Canada Land Inventory (CLI)

CANADA LAND INVENTORY LEVEL I LAT/LON DIGITAL DATA

REVISED EDITION

LAND CAPABILITY FOR WILDLIFE-WATERFOWL

1. Coverage Specifications

Original Map Scale: 1:250,000

Resolution : .00024412 of a degree which corresponds to approximately 25 meters

Map Projection : None, i.e. latitude/longtitude coordinates

Datum : NAD27

Spheroid : Clarke 1866

Units of Measure : decimal degrees

2. CLI Level I Latitude/Longitude Digital Data

Unlike other CLI land capability theme which do not apply to water areas, this capability rating for Wildlife Waterfowl applies in many nearshore areas.

In this revision of the original digital data in latitude longitude coordinates, the definition of coastline segments which represent a change in capability originate

 from the CLI shoreline.

CLI Level I latitude/longitude digital data are intended for GIS users who wish to integrate in CLI thematic data with their own topological base maps, i.e. for GIS users who wish to "cookie-cut" the CLI thematic layers with their own topological shoreline layer.

CLI Level I thematic data is intentionally extended past the shoreline and as such does not contain the proper definition of shoreline. The data are not projected and coordinates, areas and perimeters are in decimal degrees.

DO NOT ATTEMPT TO DERIVE AREA STATISTICS FROM THESE DATA UNTIL THEY ARE INTEGRATED WITH A PROPER SHORELINE AND THE RESULTS PROJECTED TO A SUITABLE MAP PROJECTION.

If the above restrictions do not meet your GIS objectives, obtain the equivalent Level II UTM data with integrated base map from the same distribution source.

3. Attribute Schema (Polygon Attribute Table - PAT.DBF)

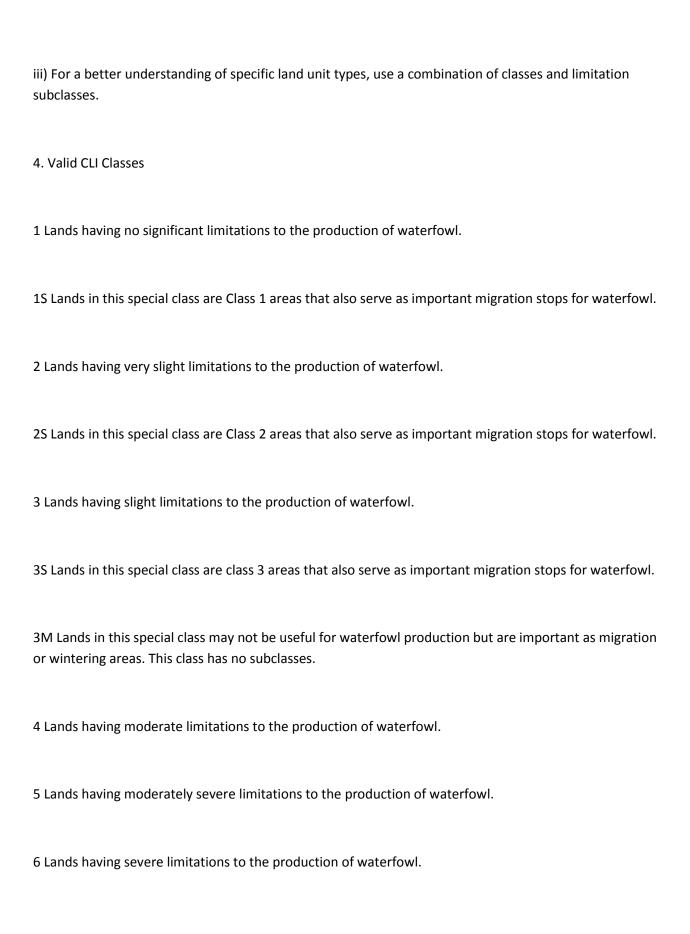a) Standard ArcInfo Polygon Attribute Table (PAT) variables:

AREA Num 13,6 Area, in square degrees

 PERIMETER Num 13,6 Perimeter, in decimal degrees

 COVER_# Num 11,0 Standard ArcInfo Polygon Number

 COVER_ID Num 11,0 Standard ArcInfo User ID

b) Original Digital Data Classification:

CLASS_A Char 2 The primary and/or dominant CLI class

PERCENT_A Char 1 The proportion (% base 10) of the polygon in Class_A (blank = 100%)

SUBCLASS_A Char 3 The primary limitation subclasses for the proportion of the polygon in Class_A

CLASS_B Char 2 The secondary CLI class

PERCENT_B Char 1 The proportion (% base 10) of the polygon in Class_B (blank = 100%)

SUBCLASS_B Char 2 The primary limitation subclasses for the proportion of the polygon in Class_B

CLASS_C Char 2 The tertiary CLI class

PERCENT_C Char 1 The proportion (% base 10) of the polygon in Class_C (blank = 100%)

SUBCLASS_C Char 2 The primary limitation subclasses for the proportion of the polygon in Class_C

Note(s):

i) To classify the data in a manner similar to the way the CLI paper maps were printed, use field Class_A.

ii) For a better understanding of what factor(s) limit the land for wildlife-waterfowl, use field Subclass_A.

iii) For a better understanding of specific land unit types, use a combination of classes and limitation subclasses.

4. Valid CLI Classes

1 Lands having no significant limitations to the production of waterfowl.

1S Lands in this special class are Class 1 areas that also serve as important migration stops for waterfowl.

2 Lands having very slight limitations to the production of waterfowl.

2S Lands in this special class are Class 2 areas that also serve as important migration stops for waterfowl.

3 Lands having slight limitations to the production of waterfowl.

3S Lands in this special class are class 3 areas that also serve as important migration stops for waterfowl.

3M Lands in this special class may not be useful for waterfowl production but are important as migration or wintering areas. This class has no subclasses.

4 Lands having moderate limitations to the production of waterfowl.

5 Lands having moderately severe limitations to the production of waterfowl.

6 Lands having severe limitations to the production of waterfowl.

7 Lands having such severe limitations that almost no waterfowl are produced.

8 Special cases - see note.

5. Valid Limitation Subclasses

A - Aridity

B - Free-flowing water

C - Adverse climate

F - Low fertility

G - Poor landform

I - Inundation, excessive water level fluctuation

J - Reduced mash edge

M - Excessive or deficient soil moisture

N - Adverse soil and water characteristics

R - Restrictive soil depth

T - Adverse topography, excessive steepness, flatness

Z - Water depth restriction

Note: In the special case where class_A is coded as '8', the first character of subclass_A may be coded as follows:

Blank Unmapped area

Z Water areas

T Forest reserves

O National parks

B Urban areas

W Provincial parks

6. Narrative Description of CLI Waterfowl Classification

In general, the needs of all waterfowl are much alike; each individual and species must be provided with a sufficient quality and quantity of food, protective cover,

and space to meet its needs for survival, growth, and reproduction. The ability of the land to meet these needs is determined by the individual requirements of the

species or group under consideration, the physical characteristics of the land, and those factors that influence the plant and animal communities.

The land is divided into areas on the basis of physiographic characteristics important to waterfowl populations. The degree of limitation associated with

each area determines its capability class. The subclass denotes the primary factor that causes the limitation.

The classification system is based on two important considerations:

Capability ratings are established on the bases of the optimum vegetation stage (successional stage) that can be maintained when good wildlife management is practiced.

Capability ratings assigned do not reflect present land use (except in extreme cases such as heavily populated urban areas), ownership, lack of access, distance from cities, or amount of hunting pressure.

7. CLI Waterfowl Class Descriptions

CLASS 1 Lands in this class have no significant limitations to the production of waterfowl. Capability on these lands is very high. They provide a wide variety and abundance of important habitat elements; rolling topography is well suited to the formation of wetlands. Predominant water areas on these lands are both shallow and deep permanent marshes, and deep, open water areas with well-developed marsh edges.

CLASS 1S Water areas in this special class are class 1 areas that also serve as important migration stops.

CLASS 2 Lands in this class have very slight limitations to the production of waterfowl. Capability on these lands is high but less than class 1. Slight

 limitations are due to climatic, fertility, or permeability of the soils. Topography tends to be more undulating than rolling; a higher proportion of the water areas than in class 1 are small temporary ponds or deep, open water areas with poorly developed marsh edges.

CLASS 2S Water areas in this special class are class 2 areas that also serve as important migration stops.

CLASS 3 Lands in this class have slight limitations to the production of waterfowl. Capability on these lands is moderately high, but productivity may be

 reduced in some years because of occasional droughts. Slight limitations are due to climate or to characteristics of the land that affect the quality and quantity of habitat. These lands have a high proportion of both temporary and semi-permanent shallow marshes poorly interspersed with deep marshes and bodies of open water.

CLASS 3S Water areas in this special class are class 3 areas that also serve as important migration stops.

CLASS 3M Lands in this special class may not be useful for waterfowl production, but are important as migration or wintering areas. This class has no

 subclasses.

CLASS 4 Lands in this class have moderate limitations to the production of waterfowl. Capability on these lands is moderate. Limitations are similar to

those in class 3, but the degree is greater. Water areas are predominantly temporary ponds, or deep, open waters with poorly developed marsh

edges, or both.

CLASS 5 Lands in this class have moderately severe limitations to the production of waterfowl. Capability on these lands is moderately low. Limitations are usually a combination of tow or more of the following factors: climate, soil moisture, permeability, fertility, topography, salinity, flooding, and poor interspersion of

water areas.

CLASS 6 Lands in this class have severe limitations to the production of waterfowl. Capability on these lands is very low. Limitations are easily
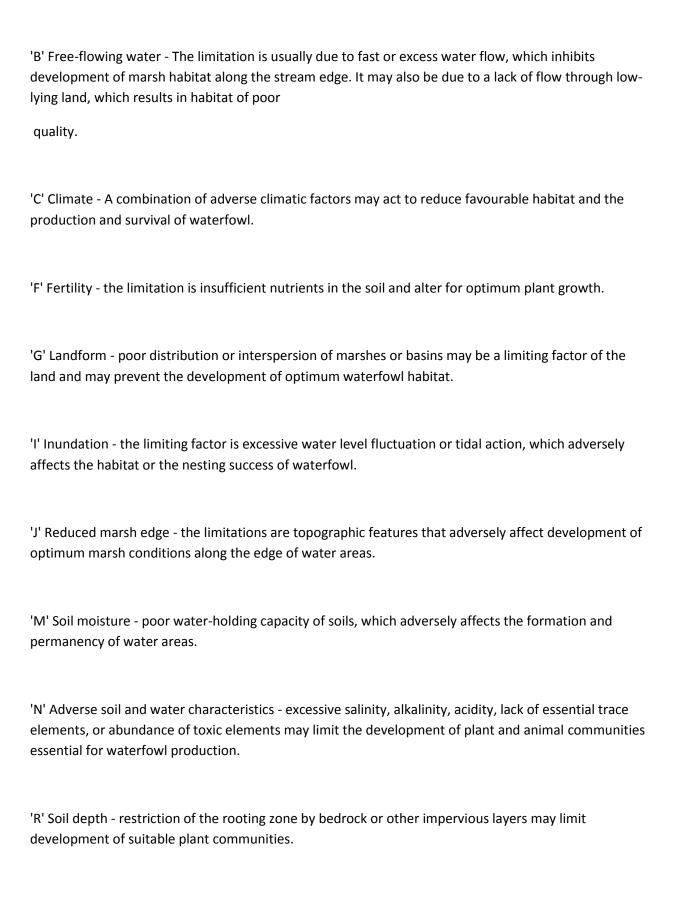
identified. They may include aridity, salinity, very flat topography, steep-sided lakes, extremely porous soils, and soils containing few available minerals.

CLASS 7 Lands in this class have limitations so severe that almost no waterfowl are produced. Capability on these lands in negligible or non-existent. Limitations are so severe that waterfowl production is precluded or nearly precluded.

8.CLI Waterfowl Subclass Descriptions

With the exception of class 1, and special class 3M, the classes are divided into subclasses according to the nature of the limitations that determine the class. The following subclasses are used to denote significant limiting factors that may affect either the waterfowl or the ability of the land to produce suitable habitat conditions.

'A' Aridity - the limitation is an arid condition of the land or the susceptibility of the land to periodic droughts, which result in low pond water levels or premature drying of marshes in the breeding season.

'B' Free-flowing water - The limitation is usually due to fast or excess water flow, which inhibits development of marsh habitat along the stream edge. It may also be due to a lack of flow through low-lying land, which results in habitat of poor

 quality.

'C' Climate - A combination of adverse climatic factors may act to reduce favourable habitat and the production and survival of waterfowl.

'F' Fertility - the limitation is insufficient nutrients in the soil and alter for optimum plant growth.

'G' Landform - poor distribution or interspersion of marshes or basins may be a limiting factor of the land and may prevent the development of optimum waterfowl habitat.

'I' Inundation - the limiting factor is excessive water level fluctuation or tidal action, which adversely affects the habitat or the nesting success of waterfowl.

'J' Reduced marsh edge - the limitations are topographic features that adversely affect development of optimum marsh conditions along the edge of water areas.

'M' Soil moisture - poor water-holding capacity of soils, which adversely affects the formation and permanency of water areas.

'N' Adverse soil and water characteristics - excessive salinity, alkalinity, acidity, lack of essential trace elements, or abundance of toxic elements may limit the development of plant and animal communities essential for waterfowl production.

'R' Soil depth - restriction of the rooting zone by bedrock or other impervious layers may limit development of suitable plant communities.

'T' Adverse topography - either steepness or flatness of the land may limit the development or permanency of wetlands.

'Z' Water depth - excessively deep or shallow waters limit the development of optimum waterfowl habitat.

9. Classification Examples

Note - asterisk (*) represents a blank

An area of class 5 land with topography and water depth limitations to waterfowl production: 5**TZ

A waterfowl production area of which 70% is class 4 with limitations due to poor water holding capacity of the soils and interspersion of marshes: 4*7MF*3*3FG

An important waterfowl production area of which 60% is class 1 and 40% is class 2 with a slight limitation due to interspersion of wetland types: 1*6***2*4G

An important migration stop with little or no waterfowl production: 3M

For further information see "The Canada Land Inventory Land Capability Classification for Wildlife", Report No. 7, 1970.

10.Accreditation

The Canada Land Inventory extraction and distribution is managed by:

The Canada Centre for Remote Sensing

Natural Resources Canada

Government of Canada

Room 650 - 615 Booth Street

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Based on significant research and development by:

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