THE GILPIN UNIT (G.F.E.M.A.)

A PROVISIONAL MASTER PLAN

FOR

RECREATION, NATURE INTERPRETATION, AND OUTDOOR EDUCATION

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SUMMARY

A study of the Gilpin Unit of G.F.E.M.A. was undertaken to suggest an approach to resolving land-use conflicts. A provisional master plan for recreation, nature interpretation and outdoor education is the result of this study. To formulate the plan the resources were inventoried and interpretations made from the data for the various uses to be made of the land. The outcome of the study shows that land-use allocation decisions are valid only when an objective study of the resources has been made. The concepts and suggestions revealed in the study should be used for management of the area.

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INTRODUCTION

Integrated resource use is the most practical solution for resolving land-use conflicts. When lands are demanded for two or more uses these conflicts will arise. The goal of land management then is to derive optimum use of the land without causing detrimental losses to this important resource base. This report proposes some alternative uses of a parcel of land (Gilpin Unit - Grand Forks Environmental Management Area) that is the object of multiple-use demand.

Much of the previous work accomplished on the Grand Forks Environmental Management Area (G.F.E.M.A.) has been limited to the portion formerly named the Gilpin Unit. This appears to be a logical starting point at which to begin a study of the effects of management on a given ecological unit. The Gilpin Unit is an ecological unit by itself because it is enclosed within the Gilpin Creek watershed. Therefore, using the Gilpin Unit as a model for research and development is the best means of determining an overall management plan for the area.

A provisional master plan for recreation, nature interpretation, and outdoor education is the result of this investigation. The plan is justified through an evaluation of re-

source data compiled in an inventory of the area. The location and intensity of proposed development is determined by a carrying capacity inventory and an environmental impact assessment which determine areas sensitive to development. The main body of the report is divided into two parts. Part I presents the various plans and Part II examines and interprets the data used to formulate the plans.

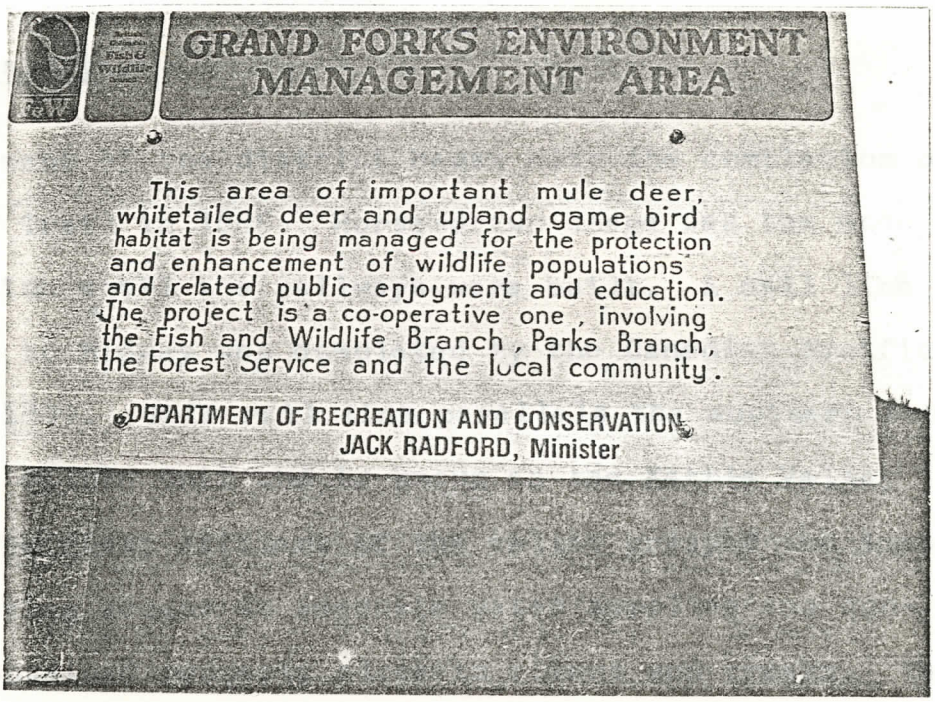

Fig. 1 - Management objectives of G.F.E.M.A.

DESCRIPTION OF THE AREA

This section of the report reviews the human settlement and geological history of the area to provide an overview of factors which have influenced the state of the Gilpin Unit as it exists today. The information provided here will suggest guidelines or considerations to follow in formulating the plans.

Cultural History

Settlement of the district began with the completion of the Dewdney Trail in 1865. Horse-drawn stage was the mode of transportation until the railways were built. A rail line from Robson to Midway was completed by the Canadian Pacific Railway in 1899. This rail link parallels the southern boundary of the Gilpin Unit and is known as the Kettle Valley Railway. The first settlers of the valley grasped the importance of having access to adequate water supplies and consequently obtained property close to rivers and creeks. This pattern is particularly noticeable on the land around the Gilpin Unit.

Climate

The regional climate is generally influenced by onshore air movement from the Pacific Ocean. The nearest meterological stations are located at Grand Forks and Laurier.

In the Gilpin Unit, precipitation ranges from 17 inches at 1,640 feet to 21 inches at 3,200 feet. Table 1. indicates average seasonal temperatures and elevations recorded at the nearest meterological stations. Table 2. gives temperature extremes and average snowfall for these same stations. A dry summer predominates in the study area with the exception of June which has the highest rainfall of the spring-summer months.

Table 1. - Average Seasonal Temperatures at Stations in the Kettle Valley

Station	Elev. (ft.)	Winter	Spring	Summer	Fall	Year
Grand Forks	1,746	23	47	65	45	45
Laurier	1,644	28	45	63	47	46

Table 2. - Temp. Extremes and Average Snowfall

Station	No. of Yrs.	Temperature, °F. High	Low	Snowfall (inches)
Grand Forks	1912 - 62	109	-38	48.6
Laurier	1910 - 54	97	-20	38.3

Vegetation

The Kettle Valley lies within the interior douglas - fir biogeoclimatic zone. This is a montane forest type with ponderosa pine and douglas fir occurring as the dominant tree species. A ponderosa pine - bunchgrass plant association grows on dark brown soils from 1,700 feet to approximately 3,500 feet on the unit. Small scattered pockets of this plant association occur at higher elevations throughout the unit also. Secondary plant succession is in evidence in the ponderosa pine - bunchgrass association mainly as a result of grazing practices. Some of the dominant species occurring in the secondary succession are diffuse knapweed, rabbitbush, needle-and-thread grass and bluegrass.

Physiography

The Gilpin Unit lies at the toe of the Christina Range of the Monashee Mountains. There is much rock-outcropping at lower elevations where forest cover is sparse. The southern boundary of the unit is formed by the Kettle River which meanders through the valley from east to west. The Kettle Valley at this point is a common U-shaped valley of glacial origin with terraces and steep walls. Alluvial fans spread over the terraces at the foot of valley slopes wherever there is a major stream course. The entire unit has a southern aspect which accounts for some peculiarities in climate and vegetative patterns.

Drainage

The drainage pattern in the study area is mainly rectangular dendritic with parallel alignments. Gilpin and Stubbs creeks are the only streams with significant volumes of flow, although several intermittent streams are active during the spring freshet. All streams flow into the Kettle River. The river, between Grand Forks and ½ mile below the rapids at Cascade, has an average stream gradient of 14 feet per mile. However, if the gradient of the rapids is removed from the calculation, the average gradient is considerably less.

Geology of Soil Parent Material

During the last ice age the glaciers advanced to about 100 miles south of the 49th parallel. As the valley glaciers moved southward they converted main valleys into overdeepened U-shaped trenches. As the ice receded it left large deposits of accumulated rock debris. Through the mechanical action of water and gravity, the debris slid and washed from steep slopes leaving large areas of exposed bedrock. On the lower slopes of the unit the debris materials accumulated and formed deposits where the present soils developed.

McCoy gravelly sandy loam is one of the soils that developed on alluvial terraces formed by the Kettle River in its early stage. These terraces extend 200 to 300 feet above the present river level. Bubar sandy loam developed on lower terraces where stream velocity was reduced due to meandering.

Other soils developed where tributary streams entered the river. Coarser materials settled out first as the velocity of the tributary subsided and are found near the tops of alluvial-colluvial fans. The finer sediments settled near the fan margins. Table 3. illustrates the soils found on the area and their parent materials.

Table 3. - Soils and Parent Materials

Subgroup	Parent Materials: Gravelly Outwash and river deposits	Sandy outwash and river deposits	Alluvial - Colluvial fans	Recent alluvial deposits
Orthic Regosol	———	———	———	Saunier
Orthic Dark Brown	McCoy	Bubar	———	———
Orthic Black	———	———	Republic	———

PART I

THE MASTER PLAN

The plans presented in this section of the report are the result of the evaluation and interpretation of the inventory data from Part II of the report. The overlay maps in the second section allow interpretations of the resource data to be made. The overlay maps of Recreation Features and Carrying Capacity reflect respectively; aspects of land and water units providing opportunity for recreation and biological and physical parameters of the environment affecting the units ability to sustain recreational use.

Recreation

The unit which best indicates moderate recreational features and a high carrying capacity for recreational use is the unit immediately west of the Gilpin suspension bridge. This unit should be developed for overnight camping and day use so that a measure of controlling indiscriminate camping and picnicking can be established. The unit has good potential for overnight camping with easy access to a family bathing beach of cobble surface. There are slight limitations to development because of undulating topography and soil drainage which could affect sewage disposal. The use of pump-

out vault toilets are recommended for this site to avoid problems with water contamination. The accompanying map indicates the location of this proposed development site. See Map 1 for planning features.

The western portion of the Gilpin Unit appears to have units with both a higher degree of recreation feature significance and higher physical carrying capacity. There are excellent opportunities for hiking, riding, viewing and photography in the grassland unit west of Gilpin Creek. The existing road along the west side of the creek should be used for hiking and horseback riding. Although there is potential conflict with deer in this unit, the season of recreational use should not coincide with the prime use by the deer during the early spring "green up" period. The map illustrates the travel corridor upon the unit.

Other recreation features of moderate significance occur in conjunction with shoreline and aquatic units of the Kettle River. There is a deep pool for swimming due south of the farm house. This appears to be a popular site from evidence of usage it is receiving. This site could also withstand some day use activity. The river itself allows opportunities for trout fishing and novice canoeing. Day-use development should be the extent of modification for the site south of the farm house because the other development site has more potential for supporting a larger number of camping units.

THE GILPIN UNIT
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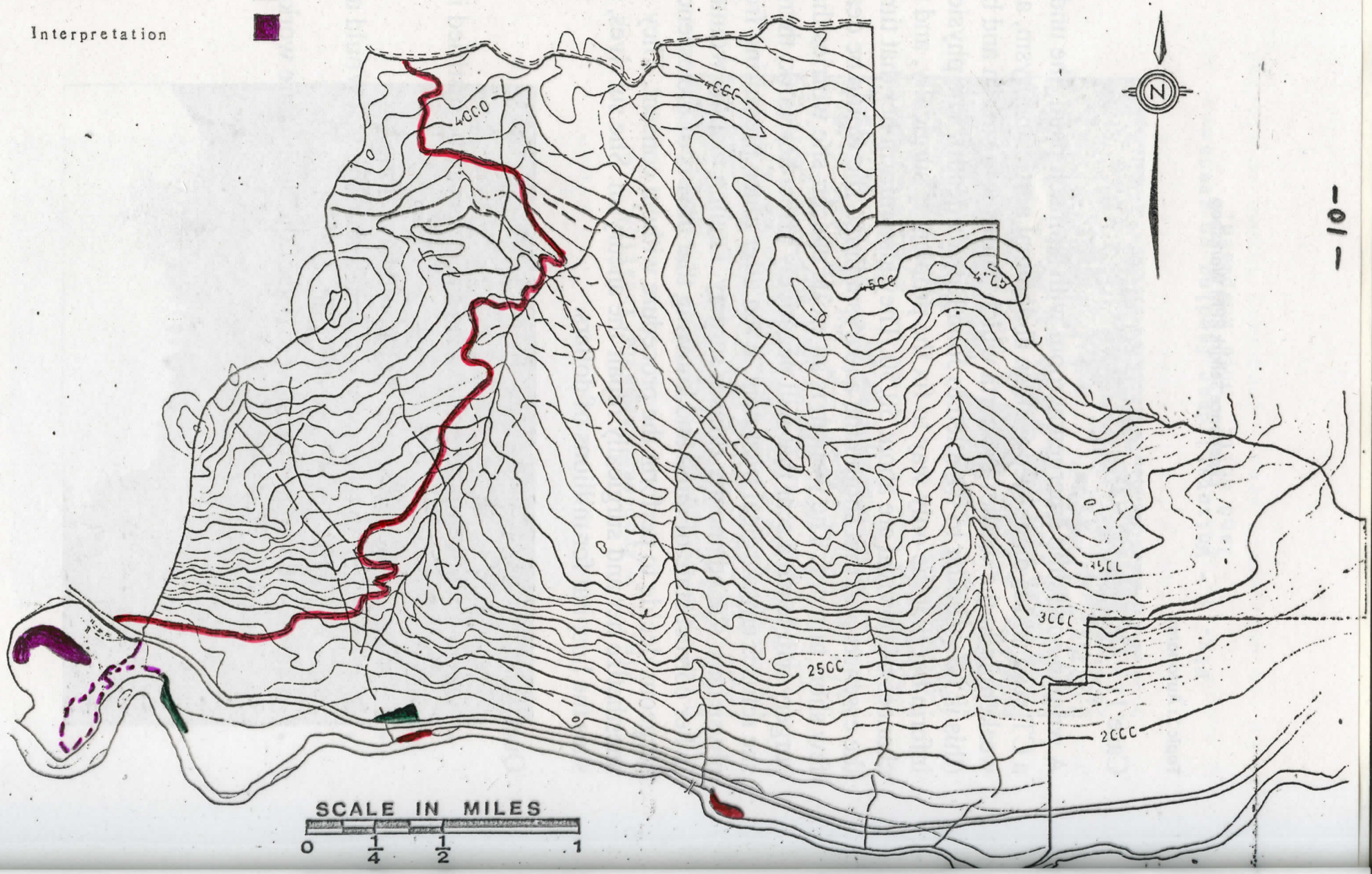
DEVELOPMENT MAP

Recreation

Education

Interpretation



MAP 1

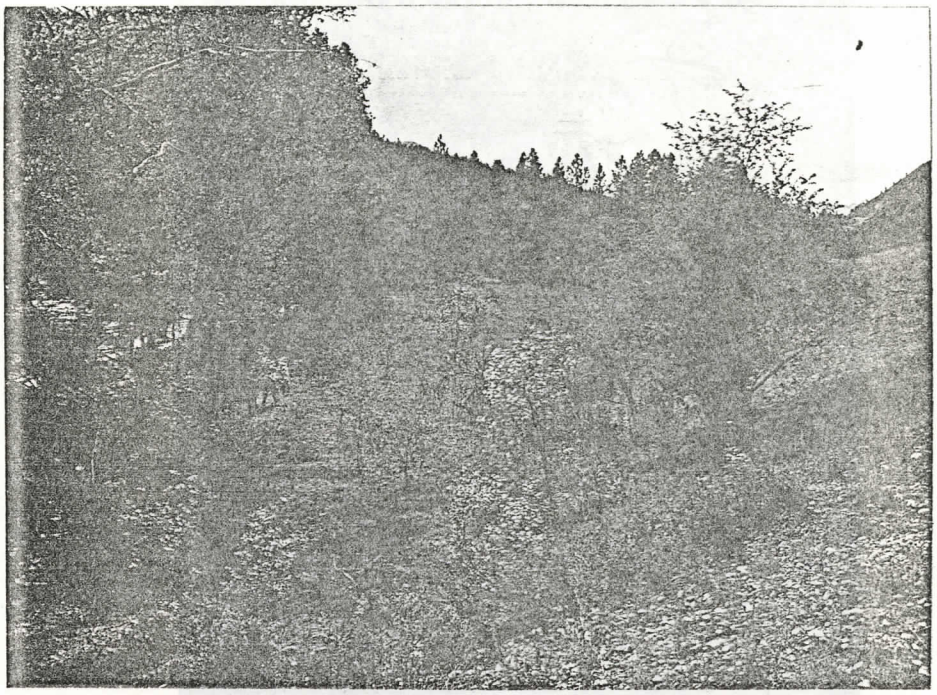


Fig. 2 - Proposed campsite location.

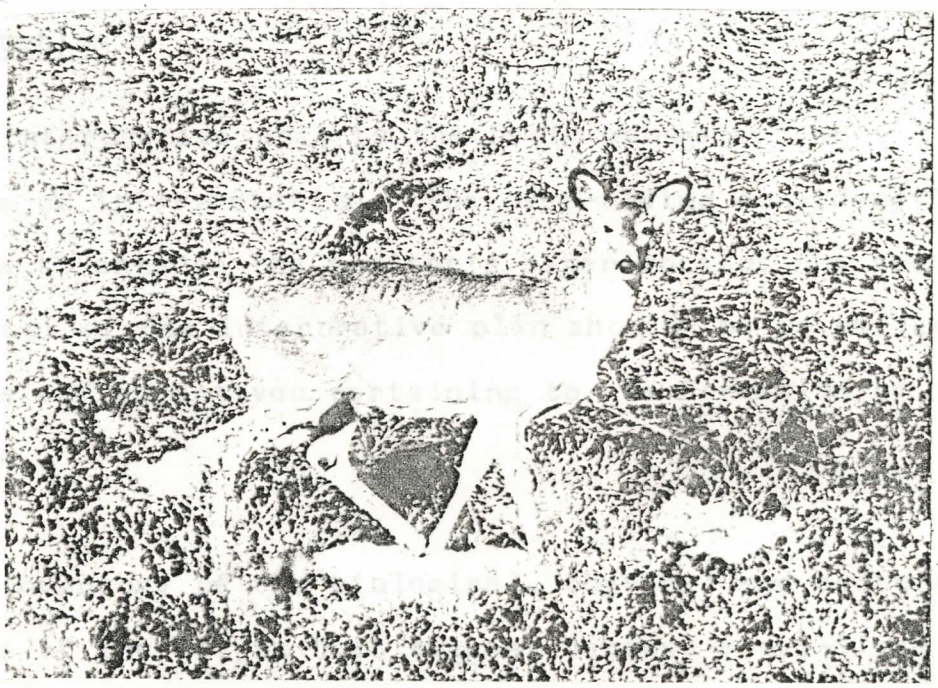


Fig. 3 - Whitetail deer feeding on grassland unit. Note knapweed.

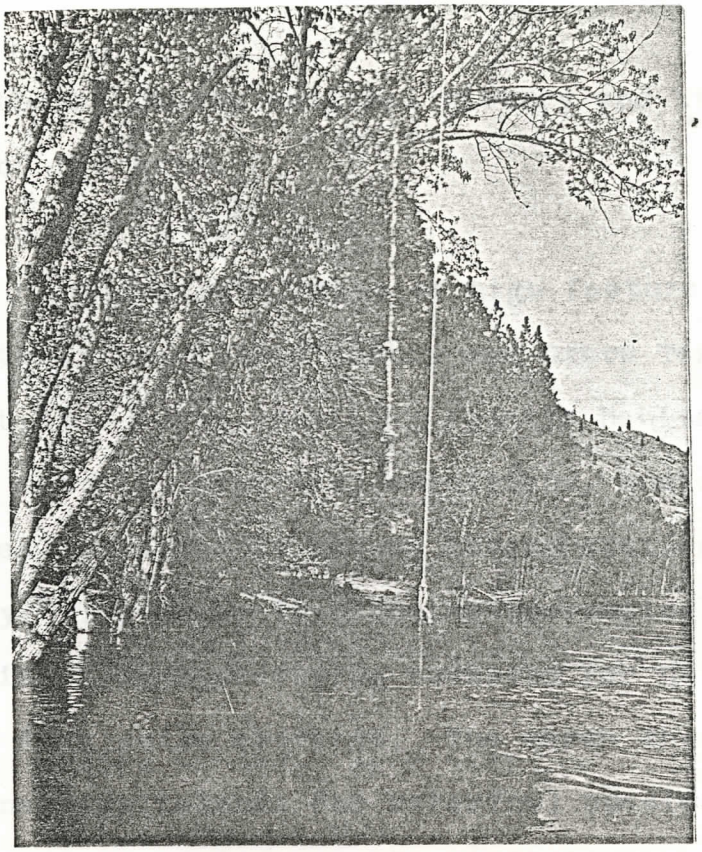


Fig 4. - Swimming hole S. of farm

Interpretation

The interpretive unit is the basic management unit in any programme of interpretation. The over-riding consideration should be to enhance the visitor's experience of the area. The concept of the interpretive plan should be to reflect the goals and objectives pertaining to the formation of the G.F.E.M.A..

The inventory of the biological, physical and cultural resources of the Gilpin Unit suggest various story-lines which are identified in the interpretive units. The major story should be to interpret the importance of the deer and birds to the management area. Secondary themes or stories

should reveal both the recent cultural history and the geological history of the unit.

There are two interpretive units of high feature significance located within the Valley Bottom and Oxbow Terrain Units. In the Oxbow Unit is a marsh providing aquatic habitat for waterfowl, small mammals, reptiles, amphibians, and small birds. This marsh is ideally suited to nature interpretation if it is managed correctly. The marsh is becoming increasingly more eutrophic because it is in a receiving position for nutrients and sediments eroded fron soils above it. The marsh should be excavated to form nesting islands for waterfowl species. This project could be done by volunteers from wildlife and naturalists clubs in the area. Guidance and information could be obtained from Ducks Unlimited and the Creston Valley Management Area. An earth dam at the east end of the marsh will prevent the marsh water from draining when it is filled to the desired level. The water level can be maintained by using the irrigation system and pump.

One of the major limitations to use of the unit for interpretation is the conflict with wildlife using it. A trail around the marsh would disturb the wildlife inhabitants. During critical times such as nesting periods, a viewing platform is needed so that wildlife can be observed without being disturbed. This tower or blind should be located on high ground above the marsh.

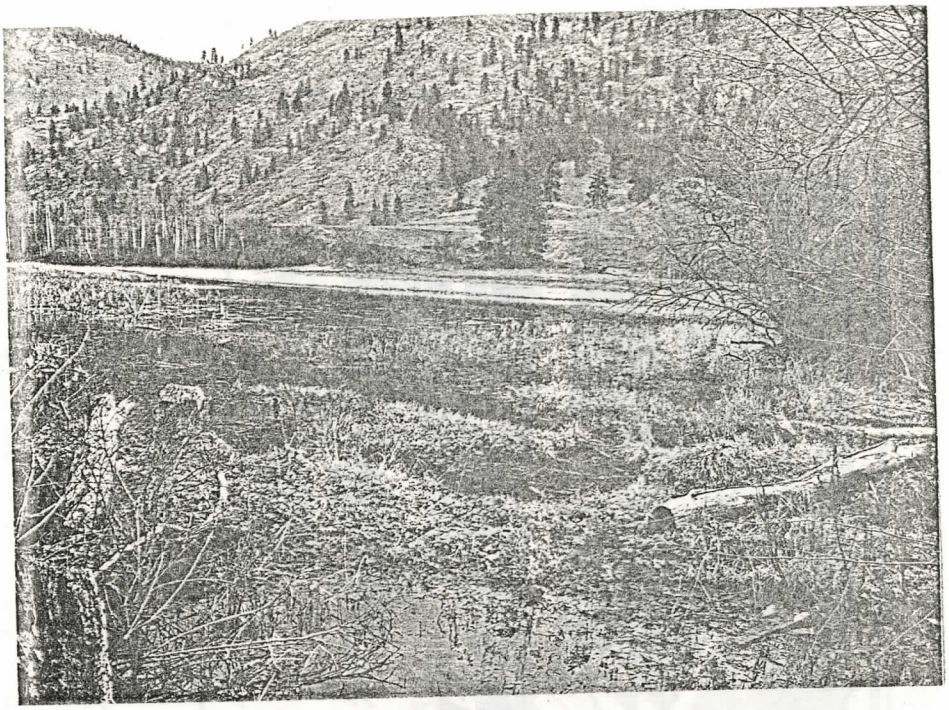


Fig. 5 - View of marsh from east end in March.

The unit between the Oxbow and the river contains an alfalfa field and a stand of trembling aspen, hawthorn and saskatoon shrubs. This area is habitat for many small birds and rodents. It is also used as escape cover by deer when they are feeding on the grasses in the alfalfa field. An interpretive trail following the river bank and circling through the aspen stand would allow opportunities to view and photograph the inhabitants.

A unit of historical significance and also of interest to outdoor education activity is the roadbed of the Dewdney trail. The roadbed was constructed of piled rocks and is still very sturdy today. This area should be protected and maintained so that this feature of provincial significance can be preserved. This feature should be linked up with the interpretive

trail in the Oxbow Terrain Unit.

Fig. 6 - Downy woodpecker in Aspen stand.

Fig. 7 - Dewdney Trail roadbed.

Outdoor Education

This activity is an important phase of interpreting and revealing the objectives of the Grand Forks Environmental Management Area. The local school districts should be encouraged to utilize the area as an outdoor classroom. The Gilpin Unit has many features and subject bases which can serve as curriculum-integrated and multi-disciplinary vehicles for environmental education.

Some of the subjects which could be taught here include ecological succession, geography, biology, and history of the regional settlement. The interpretive features of the Gilpin Unit can also be used as subjects for an outdoor education program. A common centre for outdoor education and interpretation should be established on the unit. A likely location for this would be in the vicinity of the existing farm buildings. In this manner there would be better utilization of facilities and at the same time a core area would be established to control development.

PART II

This section of the report evaluates and interprets the inventory data to form the basis for a decision-making framework. The decision-making framework leads to the formulation of the plans in Part I of the report. In essence, the plans are selected because they indicate the best use of the land for one or more of the particular uses that the Gilpin Unit is being evaluated for.

Terrain Units

For the purposes of this inventory the Gilpin Unit was separated into four distinctive units based on patterns of soil, landform, vegetation and water. This inventory technique is a modification of the Bio-physical Land Classification System presently used by the Resource Analysis Unit of the Environment and Land Use Secretariat. Whereas the Resource Analysis Unit uses the Land System (map scale 1:50,000, presentation scale of 1:125,000 or 1:250,000) as the unit of mapping classification, this study uses the Land Type (map scale of 1:15,840). A presentation scale of 40 chains per inch (1:31,680) is used in the report in order to facilitate a 8½ inch by 11 inch page format.

The inventory conducted on the Gilpin Unit is generally

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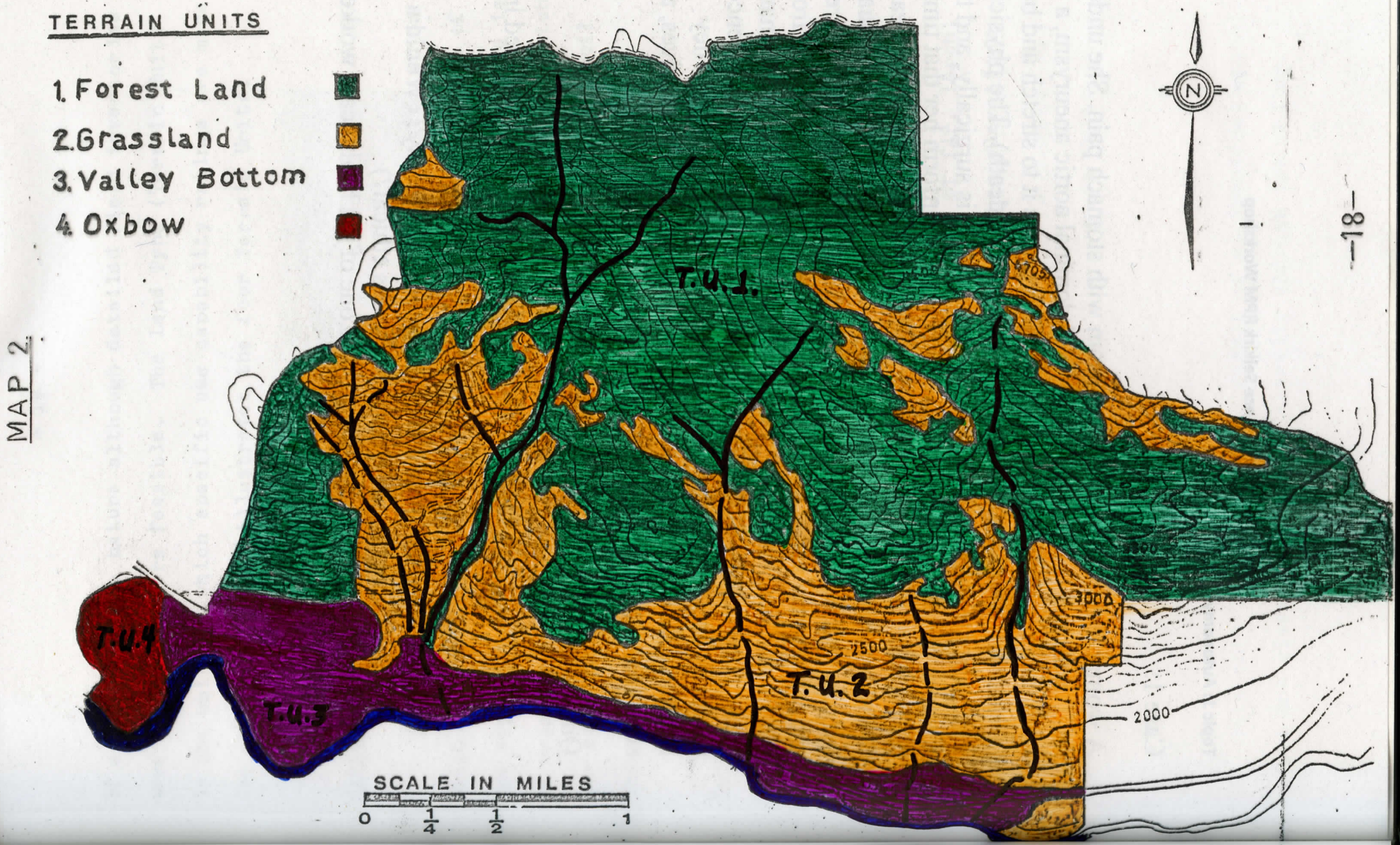


MAP 2.

of a reconnaisance nature although detailed field inventories were conducted where feasible. The Land Type (Terrain Unit) is the unit for which specific use capability ratings are made. The accompanying map illustrates the four Terrain Units.

Grassland Unit

This unit is characterized by its soil-plant association which is greatly influenced by aridity. An interpretation of the species present indicate a secondary successional stage is in progress. The unit is also exposed to climate forces which are actively eroding some of the soils. Compaction and soil creep are evident signs of these occurrences.

Forest Land Unit

This unit contains the greatest amount of land within the Gilpin Unit. It ranges from 2,000 feet through the sub-alpine and contains a diversity of tree species. Open stands of ponderosa pine and douglas fir grow along the borders of the Grassland Unit and some commercial stands of fir, larch, and ponderosa pine have been harvested at higher elevations between Gilpin Creek and Stubbs Creek.

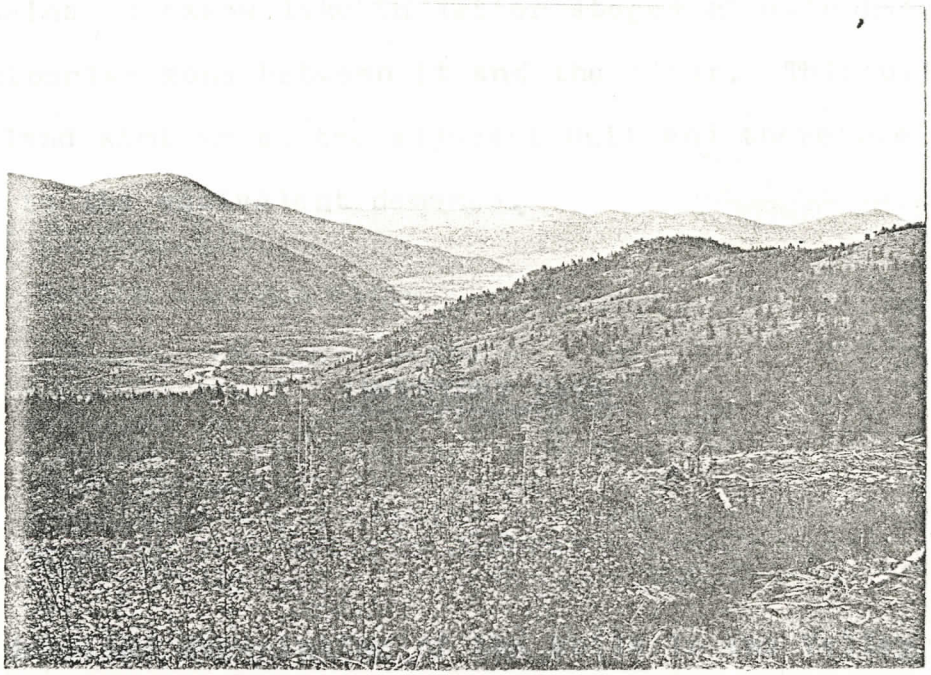


Fig. 8 - View from logged area toward Grand Forks.

Valley Bottom

This unit comprises most of the land between the kettle River and the steeper terrain of the forest and grasslands. It is within this unit that most of the fertile soils occur along with many developments of man. This area probably receives the most demand for use of all the Terrain Units.

Oxbow

This unit is primarily the result of an abandoned meander of the river as it moved laterally through the valley.

It contains an oxbow lake in latter stages of eutrophication and a riparian zone between it and the river. This unit is bottom land similar to the adjacent unit and therefore it is subject to the equivalent demands.

INVENTORY DATA

Soils

A detailed description of the soils in the Valley Bottom and Oxbow Units is illustrated on overlay Map 3. The source of these descriptions is the report, Soil Survey of the Kettle River Valley in the Boundary District of British Columbia.[1] General soil texture and depth are infered for the other two units because the depositional processes for the parent materials are the same. Other details of soil limitations are reflected in the carrying capacity inventory for recreation on Map 5.

Soil Map Legend

Soil Description			Phases
BUsl	-	Bubar Sandy Loam	:b - rough broken
Sa	-	Saunier Complex	:x - excessively stony
My	-	McCoy Gravelly Sandy Loam	
Re	-	Republic Gravelly Sandy Loam	

Topography

RO - Rock outcropping
RM - Rough mountainous
B - Bluffs & ravines
Sw - Swamps

Topographic Classes

A - Smooth uniform slope

A0 - smooth undrained basin - 0%
A1 - smooth level - 0-0.5%
A2 - smooth very gently sloping - 0.5-2%
A3 - smooth gently sloping - 3-5%
A4 - smooth moderately sloping - 6-9%
A5 - smooth steeply sloping - 10-15%
A6 - smooth very steeply sloping - 16-30%
A7 - very hilly - over 30%

B - Irregular slope

Bo - hummocky basin - 0%
B1 - irregular level - 0-0.5%
B2 - irregular very gently sloping - 0.5-2%
B3 - irregular gently sloping - 3 -5%
B4 - irregular moderately sloping - 6 -9%
B5 - irregular steeply sloping - 10-15%
B6 - irregular very steeply sloping- 16-30%
B7 - irregular hilly - over 30%

Saunier Complex

This is a regosol soil with good to imperfect drainage for most of the year. During the spring there may be flooding and poor drainage for a short time. The soil occurs on recently deposited river alluvium. The surface layer is loam or sandy loam. Dyking may be necessary to prevent annual flooding.

McCoy Gravelly Sandy Loam

This soil is an orthic dark brown subgroup that is derived from gravelly river terraces. They are rapidly drained soils which developed under grass on south aspects and level areas.

Bubar Sandy Loam

This soil belongs to the orthic dark brown subgroup. The soil is derived from sandy river terraces and contains calcareous and mildly alkiline fine to coarse sands. The soil is underlain by outwash gravels.

Republic Gravelly Sandy Loam

This soil is of the orthic black subgroup and derived from alluvial-colluvial fans at the mouths of coulees. The parent material eroded from glacial till and gravelly outwash and the soil developed under native grasses. The soil is light textured and there is a high content of angular gravels. The fans where the soils occur are rapidly to moderately well drained.

Vegetation

There is a great diversity of vegetative species found in the four Terrain Units. The vegetation in many parts of these units has experienced the affects of human activities and has responded accordingly. Many of the grass and forb species now in abundance are not indigenous but are the result of plant competition on disturbed sites. This competition is most prevalent on the lower grassland slopes and valley bottom land where man's activities have predominated for the past 80 to 100 years.

The scope of this investigation did not allow for a detailed field inventory of the plant species in the Terrain Units. Previous species listings are presented here and are supplemented by other species identified during reconnoiters on the units. The species are listed for convenience under the subheadings of the Terrain Units.

Forest Land

Trees:	ponderosa pine	western hemlock
	western larch	white birch
	douglas fir	engelmann spruce
	lodgepole pine	western white pine
	western red cedar	alpine fir
	trembling aspen	black cottonwood

Grassland

Trees:	ponderosa pine	trembling aspen
	douglas fir	black cottonwood

Shrubs:	sitka alder	oregon grape
	black hawthorn	rabbitbush
	choke cherry	hazelnut
	saskatoon	mock orange
	mallow ninebark	blue berry elder
	sumac	waxberry
	squaw currant	rose spp.
Forbs:	great mullein	yarrow
	diffuse knapweed	goat weed
	prickly pear cactus	oyster plant
	lupines	common St. Johnswort
Grasses:	spear grass	Kentucky bluegrass
	cheat grass	blue-bunch wheatgrass
	Timothy	
Sedge:	scirpus	

Valley Bottom

Trees:	trembling aspen	ponderosa pine
	black cottonwood	douglas fir
Shrubs:	squaw currant	saskatoon
	willow	hawthorn
	sumac	rose spp.
	choke cherry	mock orange
Forbs:	alfalfa	goatweed
	lupines	diffuse knapweed
	vetch	
Grasses:	speargrass	bluebunch wheatgrass
	cheatgrass	
Sedge:	scirpus	

Oxbow

Trees:	trembling aspen	ponderosa pine
	black cottonwood	

Shrubs:	black hawthorn	hazelnut
	saskatoon	rose spp.
	willow	
Forbs:	alfalfa	diffuse knapweed
	clover	fleabane
	vetch	
Grasses:	quack grass	red top
	Timothy	red canary grass
	downy chess	
Sedge:	scirpus	rushes
	cat tail	

Wildlife

As stated previously, human activity on the land leads to successional plant species and likewise, wildlife species which favour this habitat, thrive. This habitat is created through the practices of grazing, logging, and other disturbances. Dasmann[2] lists whitetail deer, mule deer, elk, and ruffed grouse as species favouring this habitat. 'Some species such as mule deer prefer small home ranges where their needs for food, shelter, water, and escape cover are all available. The mule deer is generally found only in the Forest Land Unit of Gilpin. On the other hand, whitetail deer are a migratory species with a summer and winter range sometimes great distances from one another. Consequently, the whitetail is found in all of the Terrain Units.

The location of sensitive wildlife habitat areas on the Gilpin Umit is marked by recognition of the "edge effect". When habitat types come together as in the Grassland Unit and the Forest Land Unit or the Valley Bottom Unit and the river, the number of species occurring is greater than on the unit considered alone. Many species use this transition zone for escape cover also. The species that occur on the Gilpin Unit are listed under the Terrain Unit subheadings.

Forest Land

Mammals:[3.]

Snowshoe hare	redback vole
yellow-bellied marmot	mountain vole
columbian ground squirrel	porcupine
northwestern chipmunk	coyote
red squirrel	black bear
northern flying squirrel	marten
pocket gopher	short-tailed
deer mouse	weasel
pack rat	cougar
whitetail deer	mule deer

Birds:[4.]

golden eagle	raven
ruffed grouse	pine siskin
steller's jay	

Grassland

Mammals:[3.]

yellow-bellied marmot	coyote
columbian ground squirrel	short-tailed
northwestern chipmunk	weasel
deer mouse	cougar
pack rat	mule deer
mountain vole	whitetail deer

Birds:[4.]

Marsh hawk	ruffed grouse
golden eagle	magpie

5. Reptiles & Amphibians:	rattlesnake	

Valley Bottom

3. Mammals:	yellow-bellied marmot	coyote
	columbian groundsquirrel	short-tailed
	pocket gopher	weasel
	deer mouse	striped skunk
	meadow vole	whitetail deer
4. Birds:	pintail duck	snipe
	wood duck	robin
	marsh hawk	red-winged blackbird
5. Reptiles & Amphibians:	western spadefoot toad	northwestern toad
	rattlesnake	

Oxbow:	columbian groundsquirrel	coyote
3. Mammals:	northwestern chipmunk	short-tailed
	pocket gopher	weasel
	deer mouse	striped skunk
	meadow vole	whitetail deer
4. Birds:	canada goose	snipe
	mallard duck	pygmy owl
	pintail duck	downy woodpecker
	wood duck	robin
	marsh hawk	red-winged blackbird
5. Reptiles & Amphibians:	tiger salamander	western spotted frog
	western spadefoot toad	rattlesnake
	northwestern toad	

Recreation Features Inventory

This inventory identifies recreation features and provan estimate of feature quality. The methodology used for the inventory is one developed by the Resource Analysis Unit of the Environment and Land Use Secretariat.[6.] The recreation features are identified via biophysical map units which are displayed on overlay Map 4. A copy of the methodology is included in Appendix "A" for ease of reference.

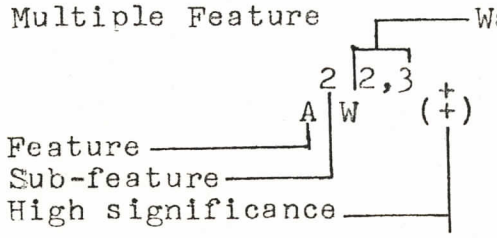
The following descriptions of the symbolization and feature significance will aid in interpreting the Recreation Feature Map.

Symbolization

Examples:

1. Single Feature $P^{2}(+)$ - Aunit of settlement patterns and farmlands providing diversity and interest to the landscape. This unit of regional significance has a moderate ability to attract recreational use.

2. Multiple Feature



- A marsh unit of aquatic habitat providing opportunities for observing, studying, recording or photographing water birds and small mammals.

See page 4 of Appendix "A" for an explanation of feature significance symbols.

Recreation Feature Map Symbols

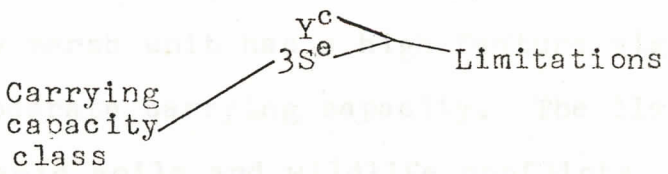
Biotic Features	Aquatic biotic features	A^1 A^2	Angling Aquatic habitat
	Vegetation	E^1	Zonal vegetation
	Wildlife	W^1 W^2 W^3 W^4	Upland birds Water birds Small mammals Large mammals
Physical Geographic Features	Landforms	L	Land feature
	Rock formation	R^1	Rock formation
	Landscape features	M Q V	Small surface waters Topographic patterns Viewing
Water Oriented Features	Beaches	B^1 B^2 B^3 B^f B^d	Sand beach Cobble beach Rock beach Family bathing Deep water swimming
	Canoeing	C^1	Canoeing - open boats
Cultural Historical Features	European	Hb^3	Historic routes
	Cultural	P^2	Pastoral landscape
Development site potential		K	Potential camping etc.

Carrying Capacity Inventory

The inventory techniques used in this section are from the same methodology referred to in the preceding Recreation Features Inventory. For details of the approach used, refer to pages 16 through 18 of Appendix "A". Overlay Map 5 illustrates the physical carrying capacity for recreation within biophysical land units. Overlay Maps 3, 4, 5, and 6 are found on pages 37 - 40.

There are five carrying capacity classes ranging from high to very low. The unit's carrying capacity is judged according to the amount and severity of physical limitations to both intensive and extensive recreational uses. The following example reveals the meaning of the symbolization used in mapping the carrying capacity.

Example:



The carrying capacity inventory is used in conjunction with the recreation features inventory. Best results are obtained by viewing one map overlaid by the other. The carrying capacity units adjacent to a recreational feature determine the level of development. For example, if adjacent units are in the lower classes, a small wilderness campsite or hiking trail may be the only developments considered for the unit.

Also, the physical carrying capacity does not reflect a unit's esthetic quality for that is assessed in the recreation features inventory.

EVALUATION AND INTERPRETATION OF INVENTORY DATA

There are two units of Class 2 carrying capacity fronting on the river. These units correspond with recreation feature units offering opportunities for swimming and family bathing and having development site potential. There are slight limitations to picnic and camp areas due to drainage and moderate limitations due to undulating topography and beach debris accumulation. Both units have an access limitation in the form of a railway crossing.

The oxbow marsh unit has a high feature significance combined with moderate carrying capacity. The limitations of the unit are organic soils and wildlife conflicts. The units adjacent to it are lower in carrying capacity and this indicates that only a low level of development should take place.

There are two units rated as Class 3 (moderate carrying capacity). The first unit, which is adjacent to the western boundary of the Gilpin Unit and the Kettle River, has moderate recreation feature significance. This unit is subject to flooding during high water in the spring. The unit adjacent

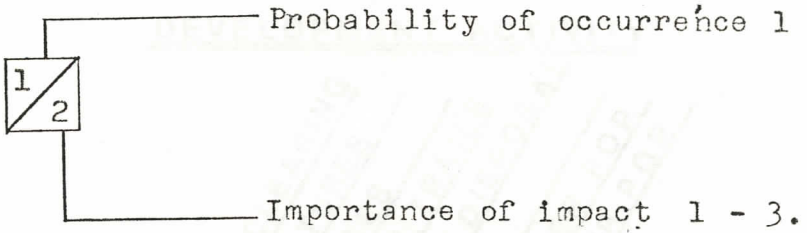
to it is a wildlife habitat area and this implies special consideration in any plans for development. The second Class 3 unit is situated on the Grassland Terrain Unit from Gilpin Creek westward. The unit has three limitations; soil creep, shallow soils associated with bedrock outcrops, and conflict with deer range. However, the unit is capable of supporting extensive recreational activities such as hiking, bird watching and wildlife viewing and photography.

The remaining units are in the Class 4 and 5 category. They have limitations ranging from steep bluffs to rattlesnake habitat areas. These limitations impose very restricted extensive recreational uses on Class 4 units and avoidance of any use on Class 5 units.

ENVIRONMENTAL IMPACT ASSESSMENT

This section of the report assesses the impact of development on the four Terrain Units. The impact assessment is accomplished through the use of an environmental matrix which applies sensitivity ratings to the units' ability to withstand various aspects of development. The sensitivity ratings range from 1 - low through 3 - high. The ratings determine the probability and the importance of a development activity having an adverse effect on environmental qualities. The following example provides an explanation of this method:

Example:



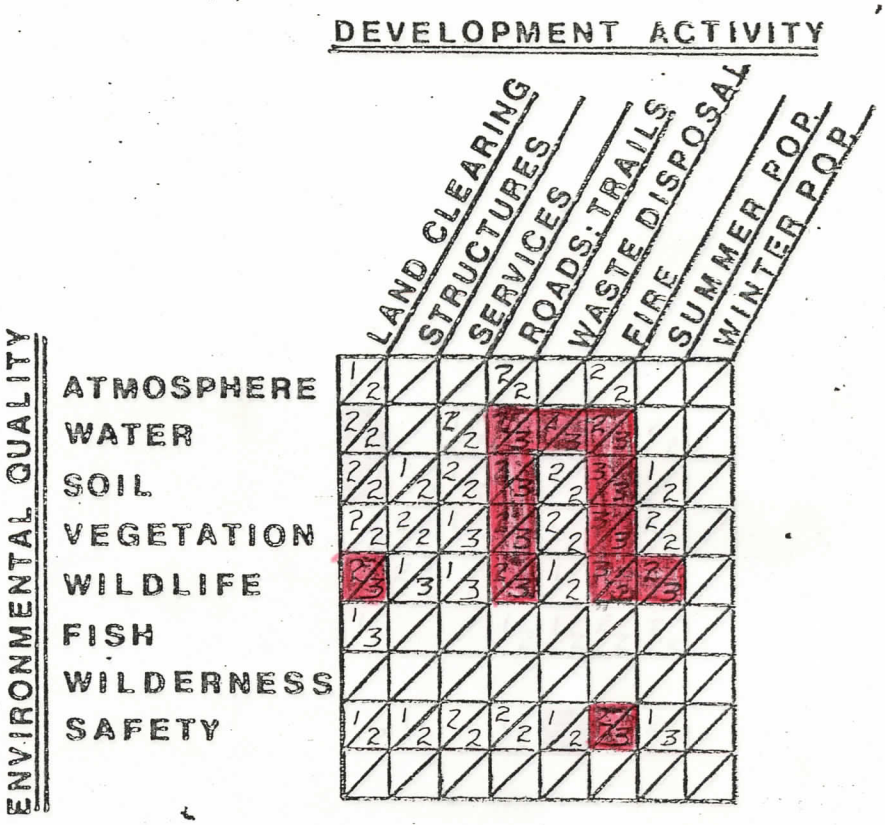
When addition of the numbers in the boxes total 5 or 6 then there is environmental sensitivity.

Coloured boxes indicate sensitive areas where environmental problems will arise.

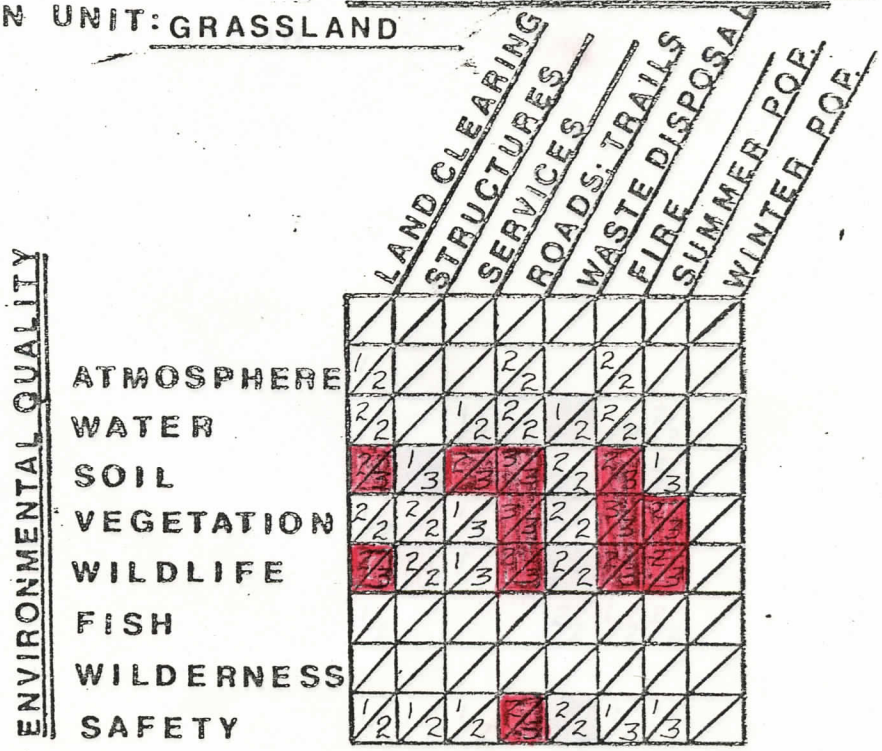
The matrices which follow indicate the degree of sensitivity between the four units by summing the coloured boxes. Both the Forest Land and the Grassland Units have 12 areas of conflict. The Valley Bottom and Oxbow Units have seven and eight areas of conflict, respectively. From this assessment it may be concluded that the Valley Bottom Unit can be developed with less problem than the others. The Oxbow Unit has a high area of conflict with wildlife and this demands prime consideration in any development proposal. The matrices of the Grassland Unit and the Forest Land Unit both correspond with the classes and limitations displayed on the Carrying Capacity Map. This agreement tends to indicate that very limited development should take place on these units in order to preserve environmental integrity.

ENVIRONMENTAL MATRIX

TERRAIN UNIT: FOREST LAND

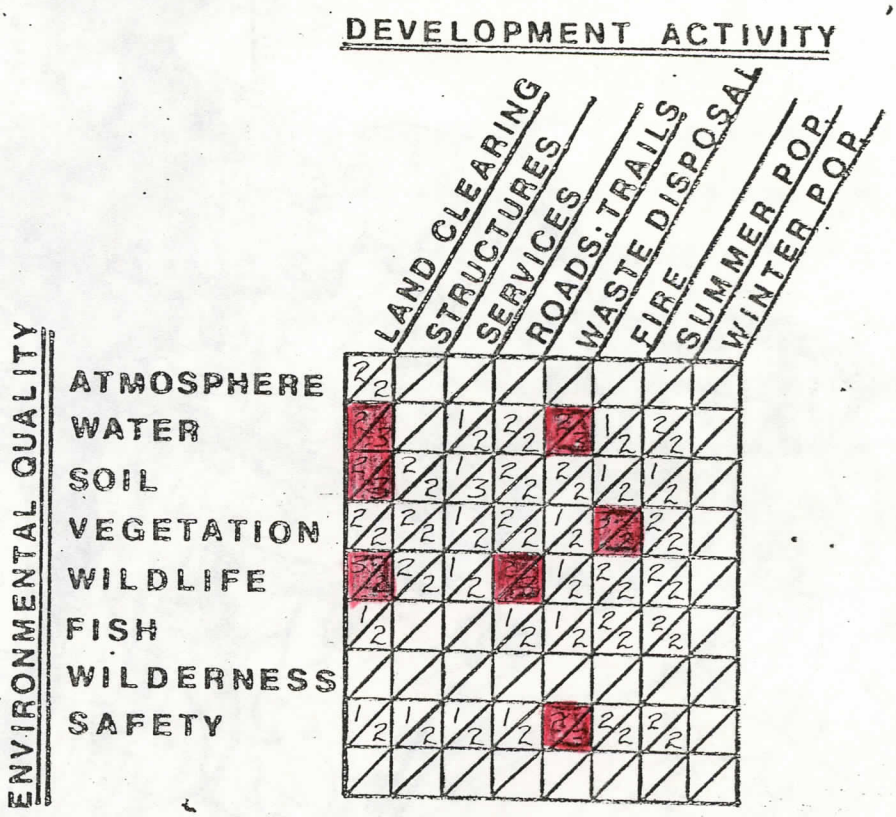


TERRAIN UNIT: GRASSLAND

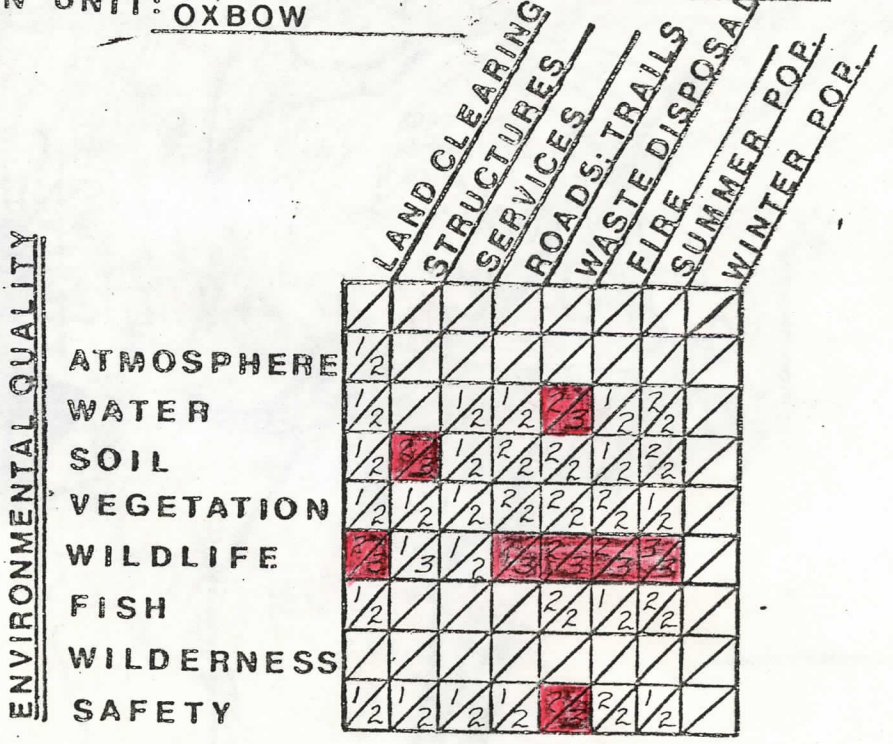


ENVIRONMENTAL MATRIX

TERRAIN UNIT: VALLEY BOTTOM

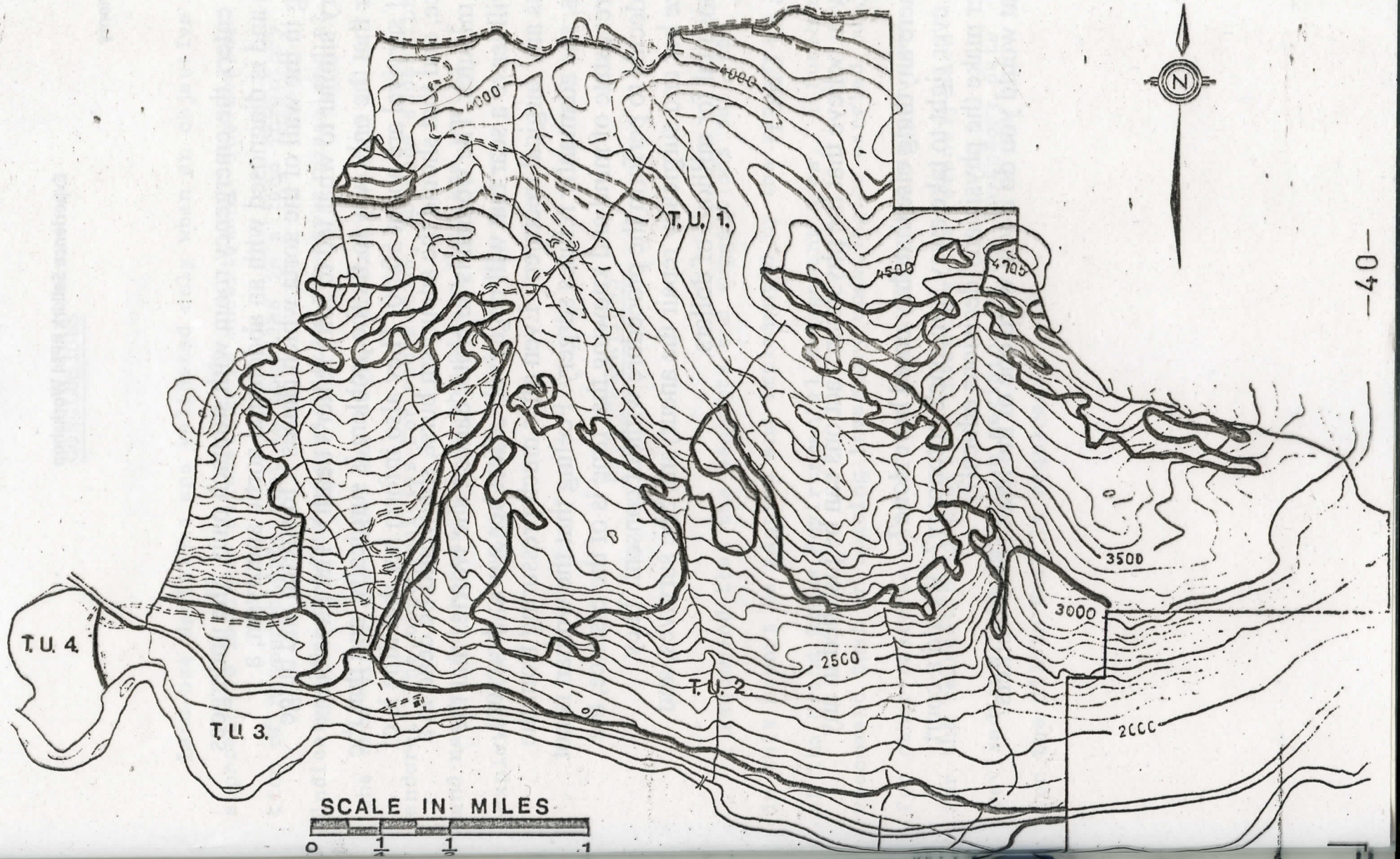


TERRAIN UNIT: OXBOW



TERRAIN UNIT

THE GILPIN UNIT
G.F.E.M.A.



MAP 6

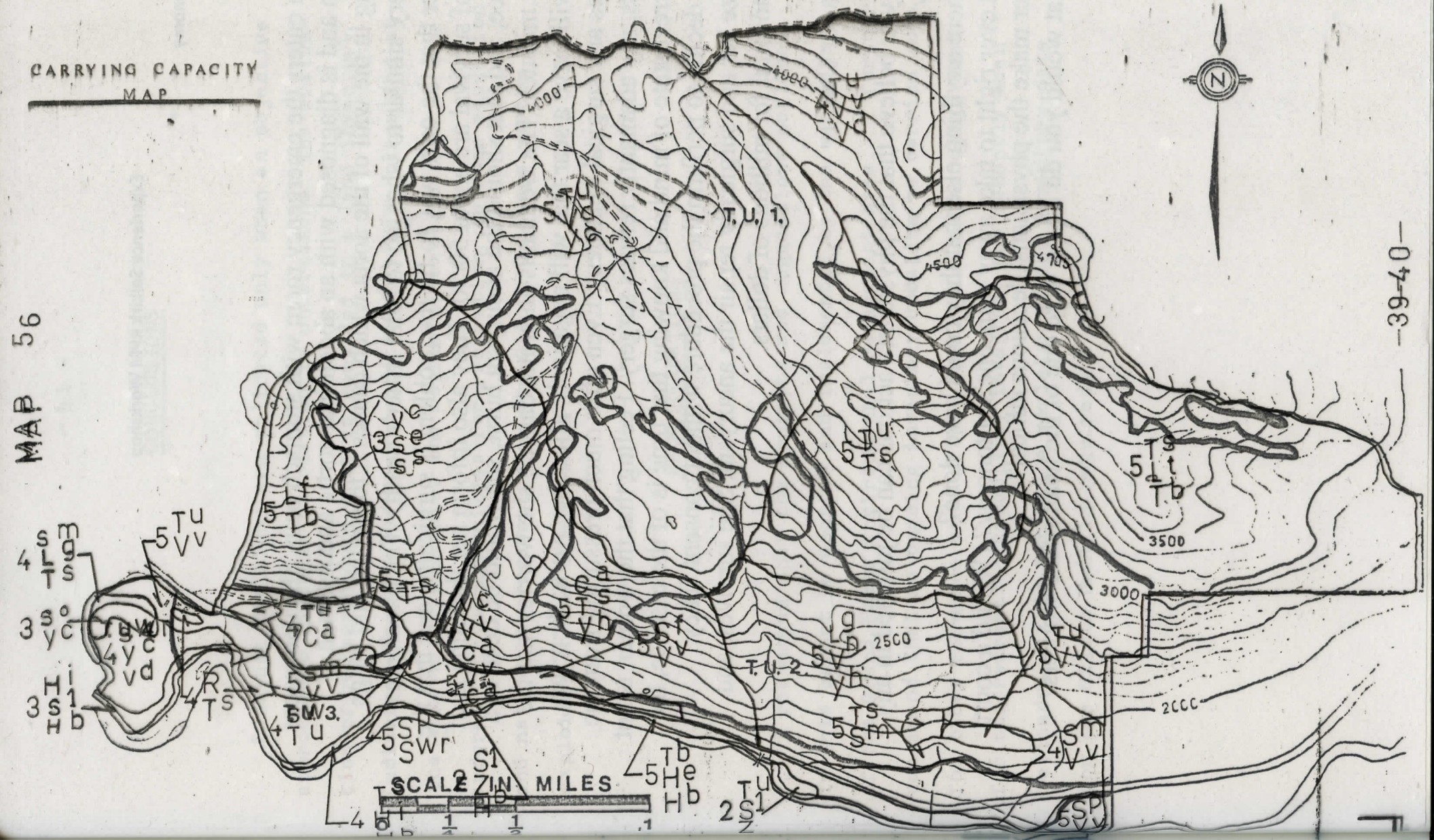
THE GILPIN UNIT
G.F.E.M.A.

TERRAIN UNIT

CARRYING CAPACITY MAP

MAP 56

39-40



THE GILPIN UNIT
G.F.E.M.A.

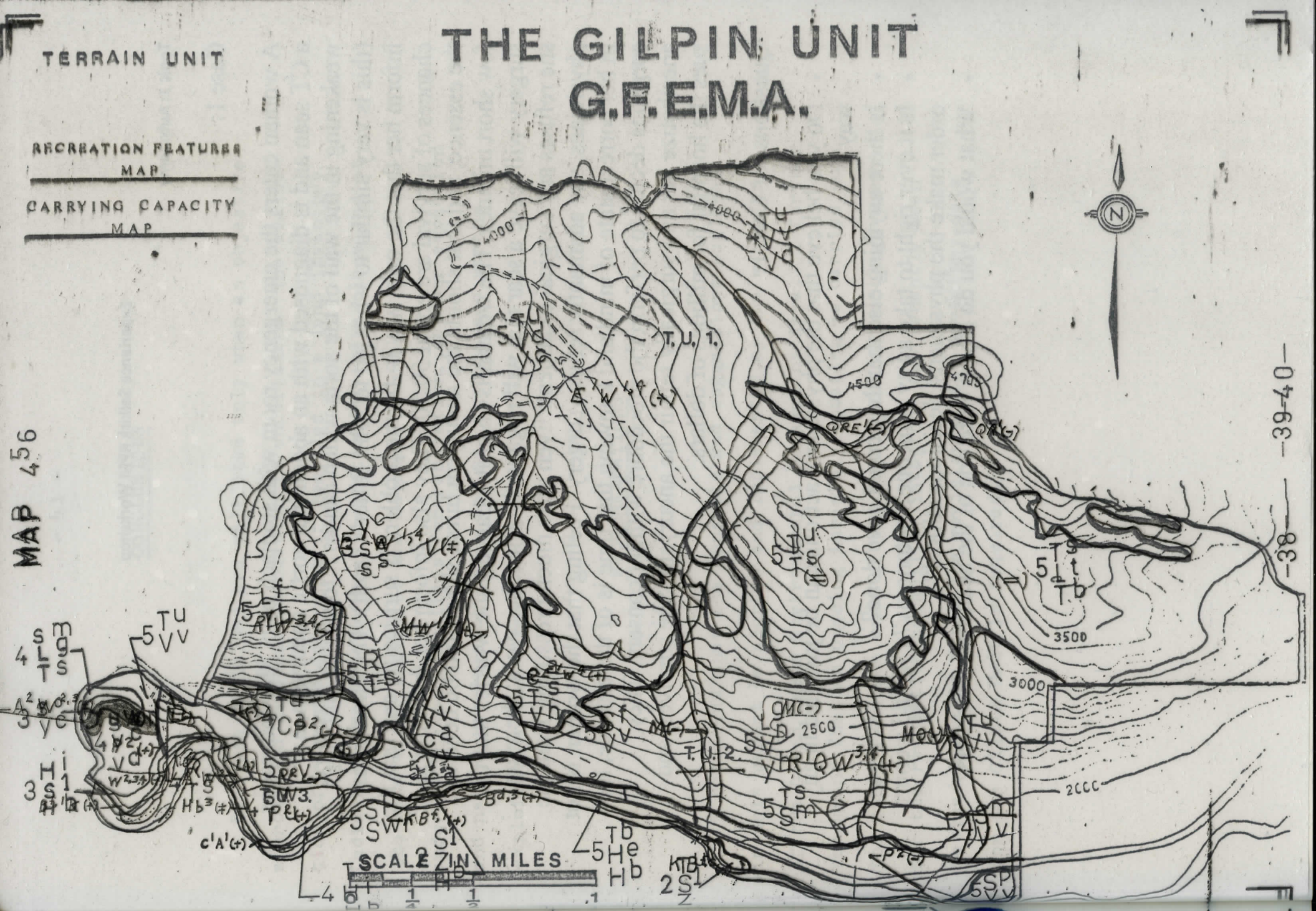
TERRAIN UNIT

RECREATION FEATURES MAP

CARRYING CAPACITY MAP

MAP 456

SCALE IN MILES



THE GILPIN UNIT
G.F.E.M.A.

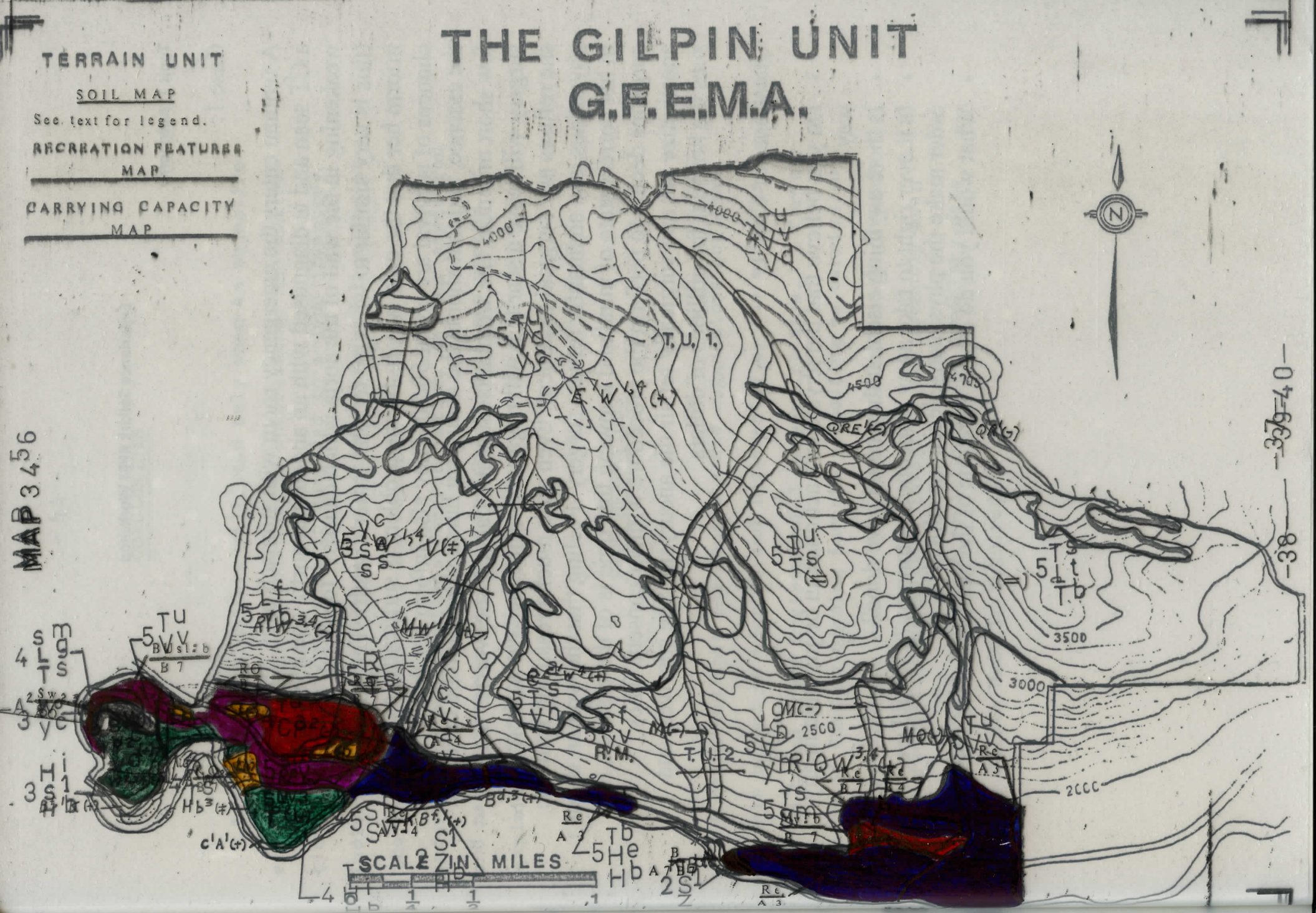
TERRAIN UNIT

SOIL MAP

See text for legend.

RECREATION FEATURES MAP

CARRYING CAPACITY MAP



CONCLUSIONS

Land-use decisions are validated only when an objective approach to land-use allocation is undertaken. The evaluation of resource data that is compiled in a land inventory indicates where resource exploitation may take place and at the same time, indicates the degree of exploitation it can endure. The opportunities for recreation, outdoor education and nature interpretation on the Gilpin Unit are worthy of exploitation and development.

RECOMMENDATIONS

I recommend that the concepts and suggestions outlined in this report be adopted and implemented by the managers of the Grand Forks Environmental Management Area. I further recommend that an ongoing inventory updating be carried out for other resource uses of the area. The methodology used for the recreation capability inventory has recently been revised and this implies a revision of the inventory data for the Gilpin Unit is required.

LIST OF REFERENCES

1. Sprout, P.N., C.C. Kelley. 1964. Soil Survey of the Kettle River Valley in the Boundary District of British Columbia. British Columbia Dept. of Agriculture, Kelowna, B.C. Queen's Printer, Ottawa.

2. Dasmann, Raymond F. 1964. Wildlife Biology. John Wiley & Sons, New York.

3. McTaggart Cowan, Ian and Charles J. Guiget. 1956. The Mammals of British Columbia. Queen's Printer, Victoria.

4. Robbins, Chandler S. et al. 1966. Birds of North America. Golden Press, New York.

5. Carl, G. Clifford. 1973. The Amphibians of British Columbia. Queens Printer, Victoria.

6. Resource Analysis Unit, E.L.U.C. Secretariat. Recreation Capability Inventory. A Preliminary Description for Reconnaisance. 1975.

APPENDIX "A"

RECREATION CAPABILITY INVENTORY

A PRELIMINARY DESCRIPTION FOR RECONNAISSANCE

INVENTORY OF I OUTDOOR RECREATION FEATURES

II PHYSICAL CARRYING CAPACITY FOR OUTDOOR RECREATION

JUNE 1975

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RECREATION CAPABILITY INVENTORY

I N T R O D U C T I O N

Recreation capability mapping under the Canada Land Inventory program was completed for the CLI area within British Columbia in 1972. There is now need to continue a recreation inventory beyond the CLI area, particularly in the northern portions of the Province, as well as to update within the CLI boundary.

The CLI system of recreation classification had seven capability classes, the basis of classification being "the quantity of recreation which may be generated and sustained per unit area of land per year under perfect market conditions". Ranking is based on the relative capability of each land unit to attract and accomodate numbers of recreationists. A major difficulty with this system results from using one class number to "average" the differences between a unit's ability to attract and its capability to sustain use. For instance, an alpine area may have high ability to attract, but have low capability to sustain recreation use.

With the presence of both numerical classes and features symbols on the CLI maps, the users often make the mistake that the numerical capability class rating is the most significant aspect of any unit. This leads to the conclusion that "quality recreation areas' are ignored. Proper consideration of the feature symbols of each unit should reveal that quality areas such as unique landscapes, attractive vegetation and special habitats are identified on the CLI recreation capability maps.

The CLI recreation classification system has merit, and people are becoming familiar with it. Rather than create a totally new system of recreation assessment, it would be best to retain as many elements of the CLI system as possible.

Recognizing that the CLI system had its limitations, it was felt that it had to be modified to:-

(1) provide more detail, and

(2) attempt to minimize the confusion between quality (generate) and quantity (sustain) as a basis for classification.

To overcome the second problem, future recreation capability inventories will be broken into two parts:-

(1) Features Inventory - identifying the type and location of recreation features and attractions, and giving an estimate of feature quality.

* (2) Physical Carrying Capacity Inventory - the use of landforms, soils, vegetation, climate and water data to estimate the quantity of recreational use land units are able to support and sustain (ranging from organized camping, recreational lodging, to hiking and other extensive uses).

I OUTDOOR RECREATION FEATURES INVENTORY

Recreation features are considered to be aspects of land and water units providing opportunity for recreation. In an inventory program, they represent the major natural and cultural features of the land for recreation, and indicate the types of recreation activities which might occur on a unit.

25 recreation feature symbols were used for the CLI program. Experience gained with CLI and access to increasing sources of information make it feasible to almost double the number of features to be recognized by reconnaissance inventory. Whenever possible, the CLI symbols and definitions were conformed to while expanding the number of categories.

Mapping Conventions

The reconnaissance inventory is designed for a working scale of 1:50,000 (approximately 1 inch = 1 mile), and a presentation scale of 1:125,000 (approximately 1 inch = 2 miles). Uplands, shorelands, corridor and water units will be mapped.

Point data such as historic sites are recorded by a small circle, preferably not smaller than 4 mm diameter. Line data such as historic routes or small streams are recorded by a narrow unit with a minimum width of 4 mm, although occasional widths of 3 mm may be permitted.

The feature's legend is designed for considerable flexibility in application and scale. At the 1:125,000 scale, wildlife and aquatic feature symbols may describe large units of winter range for ungulates or interesting coastal estuaries. At a larger scale such as 1:10,000, the same or similar feature symbols may identify a single eagle's nest or similar site specific feature.

Special Note

It cannot be expected that all outdoor recreation features will be adequately inventoried. Certain features or recreation activities are very dependent

upon a large range of hard-to-measure parameters (e.g., rock climbing, white-water rafting). For these reasons, much of the information will appear somewhat generalized, particularly to those looking for specific information on specialized recreation activities or resources.

Symbolization

Each recreation features unit will have up to five separate types of symbols:-

(1) Feature Symbol - a capitalized letter indicating the general recreation feature identified analogous with CLI recreation feature category.

(2) Feature Modified (Optional) - a lower case letter may accompany the feature symbol to give a more specific definition of the recreation feature.

(3) Sub-Feature Category - a numeral immediately following the feature symbol or feature modifier to provide more detailed information on the recreation feature.

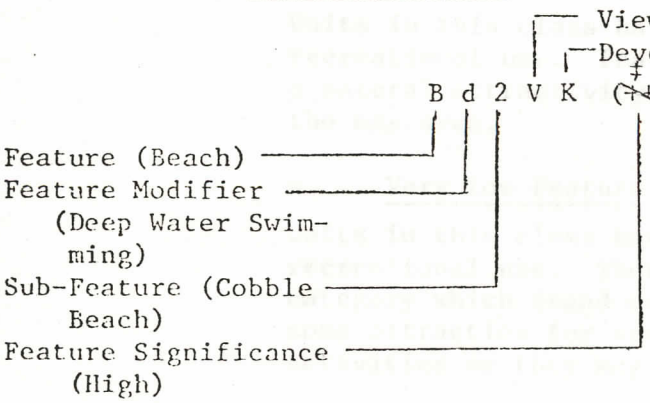
(4) Feature Significance - each unit will be given one of five symbols indicating feature significance.

(5) Feature Annotation (Optional) - a feature or set of features on a given unit may be accompanied by a numerical annotation indicating that additional information concerning the recreation feature(s) is on file. Annotations will be recorded on the basis of 1:250,000 NTS map sheets

Examples:

Single Feature E^{2}@ - a unit of unique vegetation of very high significance

Multiple Feature



A unit with a cobble beach fronting water with opportunities for deep water swimming accompanied by significant viewing opportunities and capability for organized camping.

Use of Annotation (T1+) 14 - a warm springs of med.→ ~~high~~ significance detailed information has been recorded under reference number 14 for the particular map sheet.

Feature Significance

Five classes or categories of feature significance are defined. Quality is the primary basis for assessing feature significance. This is related primarily to a feature's "attractivity" or ability to hold people's interest. Any one feature should be ranked on the basis of that kind of feature only. For example, the "best" wildlife features should rank as high in feature significance as the best "beaches".

@ Very High Feature Significance

Units in this class have a very high ability to attract recreational use. Features in this category would be of national significance.

≠ High Feature Significance

Units in this class have a high ability to attract recreational use. Features in this category would be of provincial significance.

+ Moderate Feature Significance

Units in this class have a moderate ability to attract recreational use. Features in this category would be of regional significance.

- Low Feature Significance

Units in this class have a low ability to attract recreational use. Features in this category have a natural attractivity that is common throughout the map area.

= Very Low Feature Significance

Units in this class have a very low ability to attract recreational use. There are no features in this category which stand out. There may, however, be some attraction for specialized recreational activities or they may merely provide open space.

BIOTIC FEATURES	Aquatic biotic features	A1	Angling
		A2	Aquatic habitat
		A3	Fish run observation
		A4	Aquatic foods
	Vegetation	E1	Zonal vegetation
		E2	Unique vegetation
		E3	Edible plants
	Wildlife	W1	Upland birds
		W2	Water birds
		W3	Small mammals
		W4	Large mammals
		W5	Unique wildlife
PHYSICAL GEOGRAPHIC FEATURES	Hydrologic	D	Hydrologic feature
	Waterfalls	F1	Site-specific waterfall
		F2	Waterfall landscape
		Fv	Waterfall viewing
	Glacier & Snowfield	G1	Glacier interpretation
		G2	Snowfield
	Springs	T1	Warm springs
		T2	Cold springs
		Tz	Developed hotsprings
		Tr	Spring mineral deposit
	Landforms	L	Landform feature
	Rock Formation	R1	Rock formation
		R2	Mineral Deposit
		R3	Fossils
		R4	Rock climbing
	Landscape Features	M	Small surface waters
		Q	Topographic patterns
		V	Viewing
POPULAR WATER-ORIENTATED FEATURES	Beaches	B1	Sand beach
		B2	Cobble beach
		B3	Rock beach
		B4	Fine-textured beach
		Bf	Family bathing
		Bd	Deep water swimming
		Bn	Non-swimming
	Canoeing	C1	Canoeing - open boats
		C2	Specialist Boating
	Harbour/moorage	U	Harbour/moorage potential
		Uz	Harbour/moorage facility
	Boating	Y1	Family boating
		Y2	Deep water boating
		Y3	Sailing
WINTER SPORTS FEATURES		S1	Cross-country winter sports
		S2	Ice surface features
		S3	Downhill skiing
	Native/Indian	Ha1	Archaeologic site
		Ha2	Pictograph/petroglyph
		Ha3	Legend sites
	European	Hb1	Historic sites
		Hb2	Monuments
		Hb3	Historic routes
	Cultural	P	Vacant urban land
		P1	Cultural site
		P2	Pastoral landscape
	Man-made	Z	Man-made feature
DEVELOPMENT SITE POTENTIAL		K	Potential camping, etc.
MISCELLANEOUS FEATURES		X	Miscellaneous features
		8	Built-up (urban) areas

BIOTIC FEATURES

Aquatic Biotic Features include waterbodies, estuaries, littoral areas and occasionally shorelands supporting aquatic flora and/or fauna of significant recreational interest. In general, use of the aquatic biotic feature symbols should be applied to the area of the water body (map scale permitting) rather than to the adjacent land area. Four sub-feature categories are recognized, and one feature modifier.

A1 Angling Areas offering significant opportunities for sport fishing. Although this feature is normally associated with salmon or trout, other species such as halibut, cod, whitefish and char should also be considered.

A2 Aquatic Habitat Waterbodies providing opportunities for relatively long periods of the year to observe, record, study or photograph marine or fresh water flora and fauna. Examples include tide pools, estuaries, bogs, ponds and potential underwater diving areas.

A3 Fish Run Observation Areas with opportunities to observe periodic or cyclic aquatic features, particularly anadromous fish runs and spawning in fresh water streams. This feature symbol should be used to identify significant opportunities to view and interpret such phenomena rather than being used to identify any stream that happens to support spawning fish during the year.

A4 Aquatic Foods Areas providing opportunities to gather clams, crabs, oysters, prawns, sea-weed, etc.

As Ice Fishing This feature symbol will indicate significant opportunities for winter ice-fishing.

Vegetation Features Land supporting vegetation of recreation significance. Three sub-feature categories are recognized.

E1 Significant Zonal Vegetation Areas, usually at a broad scale, supporting aesthetically attractive or significantly interesting vegetation landscapes. Examples include: "dry" forest areas such as open stands of yellow pine or Douglas-fir, grasslands, subalpine and alpine areas or "park-like" groves of aspen or lodgepole pine. Identification of this feature will indicate excellent opportunities for hiking, riding, viewing, photography and nature interpretation and is most often associated with zonal vegetation characteristics.

E2 Unique Vegetation Generally site-specific areas featuring unique, native, endemic or exotic plant species, communities or associations. Examples include: outstanding stands of mature forest such as the Douglas-fir of Cathedral Grove or the unique occurrence of flowering plants such as the rhododendrons in Manning Park.

E3 Edible Plants Areas providing opportunities to gather nuts, berries and mushrooms, etc.

Wildlife Features Land or water supporting terrestrial wildlife species; primarily includes the vertebrates such as mammals, birds, reptiles and amphibians but may occasionally refer to insects, etc. These feature symbols will identify areas where wildlife are highly visible or significant from a recreation point of view.

W1 Upland Birds refers to upland game birds, passerine and raptors.

W2 Water Birds includes waterfowl, shorebirds, pelagic birds.

W3 Small Mammals includes fur bearers, rodents, and the smaller carnivores such as foxes and coyotes.

W4 Large Mammals generally refers to the big game animals such as the wild ungulates and larger carnivores such as cougar, wolves and bears.

W5 Unique Wildlife may include any type of wildlife but refers to special or unique situations such as mineral licks, sea-mammal colonies, and opportunities to view scarce or unique species.

PHYSICAL GEOGRAPHIC FEATURES

Hydrologic Features
Non-biotic water features. One feature category.

D Hydrologic Features Non-biotic water features such as tidal lagoons; outstanding opportunities to view waves, rip tides, and currents; unique water colour; junctions of major rivers. Examples include: junction of the Fraser and Thompson Rivers, waves at Long Beach, colour of water at Kalamalka Lake.

Waterfalls and Rapids
Two sub-feature categories and one feature modifier.

F1 Site-specific Waterfall Sites featuring a waterfall, series of waterfalls or significant rapids with opportunities to view the feature relatively close to it.

F2 Waterfall Landscape This category may be used to identify certain valleys and landscapes where very numerous and usually higher elevation waterfalls are observed from a long distance. Often the feature(s) will be relatively inaccessible but readily observable from certain vantage points. Use of this feature symbol over extensive areas will indicate that numerous waterfalls are found within the unit.

Fv Waterfall Viewing When advantageous, the symbol Fv will indicate areas within or distant from F2 landscapes or distant from F1 site-specific waterfalls.

Glacier and Snowfield
Areas offering a glacier view or experience. Two sub-feature categories.

G1 Glacier Interpretation Sites or areas, usually at the tow of a glacier, affording excellent opportunities to view and/or interpret a glacier and associated features such as morraines, crevasses, snow caves, or glacio-fluvial action.

G2 Snowfield Extensive areas of permanent snow or ice.

Springs
Two sub-feature categories and two feature modifiers.

T1 Warm Springs Warm or hot springs which are judged to have capability for bathing.

T2 Cold Springs Fresh water springs of recreational or educational interest but not suited to bathing due to cold water temperatures.

Tz Developed Springs Warm or hot springs with developed or commercial facilities such as at Harrison Hotsprings.

Tr Mineral Deposit Spring Springs associated with significant mineral deposits of interest for viewing and interpretation but with no capability for bathing due to cold water temperatures and/or low volumes of water.

Landforms
One feature category.

L Landform Features Erosional or post-glacial features formed by transported or residual soils as well as those formed by bedrock type and attitude. Examples include: hoodoos, sand dunes, eskers, drumlins, roche moutonnees and other landform features which lend themselves to viewing and recreational or educational interpretation.

Rock Formations
Structural rock formations (as opposed to landforms defined as erosional or post-glacial features). A rock formation's morphology is a result of processes which have occurred within the Earth's surface. Examples include: exposed stratification, columnar basalts, lava beds, folds, faults, etc. Four sub-feature categories.

R1 Structural Rock Features Land with opportunities to view and/or interpret structural rock formations or erosional rock features such as caves, rock arches, outstanding bedrock exposures, wave eroded rocks, exposed stratification, columnar basalts and sink holes.

R2 Mineral Deposits Land offering opportunities to collect minerals or semi-precious stones. Activities associated with this feature include amateur prospecting, gold-panning and rock hounding.

R3 Fossils Land with opportunities to view, collect or interpret fossil beds, petrified wood and geologically recent plant and animal remains.

R4 Rock Climbing Areas offering significant opportunities for rock climbing.

Landscape Features

M Small Surface Waters Frequent small waterbodies or streams. This feature symbol will be used where small lakes, ponds, tarns, sloughs or streams add significantly to the viewing, variety and interest of the land but when features such as those for angling, boating or beaches normally do not apply.

Q Topographic Patterns Patterns of topography and landform or land and water exhibiting diversity of natural landscape. Regional characteristics will influence the use of this feature symbol. In predominately mountainous areas, "Q" may describe relatively flat to rolling topography, while for predominately monotonous plateau or prairie small hills or local ravines and escarpments may be identified by the "Q" symbol accompanied by relatively high feature significance.

In, and adjacent to, urban environments, "Q" may be used to describe areas of "natural" vegetation as opposed to play-grounds and built-up areas. (See also feature symbols "P" and "8".)

V Viewing Vantage points or corridor units which provide a superior view or an area which provides frequent viewing opportunities. Considerable judgement and discretion is required when using this feature symbol. In mountainous terrain identification of strategic view points in valleys or on low-elevation promitories would be more desirable than identifying all mountain tops as view sites.

POPULAR WATER-ORIENTATED FEATURES

Beaches

Shorelands capable of supporting beach activities. Shorelands, particularly beaches, are difficult to categorize and classify at the reconnaissance level. A great variety of physical factors are important of which many are readily recognizable in the field and from air photos, (e.g., texture of beach materials, gradients, offshore conditions, backshore conditions, etc.) In addition, many beach areas are a potential focus for most forms of recreation activity such as swimming, picnicking, nature interpretation, angling, boating, camping, etc.

Use of four sub-feature categories to describe beach materials used in combination with the use of three feature modifiers to describe potential use for swimming, should give a reasonable description of different beach conditions.

B1 Sand Beaches Beach materials of optimum texture and gradient with minor or no limitations to "bare-foot" or sunbathing comfort. This category will normally identify sand or pea-gravel beaches with gradients of less than 10%.

B2 Cobble Beaches Beach materials of rounded gravels to cobbles (approximately ranging from ½ inch to 6 inch diameter) with some limitations to "bare-foot" and sunbathing comfort.

B3 Rock Beach Beach materials of rough or angular rocks, boulders or bedrock with major limitations to "bare-foot" comfort.

B4 Fine-textured Beaches Beach materials of silt or clay normally unsuited to popular beach activities but offering some opportunity for beach-combing, nature observation, viewing or related extensive activities.

Feature Modifiers

Use of the feature modifiers should take into account water temperature, water quality (clarity, weeds, pollutants) aquatic nuisances (leeches, swimmer's itch), exposure and climate (aspect, wind, sunshine, air temperature), hazardous currents, under tows, dangerous offshore slopes.

Bf Family Bathing Water temperatures of 65°F or more for a reasonable (four weeks or more) period during summer with no major water quality or aquatic nuisance limitations and no hazardous conditions. In northern areas, this category may not meet all the conditions such as the temperature requirement.

Bd Deep Water Swimming Water temperatures of 60°F or more; no major water quality or aquatic nuisance limitations; deep water and/or steep offshore gradients prevail.

Bn Non-swimming Beach Cold water or severe water quality limitations; climatic or hazard limitations; severely limit use of the beach area for swimming.

Example Symbolizations: Beach sub-feature categories and feature modifiers.

Bf1 = sand beach with opportunities for popular family beach activities such as sunbathing, swimming, paddling and wading, etc.

Bd2 = cobble beach with opportunities for "deep-water" swimming.

Bn3 = rocky beach with cold water or other limitation to swimming.

Canoeing
Two sub-feature categories.

C1 Canoeing Water suitable for non-specialist canoeing and open boats. Examples include continuous routes along relatively slow moving streams, rivers or lake chains as well as protected portions of larger water bodies or interesting small lakes. This feature symbol will also indicate areas safe for other small open boats such as rafts and row boats.

C2 Specialized Boating Waterways with potential to offer "white water" canoeing, rafting and specialized boating.

Harbour-Moorages
One feature category and one feature modifier.

U Harbour and Moorage Potential Protected bays or water with potential for boat moorage, wharfing, launching or harbour-marina facilities.

Uz Harbour Facility A harbour or bay with established harbour, marina and/or launching facilities.

Boating
Three sub-feature categories.

Y1 Family Boating Water suitable for power boating, boat tripping and/or water skiing.

Y2 Deep Water Boating Waterways suitable for boat tripping and cruising such as along the largest lakes and ocean inlets and passageways.

Y3 Sailing The reconnaissance inventory will not be comprehensive for the sailing feature but will identify obvious or established areas with capability for sailing.

WINTER SPORTS FEATURES

S1 Cross Country Winter Sports Land providing opportunities for cross-country skiing, snowshoeing, snowmobiling or tobaggoning.

S2 Ice Surface Features Water bodies proving opportunities for ice skating or ice sailing in winter.

S3 Downhill Skiing Land providing opportunities for downhill skiing.

CULTURAL AND HISTORIC FEATURES

Native Indian Historic Sites
Archaeological and historic sites associated with Native Indian culture.
Three sub-feature categories.

Ha1 Archaeologic Sites Sites such as middens and Indian villages featuring evidence of habitation, artifacts, old structures, totem poles, kikwillee holes, etc.

Ha2 Pictographs/Petroglyphs Sites featuring pictographs (paintings and drawings) or petroglyphs (rock carvings or markings).

Ha3 Legend Sites Sites or areas prominent in Indian legend or lore; areas with little or no evidence of habitation but related to Indian mythology.

Historic Sites
Historic sites related to early European exploration and settlement and pioneer history. Three sub-feature categories.

Hb1 Historic Sites Historic sites related to early exploration, settlement and pioneering.

Hb2 Monuments Cemetaries, museums, markers, "stops or interest" and areas of geographic significance to society such as the "Great Divide". Often, sites such as a marker or stop of interest are not necessarily "the" historic site.

Hb3 Historic Routes Early trails, roads and routes.

Cultural Features
Three sub-feature categories.

P Vacant Land Areas in or adjacent to urban areas which are not built-up nor with natural vegetation but are significant open spaces such as playgrounds, golf courses, boulevards, etc. (See also feature symbols "Q" and "8"). No sub-feature number or feature modifier is used to permit easier identification of small units at relatively small scale.

P1 Cultural Sites Villages or centers of unique or interesting cultural activity such as fishing villages, ethnic centers, trading posts and Indian villages with little historic significance.

P2 Pastoral Landscapes Settlement patterns and farmlands adding diversity and interest to a landscape.

Man-Made Features
One feature category.

Z Man-made Features Areas exhibiting major, permanent, non-urban man-made structures of recreational interest. Examples include: hydro-electric dams, quarries, mines, airports, shipping harbours, bridges, tunnels, refineries, mills, etc.

ECREATION DEVELOPMENT SITES

separate inventory dealing with carrying capacity will give appropriate stimates of potential intensity of recreation development based on terpretation of landforms, soils, vegetation, climate and water data. wever, during the course of the features inventory the following ature symbol will be useful in identifying possible campsite or milar development area potential for verification during the carrying pacity inventory.

Development Area Areas adjacent to or associated with significant oreline, riverside or upland recreation features and suited to ganized camping, recreational lodging, wilderness camping or similar tential use and/or development.

SCELLANEOUS FEATURES

Miscellaneous Features A unit denoted by this feature symbol will present an area or site with a recreational feature not adequately fined by another symbol. Appropriate map annotations should be made d notes describing the feature should be shown in the map margin r reference.

Built-up Areas Residential, commercial and industrial areas which fer very restricted or no opportunities for outdoor recreation will identified by this feature symbol. (See also feature symbols "P" and ").

II INVENTORY OF THE PHYSICAL CARRYING CAPACITY FOR OUTDOOR RECREATION

Physical carrying capacity may be defined as the inherent ability of the landscape to sustain recreational use. Various environmental factors set limits beyond which no major increases in recreational use can occur. If an increase in the use does occur beyond these limits, excessive damages to the physical environment may result.

The designation of carrying capacity units is based mainly on soils, landform and vegetation information. Climate, wildlife and hydrologic data have been used when available.

These carrying capacity maps apply mainly to spring, summer and fall recreational use. The full amount of information necessary to produce a winter recreation carrying capacity inventory was not available.

Carrying Capacity Classification

The carrying capacity classes represent the relative quantity of recreational use that can be sustained per unit area of land per year. No attempt at present has been made to relate actual numbers of users to the individual classes. This is due to a current lack of useful research information on this subject.

Class 1 carrying capacity indicates that a high amount or intensive type of recreational use can be sustained. The other three 4 classes with their increasing number and/or severity of limitations reflect a decreasing ability to sustain intensive use.

Lower carrying capacity classes will permit extensive use activities within certain landscapes.

Carrying capacity classes are based only on biological and physical parameters of the environment, and do not reflect social or economic features. They do not reflect present land use ownership, lack of access, or distance from cities. (Note: present land use is reflected in the man-made limitation as described in the carrying capacity legend).

* No management inputs have been assumed in the designation of these classes. The limitations expressed may be interpreted to reflect the problems that may be expected in the event of recreational use facility development.

Class 1 Very High

These units have a high physical carrying capacity for recreation, and are capable of supporting a wide variety of activities. They have slight to no limitations, and will suffer little or no damage under "normal" recreational use.

Some of the activities which may occur include organized camping and cottaging. The soils of these units are moderate to coarse textured, very stable, and moderately well to well-drained. They have relatively flat topography.

Class 2 High

These units have a moderate carrying capacity for recreational use. and are capable of supporting a fairly wide variety of activities. However, due to minor limitations, they will require a higher amount of management input that the very high (Class 1) carrying capacity areas for similar intensity of use. Some of the limitations which may occur within this class include gentle slopes, stoniness, and fine textured soils.

Class 3 Moderate

These units have a moderate carrying capacity for recreational use. As a result, they are not suited to intensive recreational activities (e.g. organized camping, cottaging). They are capable of supporting most extensive recreational activities (e.g., hiking, bird watching, wilderness camping). Some of the limitations which may occur within this class are severe stoniness, shallow soil, and moderate slopes.

Class 5 Very Low

These units have a very low carrying capacity. They have very severe limitations in supporting any amount of recreational use. These units are best avoided where possible. Some of the limitations which may occur within this class include very steep slopes (35^{o}), failing slopes, and very sensitive vegetation.

CLASS 4 LOW

THESE UNITS HAVE A VERY LOW CARRYING CAPACITY FOR RECREATIONAL USE. THEY ARE NOT CAPABLE OF SUPPORTING INTENSIVE USE AND EXTENSIVE USE SHOULD BE VERY LIMITED. SOME OF THESE LIMITATIONS WHICH MAY OCCUR WITHIN THIS CLASS INCLUDE STEEP SLOPES ($26-35^{o}$), SENSITIVE VEGETATION, AND ACTIVELY ERODING SOILS.

LIMITATIONS - PHYSICAL CARRYING CAPACITY FOR RECREATION

LIMITATIONS	TYPE	SYMBOL
Soil	Soil erosion (sheet, rill, creep)	S^e
	Compaction	S^k
	Septic tank limitation (this is additional information and is used in higher capability areas in which intensive facility development may be expected)	S^l
	Organic Soils	S^o
	Soil texture: stoniness	S^p
	: fine textured	S^f
	Shallow soils (impervious horizons, often associated with minor bedrock outcrops)	S^s
	Unspecified soils factor/factors	S^u
	Soil drainage: poor drainage	S^w
	: poor drainage (receiving position)	S^{wr}
	: excess drainage	S^m
andform	mass-wasting: avalanching	L^a_f
	: failing slope	L^t
	: talus	
	erosion	L^g
	periglacial erosion (nivation, solifluction, congeliturbation)	L^p
drock		R
pographic	steep bluff (cliff) - (river bank)	Tb
	steep slope	T^s
	variable topography (undulating, hummocky, rolling)	T^u
getation	density (undergrowth density, canopy density)	V^d
	nuisance/hazard species	V^n
	vulnerability (sensitivity)	V^v
mate	aridity	C^a
	permanent ice or snowfield	C^g
	other (fog, exposure)	C
rologic	physical limitations: steep offshore	H^a
	: hazardous currents	H^c
	: cutbank erosion	H^e
	: inadequate water depth	H^f
	: high summer water - no foreshore	H^n
	: flooding	H^i
	biological nuisance (aquatic weeds, leeches)	H^b
	pollution (industrial waste, sewage effluent, logging debris)	Hp
nal	conflict (waterfowl nesting area; migration route)	Y^c
	hazard (grizzly area; rattlesnake area)	Y^h
	nuisance/pest (mosquito, blackflies)	Y^n
-made	railway or highway obstruction (ie. beach areas) This applies only to Class 1 or 2 areas in which the feature value as well as the carrying capacity is decreased by the occurrence of the obstruction.	Z
ellaneous		X