LEN	4	13	F	3	Length of Class 3 railroad
CLASSA_LEN	4	13	F	3	Length of Class A railroad
CLASSU_LEN	4	13	F	3	Length of Class 0/U railroad
FIPSSTCO	5	5	C	-	State and county FIPS code
COUNTY	66	66	C	-	County name
STFID	8	20	F	11	State and county FIPS code

**Canada Roads**

CANADA\_RDS / Line  
Source: GIS Data Depot  
data.geocomm.com

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
FNODE#	4	5	B	-	From node #
TNODE#	4	5	B	-	To node #
LPOLY#	4	5	B	-	Left polygon #
RPOLY#	4	5	B	-	Right polygon #
LENGTH	4	12	F	3	Length (m)
CANADA_RDS#	4	5	B	-	Internal coverage #
CANADA_RDS-ID	4	5	B	-	Internal coverage id
RDLNTYPE	2	2	I	-	Road type 1 Dual lane (divided) highway 2 Primary and secondary road 3 Track, trail or footpath 8 Added connector within urbanized area polygon
CNTY_NAME	50	50	C	-	Province
FIPSSTCO (FIPS)	4	5	B	-	State and county FIPS code

**Canada Railways**

CANADA\_RRS / Line  
Source: GIS Data Dept  
data.geocomm.com

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
FNODE#	4	5	B	-	From node #
TNODE#	4	5	B	-	To node #
LPOLY#	4	5	B	-	Left polygon #
RPOLY#	4	5	B	-	Right polygon #



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FIELD	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
LENGTH	4	12	F	3	Length (m)
CANADA_RRS#	4	5	B	-	Internal coverage #
CANADA_RRS-ID	4	5	B	-	Internal coverage id
RRLNTYPE	2	2	I	-	Railroad line type 1 Single track 2 Multiple track 3 Light-duty, including carlines, tramways and other similar light-loads 8 Added connector within urbanized area polygon
CNTY_NAME	50	50	C	-	Province
FIPSSTCO (FIPS)	4	5	B	-	State and county FIPS code

**Mexico Roads**

MEXICO\_RDS / Line  
 Source: GIS Data Depot  
 data.geocomm.com

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
FNODE#	4	5	B	-	From node #
TNODE#	4	5	B	-	To node #
LPOLY#	4	5	B	-	Left polygon #
RPOLY#	4	5	B	-	Right polygon #
LENGTH	4	12	F	3	Length (m)
MEXICO_RDS#	4	5	B	-	Internal coverage #
MEXICO_RDS-ID	4	5	B	-	Internal coverage id
RDLNTYPE	2	2	I	-	Road type 1 Dual lane (divided) highway 2 Primary and secondary road 3 Track, trail or footpath 8 Added connector within urbanized area polygon
CNTY_NAME	50	50	C	-	Municipality
FIPSSTCO (FIPS)	4	5	B	-	State and county FIPS code

**Mexico Railways**

MEXICO\_RRS / Line  
 Source: GIS Data Dept  
 data.geocomm.com

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
FNODE#	4	5	B	-	From node #
TNODE#	4	5	B	-	To node #
LPOLY#	4	5	B	-	Left polygon #
RPOLY#	4	5	B	-	Right polygon #
LENGTH	4	12	F	3	Length (m)
MEXICO_RRS#	4	5	B	-	Internal coverage #
MEXICO_RRS-ID	4	5	B	-	Internal coverage id
RRLNTYPE	2	2	I	-	Railroad line type 1 Single track 2 Multiple track 3 Light-duty, including carlines, tramways and



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other similar light-loads  
 8 Added connector within  
 urbanized area polygon

CNTY_NAME	50	50	C	-	Municipality
FIPSSCTCO (FIPS)	4	5	B	-	State and county FIPS code

## Population Layers

GIS layers for population and demographics were processed as polygon coverages. These include data layers for the United States, Canada and Mexico. The US population data is developed at the Census block level. Canada and Mexico population data are available at equivalent census divisions for these countries. Gridded (2.5 arc-minute) populations for the year 2000 are also provided for Canada and Mexico. Descriptions of these coverages, data sources and associated feature attributes are presented below.

### United States Population 2000

US\_POP2K / Polygon  
 Source: EPA SURROGATES  
 2000 US Census Bureau Data

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
LCP_POP#	4	5	B	-	Internal coverage #
LCP_POP-ID	4	5	B	-	Internal coverage id
STUSAB	2	2	C	-	State abbreviation
POP2000	8	19	F	3	Total population from STF 1
POP_DENS	8	18	F	8	Population density
CNTY_POP	8	24	F	4	County population
FIPS	4	5	B	-	State and county FIPS code

### Canada Population 2001

CAN\_POP / Polygon  
 Source: GeoGratis Geospatial data of Canada  
<http://geogratis.cgdi.gc.ca/clf/en>

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
CAN_POP#	4	5	B	-	Internal coverage #
CAN_POP-ID	4	5	B	-	Internal coverage id
CDUID	4	4	C	-	Census division id (2-digit province code and 2-digit census division code)
CDPOP2001	4	11	F	0	2001 population
CDPOP_96_01	4	18	F	1	Population change from 1996 to 2001, using 2001 boundaries
CDDENS2001	4	18	F	1	2001 population density by census division
CDPOP1996	4	11	F	0	1996 population adjusted to 2001 census div. boundaries
PRUID	2	2	C	-	Province/territory identifier

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ECUMENE	1	1	I	-	Ecumene flag 1 ecumene 0 out of ecumene (sparsely populated)
LAND_WATER	1	1	I	-	Land/water flag 1 land 2 water

### Canada Population 2000 (Gridded)

CANADA\_P2000 / Polygon

Source: Gridded Population of the World, Version 3

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
CANADA_P2000#	4	5	B	-	Internal coverage #
CANADA_P2000-ID	4	5	B	-	Internal coverage id
POP_DENS	8	12	F	6	Population density (persons/km2)
CNTY_NAME	30	30	C	-	Province
FIPSSTCO (FIPS)	4	5	B	-	State and county FIPS code

### Mexico Population (??2001??)

MEX\_MUN / Polygon

Source: Global Change Master Directory - Goddard Space Flight Center

<ftp://ftp.ciesin.org/pub/data/Mexico>

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
MEX_MUN#	4	5	B	-	Internal coverage #
MEX_MUN-ID	4	5	B	-	Internal coverage id
CAP-NAME	50	50	C	-	
MEXLOCALS-ID	10	10	N	0	
MUNI-M	2	2	C	-	
LOCALITY	50	50	C	-	
POPULATION	10	10	N	0	
POPSQKM	10	10	N	1	
MEN	10	10	N	0	
WOMEN	10	10	N	0	
POP>15	10	10	N	0	
POP6-14	10	10	N	0	
POP<6	10	10	N	0	
POP6-14RW	10	10	N	0	
POP6-14NORW	10	10	N	0	
POP>15LIT	10	10	N	0	
POP>15NOLIT	10	10	N	0	
FIPSSTCO	4	5	B	-	
STFIPS	4	5	B	-	



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**Mexico Population 2000 (Gridded)**

MEXICO\_P2000 / Polygon

Source: Gridded Population of the World, Version 3

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
MEXICO_P2000#	4	5	B	-	Internal coverage #
MEXICO_P2000-ID	4	5	B	-	Internal coverage id
POP_DENS	8	12	F	6	Population density (persons/km2)
CNTY_NAME	30	30	C	-	Municipality
FIPSSTCO (FIPS)	4	5	B	-	State and county FIPS code

**Soil Data Layers**

GIS layers for soil characteristics were processed as polygon coverages. These include data layers for soil erodibility, soil texture, and soil pH for the conterminous US and soil texture for Canada and Mexico. Descriptions of these coverages, data sources and associated feature attributes are presented below.

**Soil erodability in the 48 contiguous United States**

SOIL\_KFAC / Polygon

Source: [www.essc.psu.edu/soil\\_info](http://www.essc.psu.edu/soil_info)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
LCP_KFAC_CTY#	4	5	B	-	Internal coverage #
LCP_KFAC_CTY-ID	4	5	B	-	Internal coverage id
KFACT	4	6	F	2	Soil erodability factor (adjusted for rock fragments)
KFFACT	4	6	F	2	Soil erodability factor
FIPS	5	5	C	-	State/county FIPS code

**Soil pH in the 48 contiguous United States**

SOIL\_PH / Polygon

Source: [www.essc.psu.edu/soil\\_info](http://www.essc.psu.edu/soil_info)

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
LCP_PH_CTY#	4	5	B	-	Internal coverage #
LCP_PH_CTY-ID	4	5	B	-	Internal coverage id
PH	4	4	F	1	Soil pH
FIPS	5	5	C	-	State/county FIPS code

**Soil texture in the 48 contiguous United States**

SOIL\_TEXT / Polygon

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Source: www.essc.psu.edu/soil\_info

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
LCP_SOIL_CTY#	4	5	B	-	Internal coverage #
LCP_SOIL_CTY-ID	4	5	B	-	Internal coverage id
L1_TCODE (TCODE)	2	3	B	-	Soil texture code
					1 Sand
					2 Loamy Sand
					3 Sandy Loam
					4 Silt Loam
					5 Silt
					6 Loam
					7 Sandy Clay Loam
					8 Silty Clay Loam
					9 Clay Loam
					10 Sandy Clay
					11 Silty Clay
					12 Clay
					13 Organic Materials
					14 Water
					15 Bedrock
					16 Other
ROCKDEPM	2	4	B	-	Depth to bedrock (m)
ABBREV	4	6	C	-	Soil texture abbreviation
					S Sand
					LS Loamy Sand
					SL Sandy Loam
					SiL Silt Loam
					Si Silt
					L Loam
					SCL Sandy Clay Loam
					SiCL Silty Clay Loam
					CL Clay Loam
					SC Sandy Clay
					SiC Silty Clay
					C Clay
					OM Organic Materials
					W Water
					BR Bedrock
					O Other
NAME	18	18	C	-	Soil texture name
FIPS	5	5	C	-	State/county FIPS code

**Soil texture for Canada**

CANADA\_SOILS / Polygon

Source: Canadian Soil Information System - Agriculture and Agri-Food of Canada ([http://sis.agr.gc.ca/cansis/nsdb/slc/v2.1/download\\_slc.html](http://sis.agr.gc.ca/cansis/nsdb/slc/v2.1/download_slc.html))

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)



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CANADA_SOILS#	4	5	B	-	Internal coverage #
CANADA_SOILS-ID	4	5	B	-	Internal coverage id
TEXTCODE	4	5	B	-	Soil texture code
					1 Sand
					2 Loamy Sand
					3 Sandy Loam
					4 Silt Loam
					5 Silt
					6 Loam
					7 Sandy Clay Loam
					8 Silty Clay Loam
					9 Clay Loam
					10 Sandy Clay
					11 Silty Clay
					12 Clay
					13 Organic Materials
					14 Water
					15 Bedrock
					16 Other
CNTY_NAME	30	30	C	-	Province
FIPSSTCO	4	5	B	-	State/county FIPS code

**Soil texture for Mexico**

MEXICO\_SOILS / Polygon

Source: International Soil Reference and Information Centre (ISRIC)

<http://www.isric.nl/SOTER/>

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	4	12	F	3	Polygon area (m2)
PERIMETER	4	12	F	3	Polygon perimeter (m)
MEXICO_SOILS#	4	5	B	-	Internal coverage #
MEXICO_SOILS-ID	4	5	B	-	Internal coverage id
TEXTCODE	4	5	B	-	Soil texture code
					1 Sand
					2 Loamy Sand
					3 Sandy Loam
					4 Silt Loam
					5 Silt
					6 Loam
					7 Sandy Clay Loam
					8 Silty Clay Loam
					9 Clay Loam
					10 Sandy Clay
					11 Silty Clay
					12 Clay
					13 Organic Materials
					14 Water
					15 Bedrock
					16 Other
CNTY_NAME	30	30	C	-	Province
FIPSSTCO	4	5	B	-	State/county FIPS code

**Land Use/Land Cover Data layers**

GIS layers for land use/land cover (LULC) and surface characteristics were processed as polygon coverages. These include data layers for the 2000 North America LULC (NALC-2000),



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Gap Analysis Program LULC and fractional vegetative cover for the US. The 2001 National Land Cover Database (NLCD-2001) program has achieved only minimal progress to date (see Figure 1 below). Therefore, this database was not currently processed to the extent the NALC and GAP data, although we continue to track the development of these data. Descriptions of these coverages, data sources and associated feature attributes are presented below.

#### North America Land Cover 2000

NALC\_2000 / Polygon

Source: Global Land Cover 2000 Project

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	8	18	F	5	Polygon area (m2)
PERIMETER	8	18	F	5	Polygon perimeter (m)
NALC_2000#	4	5	B	-	Internal coverage #
NALC_2000-ID	4	5	B	-	Internal coverage id
GRID-CODE	4	8	B	-	Land use code
					1 Tropical or Sub-tropical Broadleaved Evergreen Forest - Closed Canopy
					2 Tropical or Sub-tropical Broadleaved Deciduous Forest - Closed Canopy
					3 Temperate or Sub-polar Broadleaved Deciduous Forest - Closed Canopy
					4 Temperate or Sub-polar Needleleaved Evergreen Forest - Closed Canopy
					5 Temperate or Sub-polar Needleleaved Evergreen Forest - Open Canopy
					6 Temperate or Sub-polar Needleleaved Mixed Forest - Closed Canopy
					7 Temperate or Sub-polar Mixed Broadleaved or Needleleaved Forest - Closed Canopy
					8 Temperate or Sub-polar Mixed Broadleaved or Needleleaved Forest - Open Canopy
					9 Temperate or Subpolar Broadleaved Evergreen Shrubland - Closed Canopy
					10 Temperate or Subpolar Broadleaved Deciduous Shrubland - Open Canopy
					11 Temperate or Subpolar Needleleaved Evergreen Shrubland - Open Canopy
					12 Temperate or Sub-polar Mixed Broadleaved and Needleleaved Dwarf-Shrubland - Open Canopy
					13 Temperate or Subpolar Grassland



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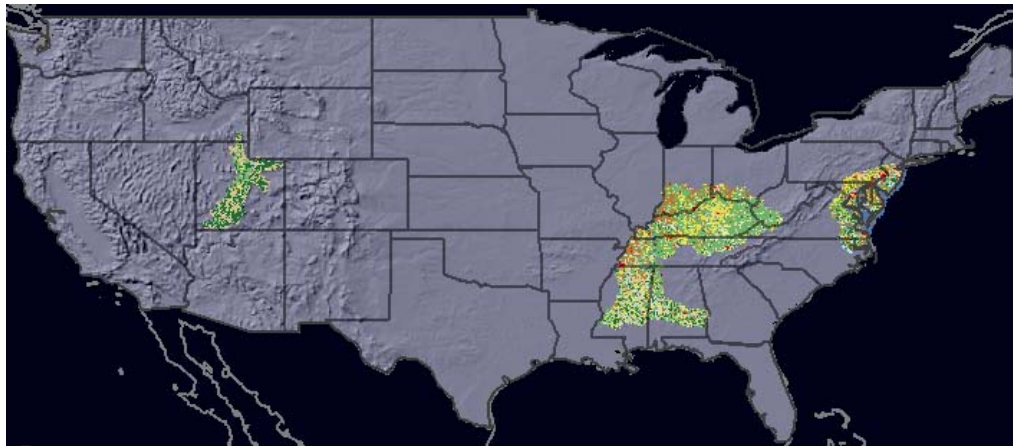
- 14 Temperate or Subpolar Grassland with a Sparse Tree Layer
- 15 Temperate or Subpolar Grassland with a Sparse Shrub Layer
- 16 Polar Grassland with a Sparse Shrub Layer
- 17 Polar Grassland with a Dwarf-Sparse Shrub Layer
- 18 Cropland
- 19 Cropland and Shrubland/woodland
- 20 Subpolar Needleleaved Evergreen Forest Open Canopy - lichen understory
- 21 Unconsolidated Material Sparse Vegetation (old burnt or other disturbance)
- 22 Urban and Built-up
- 23 Consolidated Rock Sparse Vegetation
- 24 Water bodies
- 25 Burnt area (resent burnt area)
- 26 Snow and Ice
- 27 Wetlands
- 28 Herbaceous Wetlands
- 29 Tropical or Sub-tropical Broadleaved Evergreen Forest - Open Canopy

DESC	80	80	C	-	Land use description
FIPSSTCO	5	5	I	-	State and county FIPS

**USGS National Land Cover Data (NLCD) 2001**

Source: USGS Seamless Data Distribution Site  
<http://seamless.usgs.gov>

Current status: Only three areas available for download - not enough for archiving at this time.



**Figure 1.** Status map of 2001 NLCD.



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**US Gap Analysis Program (GAP)**

Gap Analysis Program (GAP) is intended to provide regional assessments of the conservation status of native vertebrate species and natural land cover types and to facilitate the application of this information to land management activities. As such, the program involves separate data development efforts for each state. Therefore, the data are available by state and/or region using a variety of classification schemes. The data represents LULC based on information from the mid-1990's to 2001. For the development of the nation-wide GIS data layer documented here, each state and/or region's data files were reviewed to determine the most recent date represented to be used in assembling the database. Table 1 presents the development status of the GAP program, the representative year of the data for each state and/or region, the data file names, and the final data source used for this project.

Because each data layer from the source used different land classification schemes, a common classification of the land cover types was required. Table 2 presents the classification scheme developed for this project. The original LULC codes, as used in the source data layers, were maintained in the final coverages assembled here, and thus allow additional detailed categorization of the data for any particular application desired. Tables 3 through 24 present the original classification scheme used in each of the source data layers as well as the cross-reference to the LULC codes presented in Table 2. These tables are also available as ArcINFO INFO data files for use within a GIS. The basic description of the polygon feature attributes for the GAP LULC coverages is provided below. GAP coverages were assembled separately from each of the original GIS data layers, and as composite layers for each RPO individually and for the entire US as a whole.

During processing and assembling these data layers into regional composites, small polygons occasionally and had no attributes. The regional composite data layers were therefore merged with the NLCD-92 data layers to fill in these missing attributes. This gap-filling procedure was also applied in cases where the source data layers included un-coded, or unknown, land cover types.

US\_GAP\_NL / Polygon  
 Source: Gap Analysis Program; Various  
<ftp.gap.uidaho.edu/products/>

ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	8	18	F	5	Polygon area (m2)
PERIMETER	8	18	F	5	Polygon perimeter (m)
GAP_US_NL#	4	5	B	-	Internal coverage #
GAP_US_NL-ID	4	5	B	-	Internal coverage id
REG_CODE	4	8	B	-	State/Regional GAP LULC code (see Tables 3 through 24)
DATA_SOURCE	60	60	C	-	GAP Source data file
LU_CODE	4	5	B	-	LULC code (see Table 2)
REG_DESC	60	60	C	-	State/Regional GAP LULC description
DESC	60	60	C	-	LULC code description
SUM_KEY	4	5	B	-	Summary LULC code(see Table 2)
RPO	60	60	C	-	Regional Planning Organization

**Table 1.** Status of GAP files as of July 1, 2005



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State	RPO	Regional GAP File <sup>1</sup>	Year of Regional	State GAP File	Publication Year	Download <sup>2</sup>	Est. Compl. Year	Final Data Source File
Alabama	VISTAS	SE	1998	not available	na		2006	SE
Alaska	WRAP			not available	na		not started	n/a
Arizona	WRAP	W	1997	az_gapveg99d	1999	x	completed	az_gapveg99d
Arkansas	CENRAP			ar_landcov	1999?	x	completed	ar_landcov
California	WRAP	W	1997	ca_landcover	1998	x	completed	W
Colorado	WRAP	W,GP	1997, ?	co_grid	1998	x	completed	co_grid
Connecticut	MANE-VU			sne_landcover	1997	x	completed	sne_landcover
Delaware	MANE-VU	MA	1993	DE_landcover	?		completed	MA
Florida	VISTAS	SE	1998	fl_grid	2000	x	completed	fl_grid
Georgia	VISTAS	SE	1998	galandcover	1998		completed	SE
Hawaii	WRAP			not available	na		2005	n/a
Idaho	WRAP	W, NW	1997, 1999	idveg	2nd gen		completed	NW
Illinois	Midwest RPO			not available	na		2005	NLCD
Indiana	Midwest RPO			available soon	na		draft completed	NLCD
Iowa	CENRAP			ia_landcovc	2001	x	completed	ia_landcovc
Kansas	CENRAP	GP (no data)	?	ks_grid	2001	x	completed	ks_grid
Kentucky	VISTAS	SE	1998	ky_grid	2001	x	completed	ky_grid
Louisiana	CENRAP			la_veg_clipd	1998	x	completed	la_veg_clipd
Maine	MANE-VU			me_landcover	1998	x	completed	me_landcover
Maryland	MANE-VU	MA	1993	md_landcover	?		completed	MA
Massachusetts	MANE-VU			sne_landcover	1997	d	completed	sne_landcover
Michigan	Midwest RPO			not available	na		completed	NLCD
Minnesota	CENRAP			not available	na		2005	NLCD
Mississippi	VISTAS	SE	1998	MS_landcover	na		draft completed	SE
Missouri	CENRAP			mo_landcover	1999	x	draft completed	mo_landcover
Montana	WRAP	W	1997	mt_landcovgd	1998	x	completed	mt_landcovgd
Nebraska	CENRAP	GP (no data)	?	not available	na		2005	NLCD
Nevada	WRAP	W	1997	nv_landcover	1996	x	completed	W
New Hampshire	MANE-VU			not available	na		2007	NLCD
New Jersey	MANE-VU	MA	1993	njlandcov	?		completed	MA
New Mexico	WRAP	W	1997	nm_veg	1996	x	completed	W
New York	MANE-VU	MA (partial)	1993	ny_landcov_clpd	2000	x	completed	ny_landcov_clpd
North Carolina	VISTAS	SE	1998	not available	na		2005	SE
North Dakota	WRAP			not available	na		2005	NLCD
Ohio	Midwest RPO			not available	na		2007	NLCD
Oklahoma	CENRAP			ok_veg90m	2001	x	completed	NLCD
Oregon	WRAP	W, NW	1997, 1999	or_landcovgd	1998	x	completed	NW
Pennsylvania	MANE-VU	MA (partial)	1993	pa_lcg_cld	1999	x	completed	pa_lcg_cld
Rhode Island	MANE-VU			sne_landcover	1997	d	completed	sne_landcover
South Carolina	VISTAS	SE	1998	sc_grid	2001	x	completed	sc_grid
South Dakota	WRAP	GP (no data)	?	lc not available	na		completed	NLCD
Tennessee	VISTAS	SE	1998	not available	na		2005	SE
Texas	CENRAP			tx_grid	2003	x	completed	tx_grid
Utah	WRAP	W	1997	ut_landcover	?	x	completed	W
Vermont	MANE-VU			not available	na		2007	NLCD
Virginia	VISTAS	SE,MA(partial)	1998, 1993	va_grid	2000		completed	SE
Washington	WRAP	W, NW	1997, 1999	wa_landcovd	1997	x	completed	NW
West Virginia	VISTAS			wv_grid	2000	x	completed	wv_grid
Wisconsin	Midwest RPO			not available	na		2005	NLCD
Wyoming	WRAP	W, GP	1997, ?	wy_gapveg	1996	x	completed	W
<sup>1</sup> Regional GAP Files: SE=Southeast; MA=Mid-Atlantic; GP=Great Plains; W=West; NW=Northwest								
<sup>2</sup> Data downloaded from ftp.gap.uidaho.edu/products (d indicates duplicate)								
Not in any regional file; Have state coverage								
State coverage may be more recent than version used in regional file								

**Table 2.** GAP LULC classification scheme for regional composites.



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LU_CODE	DESC	SUM_KEY
<b>10</b>	<b>Urban and Built-up</b>	1
11	Low Density Residential	1
12	Medium Density Residential	1
13	High Density Residential	1
14	Commercial/Industrial	1
15	Urban Recreational Grasses	1
<b>20</b>	<b>Agricultural</b>	2
21	Hay/Pasture	2
22	Row Crops	2
23	Mixed Crops	2
24	Orchards/Vineyards	2
25	Confined Feeding Operations	2
26	Other	2
27	Fallow	2
<b>30</b>	<b>Rangeland</b>	3
31	Herbaceous Rangeland	3
32	Shrub and Brush Rangeland	3
33	Mixed Rangeland	3
<b>40</b>	<b>Grasslands</b>	3
41	Low Density	3
42	Meduim Density	3
43	High Density	3
<b>50</b>	<b>Shrublands</b>	3
51	Low Density	3
52	Meduim Density	3
53	High Density	3
<b>60</b>	<b>Forest</b>	4
61	Deciduous Forest	4
62	Evergreen Forest	4
63	Mixed Forest	4
<b>70</b>	<b>Water</b>	5
71	Open Water	5
72	Lakes	5
73	Streams/Rivers	5
74	Bays and Estuaries	5
<b>80</b>	<b>Wetlands</b>	6
81	Forested Wetlands	6
82	Non-Forested Wetlands	6
<b>90</b>	<b>Barren Lands</b>	7
91	Dry Salt Flats	7
92	Beaches	7
93	Sandy Areas other than Beache	7
94	Bare Exposed Rock	7
95	Strip Mines, Quarries, Gravel	7
96	Mixed Barren Lands	7
<b>100</b>	<b>Tundra</b>	8
101	Shrub and Brush Tundra	8

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102	Herbaceous Tundra	8
103	Bare Ground Tundra	8
104	Wet Tundra	8
105	Mixed Tundra	8
<b>110</b>	<b>Perennial Snow/Ice</b>	<b>9</b>

**Table 3.** GAP LULC codes for the Western region (includes CA, NV, NM, UT, WY)

REG_CODE	REG_DESC	LU_CODE
1	Subalpine Pine	62
2	Subalpine Spruce-Fir - Mountain Hemlock	62
3	Red Fir	62
4	Mixed Sugar Pine	62
5	Ponderosa Pine	62
6	Ponderosa Pine/Shrub	62
7	Ponderosa P. / Oak-Juniper-Pinyon	62
8	Jeffrey Pine	62
9	Lodgepole Pine	62
10	Knobcone Pine	62
11	Monterey Pine	62
12	Bishop Pine	62
13	Lodgepole Pine - Douglas-fir	62
14	White Fir - Douglas-fir	62
15	White fir	62
16	White fir - Douglas-fir/Shrub	62
17	Douglas-Fir - White Fir - Blue Spruce	62
18	Aspen	61
19	Aspen - Conifer	63
20	Coastal Lodgepole Pine	62
21	Limber Pine	62
22	California Bay	62
23	Eucalyptus	62
24	Oregon White Oak - Conifer	61
25	Oregon White Oak	61
26	California Oak-Conifer	61
27	California Oak	61
28	Madrean Oak	61
29	Southern Rockies Oak-Mahogany Scrub	63
30	Southern Rockies Oak-Manzanita Scrub	63
31	Mixed Oak	61
32	Bur Oak	61
33	Cypress	61
34	Inland Douglas-fir	62
35	Inland Douglas-fir - Western Red Cedar	62
36	Inland Western Red Cedar - Western Hemlock	62
37	Inland Western Red Cedar	62
38	Douglas-fir - Tanoak - Pacific Madrone	62
39	Douglas-fir - Sugar Pine - Ponderosa Pine	62
40	Douglas-fir - Ponderosa Pine - Incense Cedar	62
41	Pacific Silver Fir	62
42	Sitka Spruce	62



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REG_CODE	REG_DESC	LU_CODE
43	Ponderosa Pine - Lodgepole Pine	62
44	California Foothill Pine	62
45	Colorado Mixed Forest	63
46	Western Larch - Grand Fir	62
47	Western White Pine	62
48	Grand Fir - Douglas-fir	62
49	Western Larch - Douglas-fir	62
50	Westside Western Hemlock - Western Red Cedar	62
51	Westside Douglas-fir - Western Hemlock	62
52	Westside Douglas-fir	62
53	Meadow	40
54	Bitterbrush	40
55	Riparian / Wetland	82
56	Ash	61
57	Maple	61
58	Estuary	74
59	Interior Chapparal	32
60	California Chapparal	32
61	Mountain Shrub/Clearcut	51
62	Forest Meadow	40
63	Alpine/Subalpine Meadows	40
64	Mesic Upland Shrub/Hardwoods	50
65	Warm Mesic Shrub	50
66	Cold Mesic Shrub	50
67	Juniper	50
68	Pinyon Pine	50
69	Pinyon-Juniper	50
70	Mountain Mahogany	62
71	Chihuahua-Apache Pine	62
72	Madrean Pinyon-Juniper	62
73	Redberry Juniper	62
74	Sagebrush	32
75	Sagebrush/Perennial Grass	32
76	Rabbitbrush	32
77	Great Basin Grassland	40
78	California Disturbed Grassland	40
79	California Native Perennial Grassland	40
80	Foothills Grassland	40
81	Short Grass Prairie	41
82	Mid-Grass Prairie	42
83	Tall Grass Prairie	43
84	Desert Grassland	41
85	Salt Desert Shrub	51
86	Blackbrush	51
87	Creosote - Bursage	51
88	Greasewood	50
89	Hopsage	32
90	Mesquite	32
91	Mojave Mixed Scrub	32
92	Great Basin Mormon Tea	32

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REG_CODE	REG_DESC	LU_CODE
93	Joshua Tree	32
94	Great Basin Saltbush Scrub	32
95	Mojave Creosotebush - Yucca	32
96	Shadescale - Mixed Grass - Mixed Scrub	32
97	Catclaw Acacia	32
98	Paloverde-Mixed Cacti-Scrub	32
99	Crucifixion Thorn	32
100	Smoketree	32
101	Semidesert Tobosa Grass-Scrub	32
102	Semidesert Mixed Grass	32
103	Chihuahuan Creosotebush Scrub	32
104	Chihuahaun Grassland	50
105	Plains Sandsage Scrub	50
106	Coastal Dune Scrub	51
107	Coastal Redwood	62
108	Coastal Sage	52
109	Coastal Scrub	52
110	Standing Dead Tree Stands	96
111	Water	70
112	Cloud	110
113	Agriculture	20
114	Highly Developed	10
115	Inland Dune	93
116	Barren	90

**Table 4.** GAP LULC codes for the Northwest region (includes OR, WA, ID)

REG_CODE	REG_DESC	LU_CODE
1000	Urban/developed	10
2000	Agricultural	20
3000	Vegetated: non-forested	40
3100	Grasslands	40
3110	Grasslands	40
3120	Subalpine meadow	41
3130	Wet meadow	82
3200	Upland shrublands	50
3300	Xeric shrublands	50
3301	Big sagebrush	52
3302	Other sagebrush	50
3303	Salt-desert shrub	51
3304	Bitterbrush	50
3305	Mountain Mahogany	50
3306	Rabbitbrush	50
4000	Vegetated: forested	60
4100	Deciduous forest	61
4110	Xeric deciduous forest	61
4120	Mexic deciduous forest	61
4200	Coniferous forest	62
4210	Coastal coniferous forest	62

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REG_CODE	REG_DESC	LU_CODE
4211	Sitka spruce	62
4213	Lodgepole pine	62
4219	Mixed coastal forest	62
4220	Xeric coniferous forest	62
4221	Ponderosa pine	62
4222	Jeffrey pine	62
4223	Douglas-fir	62
4224	Pinyon pine	62
4225	Western juniper	62
4226	Utah juniper	62
4227	Limber pine	62
4228	Mixed xeric forest	62
4230	Mesic coniferous forest	62
4231	Lodgepole pine	62
4232	Grand fir	62
4233	Douglas-fir	62
4234	Englemann spruce	62
4235	Western red cedar	62
4236	Western hemlock	62
4237	Western larch	62
4239	Mixed mesic conifer forest	62
4240	Subalpine coniferous forest	62
4241	Subalpine fir	62
4242	Whitebark pine	62
4243	Mountain hemlock	62
4244	Pacific silver fir	62
4249	Mixed subalpine coniferous forest	62
4300	Mixed deciduous / coniferous forest	63
4310	Xeric mixed forest	63
4320	Mesic mixed forest	63
5000	Water	70
6000	Riparian / wetland	80
6100	Forested riparian	81
6110	Coniferous forested riparian	81
6120	Deciduous forested riparian	81
6130	Mixed coniferous / deciduous riparian	81
6200	Non-forested riparian	82
6210	Shrub-dominated riparian	82
6220	Graminoid / forb-dominated riparian	82
6300	Estuarine marsh	74
7000	Non-vegetated	90
7100	Exposed rock	94
7200	Sand	93
7300	Lava	90
7400	Tidal flat	90
8000	Alpine	40
8100	Alpine meadows	40

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REG_CODE	REG_DESC	LU_CODE
9000	Permanent ice and snow	110
9800	Cloud	110
9900	Cloud shadow	110

**Table 5.** GAP LULC codes for Colorado  
To be completed

**Table 6.** GAP LULC codes for Arizona  
To be completed

**Table 7.** GAP LULC codes for Montana

REG_CODE	REG_DESC	LU_CODE
1100	URBAN OR DEVELOPED LANDS	10
2010	AGRICULTURAL LANDS - DRY	20
2020	AGRICULTURAL LANDS - IRRIGATED	20
3110	ALTERED HERBACEOUS	40
3130	VERY LOW COVER GRASSLANDS	41
3150	LOW/ MODERATE COVER GRASSLANDS	42
3170	MODERATE/ HIGH COVER GRASSLANDS	43
3180	MONTANE PARKLANDS & SUBALPINE MEADOWS	40
3200	MIXED MESIC SHRUBS	50
3300	MIXED XERIC SHRUBS	50
3309	SILVER SAGE	50
3310	SALT-DESERT SHRUB/ DRY SALT FLATS	91
3350	SAGEBRUSH	30
3510	MESIC SHRUB-GRASSLAND ASSOCIATIONS	32
3520	XERIC SHRUB-GRASSLAND ASSOCIATIONS	32
4000	LOW DENSITY XERIC FOREST	60
4140	MIXED BROADLEAF FOREST	63
4203	LOGEPOLE PINE	62
4205	LIMBER PINE	62
4206	PONDEROSA PINE	62
4207	GRAND FIR	62
4210	WESTERN RED CEDAR	62
4211	WESTERN HEMLOCK	62
4212	DOUGLAS-FIR	62
4214	ROCKY MOUNTAIN JUNIPER	62
4215	WESTERN LARCH	62
4216	UTAH JUNIPER	62
4223	DOUGLAS-FIR/ LODGEPOLE PINE	62
4260	MIXED WHITEBARK PINE FOREST	63
4270	MIXED SUBALPINE FOREST	63
4280	MIXED MESIC FOREST	63
4290	MIXED XERIC FOREST	63
4300	MIXED BROADLEAF & CONIFER FOREST	63
4400	STANDING BURNT FOREST	60

REG_CODE	REG_DESC	LU_CODE
5000	WATER	70
6110	CONIFER RIPARIAN	81
6120	BROADLEAF RIPARIAN	81
6130	MIXED BROADLEAF & CONIFER RIPARIAN	81
6200	GRAMINOID & FORB RIPARIAN	82
6300	SHRUB RIPARIAN	82
6400	MIXED RIPARIAN	80
7300	ROCK	94
7500	MINES	95
7600	BADLANDS	90
7604	MISSOURI BREAKS	90
7800	MIXED BARREN SITES	96
8100	ALPINE MEADOWS	41
9100	SNOWFIELDS OR ICE	110
9800	CLOUDS	110
9900	CLOUD SHADOWS	110

**Table 8.** GAP LULC codes for Arkansas

REG_CODE	REG_DESC	LU_CODE
20	Agriculture	20
81	P.1.B.3.c.I	81
81	P.1.B.3.c.II	81
81	P.1.B.3.c.III	81
81	P.1.B.3.c.IV	81
81	P.1.B.3.c.V	81
81	P.1.B.3.c.VII	81
81	P.1.B.3.c.VIII	81
81	P.1.B.3.d.I	81
81	P.1.B.3.d.I.1.a	81
81	P.1.B.3.d.II	81
82	P.5.A.4.a.I	82
82	P.5.A.4.b.III	82
63	R.1.B.3.c.I	63
63	R.1.B.3.c.II	63
96	R.6.A.1.a.I	96
62	T.1.A.9.b.I	62
62	T.1.A.9.b.II	62
62	T.1.A.9.c.I	62
63	T.1.B.2.b.II	63
63	T.1.B.2.b.III	63
63	T.1.B.2.b.IV	63
61	T.1.B.3.a.I	61
61	T.1.B.3.a.II	61
61	T.1.B.3.a.III	61
61	T.1.B.3.a.IV	61
61	T.1.B.3.a.V	61
62	T.2.A.2.b.I	62



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REG_CODE	REG_DESC	LU_CODE
63	T.2.B.3.a.I	63
63	T.2.B.3.a.II	63
50	T.4.B.3.a.II	50
43	T.5.A.1.a.I	43
10	Urban	10
70	Water	70

**Table 9.** GAP LULC codes for Iowa

REG_CODE	REG_DESC	LU_CODE
17	Pine Forest	62
12	Eastern Red Cedar Forest	62
18	Evergreen Forest	62
19	Upland Deciduous Forest	61
20	Temporarily Flooded Forested Wetland	81
24	Seasonally Flooded Forested Wetland	91
30	Mixed Evergreen/Deciduous Forest	63
41	Eastern Red Cedar Woodland	62
42	Upland Deciduous Woodland	61
44	Mixed Evergreen/Deciduous Woodland	63
52	Temporarily Flooded Shrub	50
53	Seasonally Flooded Shrub	50
54	Semi-permanently Flooded Shrub	82
55	Saturated (Bog or Swamp) Shrub	82
61	Warm Season Grass/Perennial Forb	40
71	Temporarily Flooded Wetland	80
72	Seasonally Flooded Wetland	80
73	Semi-permanently Flooded Wetland	80
74	Saturated Wetland	80
67	Grassland with sparse shrubs and trees	41
75	Permanently Flooded Wetland	80
80	Sparsely Vegetated/Barren	96
82	Barren/Mixed Vegetation	76
101	Artificial/High Vegetation	10
102	Artificial/Low Vegetation	10
66	Cool Season Grass	40
90	Cropland	20
110	Open Water	70

**Table 10.** GAP LULC codes for Kansas

REG_CODE	REG_DESC	LU_CODE
1	Maple - Basswood Forest	61
2	Oak - Hickory Forest	61
3	Post Oak - Blackjack Oak Forest	61
4	Pecan Floodplain Forest	61
5	Ash - Elm - Hackberry Floodplain Forest	61
6	Cottonwood Floodplain Forest	61



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REG_CODE	REG_DESC	LU_CODE
7	Mixed Oak Floodplain Forest	61
8	Bur Oak Floodplain Woodland	61
9	Mixed Oak Ravine Woodland	61
10	Post Oak - Blackjack Oak Woodland	61
11	Cottonwood Floodplain Woodland	61
12	Sandsage Shrubland	51
14	Willow Shrubland	52
15	Buttonbush (Swamp) Shrubland	51
17	Tallgrass Prairie	43
18	Sand Prairie	51
20	Western Wheatgrass Prairie	42
21	Sandstone Glade/Prairie	41
22	Mixed Prairie	40
24	Alkali Sacaton Prairie	40
25	Shortgrass Prairie	41
26	Grass Playa Lake	40
27	Salt Marsh/Prairie	82
28	Spikerush Playa Lake	91
29	Playa Lake	91
30	Low or Wet Prairie	41
31	Freshwater Marsh	82
32	Bulrush Marsh	82
33	Cattail Marsh	82
38	Forb Playa Lake	91
40	Non-Native Grassland	40
41	CRP (Conservation Reserve Program)	30
42	Salt Cedar or Tamarisk Shrubland	52
44	Cultivated Land	20
50	Deciduous Forest - Mined Land	61
51	Maple Floodplain Forest	61
52	Evergreen Forest - Disturbed Land	62
55	Deciduous Woodland	61
60	Mixed Prairie - Disturbed	41
70	Weedy Marsh	82
71	Weedy Upland	52
81	Urban Areas	10
82	Water	70

**Table 11.** GAP LULC codes for Louisiana

REG_CODE	REG_DESC	LU_CODE
1	FRESH MARSH	81
2	INTERMEDIATE MARSH	81
3	BRACKISH MARSH	81
4	SALINE MARSH	81
5	WETLAND FOREST-DECIDUOUS	81
6	WETLAND FOREST-EVERGREEN	81
7	WETLAND FOREST-MIXED	81

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REG_CODE	REG_DESC	LU_CODE
8	UPLAND FOREST-DECIDUOUS	61
9	UPLAND FOREST-EVERGREEN	62
10	UPLAND FOREST-MIXED	63
11	DENSE PINE THICKET	62
12	WETLAND SCRUB/SHRUB-DECIDUOUS	82
13	WETLAND SCRUB/SHRUB-EVERGREEN	83
14	WETLAND SCRUB/SHRUB-MIXED	82
15	UPLAND SCRUB/SHRUB-DECIDUOUS	32
16	UPLAND SCRUB/SHRUB-EVERGREEN	32
17	UPLAND SCRUB/SHRUB-MIXED	32
18	AGRICULTURE-CROPLAND-GRASSLAND	21
19	VEGETATED URBAN	12
20	NON-VEGETATED URBAN	14
21	WETLAND BARREN	92
22	UPLAND BARREN	95
23	WATER	73

**Table 12.** GAP LULC codes for Missouri

REG_CODE	REG_DESC	LU_CODE
1	Urban Impervious	10
2	Urban Vegetated	12
3	Barren or Sparsely Vegetated	90
4	Row and Close Grown Crops	22
5	Cool-season Grassland	40
6	Warm Season Grassland	40
7	Glade Complex	60
8	Eastern Redcedar and Redcedar-Deciduous Forest and Woodland	63
9	Deciduous Woodland	63
10	Upland Deciduous Forest	61
11	Shortleaf Pine-Oak Forest and Woodland	63
12	Shortleaf Pine Forest and Woodland	63
13	Bottomland Deciduous Forest and Woodland	63
14	Swamp	81
15	Marsh and Wet Herbaceous Vegetation	82
16	Open Water	70

**Table 13.** GAP LULC codes for Texas

REG_CODE	REG_DESC	LU_CODE
1	Water	70
2	Bare Soil	90
4	Cropland (irrigated, row, herbaceous, etc.)	20
5	Urban Area	10
7	Rounded-Crowned Temperate or Subpolar Needle-Leaved Evergreen Forest	62
8	Extremely Xeromorphic Deciduous Shrubland	50
9	Microphyllous Evergreen Shrubland	50
10	Lowland Mixed Evergreen - Drought Deciduous Shrubland	50



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REG_CODE	REG_DESC	LU_CODE
11	Succulent Extremely Xeromorphic Evergreen Shrubland	62
12	Facultatively Deciduous Extremely Xeromorphic Subdesert Shrubland	40
13	Medium-Tall Bunch Temperate or Subpolar Grassland	41
14	Temperate or Subpolar Grassland with a Sparse Shrub Layer	51
17	Semipermanently Flooded Temperate or Subpolar Grassland	40
18	Evergreen Extremely Xeromorphic Subdesert Shrubland	51
19	Sclerophyllous Temperate Broad-Leaved Evergreen Shrubland	62
20	Temporarily Flooded Cold-Deciduous Woodland	61
21	Short Sod Temperate or Subpolar Grassland	41
22	Cold-Deciduous Woodland	61
24	Annual Graminoid or Forb Vegetation	41
25	Wetland	80
28	Intermittently Flooded Temperate or Subpolar Grassland (e.g., Playa Lakes)	41
29	Round-Crowned Temperate or Subpolar Needle-Leaved Evergreen Woodland	62
33	Temperate Broad-Leaved Evergreen Woodland	62
34	Sand Flats	93
35	Consolidated Rock Sparse Vegetation	96
36	Temporarily Flooded Temperate Grassland With Sparse Cold-Deciduous Trees	42
37	Dunes with Sparse Herbaceous Vegetation	93
38	Tall Sod Temperate Grassland	43
40	Temperate Broad-Leaved Evergreen Shrubland	53
42	Temporarily Flooded Microphyllous Shrubland	50
45	Low Tropical or Subtropical Perennial Forb Vegetation	31
47	Mixed Broad-Leaved Evergreen - Cold-Deciduous Woodland	63
51	Lowland or Submontane Cold-Deciduous Forest	61
55	Planted/Cultivated Woodland	24
56	Medium-Tall Sod Temperate or Subpolar Grassland	43
63	Temporarily Flooded Cold-Deciduous Forest	61

**Table 14.** GAP LULC codes for the Southeast region (includes AL, GA, MS, NC, TN, VA)

REG_CODE	REG_DESC	LU_CODE
1	Open Water	71
2	Low Intensity Urban	10
3	High Intensity Residential	13
4	Commerical Development	14
5	Soil	90
6	Beach	92
7	Outcrops	94
8	Quarries/ Strip Mines/ Gravel Pits	95
9	Clear Cuts	90
10	Mesic Deciduous Forest	61
11	Dry to Dry-Mesic Deciduous Forests	61
12	Xeric Deciduous Forests	61
13	Deciduous Cove Forests	61
14	Northern Hardwood	61
15	Montane Oak Forests	61
16	Successional Deciduous Forests	61
17	Planted Deciduous Forests	24

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REG_CODE	REG_DESC	LU_CODE
18	Tropical Hardwood Hammock	62
19	Maritime Evergreen Forests	62
20	Xeric Yellow Pine Forests/ Woodlands	62
21	Southern Yellow Pine Forests	62
22	Red Cedar Forests/ Woodlands	62
23	Montane Mesic Evergreens	62
24	Spruce Fir Forests	62
25	Xeric Pine Forests	62
26	Planted Pine Forests	62
27	Mixed Mesic to Dry-Mesic Forests	63
28	Mixed Xeric Forests	63
29	Juniper/Oak Mixed Forests/ Woodlands	63
30	Montane Mixed Forests	63
31	Tropical Shrublands	50
32	Coastal Shrub	50
33	Montane Shrubs	50
34	Shrubs	50
17	Orchards/ Vineyards	40
35	Coastal Grassland	40
36	Sandhill Grasses	40
37	Montane Grassland	40
38	Upland Herbaceous	21
39	Pasture/ Hay	22
40	Row Crops	15
41	Recreational Grasses	82
42	Tropical/ Subtropical Mangrove Forests	82
43	Tropical/ Subtropical Swamp Forests	82
44	Maritime Forests/ Shrubs	82
45	Temperate Needle-leaved Pine Saturated Wetlands	82
46	Non-riverine Wetland Forests/ Woodlands/ Shrublands	82
47	Temperate Bottomland Alluvial/ Riparian Forests	82
48	Cypress/ Gum Swamp Forests	82
49	Montane Wetland Forests	82
50	Temperate Saturated Deciduous Shrublands	82
51	Forested Wetland	81
52	Coastal Plain Tidal Marshes	81
53	Freshwater Emergent	81
54	Floating Aquatic	81
56	Herbaceous Wetland	81
57	Cloud	110
58	Undefined	0

**Table 15.** GAP LULC codes for Florida

REG_CODE	REG_DESC	LU_CODE
0	Background	70
1	Open water	81
2	Tropical Hardwood Hammock Formation	81
3	Semi-deciduous Tropical/Subtropical Swamp Forest	81
4	Xeric-Mesic Live Oak Ecological Complex	81



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REG_CODE	REG_DESC	LU_CODE
5	Mesic-Hydric Live Oak/ Sabal Palm Ecological Complex	81
6	Bay/Gum/Cypress Ecological Complex	81
7	Loblolly Bay Forest	81
8	Cajeput Forest Compositional Group	81
9	Mixed Mangrove Forest Formation	81
10	Black Mangrove Forest	81
11	Red Mangrove Forest	62
12	Casuarina Forest	62
13	South Florida Slash Pine Forest	62
14	Sand Pine Forest	61
15	Xeric-Mesic Mixed Pine/Oak Forest Ecological Complex	62
16	Mesic-Hydric Pine Forest Compositional Group	62
17	Swamp Forest Ecological Complex	81
18	Cypress Forest Compositional Group	63
19	Mixed Evergreen.Cold-deciduous Hardwood Forest	81
20	Buttonwood Woodland	81
21	Mixed Mangrove Woodland	81
22	Black Mangrove Woodland	81
23	Red Mangrove Woodland	62
24	Live Oak Woodland	62
25	South Florida Slash Pine Wodland	62
26	Sandhill Ecological Complex	53
27	Broad-leaved Evergreen and Mixed Evergreen/Cold-deciduous Shrubland Compositional Group	53
28	Flooded Broad-leaved Evergreen Shrubland Compositional Group	43
29	Dry Prairie (Xeric-Mesic) Ecological Complex	53
30	Gallberry/Saw Palmetto Shrubland Compositional Group	53
31	Brazilian Pepper Shrubland	81
32	Dwarf Mangrove Ecological Complex	93
33	Coastal Strand	52
34	Groundsel-tree/Marsh Elder Tidal Shrubland	51
35	Xeric Scrubland	82
36	St. Johns Wort Shrubland Compositional Group	81
37	Saturated-Flooded Cold-deciduous and Mixed Evergreen/Cold-deciduous Shrubland Ecological	81
38	Saltwort/ Glaswort Ecological Complex	52
39	Graminiod Dry Prairie Ecological Complex	42
40	Sea Oats Dune Grassland	42
41	Wiregrass Grassland	82
42	Graminoid Emergent Marsh Compositional Group	82
43	Sawgrass Marsh	82
44	Spikerush Marsh	82
45	Muhly Grass Marsh	82
46	Cattail Marsh Compositional Group	82
47	Salt Marsh Ecological Complex	43
48	Sand Cordgrass Grassland	82
49	Black Needle Rush Marsh	82
50	Saltmarsh Cordgrass Marsh	82
51	Saltmeadow Cordgrass/Salt Grass Salt Marsh	81

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REG_CODE	REG_DESC	LU_CODE
52	Sparsely Wooded Wet Prairie Compositional Group	41
53	Dwarf Cypress Prairie	41
54	Temperate Wet Prairie	82
55	Maidencane Marsh	42
56	Forb Emergent Marsh	82
57	Water Lily or Floating Leaved Vegetation	80
59	Sand	92
60	Bare soil/Clearcut	96
61	Pavement	94
62	Urban	10
63	Urban Residential	12
64	Urban Open/Others	10
65	Agriculture	20
66	Pasture/Grassland/Agriculture	21
67	Agriculture/Groves/Ornamental	24
68	Agriculture/Confined Feeding Operation	25
69	Extractive	95
70	Recreation	15
71	Cloud	110

**Table 16.** GAP LULC codes for Kentucky

REG_CODE	REG_DESC	LU_CODE
101	coniferous forest	62
102	planted deciduous forest	61
105	dry oak forest	61
106	dry-mesic oak forest	61
107	mesic deciduous forest	61
108	floodplain forest	61
109	riparian forest	63
110	oak/deciduous bottomland	61
114	bald cypress wetland	81
115	shrub wetland	82
116	emergent wetland	80
117	black willow shrub wetland	82
187	water	70
189	mined herbaceous	50
190	mined deciduous	61
191	mined coniferous	62
192	mined bare ground	90
193	urban treed	10
194	urban other	10
195	urban forested	10
196	urban high density	13
197	pasture/grassland	21
198	agriculture/other	20
199	early successional deciduous forest	61
201	planted pine forest	24

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REG_CODE	REG_DESC	LU_CODE
202	planted deciduous forest	24
203	red cedar forest	62
204	Virginia pine forest	62
205	floodplain forest	63
206	riparian forest	63
207	oak/deciduous bottomland forest	63
208	dry oak forest/woodland	63
209	dry-mesic oak forest	61
210	mesic deciduous forest	61
212	oak-pine forest	63
213	red cedar/oak forest	63
214	bald cypress wetland	81
215	shrub wetland	82
216	emergent wetland	80
219	maple/chinquapin oak forest	61
302	pine forest	62
305	dry oak forest	61
306	dry-mesic oak forest	61
307	mesophytic deciduous forest	61
308	Cumberland highlands forest	63
309	floodplain forest	63
312	oak/coniferous forest	63
314	hemlock(white pine)/deciduous forest	63

**Table 17.** GAP LULC codes for South Carolina

REG_CODE	REG_DESC	LU_CODE
0		0
1	Fresh water	70
2	Marine water	70
3	Fresh water marsh/emergent wetland	80
4	Pocosin	80
5	Swamp/bottomland hardwood forest	81
6	Wet soil	80
7	Wet scrub/shrub thicket	82
8	Dry scrub/shrub thicket	32
9	Sandy bare soil	93
10	Open canopy/recently cleared forest	96
11	Rock outcrop	94
12	Aquatic vegetation	80
13	Closed canopy evergreen forest/woodland	62
14	Needle-leaved evergreen mixed forest/woodland	63
15	Pine woodland	62
16	Dry deciduous forest/woodland	61
17	Mesic deciduous forest/woodland	61
18	Dry mixed forest/woodland	63
19	Mesic mixed forest/woodland	63
20	Grassland/pasture	40

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REG_CODE	REG_DESC	LU_CODE
21	Cultivated land	20
22	Urban development	10
23	Urban residential	12
24	Low density residential	11
25	Wet evergreen	81
26	Lowland maritime forest	81
27	Maritime shrub complex	82
28	Floodplain forest	81
29	Wet maritime forest	81
30	Estuarine salt flat/salt shrub thicket	74
31	Wet pinewoods	81
32	Salt and brackish marsh	80
33	Swamp/bottomland type 14	80
34	Swamp/bottomland type 15	80
35	Swamp/bottomland type 16	80
36	Swamp/bottomland type 17	80
37	Swamp/bottomland type 18	80
38	Swamp/bottomland type 19	80
39	Mud/sand flat	74
40	Beach	92
41	Spoil deposit/impoundment	90
42	Intertidal beach	74
43	Narrow stream valley forest	63
44	Coastal upland mixed forest	63
45	Piedmont bottomland forest	63
46	Dry basic deciduous forest/woodland	61
47	Mesic basic deciduous forest/woodland	61
48	Mesic basic mixed forest/woodland	63
49	Ridgetop/upper slope evergreen woodland	62
50	Rocky shoals	93
51	Montane riparian forest	63
52	Deciduous rich/acidic cove forest	61
53	Montane evergreen forest	62
54	Eastern hemlock ravine forest	62

**Table 18.** GAP LULC codes for West Virginia

REG_CODE	REG_DESC	LU_CODE
1	Shrubland	50
2	Woodland	63
3	Surface water	70
4	Major roads	14
5	Major power lines	14
6	Populated areas	10
7	Light intensity urban	11
8	Moderate intensity urban	12
9	Intensive urban	13
10	Row crop agriculture	22

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REG_CODE	REG_DESC	LU_CODE
11	Pasture/grassland	21
12	Barren land - mining	95
13	Planted grassland	21
14	Conifer plantation	24
15	Floodplain forest	81
16	Forested wetland	81
17	Shrub wetland	82
18	Herbaceous wetland	82
19	Surface water	70
20	Cove hardwood forest	63
21	Diverse/mesophytic hardwood forest	63
22	Hardwood/conifer forest	62
23	Oak dominant forest	61
24	Mountain hardwood forest	63
25	Mountain hardwood/conifer forest	63
26	Mountain conifer forest	62

**Table 19.** GAP LULC codes for the Mid-Atlantic region (includes DE, MD, NJ)

REG_CODE	REG_DESC	LU_CODE
400	Water	70
401	Tidal Shallow/Turbid	80
402	Row Crops	22
403	Tidal Herbaceous Beach Community	82
404	Tidal High marsh	80
405	Tidal Marsh	80
406	Tidal Tallgrass Marsh	82
407	Lowland Pine Woodland	50
408	Mixed Grass/Low Shrubs	51
409	Tidal Maritime Shrublands	50
410	Coastal Lowland Pine Forest	60
411	Coastal Upland Pine Forest	62
412	Nontidal Flooded Herbaceous	70
413	Bare Sand	90
414	Cultivated Trees	24
415	Loblolly - Mixed Oak Forest	63
416	Virginia Pine Forest	62
417	Virginia Pine - Mixed Oak Forest	62
418	Coastal Plain Pine - Mixed Hardwood Lowland Forest	62
419	Sweetgum Swamp	80
420	Mixed Wet Oak Forest	61
421	Coastal Plain Beech - Oak Forest	61
422	Yellow Poplar Forest	60
423	Sweetgum Forest	63
424	Sycamore - Mixed Hardwood Riverside Forest	63
425	Red Maple-Pumpkin Ash Swamp	80
426	Bald Cypress Tidal Swamp	80
427	Urban	10
428	Lowland Mixed Oak Forest	63



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REG_CODE	REG_DESC	LU_CODE
429	Bare/Exposed/Manmade Features	96
430	Clearcut/Transitional	96
431	Beachgrass Shrublands	93
432	Dwarf Beach Shrublands	92
433	Tidal Cattail Marsh	82
434	Mixed Pines Forest	63
435	Red Pine Forest	62
436	Red Oak - White Oak Forest	61
437	Nontidal Sparsely Vegetated Beach Alliances	96
438	Chestnut Oak Forest	61
439	Beech – Yellow Poplar Forest	61
440	High Mountain Shrub Swamp	80
441	Mixed Oak - Sugar Maple Forest	31
442	Rich Northern Hardwood Forest	63
443	Freshwater Tidal Emergent Marsh	81
444	Redcedar Woodland	63
445	Piedmont Beech - Oak Forest	61
446	Tidal Atlantic White-cedar Forest	62
447	Shortneedled Pine - Mixed Dry Oak Forest (Pine Barrens)	63
448	Pitch Pine Wet Woodland	81
449	Highbush Blueberry - Leatherleaf Shrub Swamp	82
450	Inland Graminoid Marsh	80
451	Hemlock - Mixed Hardwood Forest	63
452	Urban Recreational Grasses	15
453	Pasture/Hay	21
454	Dune Grassland	41
455	Nontidal Tallgrass Marsh	80
456	Nontidal Mixed Grass/Low Shrub	50
457	Nontidal Maritime Shrublands	50
458	Red Maple - Green Ash Swamp	80
459	Nontidal Mixed Hardwood - Conifer Swamp	81
460	Nontidal Cattail Marsh	80
461	Nontidal Atlantic White-cedar Forest	63

**Table 20.** GAP LULC codes for the Southern New England region (includes CT, MA, RI)

REG_CODE	REG_DESC	LU_CODE
1	N. Hardwoods, Sugar maple dominant with Beech, Ash and/or Birch	61
2	N. Hardwoods with up to 20% White Pine (cis Hemlock)	61
6	N. Hardwoods with up to 20% Red Oak	61
7	N. Hardwoods Red Oak mixture with up to 20% White Pine (cis Hemlock)	61
4	Red Maple dominant deciduous	61
8	Red Oak dominant Oak mixture	61
12	Oak dominant with up to 20% N. Hardwood (cis Red Maple mixture with Birch)	61
16	Oak dominant with up to 20% Red Maple (cis Birch)	61
17	Oak dominant with up to 20% Birch (cis N. Hardwood and/or Red Maple)	61
20	Oak dominant with up to 20% N. Hardwood (cis Red Maple, Birch) and White Pine	61
24	Oak dominant with up to 20% Red Maple and Birch and Hemlock	61
28	Scrub Oak dominant with up to 20% Pitch Pine	61
32	Birch dominant deciduous	61



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REG_CODE	REG_DESC	LU_CODE
33	Black Birch dominant birch mixture	61
34	Birch dominant Aspen mixture	61
36	Birch dominant N. Hardwood (cis Red Maple and Red Oak mixture)	61
40	N. Hardwoods 60%, Red Oak mixture 40% (cis Red Maple) (assume Birch is present)	61
44	Red Oak 60%, N. Hardwood 40% (cis Red Maple)	61
45	Red Oak 60%, Red Maple 40% (cis N. Hardwood) (assume Birch is present)	61
48	Red Maple 60%, Red Oak mixture 40%	61
51	N. Hardwood (includes some Red Maple), Red Oak, Birch mixture (3 even parts - northern SNE)	61
52	Red Maple, Red Oak, Birch mixture (3 even parts - southern SNE)	61
56	40 with up to 20% White Pine	61
60	48 with up to 20% White Pine	61
64	44 with up to 20% White Pine	61
68	Red Oak 60%, White Pine mixture 40% (cis Hemlock) with Maples (can be either RM or NH)	63
72	White Pine 60% (cis Hemlock), Red Oak mixture 40% with Maples (either RM or NH)	63
76	N. Hardwoods 60% (cis Red Maple & Red Oak), White Pine 40% (cis Hemlock)	63
80	Red Maple 60% (cis N. Hardwood & Red Oak), Hemlock mixture 40% (cis W. Pine)	63
84	Conifers 60%, N. Hardwoods mixture 40% (cis Red Maple and/or Red Oak)	63
88	Pitch Pine 60%, Scrub Oak 40%	63
92	White Pine 60% (cis Hemlock), N. Hardwood mixture 40% (cis R. Maple), (with Beech &/or Birch)	63
100	White Pine stands	62
104	Hemlock stands	62
105	Mixed Conifer stands	62
108	Pitch Pine stands	62
115	Mixed Conifer 80%, N. Hardwood mixture 20% (cis Red Maple and/or Red Oak)	62
116	Emergent Persistent Wetlands	82
120	Emergent Non-persistent wetlands	82
123	Marsh with dead trees wetlands	81
128	Scrub or shrub marsh wetlands	82
132	Shrub dominant with grass wetlands	82
136	Mixed Deciduous / Conifer wetland	81
140	Deciduous dominant wetlands	81
144	Forested Wetland - Conifer	81
148	Forested Wetland - Deciduous	81
151	Open or Barren Land	90
152	Mining, Quarries, Landfills or sand	95
156	Pasture, grasslands, sparse suburban lawns	41
160	Scrub/shrub and grasslands mix	32
164	Rich grasslands, pastures or airports	42
168	Suburban forest mixture (40-60% canopy cover)	63
172	Conifer dominant Suburban forest	62
173	Pitch Pine dominant Suburban forest	62
176	Maple dominant Suburban forest	61
180	Oak dominant Suburban forest	61
184	Golf courses or lush suburban lawns	15
188	Corridors	10
200	Agriculture	20
192	Pasture, Grassland	21
196	Row and Field Crops	22
204	Hay	21
208	Estuarine, Emergent Wetland	74

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**ENVIRON**

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REG_CODE	REG_DESC	LU_CODE
209	Beach, mud flat	92
210	Coastal scrub	80
211	Tidal Flat	70
185	Open Water (Saltwater)	70
215	Open water (Freshwater)	70
212	Downtown	14
213	Urban open land	10
214	Urban shore	10

**Table 21.** GAP LULC codes for Maine

REG_CODE	REG_DESC	LU_CODE
0	Offsite & Missing Data	0
1	Abandoned Field	27
2	Blueberry Field	20
3	Grasslands (hayfield)	21
4	Crops/Ground (including plowed ground and bare ground)	22
5	Clearcut	96
6	Early Regeneration	61
7	Late Regeneration	61
8	Light Partial Cut	61
9	Heavy Partial Cut	61
10	Deciduous Forest	61
11	Deciduous/coniferous Forest	63
12	Coniferous/deciduous Forest	63
13	Coniferous Forest	62
14	Deciduous Forested	61
15	Coniferous Forested	62
16	Dead-forest	93
17	Deciduous Scrub-shrub	61
18	Coniferous Scrub-shrub	62
19	Dead Scrub-shrub	50
20	Fresh Aquatic Bed	80
21	Fresh Emergent	80
22	Peatland	80
23	Wet Meadow	80
24	Salt Aquatic Bed	80
25	Salt Emergent	80
26	Mudflat	91
27	Sand Shore	92
28	Gravel Shore	96
29	Rock Shore	92
30	Shallow Water	70
31	Open Water	70
32	Sparse Residential	11
33	Dense Residential	13
34	Urban/Industrial	14
35	Highways/Runways	10



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REG_CODE	REG_DESC	LU_CODE
36	Alpine Tundra	102
37	Exposed Rock/Talus	94
38	Salt Water	70

**Table 22.** GAP LULC codes for New York

REG_CODE	REG_DESC	LU_CODE
1	Spruce-fir	62
3	Evergreen wetland	81
4	Evergreen plantation	62
7	Sugar maple mesic	61
8	Oak	61
10	Successional hardwoods	62
12	Deciduous wetland	61
15	Appalachian oak-pine	63
16	Pitch pine-oak	63
18	Evergreen-northern hardwood	62
22	Mixed wetland	80
24	Successional shrub	52
25	Alpine krummholtz	40
26	Shrub swamp	82
27	Salt shrub/maritime shrubland	82
29	Dwarf shrub bog	82
30	Old field/pasture	21
31	Emergent marsh/open fen/wet meadow	82
32	Salt marsh	82
33	Alpine meadow/rock/heath summit	103
34	Cropland	20
36	Sand flats/slope	91
37	Open water	70
39	Roads	10
40	Urban	10
41	Sub-urban residential	11
42	Clouds	0
43	Shadows	0
44	Barren	90
45	Golf course/park/lawn	15
46	Orchard/vineyard	24

**Table 23.** GAP LULC codes for Pennsylvania

REG_CODE	REG_DESC	LU_CODE
1	Water	70
2	Evergreen forest	62
3	Mixed forest	63
4	Deciduous forest	61
5	Transitional (mixed vegetation)	50
6	Perennial herbaceous	50



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REG_CODE	REG_DESC	LU_CODE
7	Annual herbaceous	50
8	Barren/hard-surface/rubble/gravel/pavement	90

**Table 24.** GAP LULC codes for the National Land Cover Database (includes ND, SD, OK, MN, WI, MI, IL, IN, OH, NE, NH, VT)

REG_CODE	REG_DESC	LU_CODE
11	Open Water	71
12	Perennial Ice/Snow	110
21	Low Intensity Residential	11
22	High Intensity Residential	13
23	Commercial/Industrial/Transportatio	14
31	Bare Rock/Sand/Clay	94
32	Quarries/Strip Mines/Gravel Pits	95
33	Transitional	96
41	Deciduous Forest	61
42	Evergreen Forest	62
43	Mixed Forest	63
51	Shrubland	50
61	Orchards/Vineyards	24
71	Grasslands/Herbaceous	40
81	Pasture/Hay	21
82	Row Crops	22
83	Small Grains	26
84	Fallow	27
85	Urban/Recreational Grasses	15
91	Woody Wetlands	81
92	Emergent Herbaceous Wetlands	82

#### Fractional Vegetative Cover in the 48 contiguous United States

Fractional vegetative cover data for the Conterminous US were available as two-week composites for the years 2002, 2003 and 2004 (partial). These data were originally obtained as raster grids at 1-km resolution. Given the necessary resource intensive processing and limited project resources these data were re-sampled at 2-km and projected to the Inter-RPO coordinate projection system. In addition, these data were averaged over each month and season of the year. The resulting raster data were then converted to polygon coverages. Each coverage represents the average vegetative cover (%) for each time period. The original two-week composite data were archived (but not processed as described here) and are available as needed. The coverage and feature attribute descriptions below, are similar for all coverages processed and archived.

FRVEG\_COV / Polygon  
Source: [www.essc.psu.edu/soil\\_info](http://www.essc.psu.edu/soil_info)



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ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC	DESCRIPTION
AREA	8	18	F	5	Polygon area (m2)
PERIMETER	8	18	F	5	Polygon perimeter (m)
FRVEG_COV#	4	5	B	-	Internal coverage #
FRVEG_COV-ID	4	5	B	-	Internal coverage id
GRID-CODE	4	8	B	-	Fractional vegetative cover(%)



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