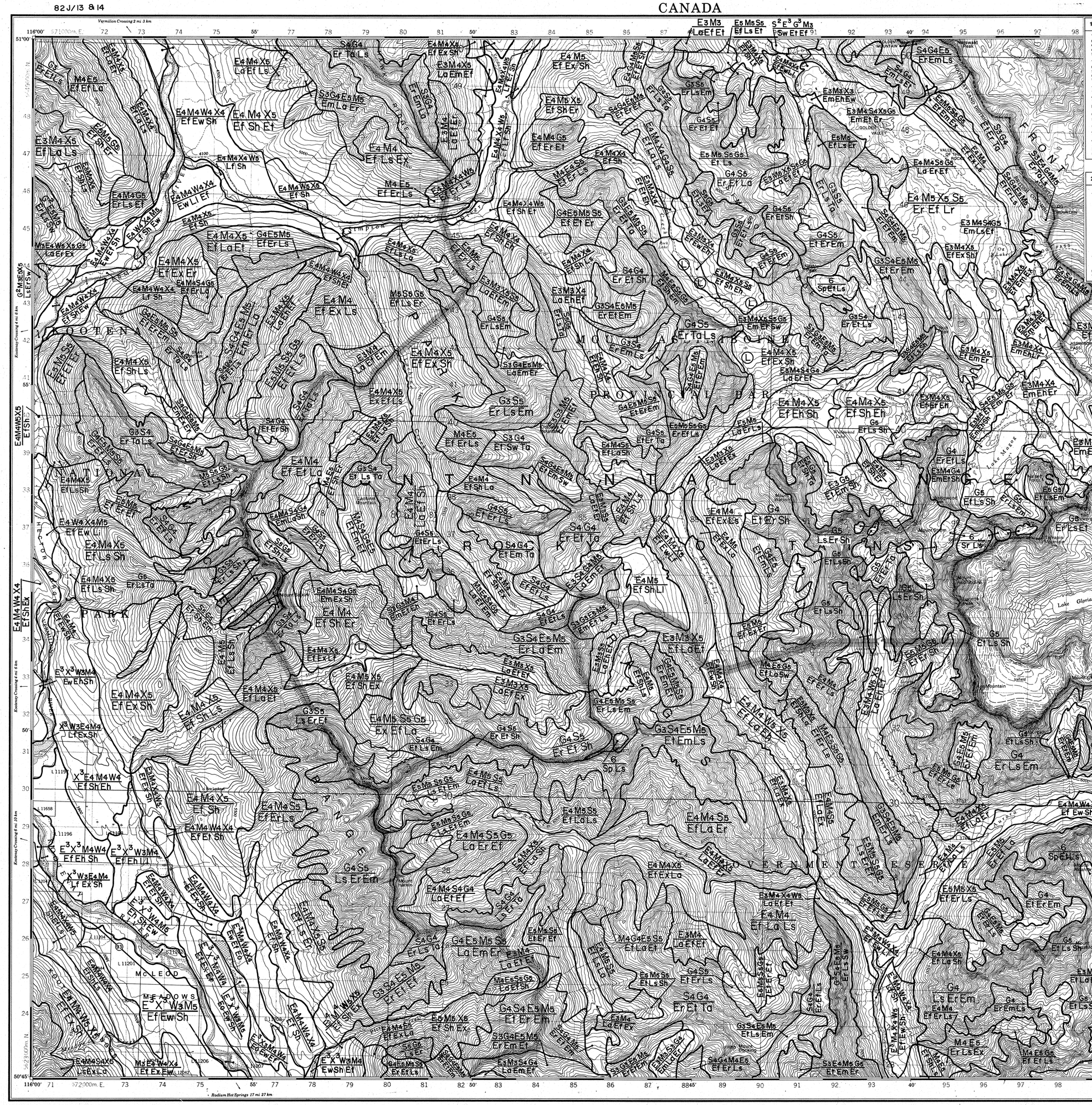
82J/13 & 14

CANADA

BIOPHYSICAL CLASSIFICATION FOR WILDLIFE CAPABILITY

EDITION 2



Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES. Updated from aerial photographs taken in 1972. Culture check 1975. Information current as of 1975.

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MOUNT ASSINIBOINE

BRITISH COLUMBIA-ALBERTA

Scale 1:50,000

Miles 1 0 1 2 3 Miles

Metres 1000 0 1000 2000 3000 4000 Metres

Yards 1000 0 1000 2000 3000 4000 Yerges

82 J/13 and part of 82 J/14

1. Explanatory Notes

This map represents a biophysical classification for wildlife (ungulate) capability. It is general in nature and is presented at a scale of 1:50 000. Like capability maps for forestry and agriculture, ungulate capability maps are based on landforms, surficial materials, soils, climate and vegetation that are considered to form "ecologically significant" units of land. For wildlife, biophysical base maps may be supplemented by animal censuses to gain an insight into ungulate distribution and abundance.

The biophysical mapping approach used here is a step wise process beginning with the two most fundamental needs of wildlife - food and cover. These attributes are assessed using terrain and soils as mapped by other services in the Terrestrial Studies Branch. Areas of land judged to have differences significant to ungulate management are delineated as map units. Subsequent steps in the assigning of capability values are the assessment of a number of environmental conditions influencing the expression of ungulate capability.

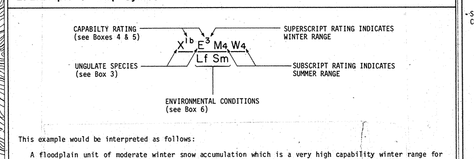
The capability of the land to support a given ungulate species is based on the long term ability of that land to meet the total needs of the species. In terms of food and cover requirements, the ratings are based on the optimum vegetational (successional) stage that can be maintained. Management prescriptions are limited to: prescribed burning or grazing; prescribed flogging or slashing; or, protection from any land use practice that is detrimental to the wildlife species.

Carrying capacity estimates are expressed as animals/square kilometer/year which can be supported on a sustained basis and are represented on the map by a capability class rating from 1 (highest) to 6 (lowest).

This capability classification reflects only the biological and physical parameters of the environment and does not take into account social and economic factors. Also, the classification does not reflect present land use (except where the inherent capability has been permanently altered), ownership, degree of access, current wildlife management practices, nor hunting pressure.

For the purposes of this map, wildlife are considered to be wild, cloven-hoofed, herbivores or wild ungulates of the Cervidae and Bovidae families.

2. Example of Map Symbol



This example would be interpreted as follows:

A floodplain unit of moderate winter snow accumulation which is a very high capability winter range for moose, a moderate capability winter range for elk and a low capability summer range for mule deer and whitetail deer.

3. Ungulate Species Symbols

B...Black-tailed Deer	E...Elk	M...Mule Deer	W...White-tailed Deer
C...Caribou	G...Mountain Goat	S...Mountain Sheep	X...Moose

4. Capability Classes

CLASS 1	Lands in this class have very high capability to support the assigned ungulate species. When required, this class may be subdivided on the basis of productivity into classes 1a, 1b and 1c.
CLASS 2	Lands in this class have high capability to support the assigned ungulate species.
CLASS 3	Lands in this class have moderate capability to support the assigned ungulate species.
CLASS 4	Lands in this class have low capability to support the assigned ungulate species.
CLASS 5	Lands in this class have very low capability to support the assigned ungulate species.
CLASS 6	Lands in this class have no capability to support the assigned ungulate species.

5. Biophysical Ungulate Capability Class Carrying Capacity Estimates

BIOPHYSICAL UNGULATE CAPACITY CLASS CARRYING CAPACITY ESTIMATES
in animals / square kilometer / year

Species Classes	Black-tailed Deer	Mule Deer and White-tailed Deer	Mountain Sheep	Elk	Caribou	Mountain Goat	Moose
1c	34-41	26-32	20-24	16-20	13-15	10-12	8-9
1b	27-34	21-26	16-20	13-16	10-13	8-10	6-8
1a	20-27	16-21	12-16	10-13	8-10	6- 8	5-6
2	14-20	11-16	8-12	7-10	5- 8	4- 6	3-5
3	7-14	5-11	4- 8	3- 7	3- 5	2- 4	2-3
4	3- 7	2- 5	2- 4	1- 3	1- 3	1- 2	1-2
5	<3	<2	<2	<1	<1	<1	<1
6	0	0	0	0	0	0	0

6. Environmental Conditions

The most significant environmental conditions influencing the production of the species and thus determining the capability class, are indicated on the map by symbols. The environmental conditions affect the ability of the land to meet the needs of the species in terms of food, cover and other requirements. For convenience, the environmental condition symbols are placed in three main categories: those relating to climate (such as snowfall or temperature), those relating to the inherent characteristics of the land (such as landforms, soils or vegetation potential), and those relating to permanent anthropogenic (man made) changes to the land base.

CLIMATE

Pa - RAIN SHADOW - unit in which more xeric tolerant plants become established due to climatic factors than occurs in adjacent areas
Sh - HIGH SNOW - unit in which snow accumulation is greater than approximately one meter
Sl - LOW SNOW - unit in which snow accumulation is less than approximately one half meter in depth
Sm - MODERATE SNOW - unit in which snow accumulation is approximately one half to one meter in depth
Sp - SNOWFIELDS AND GLACIERS - unit of permanent ice or snow
Ss - INTENSIFIED SOLAR RADIATION - unit in which snow accumulation is significantly reduced through exposure to solar radiation on southerly aspects
Sw - WINDSWEPT SNOW - unit in which snow accumulation is considerably reduced by wind erosion
Ta - ALPINE ARIDITY - unit at high elevations that is subject to aridity in summer from extreme evapotranspiration and wind action
Tc - COLD AIR LAYER - extreme and persistent freezing temperatures below temperature inversions
Tf - FROST POCKETS - unit that is subject to increased occurance of freezing temperatures relative to the surrounding terrain
Th - HIGH HEAT - unit that is subject to high heat causing extreme evapotranspiration
Tw - WARM AIR LAYER - relatively warm air, occuring over temperature inversions
We - EXPOSURE - unit that is greatly exposed to local winds throughout the year

ANTHROPOGENIC

Hh - RESERVOIR DRAW-DOWN ZONE - the area between full pool and low pool in reservoirs
Hi - INDUSTRIAL DEVELOPMENT - unit of industrial development such as mills, mines, tailings or spoil areas
Hr - TRANSPORTATION CORRIDORS - unit that has a significant proportion of transportation development such as roads or railroads
Hu - URBAN DEVELOPMENT - unit that has permanent urban development

SOILS AND LANDFORMS

Eb - ALKALINE SOILS - unit of strongly alkaline soil
Ed - OPEN FOREST SOILS - unit where an open forest or a transition forest/grassland becomes established
Ef - UPLAND FOREST SOILS - unit where dense conifer forests become established
Eg - GRASSLAND SOILS - unit where a grassland becomes established
Eh - MOIST SOIL - area of moist mineral soil
El - DEEP LACUSTRINE DEPOSITS - unit that is dominated by soils developed from deep, inactive lacustrine deposits
Em - SUBALPINE MEADOW - unit where a subalpine meadow becomes established
Eo - ORGANIC SOILS - unit with poor drainage that is dominated by organic soils
Er - BEDROCK - unit that is dominated by bedrock
Es - SALINE SOILS - unit of strongly saline soil
Et - TALUS - unit that is dominated by talus
Ew - DEEP FLUVIAL DEPOSITS - unit that is dominated by well to rapidly drained soils developed from deep, inactive fluvial deposits
Ex - DRY SOIL - unit that is dominated by well to rapidly drained soils of coarse textured morainal or colluvial materials
La - AVALANCHE TRACTS - unit that has avalanche chutes
Le - SOIL EROSION - unit that has erosion or potential erosion ranging from sheet erosion through to minor gulleying
Lf - ACTIVE FLOODPLAIN - unit of flat land bordering a river and subject to periodic flooding
Ll - FRESH WATER INUNDATION - unit that is subject to long periods of natural flooding resulting in marshy vegetation
Ll - LEVEL LAND - unit that is flat with slopes less than 2°
Lr - ROLLING OR HILLY LAND - unit with complex slopes of between 5 and 30° in a generally low relief area
Ls - STEEP SLOPES - unit with slopes greater than 35°
Lt - TIDAL INUNDATION - unit that is flooded frequently by tidal activity
Lw - FALLING SLOPES - unit of extensive slope movement

7. On-Site Symbols

L : Identifies the location of known mineral licks

: Identifies important known or suspected seasonal movement corridors

8. References

For a more detailed description of the classification system the reader should refer to the guidelines which outline the Biophysical capability classification for ungulates in British Columbia. These guidelines are available from the Terrestrial Studies Branch, Ministry of Environment, Parliament Buildings, Victoria, British Columbia.

9. Credits

Mapped by: D.A. Demarchi
Field Work: 1976 Date Mapped: March, 1980
Date and scale of photography: July, 1979 1:70 000
Date of base mapping by: Surficial Geology 77, Soils 78, Vegetation 79.
Drafted by Cartography Section, Terrestrial Studies Branch, Ministry of Environment.
Date drafted: 1980
Revised: 1990 D.A.D.
Base map provided by Surveys and Mapping Branch, Ministry of Environment.

1980 Edition

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Biophysical Classification for Wildlife Capability