MOUNTAIN SHEEP STATUS AND HARVEST IN THE YUKON: A SUMMARY OF DISTRIBUTION, ABUNDANCE, AND THE REGISTERED HARVEST, BY GAME MANAGEMENT ZONE.

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Renewable Resources

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INTRODUCTION

This document is intended to provide a comprehensive evaluation of mountain sheep population status and harvest in the Yukon. The information is presented for each of 11 geographic regions or Game Management zones (subsequently referred to as zones) in the Yukon, and includes:

1) a biogeoclimatic description of each Zone;

2) the distribution and abundance of sheep;

3) the average, annual, sheep-kill by licensed hunters, and the trend in the harvest;

5) the characteristics of the licensed kill, such as age and horn growth, and;

6) resident hunting effort and success.

The report is designed to provide a source of baseline information and provide a regional comparison of thinhorn sheep distribution, abundance and harvest.

All physiographic descriptions are derived from Oswald and Senyk (1977) and weather information was obtained from Wahl et al. (1987). Yukon Health Care Records (unpublished data 1989) and the N.W.T. Data Book 1986-87 (Anonymous 1986) provided the community information.

DATA COLLECTION PROCEDURES

The data were compiled and analyzed by Game Management Subzone. Subzones are management units which were created in 1979, and are generally delineated on the basis of discrete mountain blocks with rivers or creeks forming the boundaries. The grouping of subzones created Game Management Zones which are broad geographic zones, where major roads and rivers serve as boundaries (Fig. 1).

This report is based on three different types of data collections:

1. Sheep population data.

Data pertaining to sheep distribution, abundance and population characteristics have been determined from systematic helicopter surveys, conducted periodically since 1973. A complete search of potential sheep habitat is accomplished by contouring mountain blocks with a helicopter, often with more than one pass at different elevations to achieve complete coverage. Sheep are counted, distinguished as nursery sheep, which were classified as lambs, yearlings or other nursery sheep, and rams, which were classified as having 1/2, 3/4 or legal horn configuration.

Population census is generally achieved in June or July. Surveys in the late winter (January to April), or during the rut (November) are thought to provide an incomplete count, but are useful in delineating important ranges. These systematic, comprehensive helicopter surveys provide a single, point-in-time assessment. We suspect that June/July surveys are at least 90% accurate but we have no estimates of variance or confidence. In the northern Yukon where seasonal comparisons were available, late-winter surveys were found to account for 65-70% of the June/July survey results.

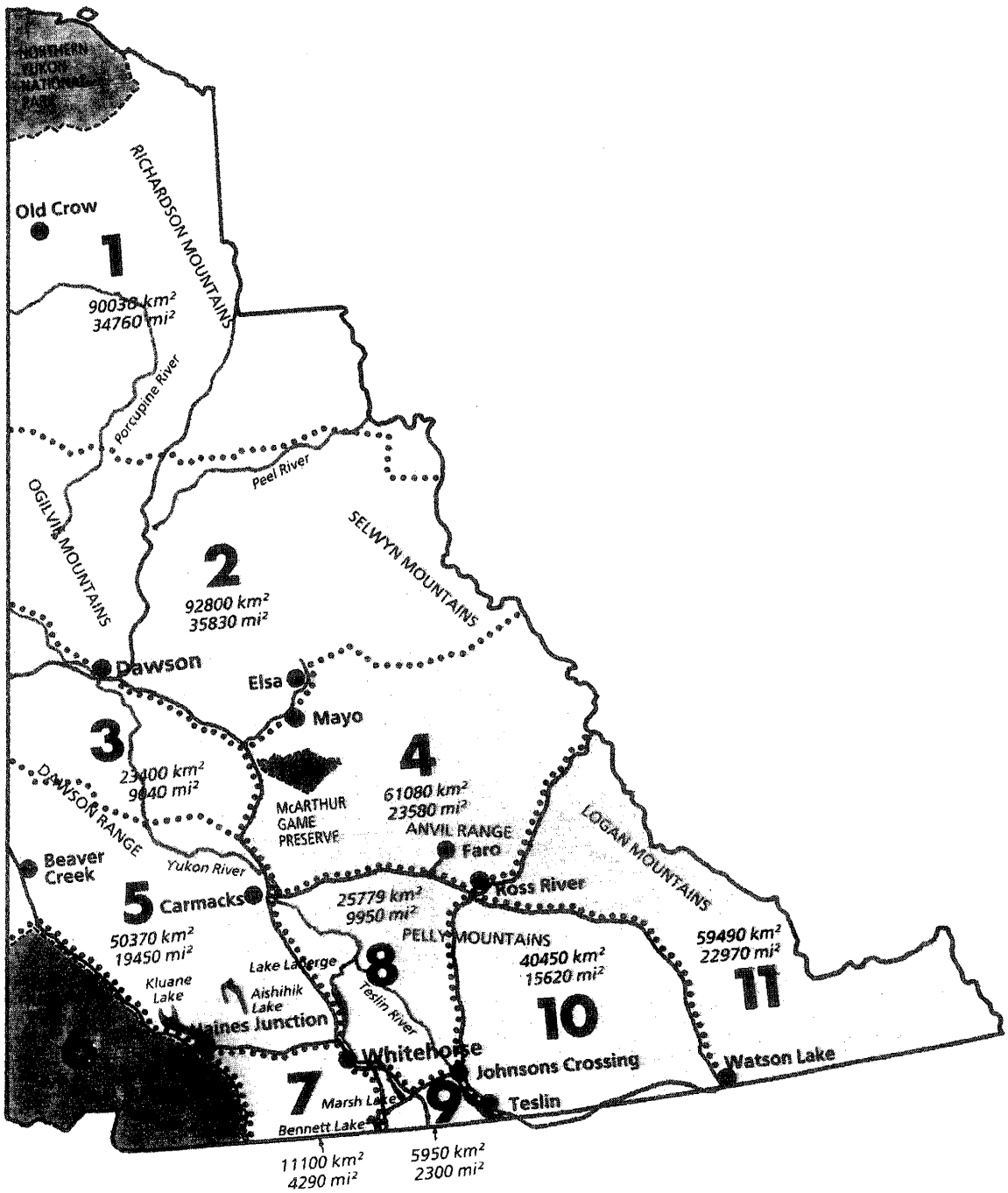


Figure 1. Game Management Zones in the Yukon.

Three illustrations are presented; the known distribution of sheep, the areas surveyed, denoting the most recent survey date, and an estimated density of non-lamb sheep. Density estimates are calculated as the average number of non-lamb sheep per area within a subzone based on summer surveys, and classified as low (<2), moderate (2-10), high (10-30), and very high (>30)/100 km^2. Therefore, they provide a general comparison between subzones.

2. Sheep kill data

The licensed sheep harvest data has been documented through compulsory reporting since 1979. Prior to 1979 sheep heads were submitted on a voluntary basis. The data recorded on Yukon Biological Submission Forms (YBS; see Appendix 1) includes; date and place of kill, the age and pelage of the animal, and horn growth measurements (length and circumference at each annulus).

Average characteristics of the sheep-kill are presented, in addition to the harvest trends, including the annual number reported, their average age, and the proportion of the reported harvest over 8 and 10 years of age.

Indigenous, subsistence sheep hunters in the Yukon are under no compulsory reporting obligations. However, voluntary reports have been collected (since 1988) from most Yukon communities.

3. Hunter effort and success

Resident hunting effort and success rate were estimated based on returns of Yukon Resident Hunter Questionnaires (Appendix 2), sent to every Yukon resident purchasing a hunting licence. Questions asked included; if the person actually hunted (as opposed to just purchasing a licence),

and if so, where, when, for how long and whether the hunter was successful or not. We present the annual average number of resident sheep-hunters, the average number of days all residents hunted sheep, the days hunted per hunter, and the days hunted per successful hunter for each zone.

STATUS AND HARVEST
YUKON-WIDE

Area description

The Yukon has a land area of 536 325 km^2. Landform and vegetation are diverse. Oswald and Senyk identified and described 23 biogeoclimatic zones, based on biophysical data such as geology, landforms climate and vegetation (Fig. 2). The primary feature used was the vegetation on different landforms, under a regional climate. Approximately two-thirds of the Yukon was under ice during the last major ice advance (Fig. 3), a major influence on the biophysical characteristics of the Yukon.

There are 17 communities in the Yukon, with a resident population of 29,845, of which 20,706 live in the capital city of Whitehorse (Fig. 4). Indiginous people comprise 13% of the population (see Fig.1).

Sheep population status

There are an estimated 22,000 thinhorn mountain sheep (Ovis dalli) in the Yukon. Most (19,000) are pure white and referred to as Dall sheep (O.d. dalli). Approximately 3,000 Stone sheep (O.d. stonei) are found in the south-central regions of the Yukon, with an intermediary colour phase, the Fannin sheep, occurring in the regions of overlap (Fig. 4). Fannin sheep, although receiving no separate taxonomic classification, are sheep with varying degrees of white and grey, and are unique to the Yukon.

Mountain sheep occur throughout the Yukon's various mountain ranges, extending north to the Arctic Ocean (see Fig. 4). Sheep are most common in the south-west part of the Yukon,

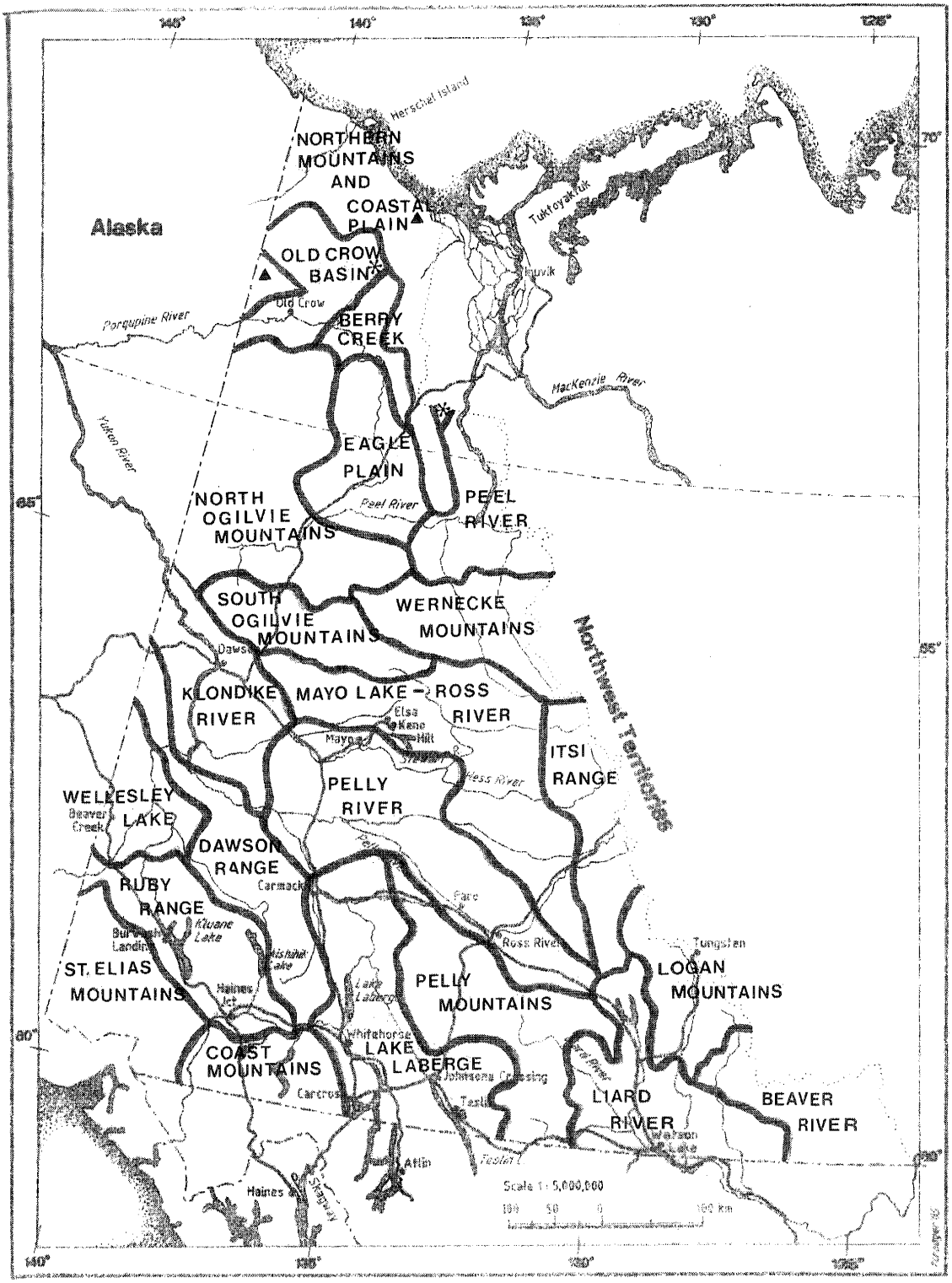


Figure 2. Ecological regions in the Yukon (from Oswald and Senyk 1977).

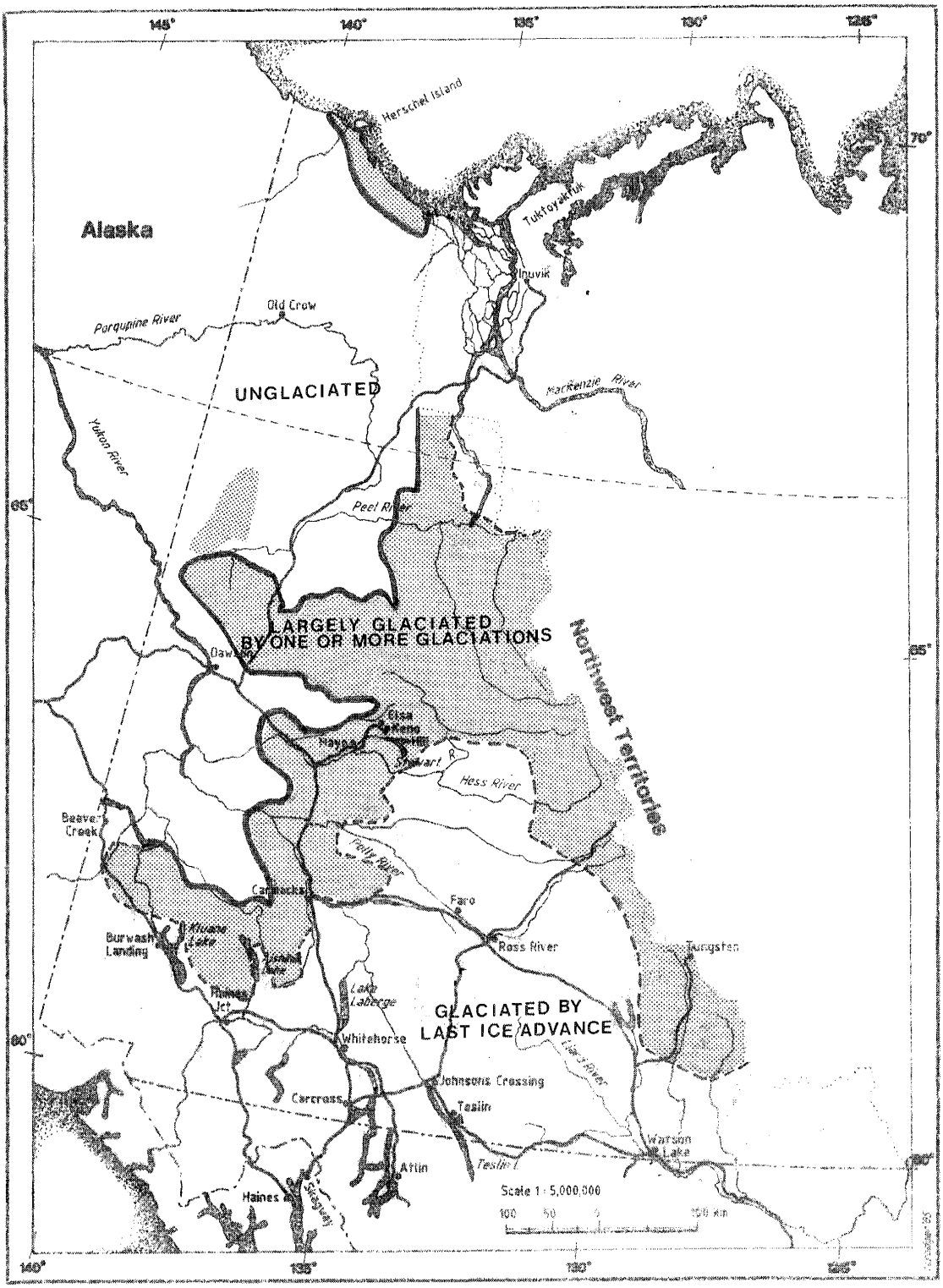


Figure 3. Areas in the Yukon glaciated during the last major ice advance (from Oswald and Senyk 1977).

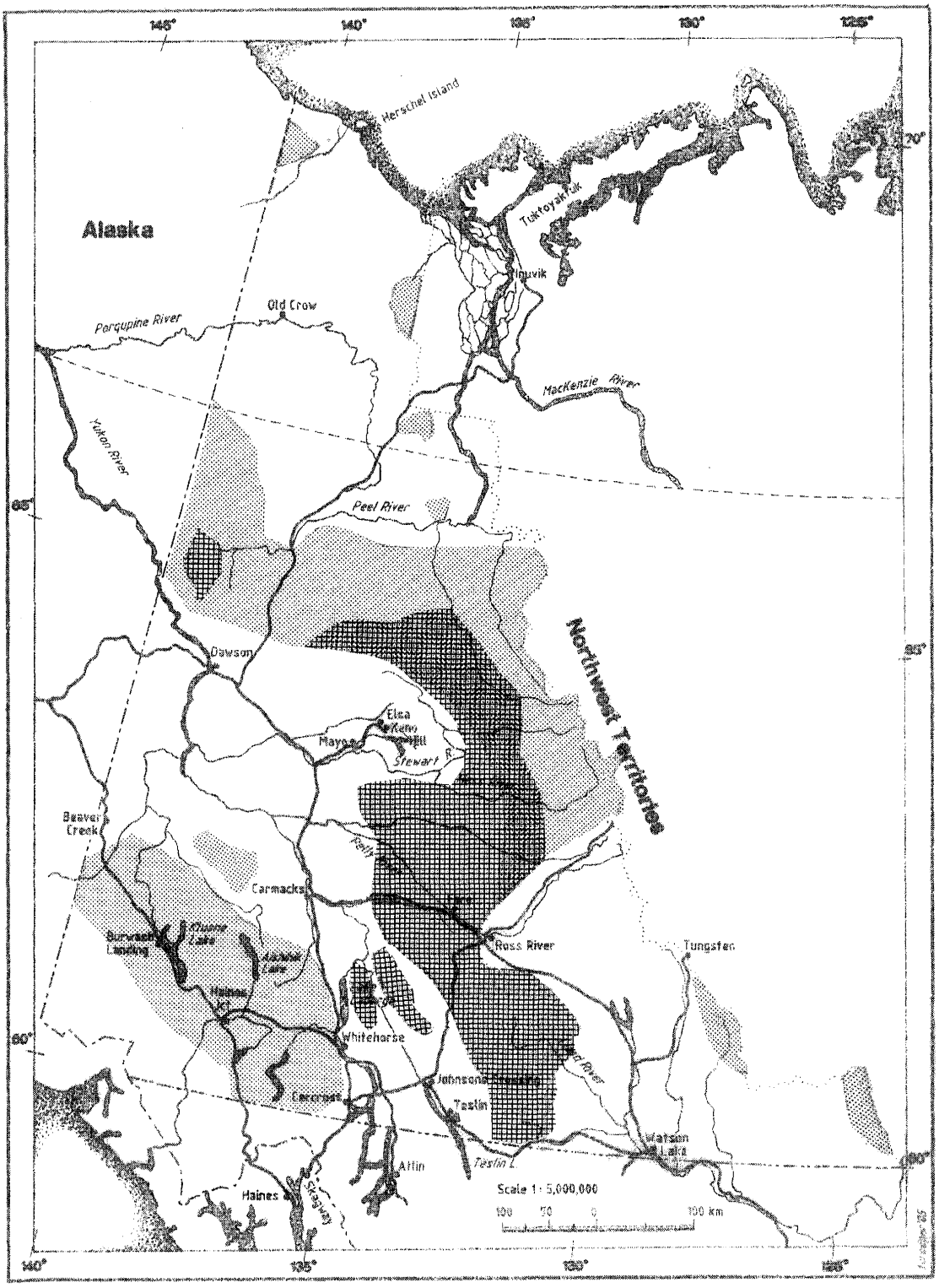


Figure4. Distribution of mountain sheep in the Yukon

- Dall Sheep
- Stone Sheep
- Zones of overlap

(from Hoefs and Barichello 1985).

in the rainshadow of the St. Elias and Coastal Mountains, where they reach densities exceeding 1/km^2.

Mountain sheep belong to the family Bovidae. Both sexes have horns which continue to grow throughout their lives. Males grow massive horns that form an arc which, for many males, will eventually achieve 360 degrees from base to tip (Fig. 5). It is this characteristic of horn growth that allows sheep to be sexed, and to some extent aged, at a distance in the field. Therefore females and young animals can be reasonably protected through hunting restrictions. In addition, population status and demographic trends can be reliably estimated from field surveys.

For a thorough description of thinhorn sheep ecology, see Geist (1971), and Hoefs and Cowan (1979).

Sheep hunting in the Yukon

Rams are considered a prized sport-hunting resource due to the trophy characteristics of their massive horns. This has facilitated a trophy, sport-hunting industry in the Yukon, and has resulted in a history of trophy management (McCandless 1985). Currently, only "full-curl" rams can be legally hunted by resident (non-indigenous Yukon resident) and non-resident (non-Yukon Canadian, and non-Canadian) hunters, resulting in selective hunting for old males. The skulls of rams shot by licensed hunters must be submitted to the government for inspection (see Fig. 5) allowing a thorough assessment of the distribution and characteristics of the licensed kill. For no other big-game species in the Yukon has hunting been as carefully regulated and assessed.

A history of recent legislated regulations concerning the hunting of sheep in the Yukon is presented in Table 1. Most

Table 1. Sheep hunting regulations

	1979	Changes	1989
Yukon wide	3/4 curl for resident hunters full curl for non-resident Aug. 1 to Oct. 31 hunting season	full curl for resident hunters - 1981	full curl for all hunters Aug. 1 to Oct. 31 hunting season
Zone 1	closed		closed
Zone 2	open		open
Zone 3	closed		closed
Zone 4	4-03 (McArthur Game Sanctuary closed)	4-46, 4-47 closed-1982 4-51 closed-1989	4-03, 4-46, 4-47, 4-51 closed
Zone 5	open		open
Zone 6	closed		closed
Zone 7	full curl for resident hunters, 7-15,18 closed 7-22,23,25,27,36 residents only by permits outfitting area 18-15 permits for non-residents	7-34,35,36 closed-1980 outfitting area 18 closed to non-resident hunters-1980, 7-28,29,33-released from permit area-1984 7-21 restricted to permit holders-1988	7-15,18,34,35,36 closed 7-21,22,23,25,27,30,31,32-permit only, resident only hunting in outfitting area 18
Zone 8	open		open
Zone 9	closed	9-03 open for 10 bowhunting permits only-1986	9-03 open for 10 bowhunting permits only
Zone 10	open	10-28 closed-1987	10-28 closed
Zone 11	open		open

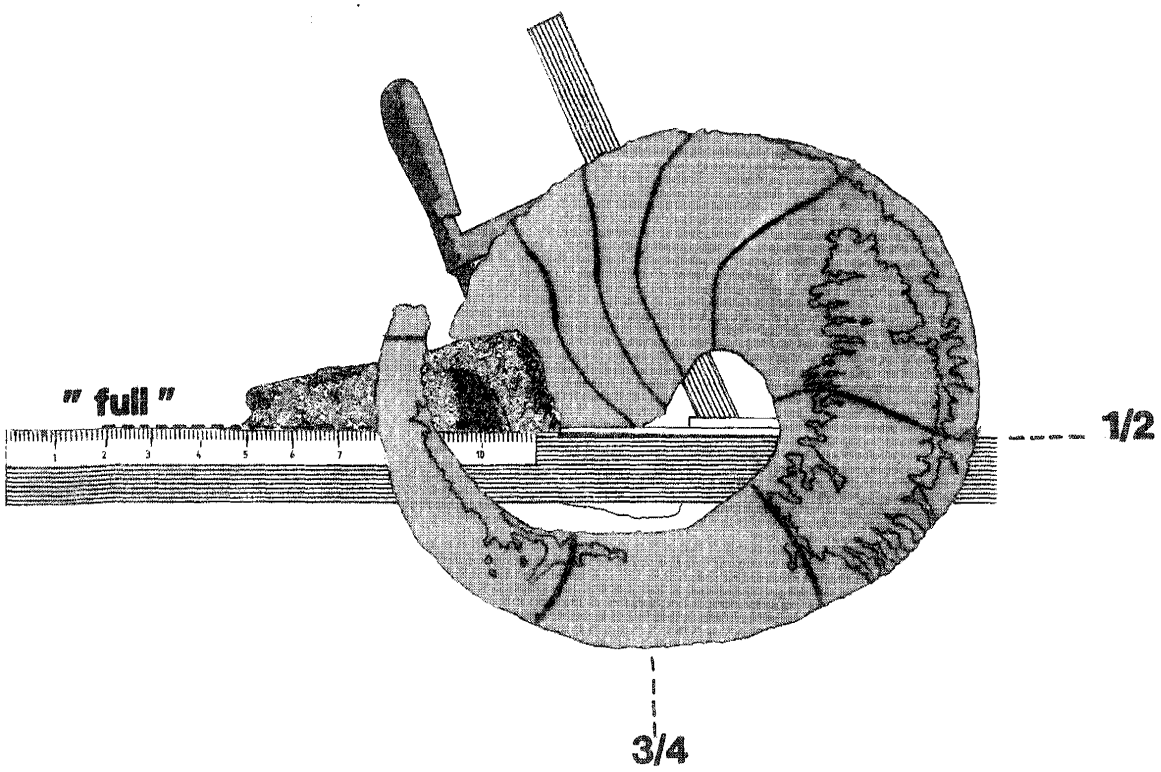


Figure 5. Illustration of the skull of a trophy quality full-curl ram.

mountain ranges are open to sheep hunting from 1 August to 31 October, for resident and non-resident licensed hunters. Zones 1, 3, 6, and most of 9 are closed to licensed hunting, and portions of Zones 2, 5, 7 and 11 are open to residents only. Non-resident hunters are required to hunt through licensed guides who operate in designated non-resident hunting concessions (Fig. 6).

Season-length, bag-limits, and horn-curl restrictions are regulated Yukon-wide, through the Yukon Wildlife Act (1981), and Wildlife Regulations which are up-dated annually through Orders in Council, after consideration by a government Wildlife Regulations Committee, and a non-partisan Wildlife Advisory Committee.

In a portion of Zone 7 in the southwest Yukon, hunting effort is also regulated through limited-entry to residents-only.

Generally, subzone closures have been necessitated by facilitated access (mostly mining or exploration roads) into low density sheep populations. The current designation of restricted sheep hunting is shown in Figure 7.

The characteristics of the Yukon-wide sheep harvest is presented in Table 2. Average numbers, ages and horn growth characteristics are of all sheep submitted for inspection from 1979 to 1988, and includes most of the sheep shot in the Yukon. The subsistence, Indian sheep-kill is assumed to be minimal (Quock and Jingfors 1988). Trends in the number of rams killed by licensed hunters, the average age of hunter-killed rams, and the proportion of old rams (10+ years) in the sheep-kill are presented in Figure 8.

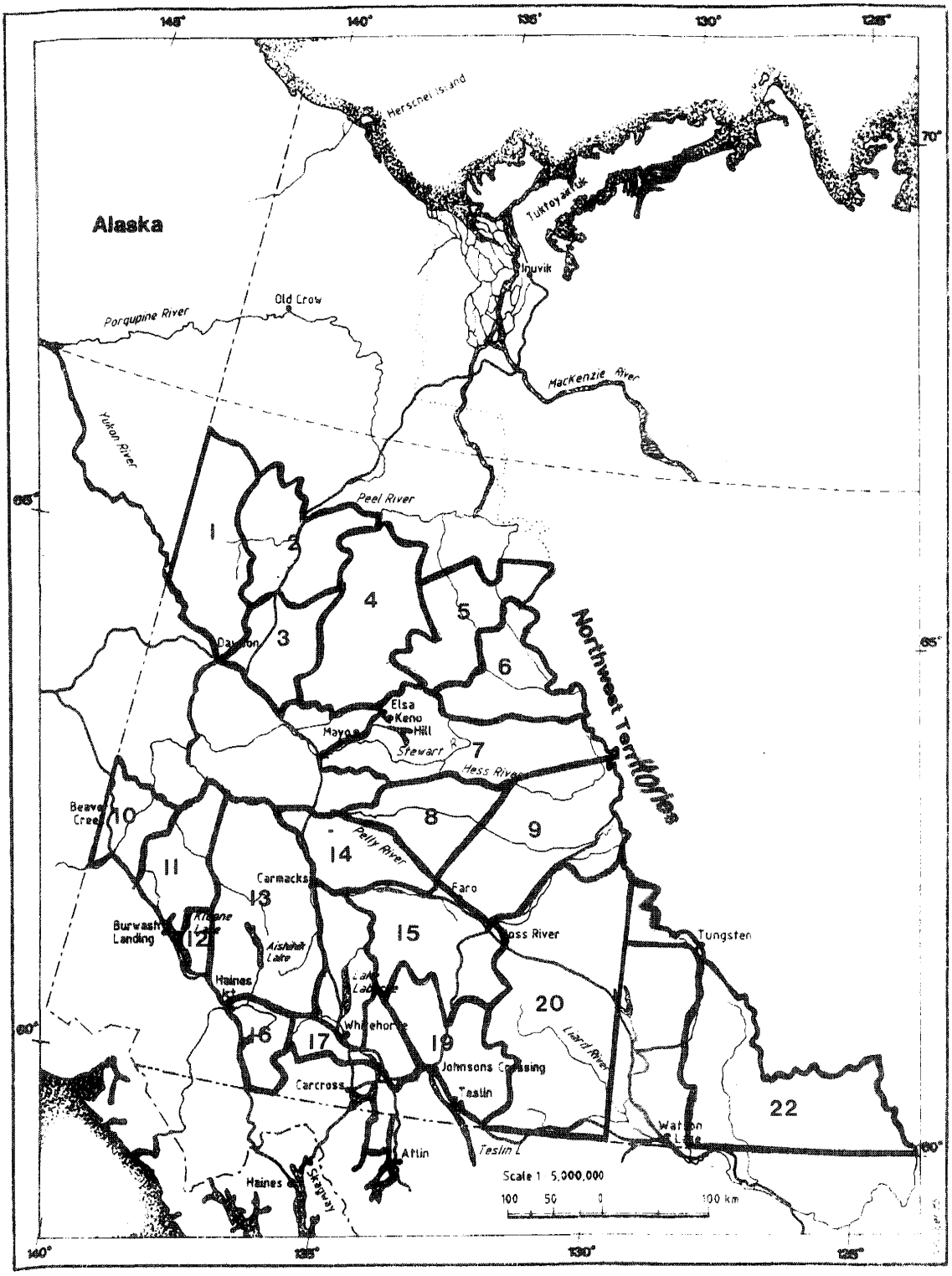


Figure 6. Non-resident hunting concessions.

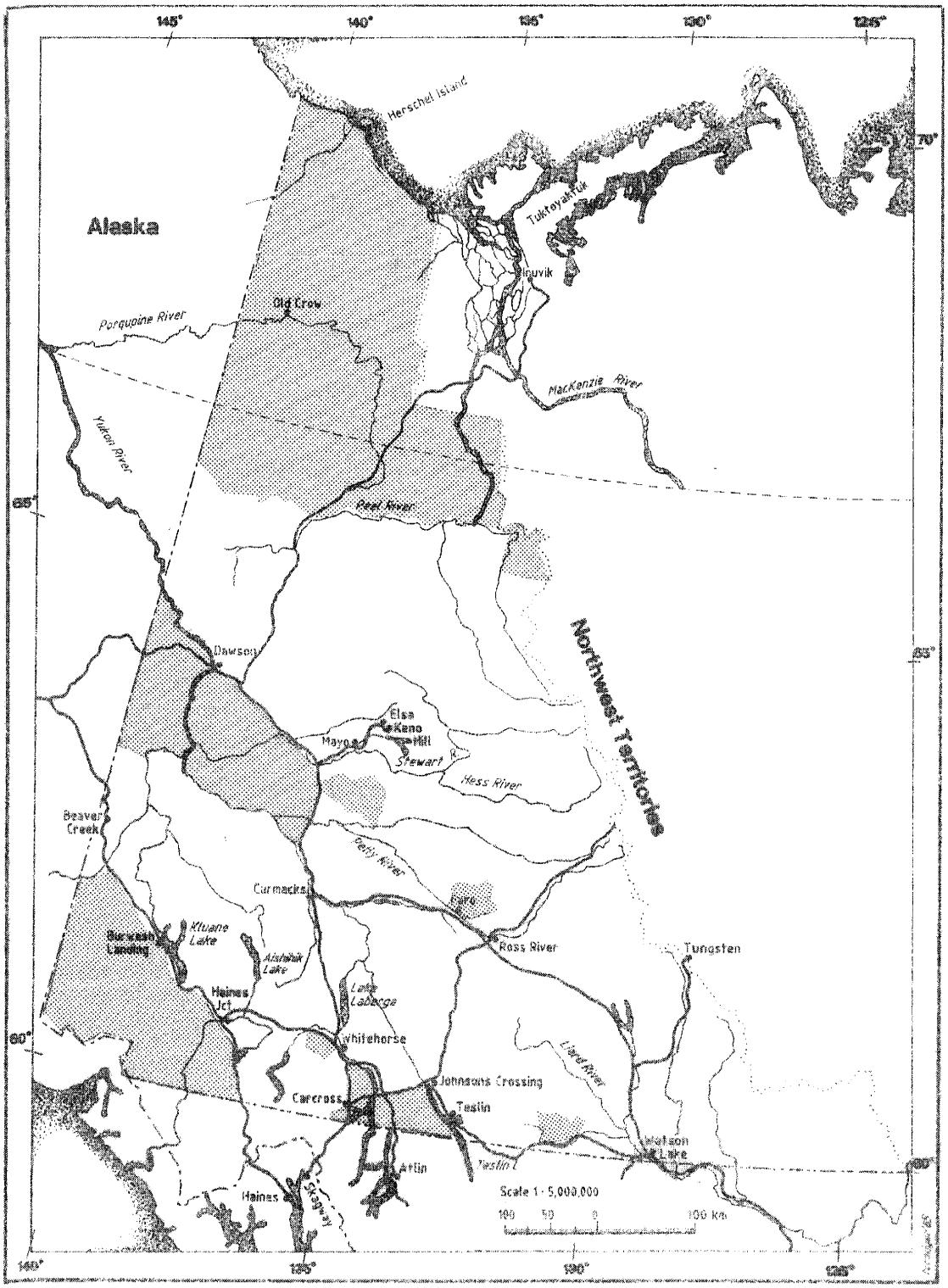


Figure 7. Areas closed to sport hunting of sheep.

Table 2. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In the Yukon, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:

Residents:	69.1
Non-residents:	161.3
Total:	230.4

Age:

Average:	8.6
Median:	8
Percent 10 years or older:	29.7
Percent 8 years or older:	68.8

Horn measurements (or the longest horn):

Average total length:	35.5
Maximum total length:	45.4
Percent broomed:	27.4
Percent 40" or greater:	4.9

Other characteristics:

Percent Dall:	81.3
Percent Fannin:	12.2
Percent Stone:	6.5

Hunter Effort and Success:

Average number of hunters:	311.6
Average number of days hunted:	1237.8
Average number of days hunted per hunter:	3.97
Average number of days per ram killed:	17.9

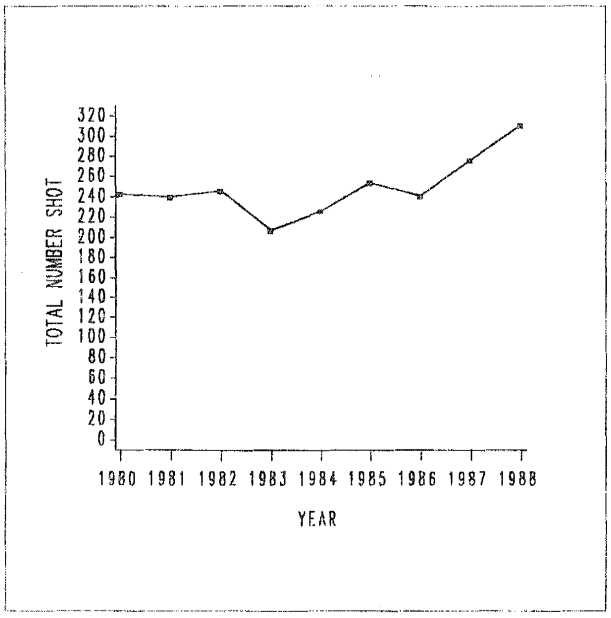


Figure 8 a). Number of rams shot, against year, in the Yukon.

Figure 8 b). Mean age of rams shot, against year, in the Yukon.

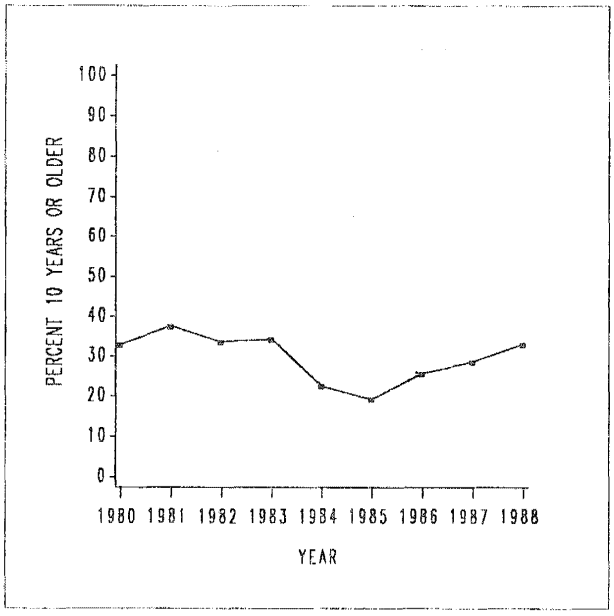


Figure 8 c). Proportion of rams shot which were at least 10 years old, against year, in the Yukon.

Average hunting effort and rate of success of resident hunters is also presented in Table 2.

ZONE 1

Area description

This is the most northerly zone, most of it lying above the Arctic Circle (Fig. 9). The area is drained by the Peel and Porcupine Rivers, and rivers draining the North Slope. The landscape of Zone 1 is diverse, encompassing 6 ecological regions, based on factors such as bedrock and surficial geology, climate, soils, and vegetation (see Fig. 2).

Most of the zone is flat with much standing water, or of subdued terrain with undulating plateaus.

There are three relatively distinct mountain ranges in Zone 1: they include the British Mountains in the northwest, the Richardson Mountains in the east, and the Northern Ogilvie Mountains in the extreme southwest part of the zone.

These mountain ranges are generally rugged areas, characterized by rocky slopes and surrounded by gentle rolling terrain. They lie within the zone of continuous permafrost, and are for the most part above tree-line. The most common vegetation communities include sedge-cottongrass in the depressions and lower sites, and discontinuous heath-type vegetation (mostly prostrate, ericaceous and willow shrubs) on rocky slopes.

Precipitation varies from approximately 200 to 450 mm, somewhat drier in the British Mountains than in the Richardson or Northern Ogilvie Mountains. Average annual temperatures range from -7 to -11° C. Winter (as defined by Wahl et al. 1987), extends from 230 to 250 days.

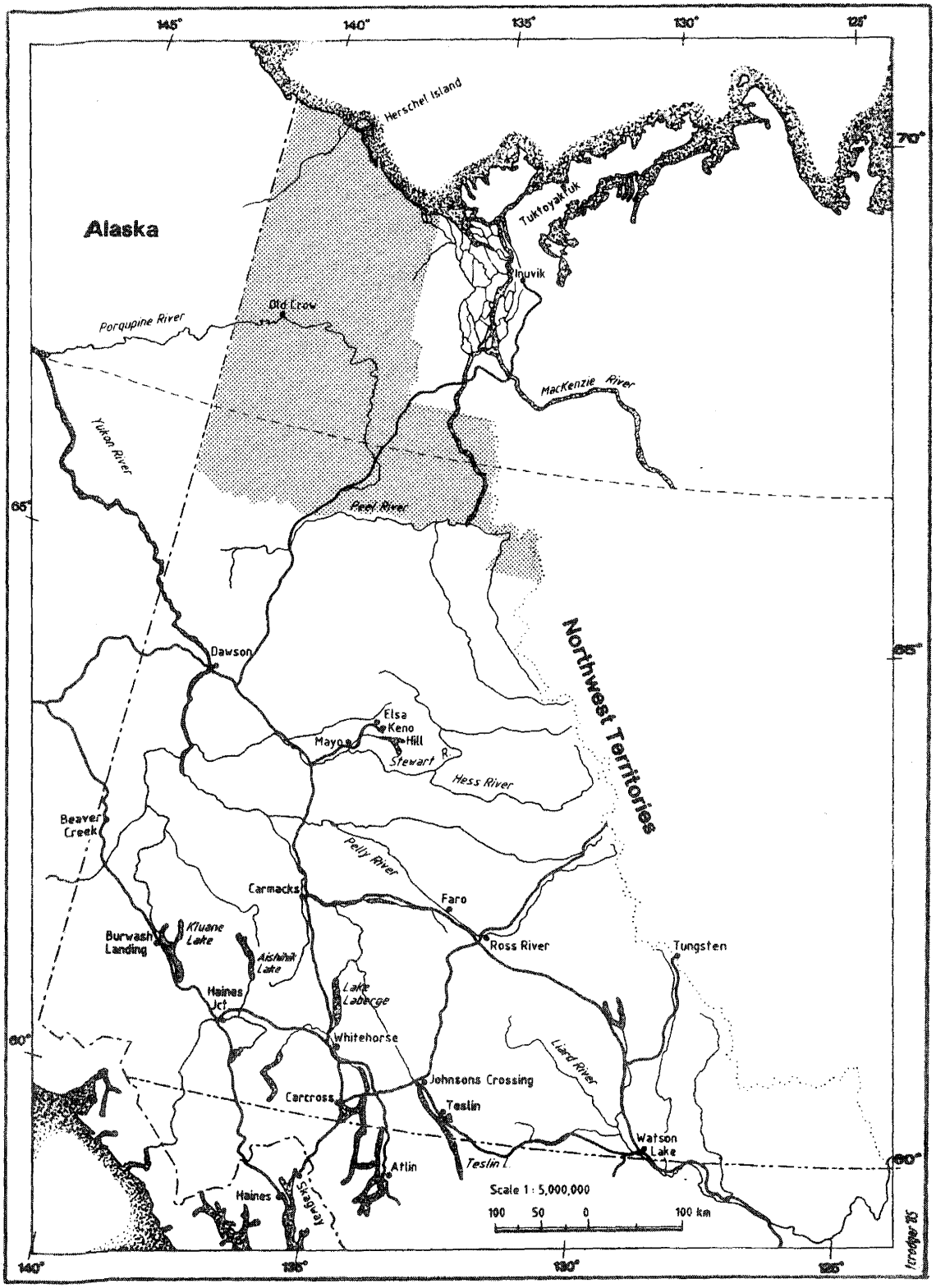


Figure 9. Location of Game Management Zone 1.

The distribution and abundance of sheep in the area is probably dictated by the extent of escape terrain, and to a lesser extent by snow conditions and available pasture.

There are three major communities within or near Zone 1. They include Old Crow, Aklavik and Ft. McPherson, with resident populations of 265, 758 and 693, respectively.

Sheep distribution and abundance

Five discrete populations of Dall sheep are known to occur in Zone 1. Their distribution and current densities are shown in Figure 10. There are an estimated 135 and 300 non-lamb sheep in the British and Richardson Mountains, respectively. No estimates are available for the Northern Ogilvie Mountains.

Sheep were systematically counted in the British Mountains in 1978, and a portion was again surveyed in 1986. Complete, systematic surveys have been conducted periodically in the Richardson Mountains since 1971. No sheep surveys have occurred in that portion of the Ogilvie Mountains in Zone 1.

In the British Mountains, sheep are considered to be part of a much larger population occurring in the Brooks Range of Alaska. Mostly nursery sheep have been observed in the Yukon portion of the British Mountains west of the Firth River.

In the Richardson Mountains, sheep occur in three apparently isolated populations; in the Northern Richardson Mountains, the area around Mt. Cronin in the Southern Richardson Mountains, and in the area of Canyon Creek at the southern end of the Southern Richardson Mountains. The Northern Richardson population has enjoyed growth in recent years,

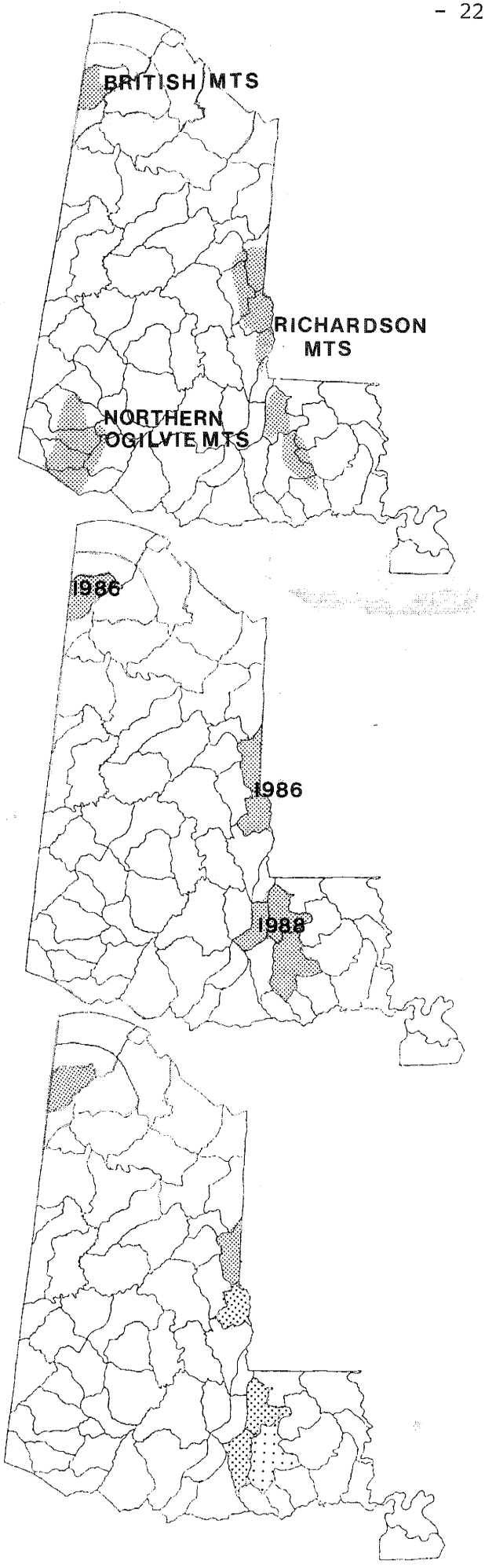


Figure 10 a). Known distribution of sheep in Zone 1.

Figure 10 b). Areas where sheep have been systematically surveyed in Zone 1.

Figure 10 c). Estimated density of sheep in Zone 1.

Low
Medium
High
Very high

while the smaller populations in the Southern Richardson Mountains have declined in the last decade. We consider sheep in the Richardson Mountains to be sensitive to human exploitation; these are subarctic populations which are relatively small and isolated.

Another population of sheep occurs in the Northern Ogilvie Mountains, and is thought to be a part of sheep population in the Nahoni Range of the Ogilvie Mountains in Zone 2.

Sheep hunting in Zone 1

There is no licensed sheep hunting in Zone 1.

ZONE 2

Area description

Zone 2 encompasses three biogeoclimatic regions; Northern Ogilvies, Southern Ogilvies and Wernecke Mountains (see Fig. 2; Fig. 11). The Northern Ogilvie Mountains are for the most part weathered, rounded hills, of predominantly sedimentary bedrock. Castle-like rock groups, and slopes of extensive colluvial rock and scree, characterize the more mountainous regions in the Northern Ogilvie Mountains.

The Southern Ogilvie Mountains, in contrast, consist of rugged mountainous topography of rather recent geological origin, with precipitous ridges and deep valleys. Much of the area lies above 1300 m.

The Wernecke Mountains, in the eastern half of the zone bordering the Mackenzie Mountains in the NWT, are generally steep, rugged mountains flanking narrow valleys. Most of this region sits above 1200 m, and is geologically similar to the Southern Ogilvies.

In the northern part of Zone 2 the alpine vegetative cover is relatively sparse and predominantly ericaceous shrubs lying above a treeline at 900 m. To the south and east the alpine cover is lush and predominantly of forbs and graminoids. Tree-line occurs in the Southern Ogilvie and Wernecke Mountains at 1100-1200 m.

The entire zone falls within a climatic zone that receives between 300 and 600 mm of precipitation annually, and has an average annual temperature between -6 and -8° C. Winter persists for 220 to 230 days.

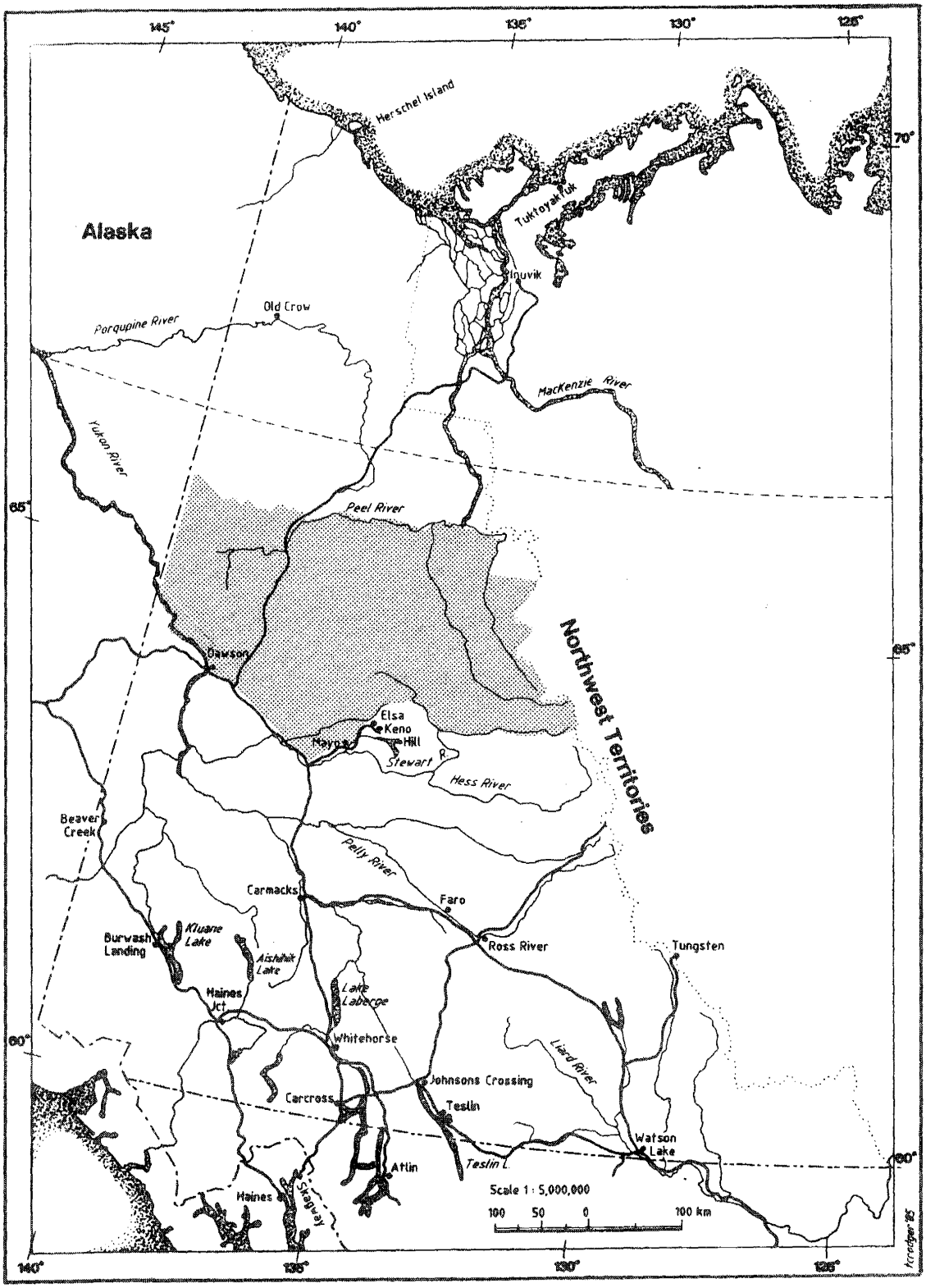


Figure 11. Location of Game Management Zone 2.

Along the southern boundary of Zone 2 lie Dawson (pop. 1791), Mayo (pop. 500) and Elsa/Keno (pop. 173). The Dempster Highway divides this zone, facilitating some access, but for the most part this region is accessible only by air or water.

Sheep distribution and abundance

Surveys were completed in the Ogilvie Mountains in 1978 and 1980 (Fig.12), and in the southern portion of the Wernecke Mountains in 1987.

The distribution and density of sheep is presented in Figure 12. The population of non-lamb sheep is thought to exceed 2700 in the Ogilvie Mountains and 2000 in the Wernecke Mountains (Hoefs and Barichello 1985).

Sheep hunting in Zone 2

The characteristics of sheep shot by licensed hunters, from 1979 to 1988 is presented in Table 3. Trends in the number and age characteristics of the registered sheep kill are presented on Fig. 13. Hunting effort and success in Zone 2 is given in Table 3.

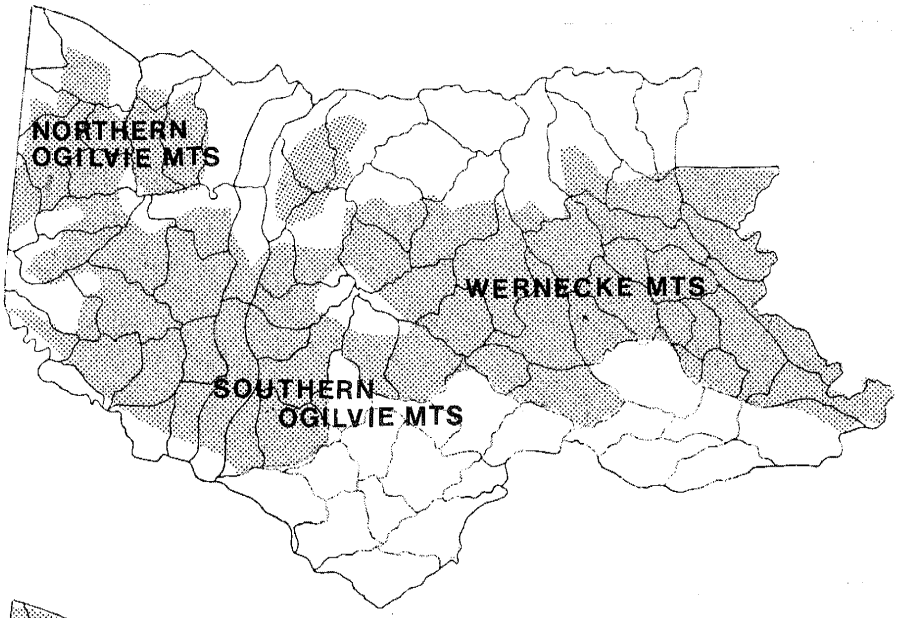


Figure 12a).

Known distribution of sheep in Zone 2.

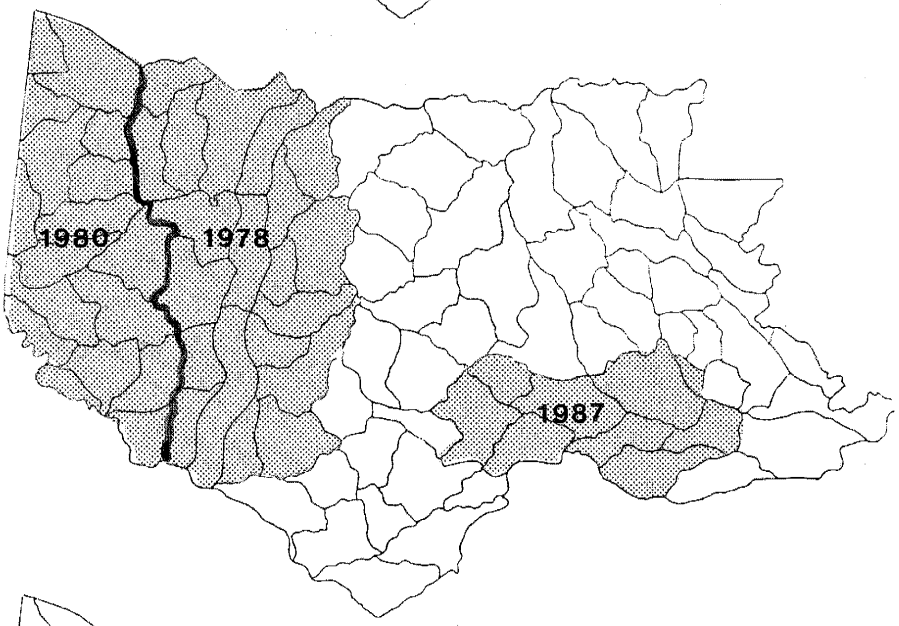


Figure 12b).

Areas where sheep have been systematically surveyed in Zone 2.

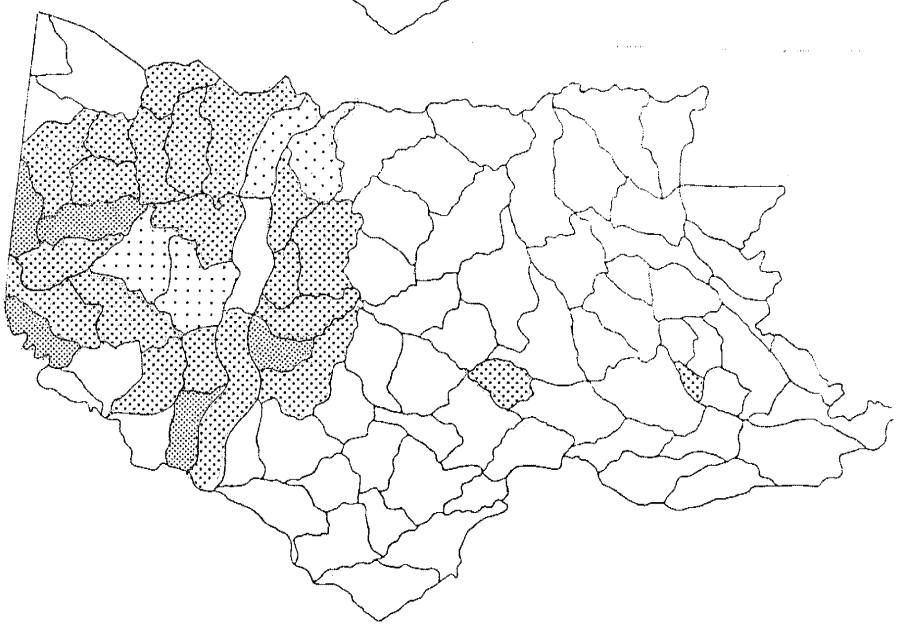


Figure 12c).

Estimated density of sheep in Zone 2.

Low
Medium
High
Very high

Table 3. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In Game Management Zone 2, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:

Residents:	4.1
Non-residents:	52.6
Total:	56.8

Age:

Average:	9.3
Median:	9
Percent 10 years or older:	43.0
Percent 8 years or older:	79.4

Horn measurements (or the longest horn):

Average total length:	35.8
Maximum total length:	44.3
Percent broomed:	32.6
Percent 40" or greater:	7

Other characteristics:

Percent Dall:	86.2
Percent Fannin:	12.9
Percent Stone:	0.9

Hunter Effort and Success:

Average number of hunters:	16.2
Average number of days hunted:	88.9
Average number of days hunted per hunter:	5.5
Average number of days per ram killed:	21.6

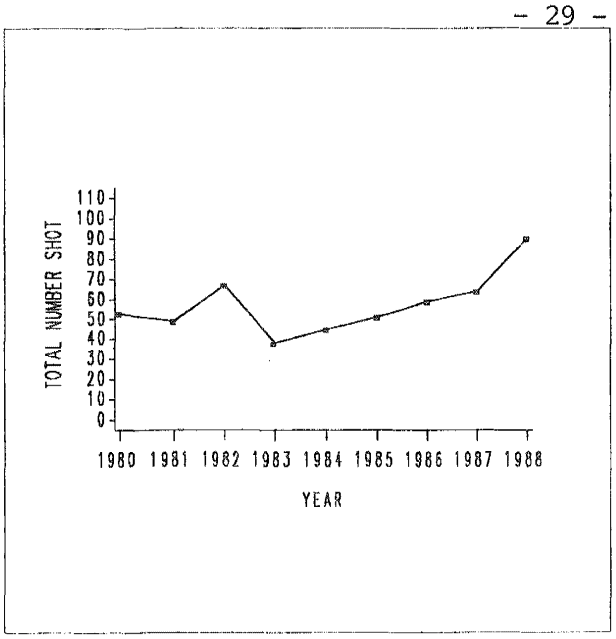


Figure 13a).

Number of rams shot, against year, in Zone 2.

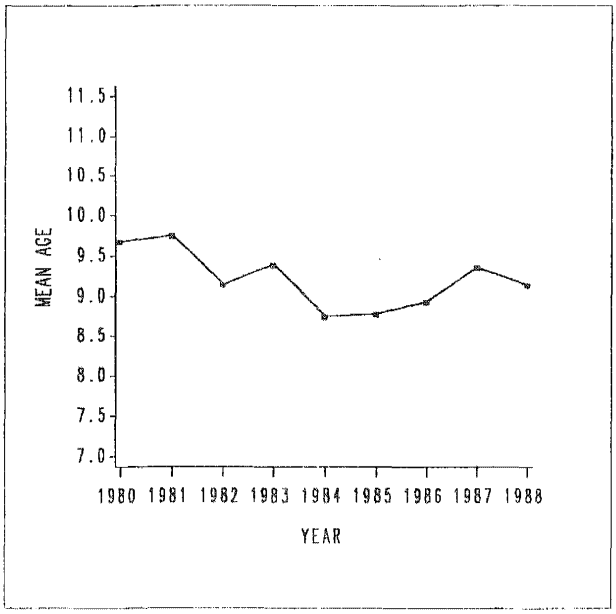


Figure 13b).

Mean age of rams shot, against year, in Zone 2.

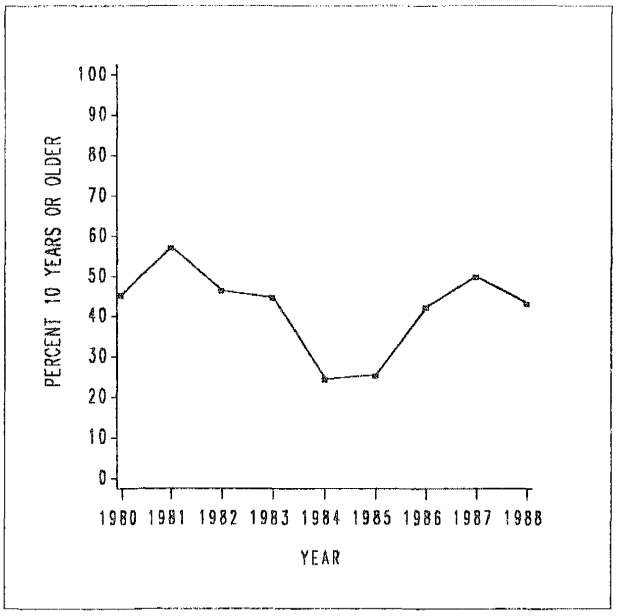


Figure 13c).

Proportion of rams shot which were at least 10 years old, against year, in Zone 2.

ZONE 3

Area description

Zone 3 falls within one broad biogeoclimatic region, the Klondike River Ecoregion (Fig. 14). The area is largely a timbered plateau of low relief lying below 1000 m, and drained by the Klondike, Yukon and White Rivers. There are only a few mountains in the region extending above 1200 m.

The area annually receives about 300-400 mm of precipitation, has an average annual temperature of about -5° C, and experiences winter for 200 to 220 days.

Potential sheep habitat is restricted and of marginal quality, likely due to the scarcity of alpine pastures.

Pelly Crossing (pop. 242) and Dawson are the only human population centres bordering Zone 3. Access is primarily by the Klondike Highway and the Yukon and Stewart Rivers.

Sheep distribution and abundance

Sheep occur in Zone 3 in isolated pockets in the White Mountains and on slopes above the Yukon River near Pelly Farm and Minto (Fig. 15). Surveys were conducted annually during August from 1977 to 1980, and again in March, 1989. Early surveys indicated a stable population of approximately 40-45 animals, while the 1989 survey accounted for 54 sheep (40 non-lambs). Direct population comparisons are not possible, however, since surveys were conducted during different seasons.

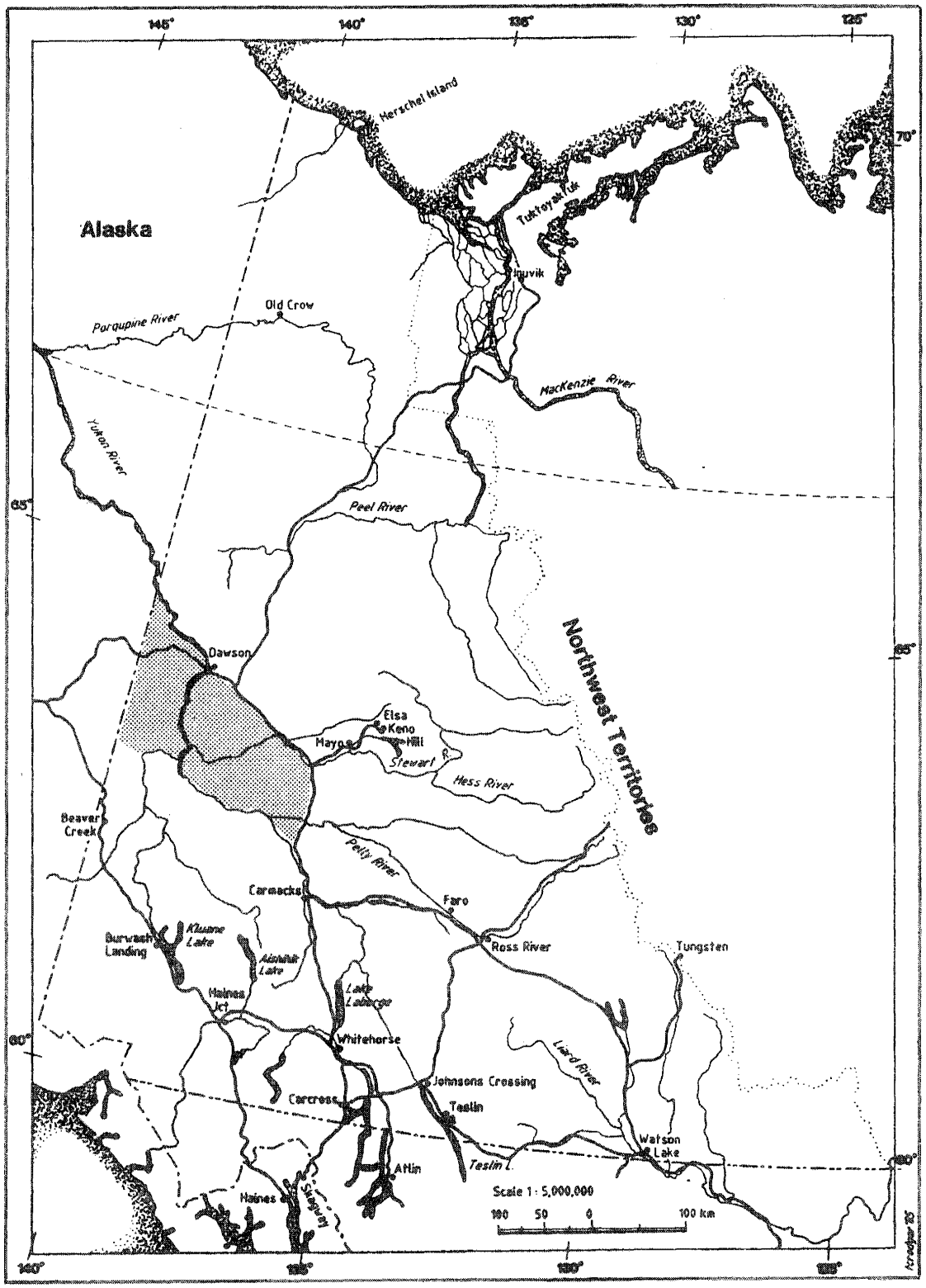


Figure 14. Location of Game Management Zone 3.

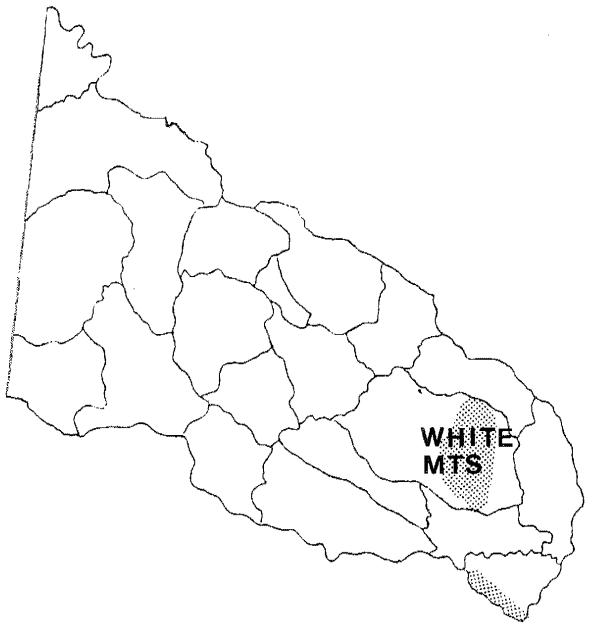


Figure 15a).

Known distribution of sheep in Zone 3.

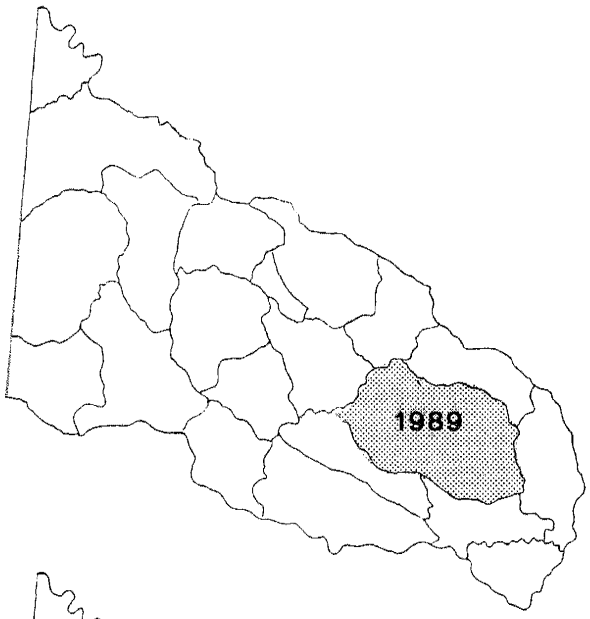


Figure 15b).

Areas where sheep have been systematically surveyed in Zone 3.

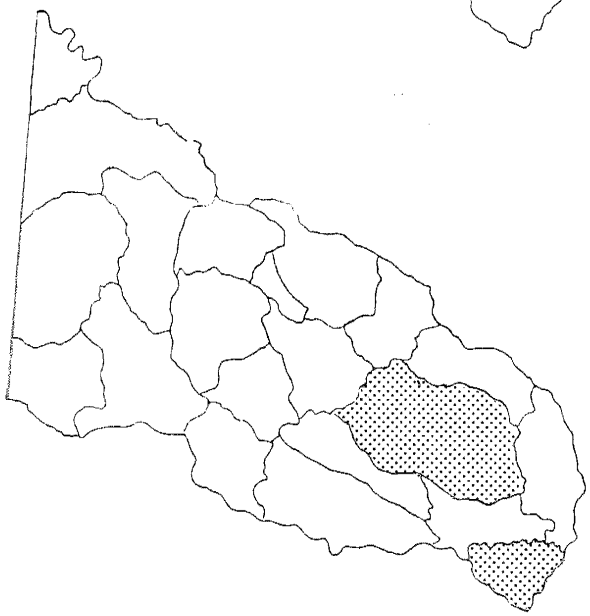
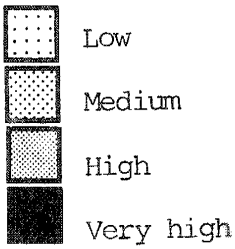


Figure 15c).

Estimated density of sheep in Zone 3.



During the 1989 survey, a cursory helicopter pass was made along the west facing slopes of hills just south of Pelly Farm and along the slopes 12 km north of Minto. The west facing slopes were at least 50% snow free and ample forage appeared to be available. Considerable sheep tracking was observed along the west faces and 11 sheep were observed south of Pelly Farm, while 8 were observed north of Minto. These sheep occupy a unique habitat below 900 m, habitat that is more typical of mule deer or elk.

Sheep hunting in Zone 3

There is no licensed sheep hunting in Zone 3.

ZONE 4

Area description

This zone encompasses parts of three biogeoclimatic regions; Pelly River, Mayo Lake-Ross River, and Itsi Range (see Fig.2). The area is drained by the Stewart, Pelly, Macmillan, and Ross Rivers (Fig. 16).

With the exception of the eastern portion of the zone, the terrain consists of rolling hills, plateaus, broad valleys, and scattered and discontinuous mountain regions, which include the McArthur, Anvil and Russell Ranges. To the east is a continuous band of mountains, the Hess Mountains, which includes the Rogue and Fault Ranges and Keele Peak. Here, mountains are rugged and a few are capped with permanent ice-fields.

Treeline is at about 1350 m and Alpine fir starts to occur in the subalpine areas of Zone 4. Talus is common. The drier alpine areas tend to be rocky, well-drained sites of a heath-type cover, while wetter sites are predominantly willows and forbs.

Average annual precipitation across the zone ranges from 300 to 800 mm, with a moisture gradient increasing to the east. Mean annual temperatures are between -5 and -7° C. The average duration of winter is 210 to 230 days.

Good sheep habitat is discontinuous. Scattered or sparse alpine regions to the west, and deep snows to the east probably restrict the distribution of sheep in Zone 4.

Four communities fall within Zone 4, including Mayo (pop. 500), Faro (pop.1606), Ross River (pop.402) and Carmacks (pop.432).

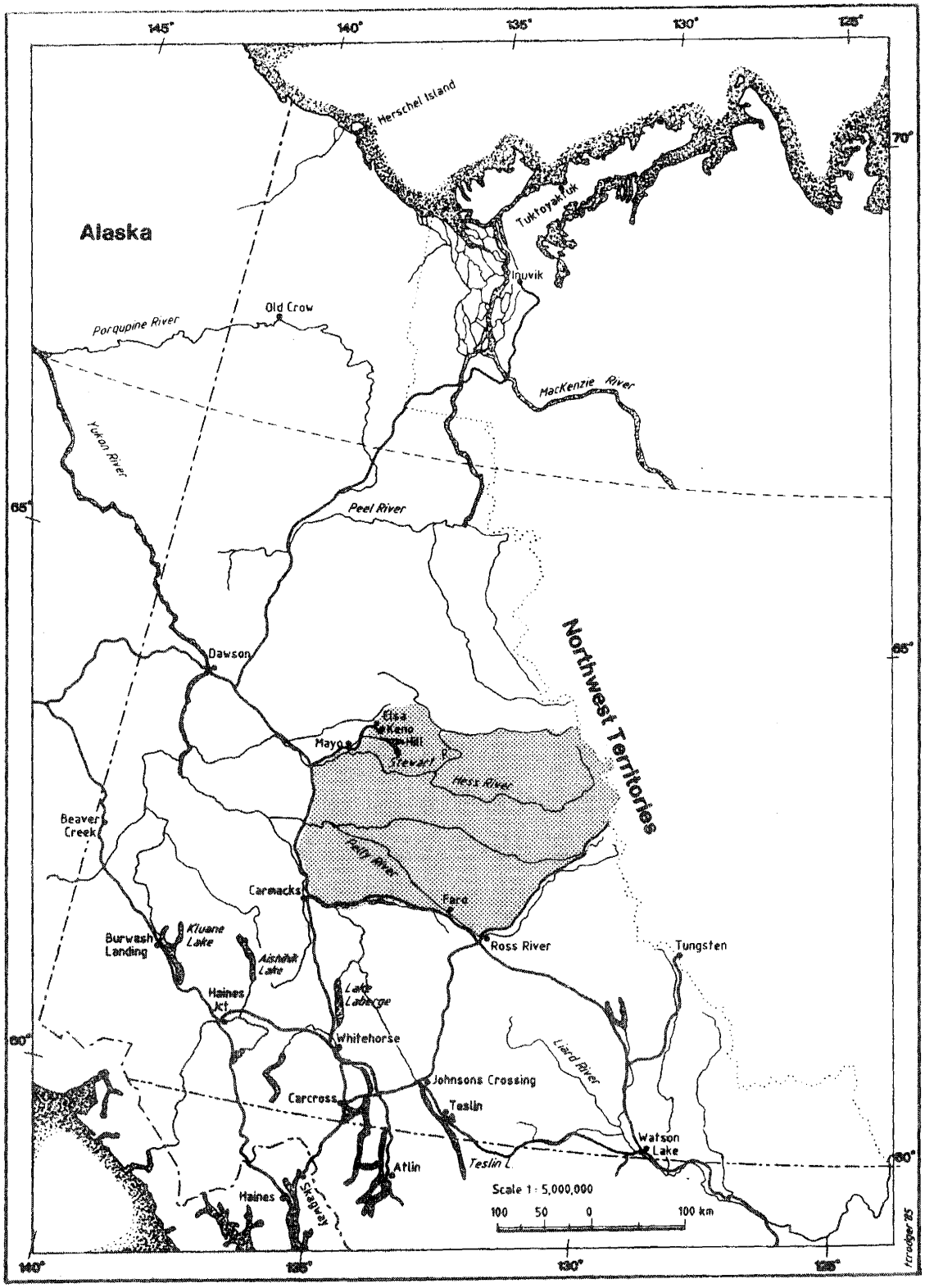


Figure 16. Location of Game Management Zone 4.

Sheep distribution and abundance

Sheep surveys were completed in the Wilkinson and Russell Ranges in 1981. Sheep were also censused in the vicinity of the North Canol Road, as part of the proposed development in the Macmillan Pass area. The distribution and density of sheep across Zone 4 is shown in Figure 17. There are an estimated 1560 non-lamb sheep in Zone 4.

Sheep hunting in Zone 4

The characteristics of the licensed kill, and estimates of hunter effort and success are presented in Table 4. The trends in the numbers of rams shot, their average age, and the proportion of rams shot which were at least 10 years old, are shown in Fig. 18.

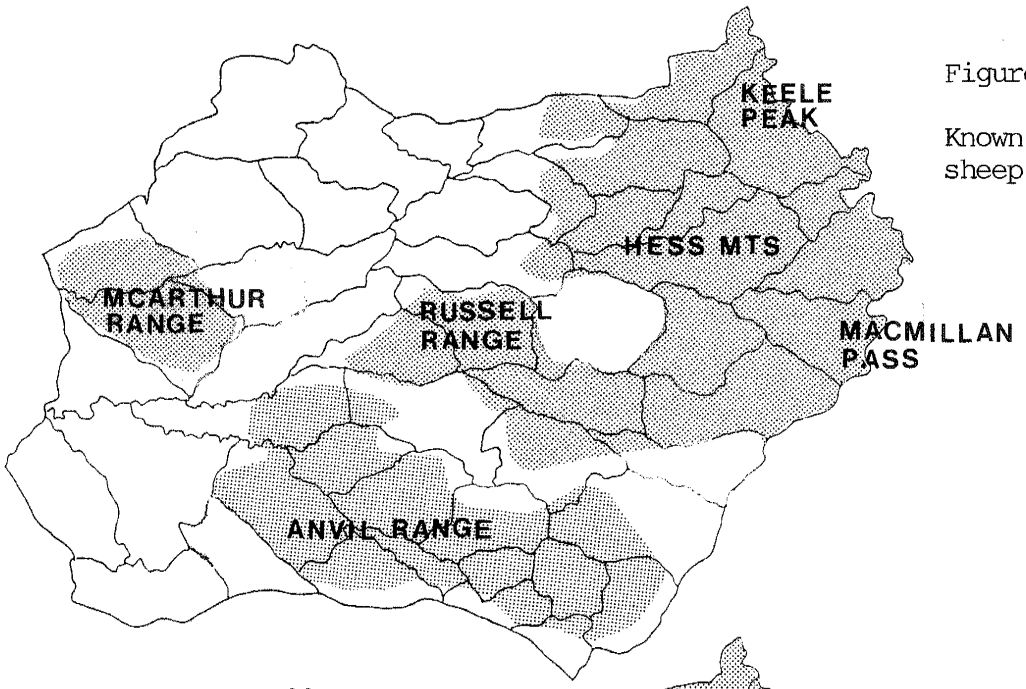


Figure 17a).

Known distribution of sheep in Zone 4.

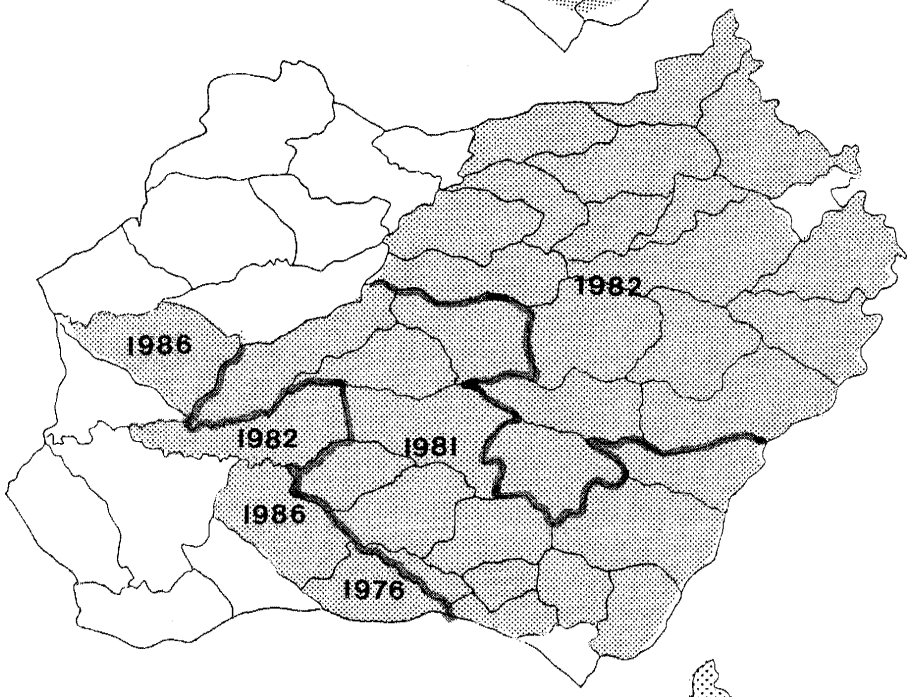


Figure 17b).

Areas where sheep have been systematically surveyed in Zone 4.

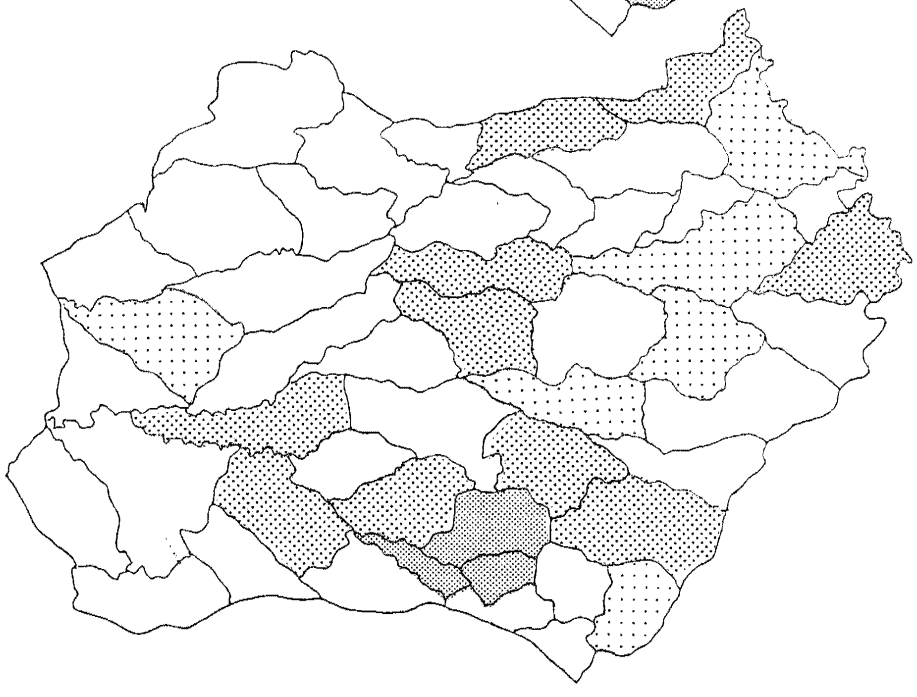


Figure 17c).

Estimated density of sheep in Zone 4.

Low

Medium

High

Very high

Table 4. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In Game Management Zone 4, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:

Residents:	3.2
Non-residents:	23.4
Total:	26.6

Age:

Average:	8.4
Median:	8
Percent 10 years or older:	27.7
Percent 8 years or older:	65.3

Horn measurements (or the longest horn):

Average total length:	35.4
Maximum total length:	45.4
Percent broomed:	27.7
Percent 40" or greater:	4.2

Other characteristics:

Percent Dall:	32.1
Percent Fannin:	40.8
Percent Stone:	27.0

Hunter Effort and Success:

Average number of hunters:	22.0
Average number of days hunted:	91.0
Average number of days hunted per hunter:	4.1
Average number of days per ram killed:	28.0

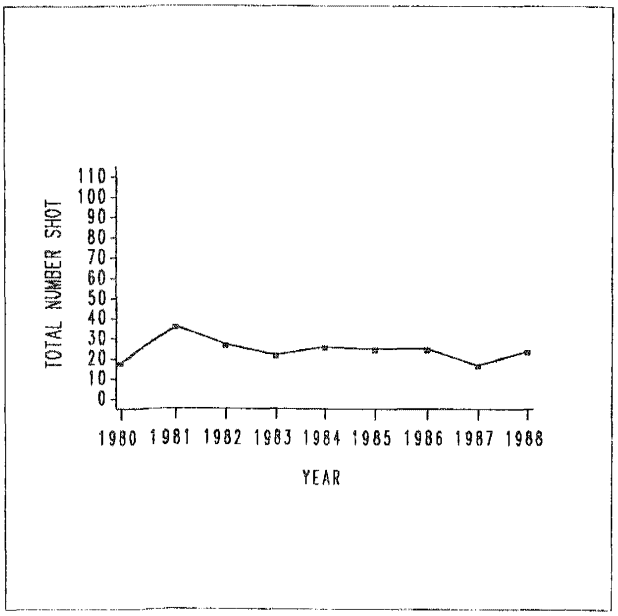


Figure 18a).

Number of rams shot, against year, in Zone 4.

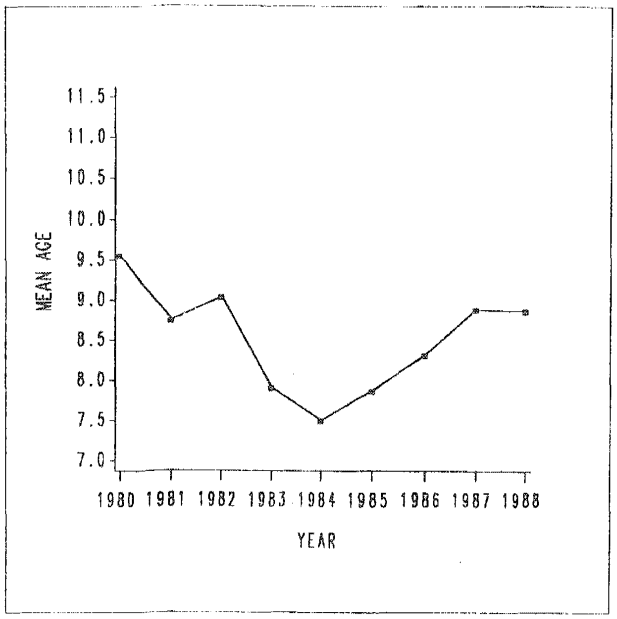


Figure 18b).

Mean age of rams shot, against year, in Zone 4.

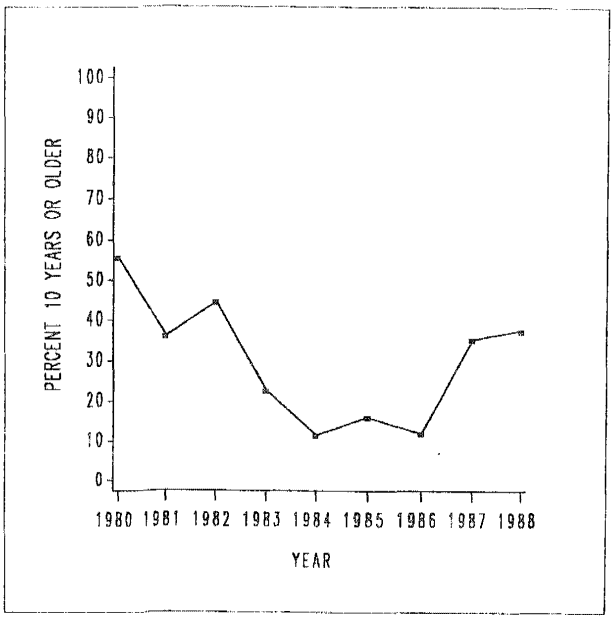


Figure 18c).

Proportion of rams shot which were at least 10 years old, against year, in Zone 4.

ZONE 5

Area description

Three ecological regions (Ruby Range, Wellesley Lake and Dawson Range) and two major mountain systems (Ruby and Dawson Ranges) are found in Zone 5 (Fig. 19). The area is drained by the White, Donjek, Nisling and Yukon Rivers.

The Wellesley Lake area, in the west side of the zone, is a lowland basin surrounded by timbered, low elevation plateaus. To the northeast lies the Dawson Range, a discontinuous band of weathered, dome-shaped mountains lying between 1000 and 1500 m. In the southeast portion of the zone lie the Ruby, Nisling, Kluane and Miner Ranges. Undulating mountains characterize this region. Slopes here tend to be rocky and with frequent topographic breaks.

In Zone 5, treeline is at about 1200 m, and talus is common. Alpine areas are generally dry, rocky and heath-like, with a dominant cover of ericaceous shrubs.

Mean annual temperatures are -3 to -5° C, and winds are common and frequently strong. Precipitation averages only 200 to 400 mm a year, with more moisture falling to the west. The Ruby Range is a particularly dry region, receiving less than 300 mm of precipitation a year, and experiences high winds. Winter lasts for 180 to 210 days.

Sheep occur at relatively high densities in the Ruby Range, while populations are small and scattered in the Dawson Range. This distribution of sheep is probably a reflection of terrain, and the benefits of a drier, windier climate to the southeast of the zone.

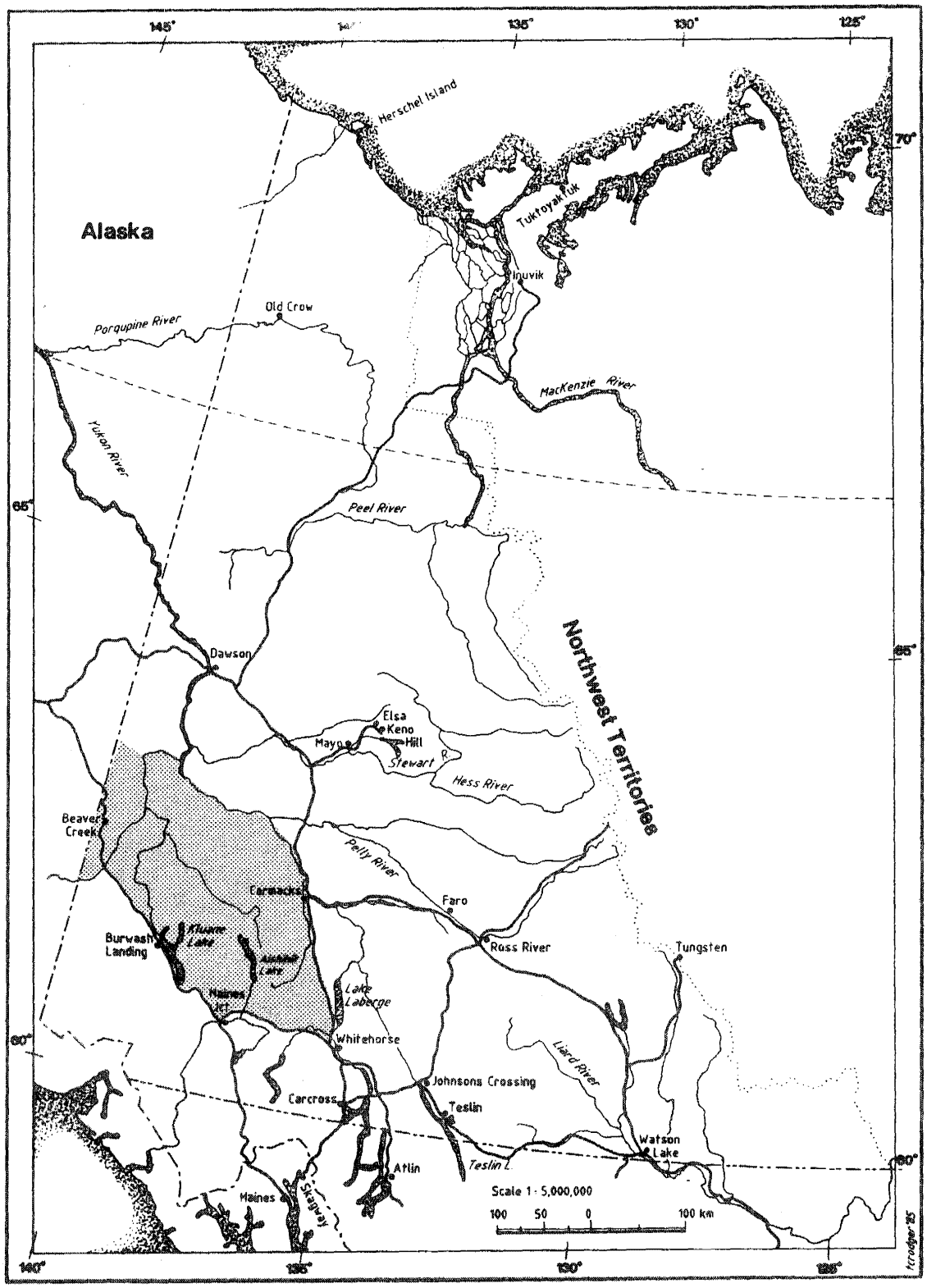


Figure 19. Location of Game Management Zone 5.

In or bordering Zone 5 lie the communities of Beaver Creek (pop.88), Burwash Landing (pop.93), Destruction Bay (pop.58), Haines Junction (pop.642), Whitehorse and Carmacks.

Sheep distribution and abundance

A complete sheep census of Zone 5 was achieved in 1974. Since that time replicated surveys have occurred in the southern part of the zone, in particular the Sifton Range, and four subzones in the Ruby Range (Fig. 20). Surveys have been fairly regular in these subzones since 1979, providing an indication of population trend for the region.

The distribution and density of sheep is shown in Figure 20. There are an estimated 3,900 non-lamb sheep in Zone 5.

Sheep hunting in Zone 5

The average characteristics of the sheep-kill are presented on Table 5. Hunting effort and success in Zone 5 are also presented in Table 5. Harvest trends are shown in Fig. 21.

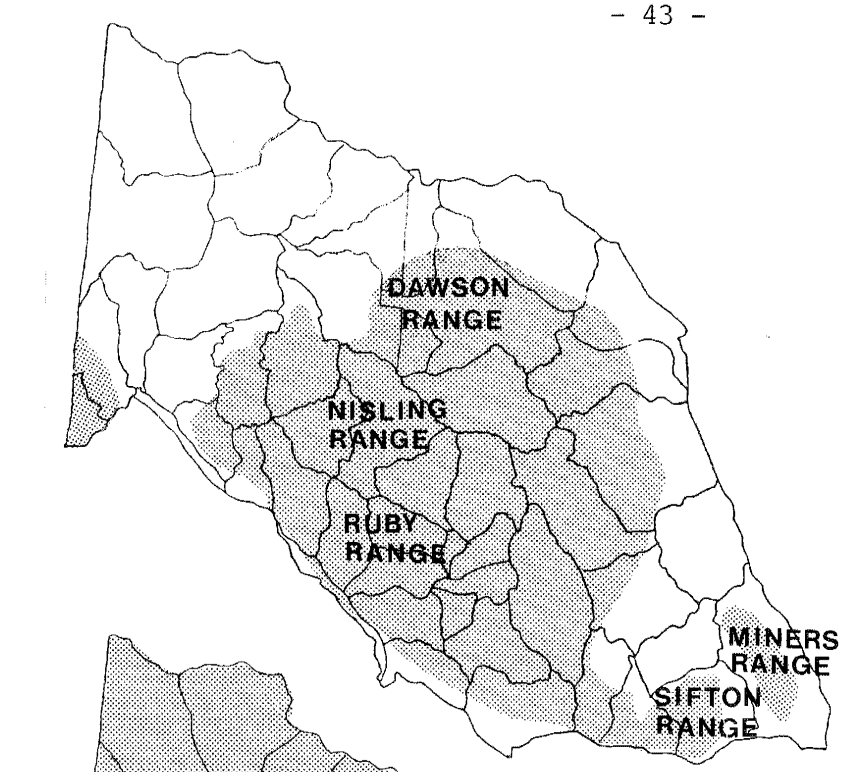


Figure 20a).

Known distribution of sheep in Zone 5.

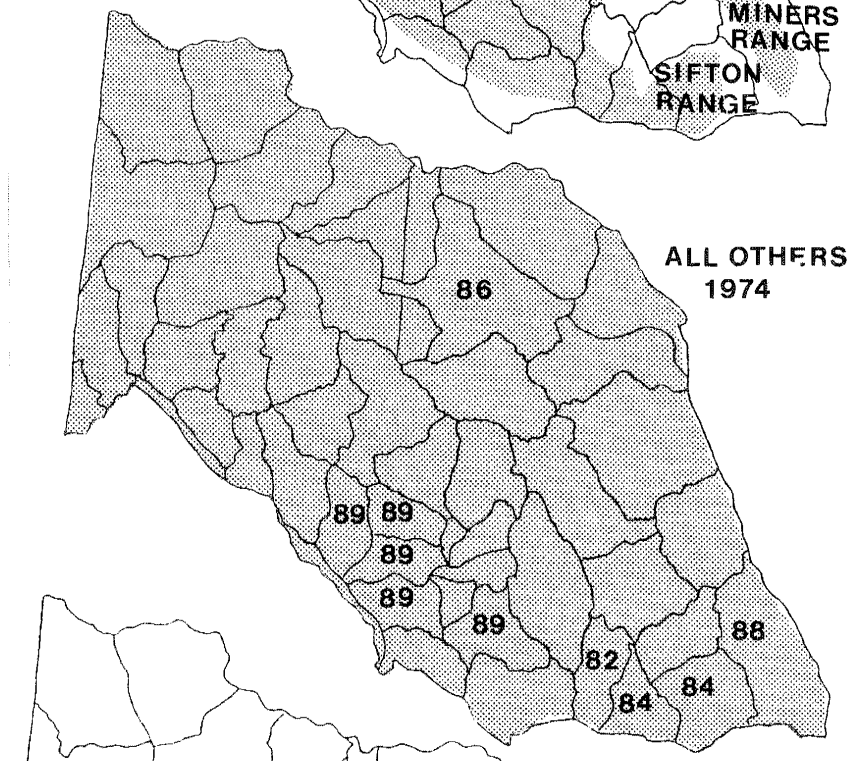


Figure 20b).

Areas where sheep have been systematically surveyed in Zone 5.

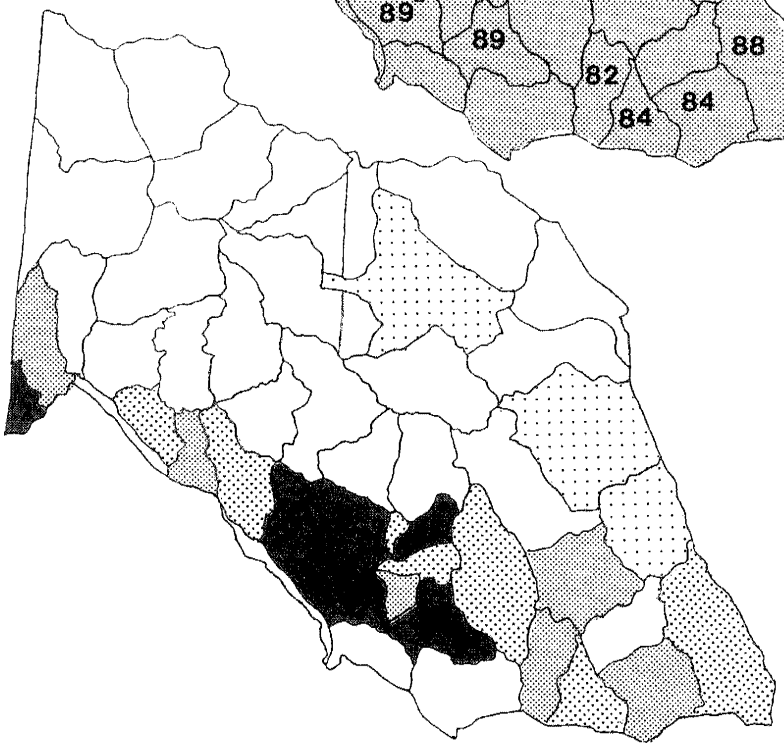


Figure 20c).

Estimated density of sheep in Zone 5.

Low

Medium

High

Very high

Table 5. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In Game Management Zone 5, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:

Residents:	27.6
Non-residents:	62.0
Total:	89.9

Age:

Average:	8.1
Median:	8
Percent 10 years or older:	22.0
Percent 8 years or older:	62.9

Horn measurements (or the longest horn):

Average total length:	35.3
Maximum total length:	43.9
Percent broomed:	28.0
Percent 40" or greater:	5.4

Other characteristics:

Percent Dall:	98.4
Percent Fannin:	1.6
Percent Stone:	0

Hunter Effort and Success:

Average number of hunters:	113.0
Average number of days hunted:	578.8
Average number of days hunted per hunter:	5.1
Average number of days per ram killed:	21.0

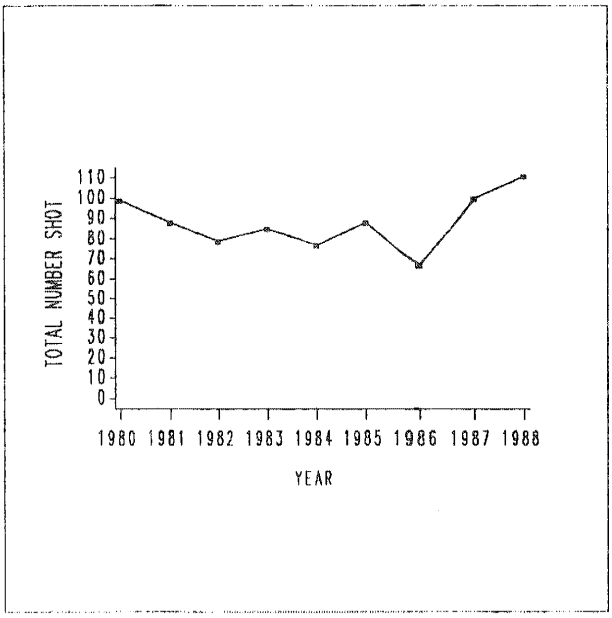


Figure 21a).

Number of rams shot, against year, in Zone 5.

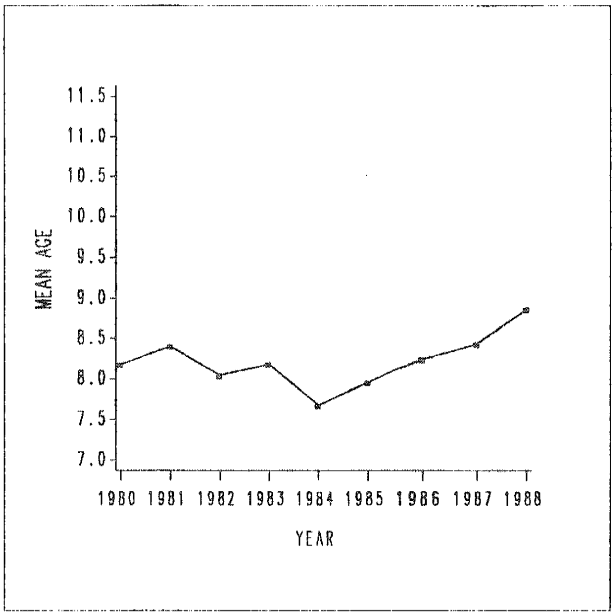


Figure 21b).

Mean age of rams shot, against year, in Zone 5.

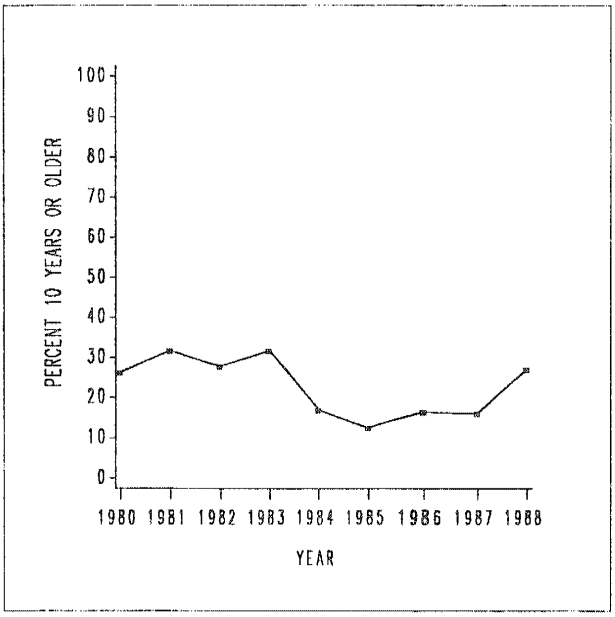


Figure 21c).

Proportion of rams shot which were at least 10 years old, against year, in Zone 5.

ZONE 6

Area description

Zone 6 is encompassed by the St. Elias Mountain Ecoregion, and is drained by the Donjek, White, Duke, Slims and Alsek Rivers (Fig. 22). The area is characterized by high, rugged mountains and extensive ice-fields.

Above the treeline at 1050 m, lush forb-grass alpine communities are prevalent in ice-free areas.

Mean annual precipitation varies from 300 to 3400 mm, with the drier regions bordering Kluane Lake to the north. Temperatures are under the influence of elevation, the permanent ice-fields, and the Pacific coast, and are therefore variable. The winter season has an average duration of 190 to 210 days.

Much of the area is inhospitable for sheep due to the prevalence of ice, and heavy snowfalls. In the drier, rugged slopes to the north, low to moderate snowfall and the moisture influence of local ice-fields have combined to produce some of the finest sheep habitat in the Yukon.

Distribution and abundance

A complete, systematic survey of Zone 6 has not been achieved. However, a few subzones have been rigorously searched, and Parks Canada has provided census results and population trends for specific areas in the adjacent park.

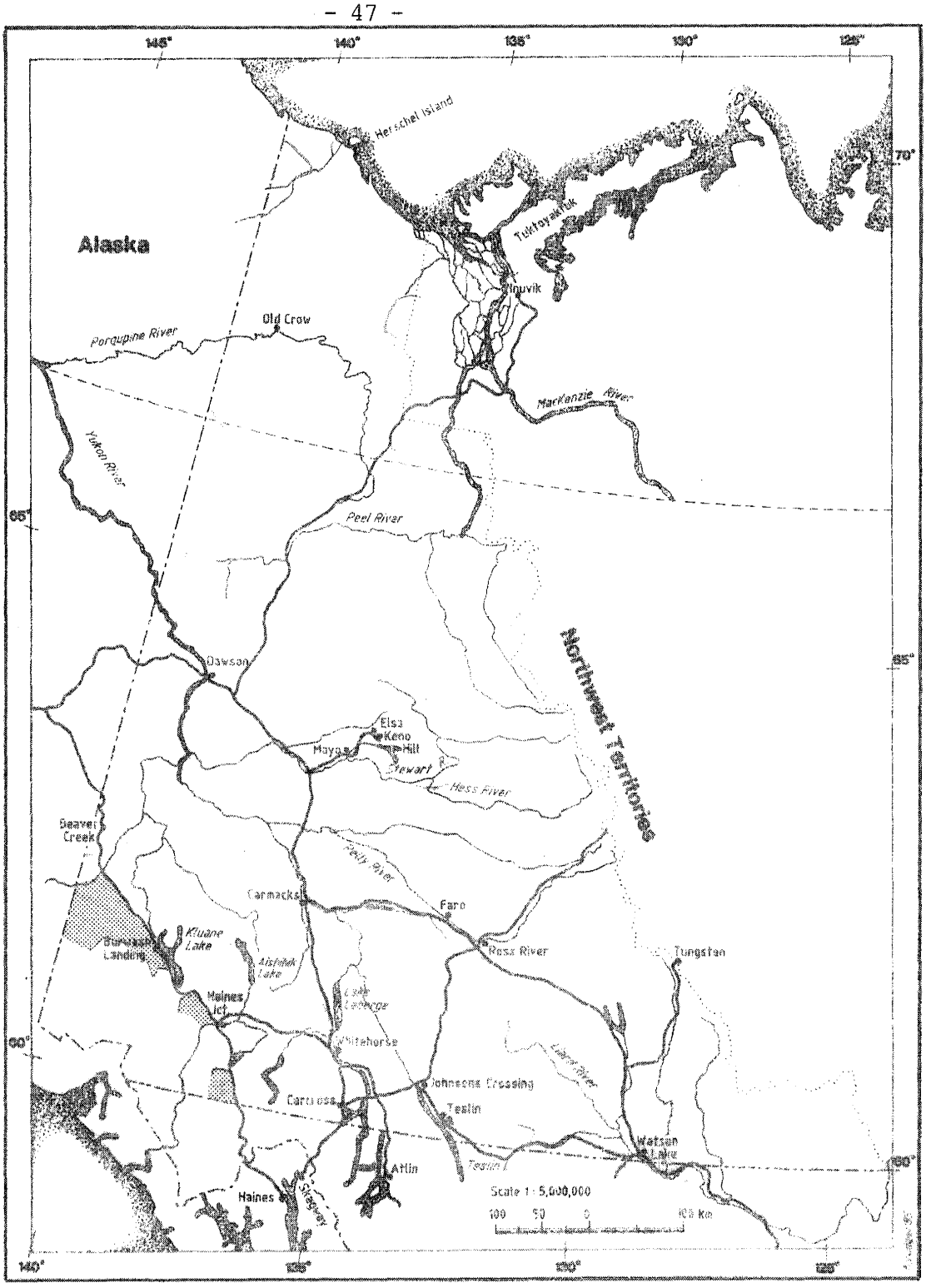


Figure 22. Location of Game Management Zone 6.

The distribution and density of sheep is shown in Fig. 23. There are an estimated 4,200 non-lamb sheep in Zone 6 and Kluane.

Sheep hunting in Zone 6

The area presently covered by Zone 6 was designated a Game Sanctuary in 1943 and a portion of that was declared the Kluane National Park Reserve in 1973. Resident and non-resident hunting has been restricted since 1943.

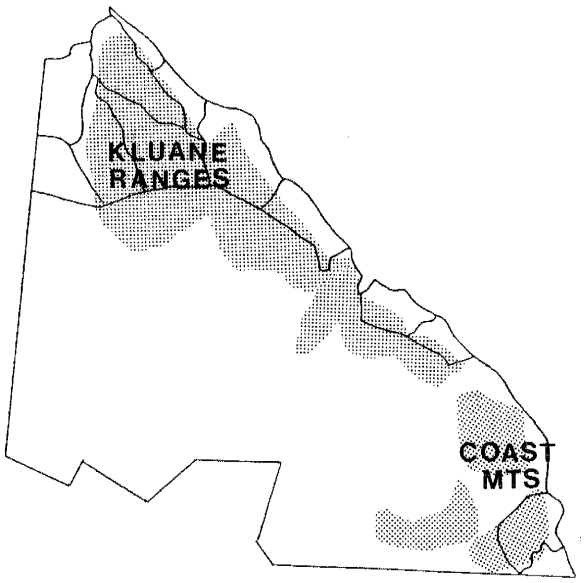


Figure 23a).

Known distribution of sheep in Zone 6 and adjacent areas.

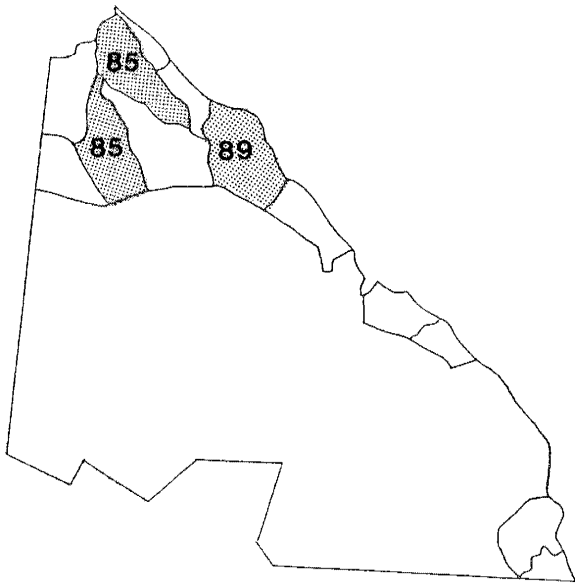


Figure 23b).

Areas where sheep have been systematically surveyed in Zone 6.

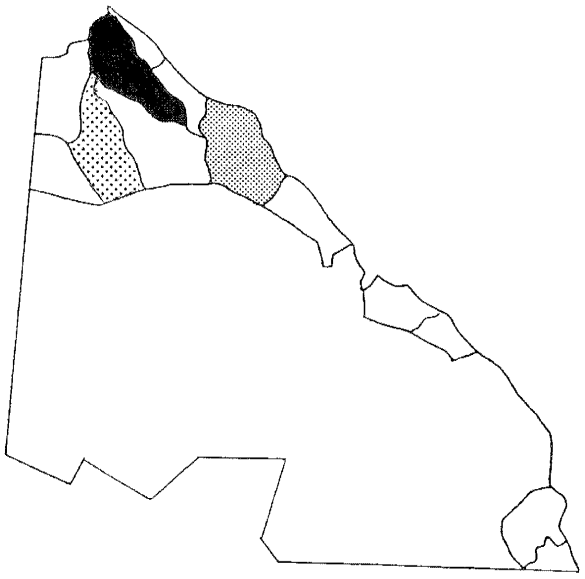


Figure 23c).

Estimated density of sheep in Zone 6.

Low

Medium

High

Very high

ZONE 7

Area description

Zone 7 falls within the Coast Mountains Ecoregion, and is commonly referred to as the Southern Lakes area (Fig. 24). The area is drained by the Dezadeash, Takhini, Watson and Wheaton Rivers, and is characterized by rugged mountainous topography and numerous lakes. To the south, mountains tend to be precipitous and ice-capped, while the northern part is more gentle, rolling terrain. Rock outcrops are common throughout the zone. All of the Coast Mountains were scoured by glaciers during the last major ice advance, which created wide U-shaped valleys, and left behind numerous large lakes.

Vegetation and climate are variable, reflecting the influence of the coast and the rain shadow effect on the lee side of the rugged border mountains. Treeline is at 1050-1200 m a.s.l., above which much of the area is rocky and of a heath-type vegetative cover. Annual average temperature is between -3 and -5° C and precipitation ranges from 200 to 800 mm. Heavy winds are a common feature of the Southern Lakes region. The mean duration of winter is approximately 180 days.

In the northern, drier regions of this zone, sheep habitat is considered excellent, likely due to the abundance of rock outcrops and low snowfall which is enhanced by high winds.

Zone 7 is bounded by the Haines Road, the Alaska Highway and the Carcross Road, with the communities of Haines Junction, Champagne, Whitehorse and Carcross on the boundaries. Many mining and recreational roads exist in the region, and they,

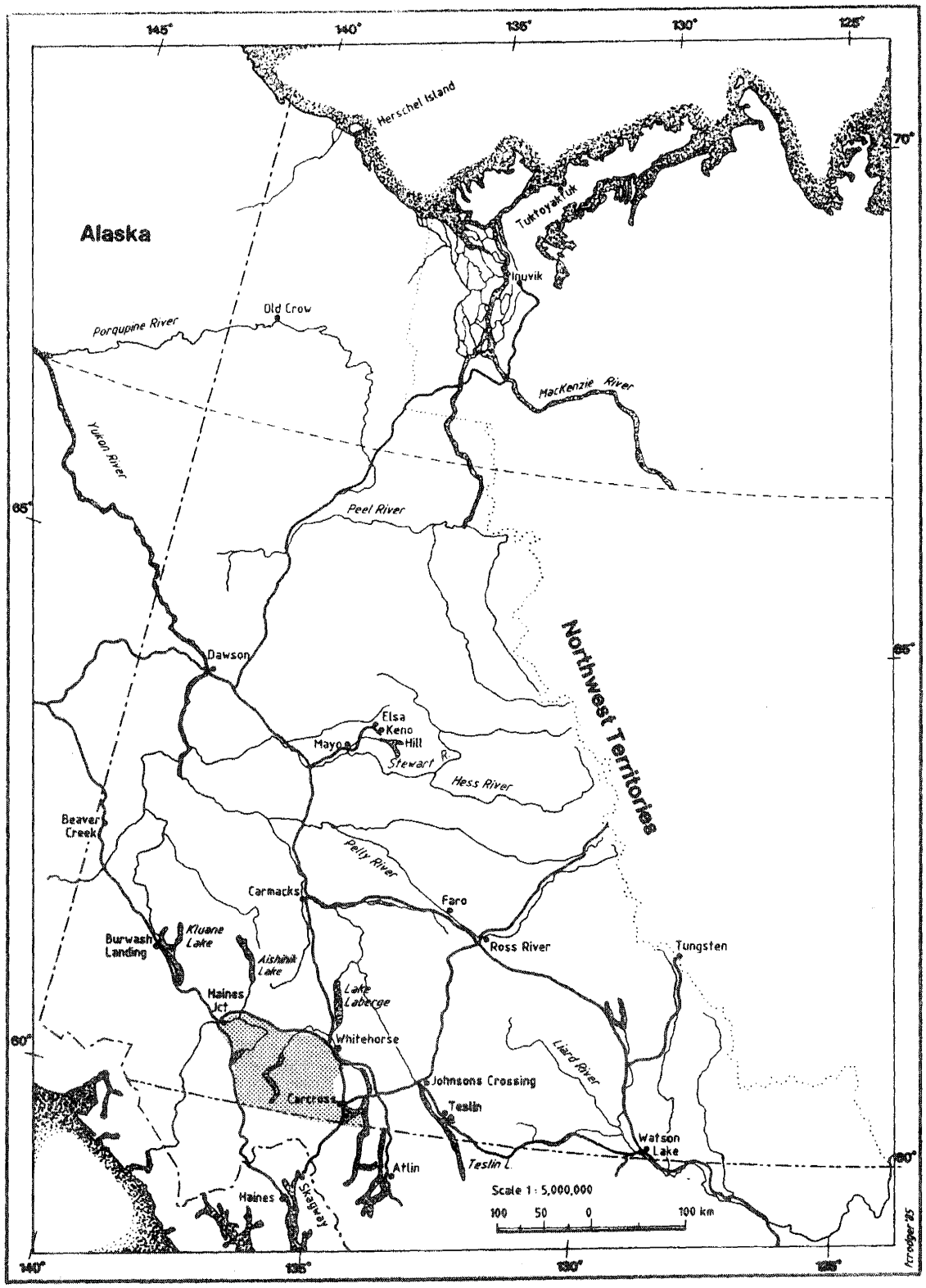


Figure 24. Location of Game Management Zone 7.

along with numerous lakes make this zone the most accessible to sheep hunters.

Limited entry permit hunting for resident and non-resident licensed hunters was established in a portion of the zone in 1979. In the following year, non-resident hunting was discontinued. Permit hunting was initiated in response to what was thought to be a declining sheep population, and designed to increase the number of legal rams, increase hunter success and improve the quality of the trophy (average age and horn size). Currently, 67 permits are allocated among 8 subzones.

Sheep distribution and abundance

A complete sheep census was achieved in Zone 7 in 1973, and again in 1978, and much of the area was re-censused from 1984 to 1987. One subzone has has been surveyed on a regular basis since 1979. The distribution and density of sheep is shown on Fig. 25. There are an estimated 2,900 non-lamb sheep in Zone 7.

Sheep hunting in Zone 7

The distribution of the harvest, and the average characteristics and trend of the licensed kill are presented in Figure 26 and Table 6. Hunting effort and success by resident hunters is also shown on Table 6. Harvest information is presented for the entire Zone 7, and for residents-only within the permit and non-permit areas. Resident hunting effort is regulated in the permit area, based on the estimated numbers of sheep; no such restrictions are in place in the non-permit area in Zone 7, which is open to resident and non-resident hunters.

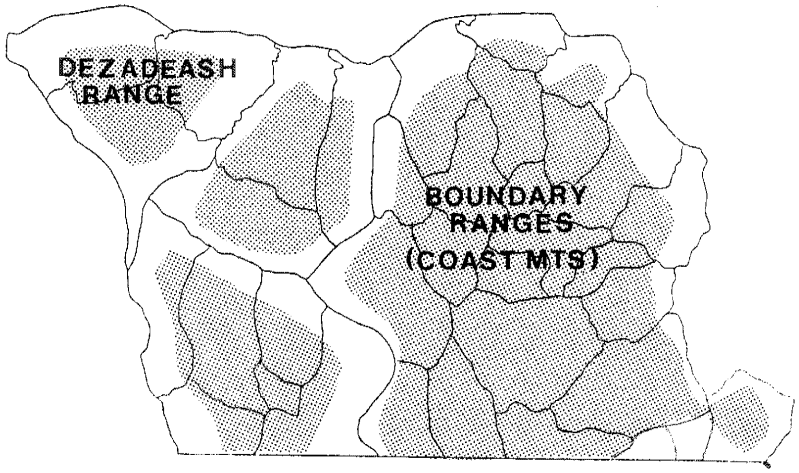


Figure 28a).

Known distribution of sheep in Zone 7.

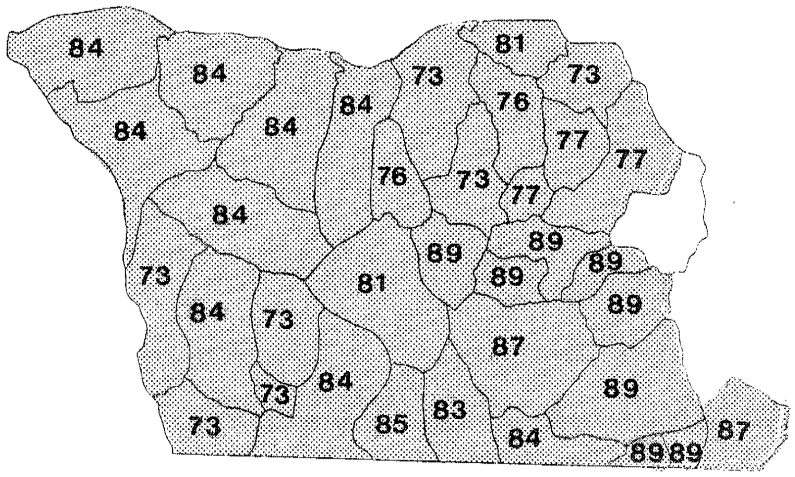


Figure 28b).

Areas where sheep have been systematically surveyed in Zone 7.

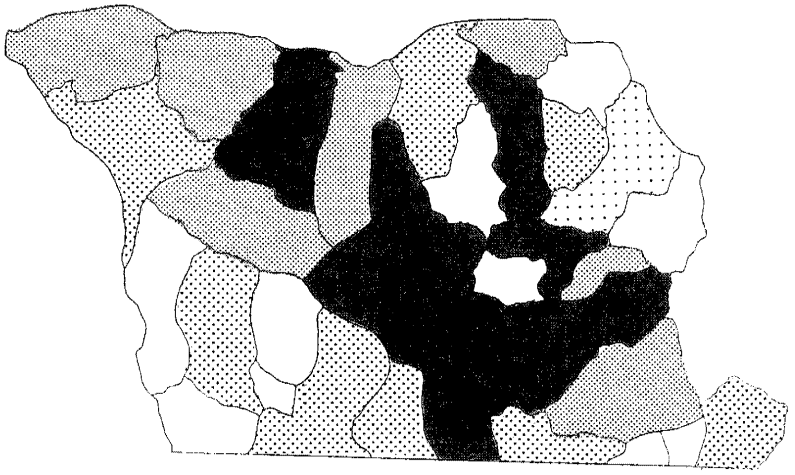


Figure 28c).

Estimated density of sheep in Zone 7.

Low

Medium

High

Very high

Table 6. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In Game Management Zone 7, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:		Residents:	
Residents:	37.8	Non-permit	Permit
Non-residents:	19.8	18.8	19.0
Total:	57.6		
Age:			
Average:	8.4	8.1	8.6
Median:	8	8	9
Percent 10 years or older:	26.6	22.0	29.4
Percent 8 years or older:	65.1	59.5	71.8
Horn measurements (or the longest horn):			
Average total length:	35.4	35.0	34.9
Maximum total length:	42.4	41.5	42.2
Percent broomed:	21.6	22.0	23.5
Percent 40" or greater:	2.4	3.6	1.8
Other characteristics:			
Percent Dall:	97.8		
Percent Fannin:	2.2		
Percent Stone:	0		

Hunter Effort and Success:

Average number of hunters:	121.4
Average number of days hunted:	620.3
Average number of days hunted per hunter:	5.1
Average number of days per ram killed:	16.5

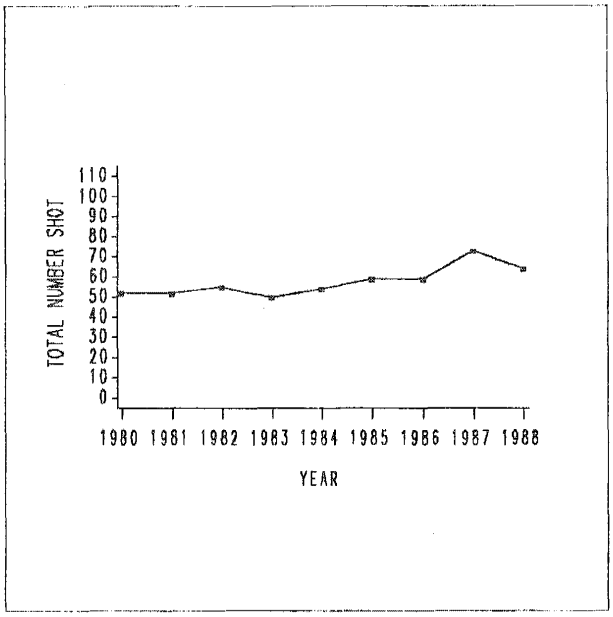


Figure 26a).

Number of rams shot, against year, in Zone 7.

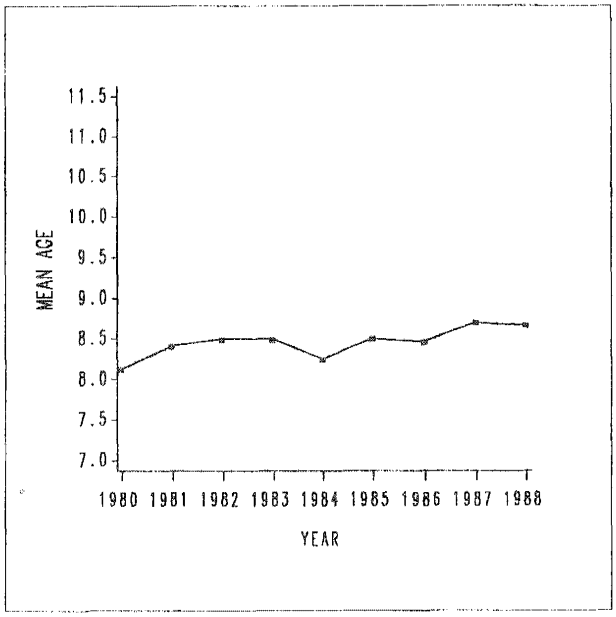


Figure 26b).

Mean age of rams shot, against year, in Zone 7.

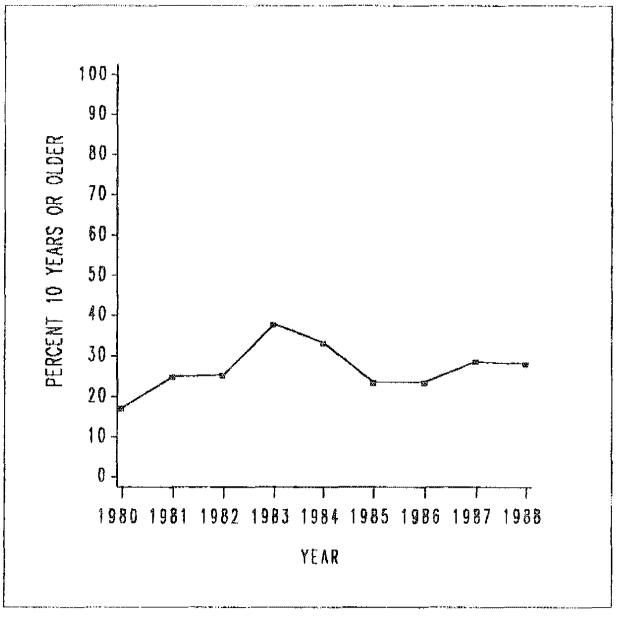


Figure 26c).

Proportion of rams shot which were at least 10 years old, against year, in Zone 7.

ZONE 8

Area description

Zone 8 falls within the Lake Laberge Ecoregion (Fig. 27). The Yukon, Teslin, Big Salmon and Nisutlin Rivers drain this area. The topography is varied, but generally mountainous. Within this zone lie the Big Salmon Range, the Semenof Hills and the mountain complex around Joe and Byng Mountains. The Big Salmon Range lies in the western flank of the Pelly Mountains. Much of this area is rugged. The exception is the western side of Zone 8 where the topography is gentle and characterized by dissected plateaus and rolling hills surrounding discontinuous mountain blocks.

There appears to be a significant moisture gradient from west to east. Annual precipitation in Zone 8 ranges from 250 to 625 mm, average temperatures range from -4 to -6° C, and the duration of winter is approximately 180 days. Treeline is found between 1350 and 1500 m a.s.l., with alpine fir common in the subalpine region, and ericaceous shrubs and willows dominating the alpine tundra. Forbs are not plentiful in this ecological region.

Whitehorse, Carmacks, Ross River and Faro all lie along the zone boundaries.

Sheep distribution and abundance

With the exception of the area around Joe and Byng Mountains, most of Zone 8 was systematically surveyed for sheep in 1976. No replicated surveys have been carried out.

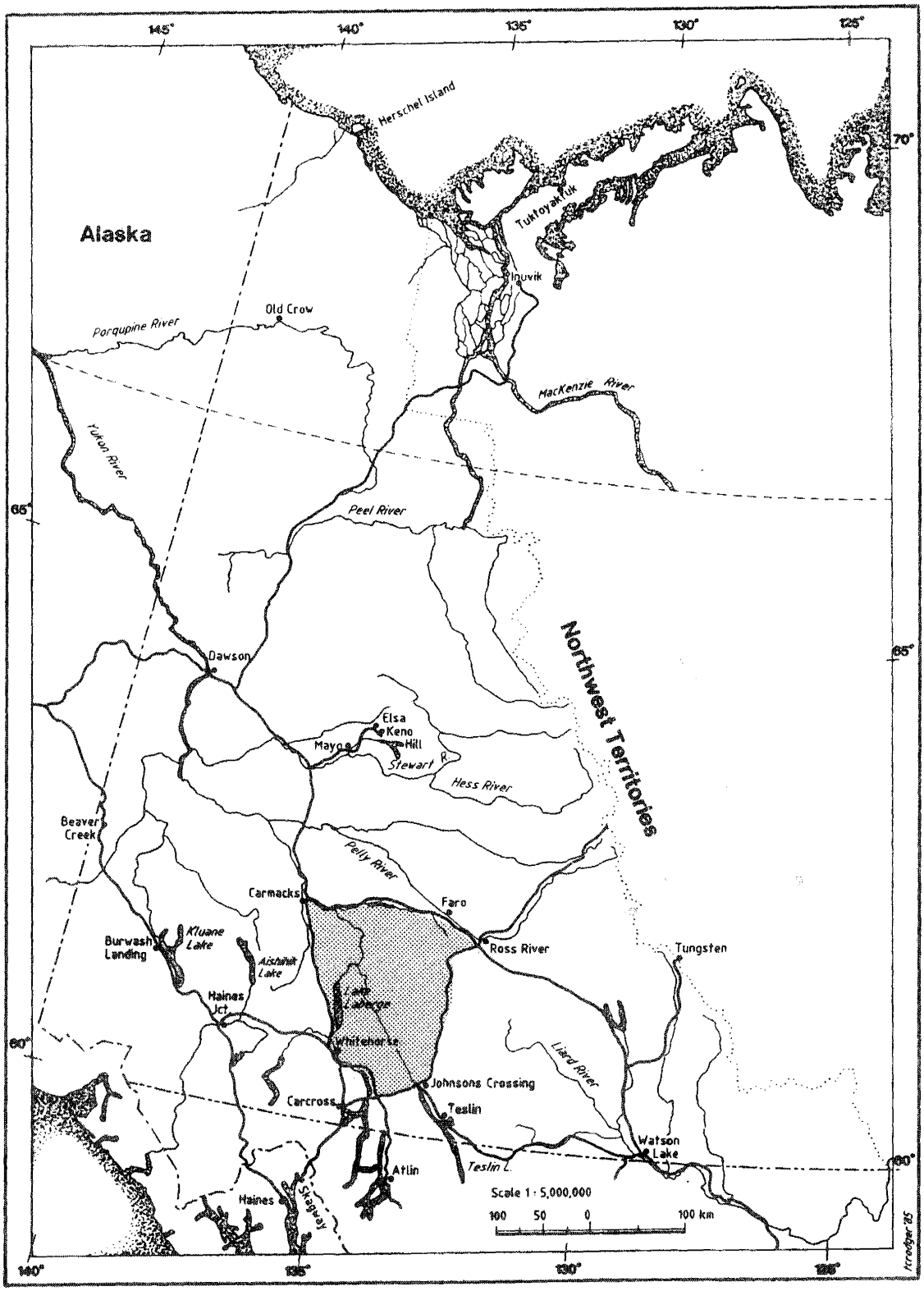


Figure 27. Location of Game Management Zone 8.

The distribution and density of sheep is illustrated on Figure 28. There are an estimated 435 non-lamb sheep in Zone 8.

Sheep hunting in Zone 8

Average characteristics and trends in the licensed sheep-kill are presented in Table 7 and Figure 29. Resident hunting effort and success in Zone 8 is found in Table 7.

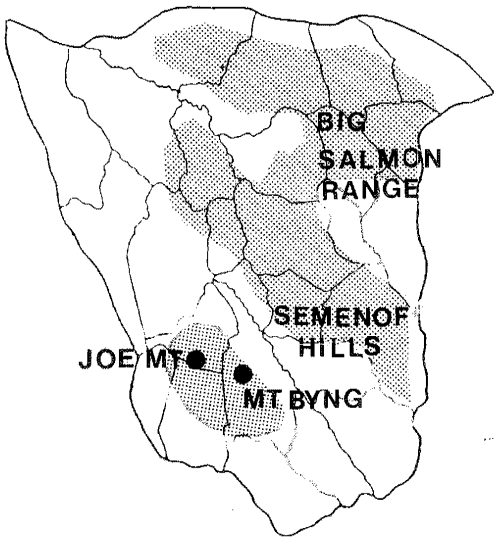


Figure 28a).

Known distribution of sheep in Zone 8.

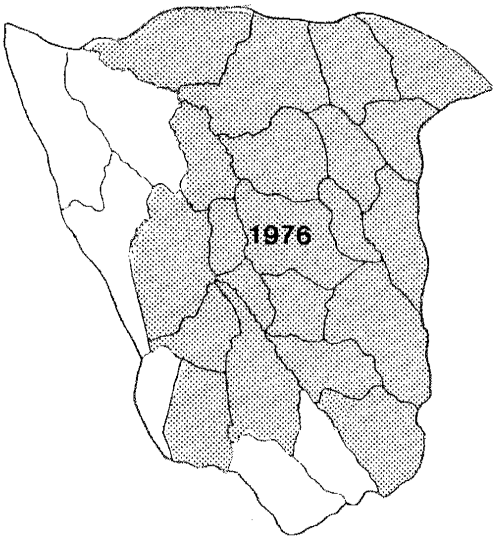


Figure 28b).

Areas where sheep have been systematically surveyed in Zone 8.

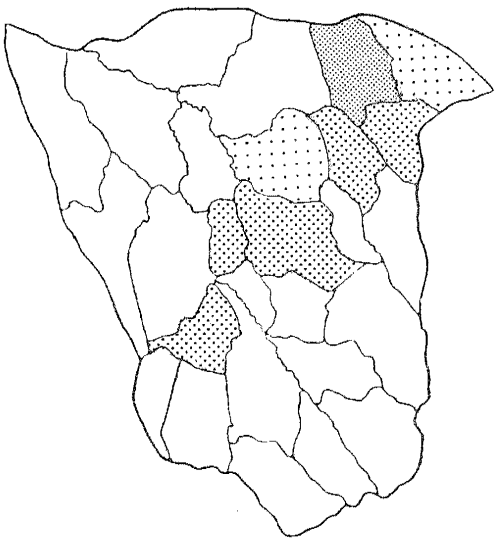


Figure 28c).

Estimated density of sheep in Zone 8.

Low

Medium

High

Very high

Table 7. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In Game Management Zone 8, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:

Residents:	2.5
Non-residents:	9.0
Total:	11.5

Age:

Average:	8.3
Median:	8
Percent 10 years or older:	26.1
Percent 8 years or older:	65.1

Horn measurements (or the longest horn):

Average total length:	35.6
Maximum total length:	42.7
Percent broomed:	19.6
Percent 40" or greater:	5.4

Other characteristics:

Percent Dall:	11.2
Percent Fannin:	39.3
Percent Stone:	49.4

Hunter Effort and Success:

Average number of hunters:	15.3
Average number of days hunted:	64.9
Average number of days hunted per hunter:	4.2
Average number of days per ram killed:	24.0

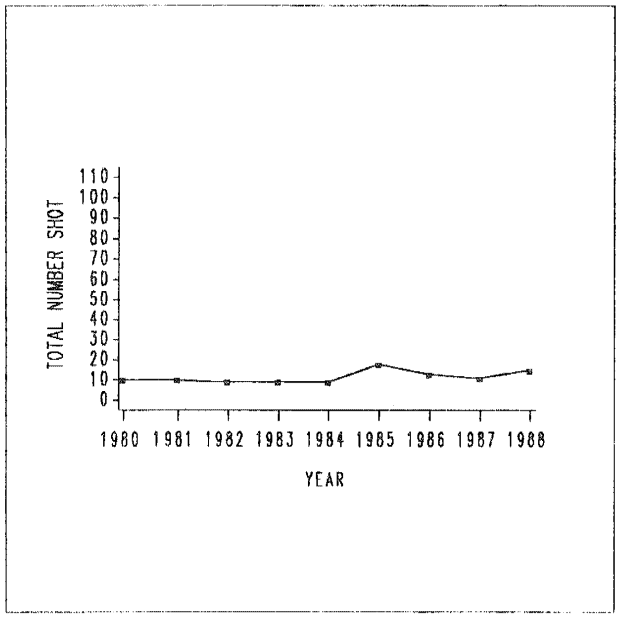


Figure 29a).

Number of rams shot, against year, in Zone 8.

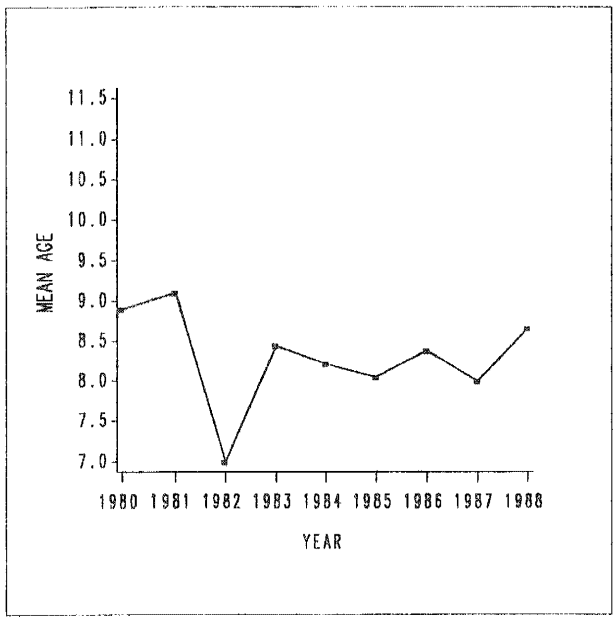


Figure 29b).

Mean age of rams shot, against year, in Zone 8.

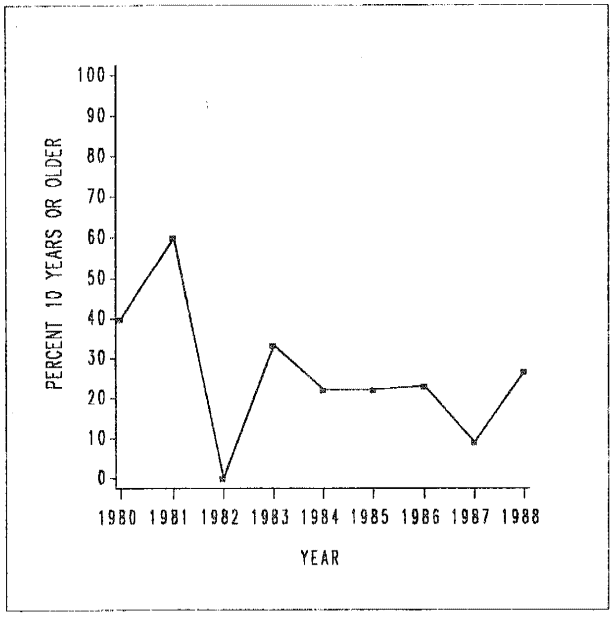


Figure 29c).

Proportion of rams shot which were at least 10 years old, against year, in Zone 8.

ZONE 9

Area description

Zone 9 is a small management zone abutting the B.C. border east of Zone 7 (Fig. 30). It falls primarily within the Lake Laberge Ecoregion and is characterized by dissected plateaus and rolling hills. It is drained by the Yukon and Teslin Rivers. Several large lakes, including Marsh, Tagish and Teslin Lakes lie within the area. Along the B.C. border on the western side of Zone 9 mountains are rugged, and massive, while further north and east broad valleys and rolling hills occur.

Annual precipitation ranges from less than 250 mm in the rainshadow of the Coast Mountains in the west to more than 325 mm at the eastern extent of the zone. Winter lasts for approximately 176 to 185 days.

Much of this zone lies below treeline. Fires have extensively affected the vegetation in this zone. Lodgepole pine is the most abundant tree species, with aspen, balsam poplar and black spruce also present. Alpine fir is found in the subalpine below 1200 to 1350 m a.s.l. Grassland occurs on steep, silty river banks and on low elevation, dry slopes.

Whitehorse, Carcross and Teslin (pop.409) all border this zone.

Sheep distribution and abundance

Sheep are resident to Grey Ridge (9-03), and Nares Mountain (9-05), and occasionally occur on Caribou, Lorne and White

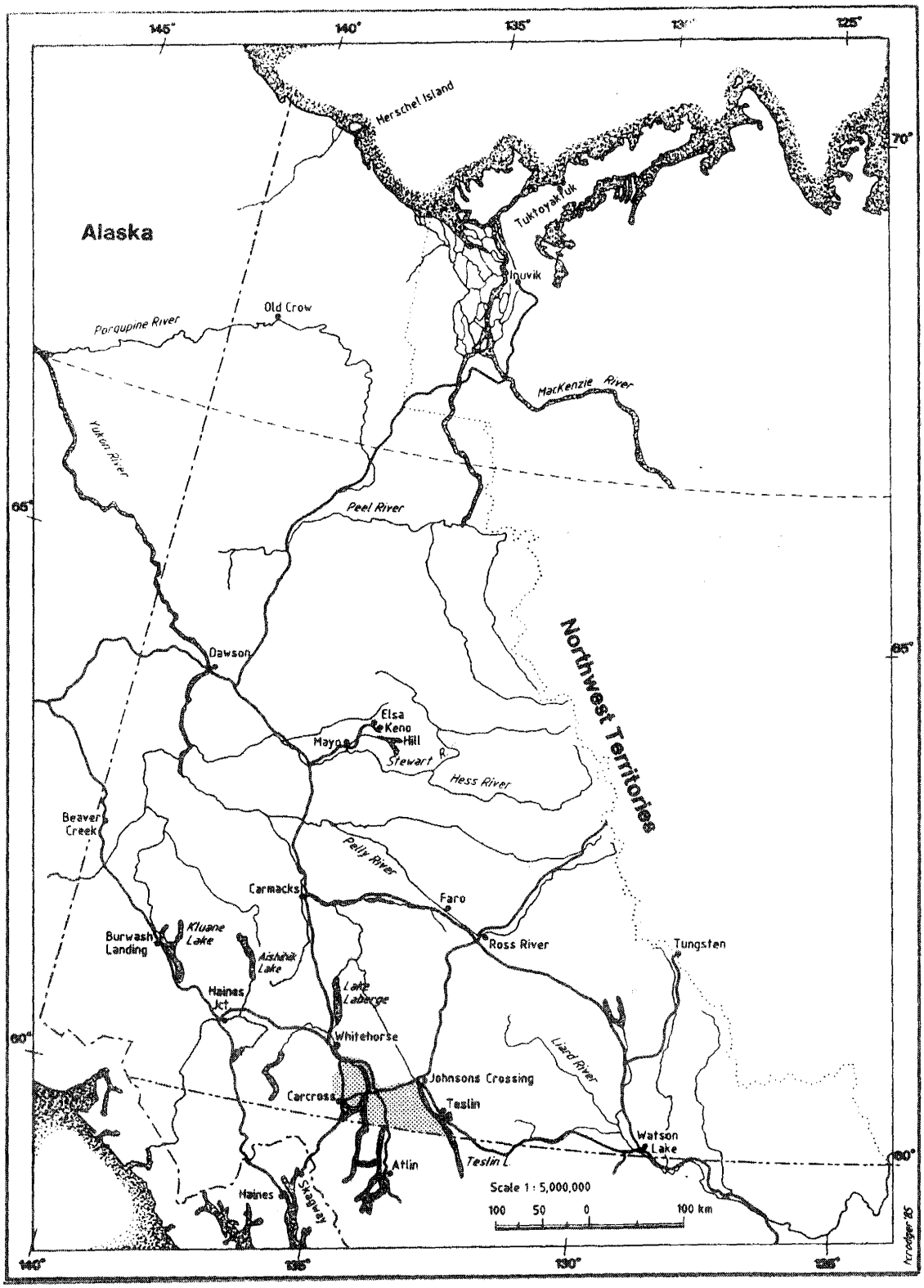


Figure 30. Location of Game Management Zone 9.

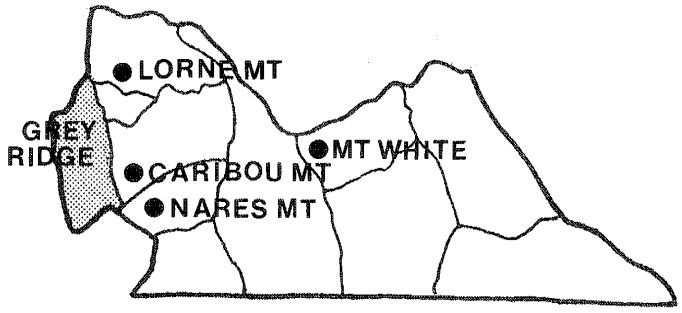


Figure 31a).

Known distribution of sheep in Zone 9.

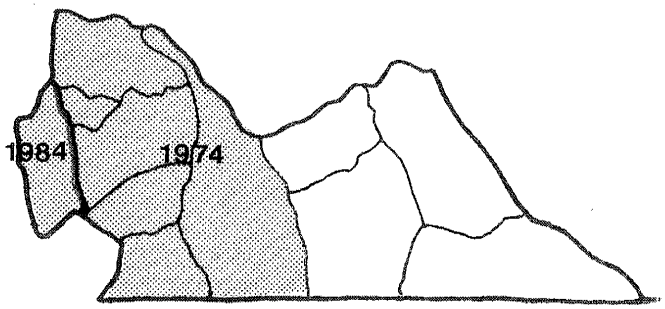


Figure 31b).

Areas where sheep have been systematically surveyed in Zone 9.

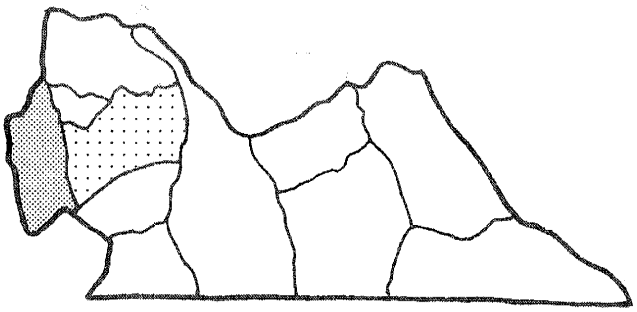


Figure 31c).

Estimated density of sheep in Zone 9.

Low
Medium
High
Very high

Mountains (Fig. 31). Systematic surveys have occurred periodically in Zone 9 since 1973. Grey Ridge (9-03) was regularly surveyed from 1978 to 1985.

Sheep hunting in Zone 9

Licensed sheep hunting in Zone 9 is limited to 10 limited-entry bowhunting permits in subzone 9-03. These restrictions on effort and firearms were put into place in 1986, prior to which hunting of sheep had been restricted since 1978. No sheep were reported killed on Grey Ridge from 1979 to 1988. Two sheep were poached below Caribou Mountain in 1986; no other records of sheep kills have been reported for Zone 9.

Table 8. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In Game Management Zone 9, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:

Residents:	0
Non-residents:	-
Total:	0

Age:

Average:	-
Median:	-
Percent 10 years or older:	-
Percent 8 years or older:	-

Horn measurements (or the longest horn):

Average total length:	-
Maximum total length:	-
Percent broomed:	-
Percent 40" or greater:	-

Other characteristics:

Percent Dall:	-
Percent Fannin:	-
Percent Stone:	-

Hunter Effort and Success:

Average number of hunters:	9.0
Average number of days hunted:	14.2
Average number of days hunted per hunter:	1.6
Average number of days per ram killed:	-

ZONE 10

Three ecological regions have been defined in Zone 10, including the Lake Laberge, Pelly Mountains and Liard River Ecoregions (Fig. 32). The zone is dominated by four mountain regions; the Cassiar and Pelly Mountains, and the Thirty-mile and Englishman Ranges, and is drained by the Wolf, Rancheria, Liard, and Pelly Rivers. The Liard River Ecoregion is largely a timbered lowland surrounded by low elevation plateaus. The Pelly Mountains are continuous, rugged, rocky mountains. The Cassiar, Englishman and Thirty Mile Mountains are rocky, weathered high elevation blocks surrounded by forested rolling terrain and broad lowlands.

Much of the zone is above treeline at 1350 to 1500 m a.s.l. Alpine vegetation in the eastern half of the Cassiar Mountains is sparse and talus is common. Alpine pastures in the western Cassiars, Pelly, and Englishman Mountains appear lush. Alpine Fir is common in the subalpine, treeline is high and alpine vegetation is predominantly moss, willows and ericaceous shrubs.

There is a precipitation cline to the northeast. The Pellys receive between 500-700 mm, while the Thirty-mile, Englishman and Cassiar Mountains receive less than 500 mm per year. Winter persists for an estimated 180 to 200 days.

Sheep have occurred in all four mountain blocks, however their distribution is scattered, and likely controlled by snow conditions and the availability of escape terrain. Ross River, Teslin and Watson Lake (pop. 1744) lie on the border of Zone 10.

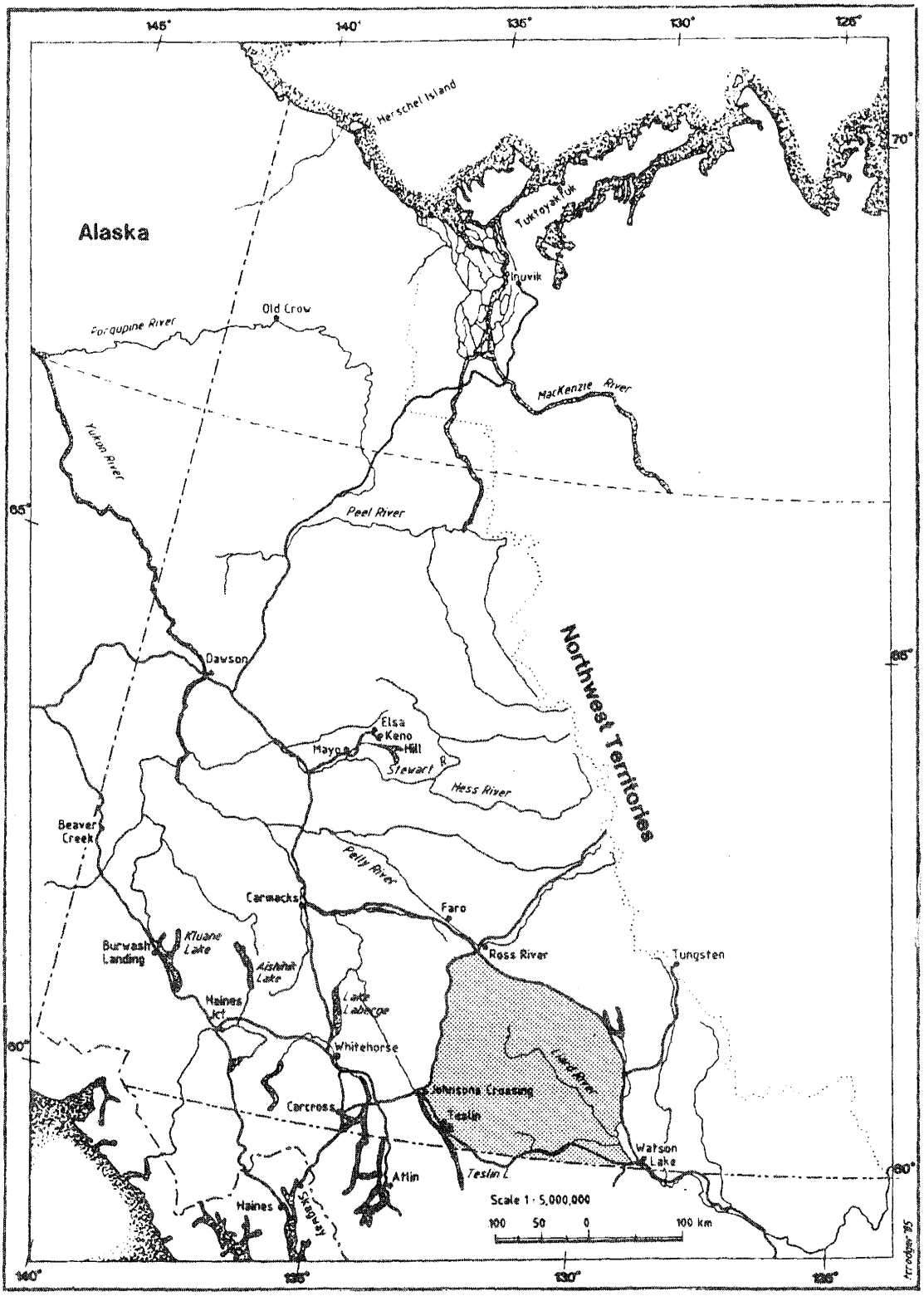


Figure 32. Location of Game Management Zone 10.

Sheep distribution and abundance

Systematic sheep surveys were conducted in Zone 10 in 1976 and 1977. Since that time, systematic surveys have been completed in the vicinity of the Ketza River Road, and the Ketza Mine-site, in the Wolverine Lake area, and in the eastern portion of the Cassiar Mountains in Zone 10. Incomplete, superficial surveys have been carried out in the Porcupine/Ram Creek area, and the Thirty-Mile Range, since 1977.

Sheep, mostly Stone and Fannin, are found in the Pelly and Cassiar Mountains. In the Pelly Mountains sheep are most common in the north-west portion of Zone 10 (Fig. 33). However, a small population resides in the Wolverine Lake area. In the Thirty-Mile and Englishman ranges of the Pelly Mountains, small groups of sheep have been periodically observed (D. Dennison, pers. comm.), however, they are thought to be periodic migrants to the area (T. Smith, pers. comm.). In the Cassiar Mountains a small population of largely Stone sheep is centred at the head of the Meister River.

There are an estimated 800 non-lamb sheep in the entire Zone 10.

Sheep hunting in Zone 10

The characteristics of the average licensed harvest of sheep in Zone 10 is presented in Table 9. Trends in the number of sheep shot and age are shown in Fig. 34. Resident hunting effort and success is presented in Table 9.

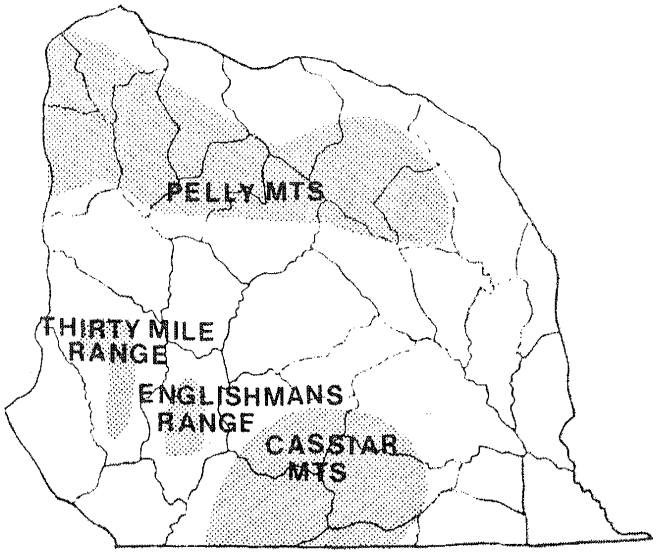


Figure 32a).

Known distribution of sheep in Zone 10.

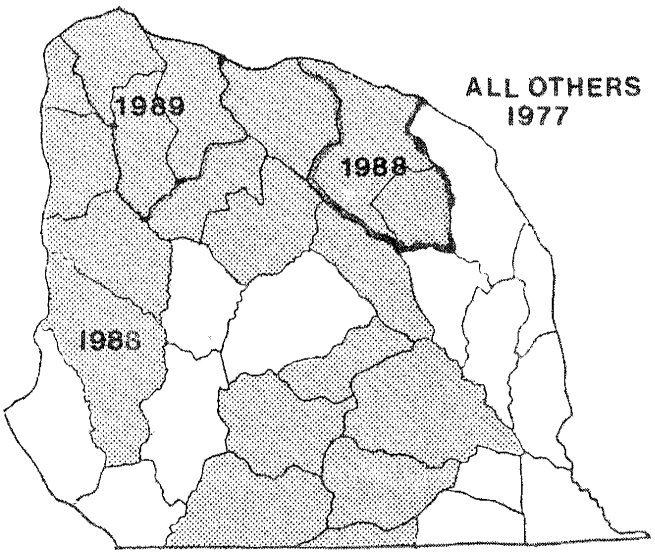


Figure 32b).

Areas where sheep have been systematically surveyed in Zone 10.

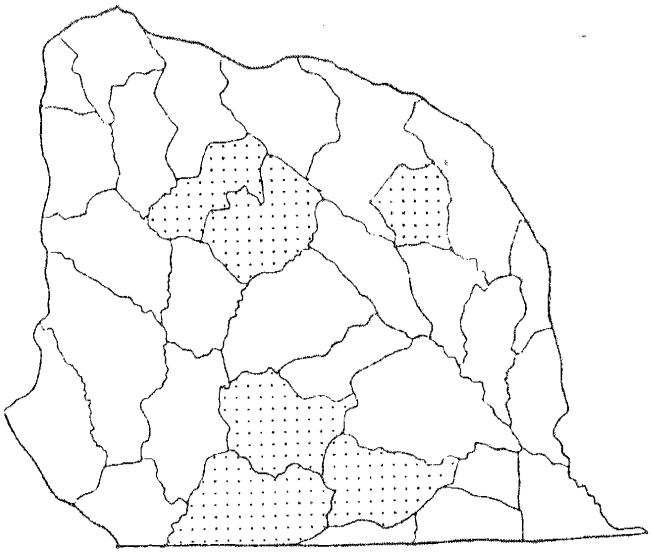


Figure 32c).

Estimated density of sheep in Zone 10.

Low

Medium

High

Very high

Table 9. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In Game Management Zone 10, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:

Residents:	2.2
Non-residents:	6.8
Total:	9.0

Age:

Average:	8.6
Median:	9
Percent 10 years or older:	30.6
Percent 8 years or older:	74.0

Horn measurements (or the longest horn):

Average total length:	35.5
Maximum total length:	41.3
Percent broomed:	33.3
Percent 40" or greater:	4.2

Other characteristics:

Percent Dall:	5.9
Percent Fannin:	50.0
Percent Stone:	44.1

Hunter Effort and Success:

Average number of hunters:	19.1
Average number of days hunted:	74.1
Average number of days hunted per hunter:	3.9
Average number of days per ram killed:	32.9

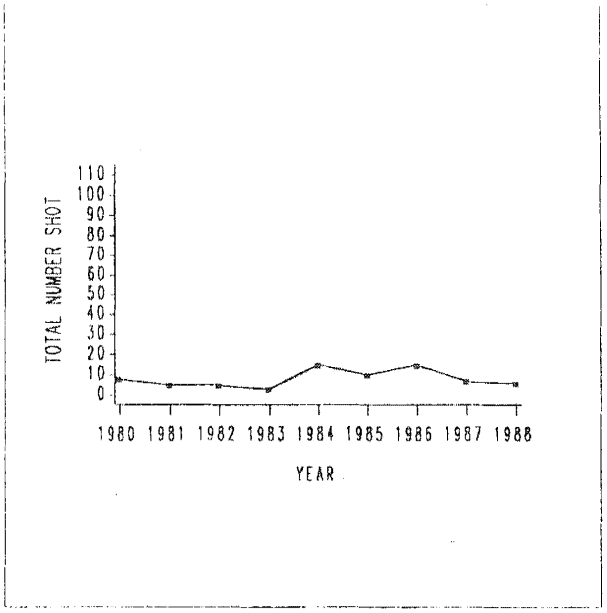


Figure 34a).

Number of rams shot, against year, in Zone 10.

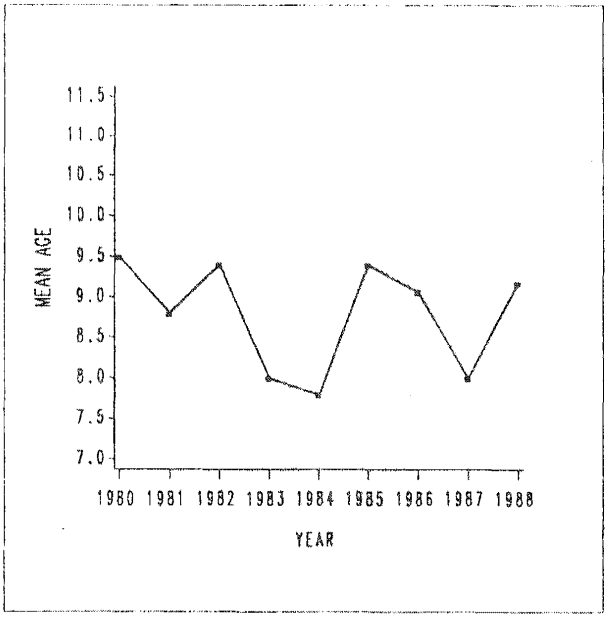


Figure 34b).

Mean age of rams shot, against year, in Zone 10.

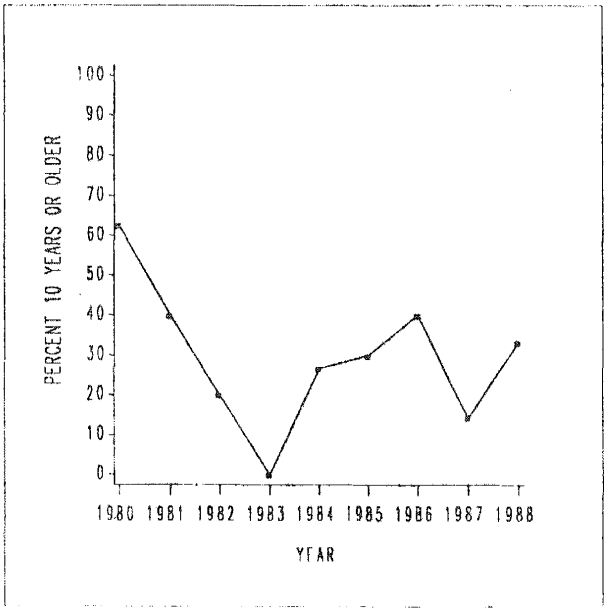


Figure 34c).

Proportion of rams shot which were at least 10 years old, against year, in Zone 10.

ZONE 11

Area description

Biogeoclimatic characteristics in Zone 11 are diverse. Four ecological regions are recognized in this area, including the Liard River, Beaver River, Logan Mountains and Itsi Range (see Fig. 2). The area is drained by the Beaver, Liard, Hyland, Francis, Pelly and Stewart Rivers (Fig. 35). The Beaver River region in the southeast corner of Zone 11 is of relatively low relief with rolling hills and broad plateaus. Alpine areas are sparse. The Logan and Itsi Mountains are high elevation, most above 1500 m a.s.l., with rugged, wet mountains, and frequently capped with permanent ice-fields.

Alpine regions are lush and dominated by ericaceous shrubs and willows, above a treeline at 1350-1500 m a.s.l. Some of the flora occurring in the Logan Mountains is characteristic of coastal habitats in the southwest Yukon. Forbs are relatively uncommon.

Temperatures in the region average -6 to -9° C, annually with a wide range between summer and winter temperatures. Approximately 600 to 800 mm of precipitation falls over much of Zone 11, with the wetter areas along the rugged backbone ranges of the MacKenzie/Logan Mountains. Watson Lake and Ross River lie on the zone boundary.

Sheep habitat in Zone 11 is poor and restricted to the southeast, likely controlled by snowfall.

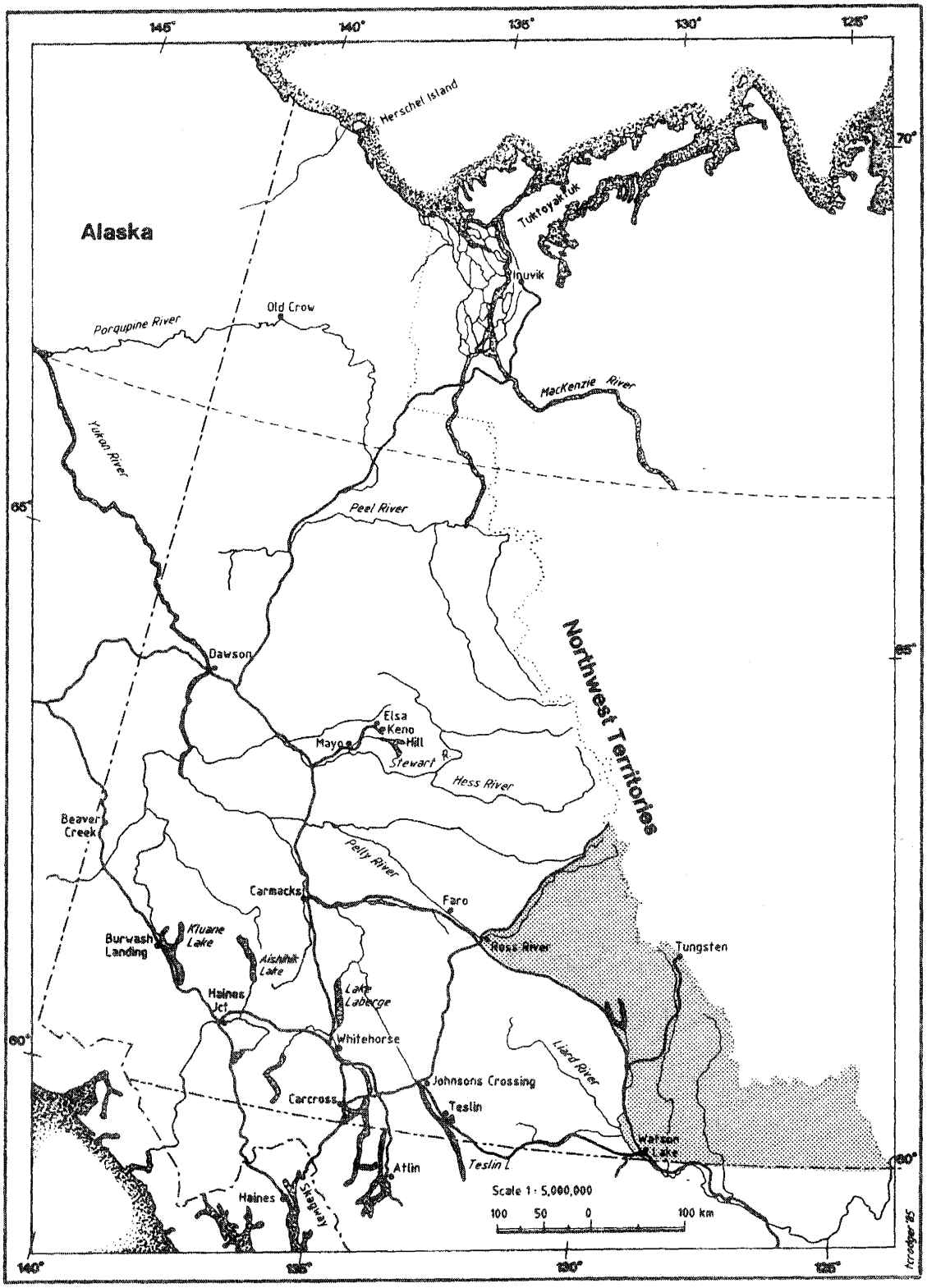


Figure 35. Location of Game Management Zone 11.

Sheep distribution and abundance

Sheep are uncommon in Zone 11. A small population of primarily Dall sheep resides in the south-east portion of Zone 11 (Fig. 36). A female with lamb was seen this year in the Mt. Hundere area. Infrequent sightings of sheep have been reported in the Anderson Lake area, and the north-eastern edge of the Logan Mountains near the Yukon/NWT border. A ewe and lamb stone sheep were observed near Mt. Hundere in 1989. There are an estimated 130 non-lamb sheep in Zone 11.

Sheep hunting in Zone 11

Average sheep hunting statistics and trends in the number and age of the licensed harvest are presented in Table 10 and Figure 37.

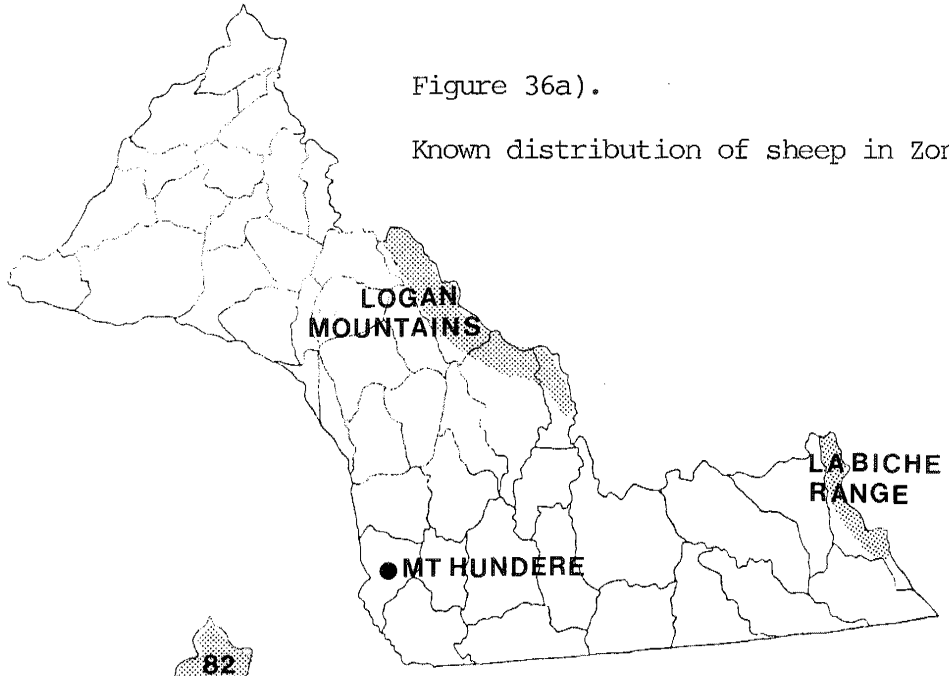


Figure 36a).

Known distribution of sheep in Zone 11.

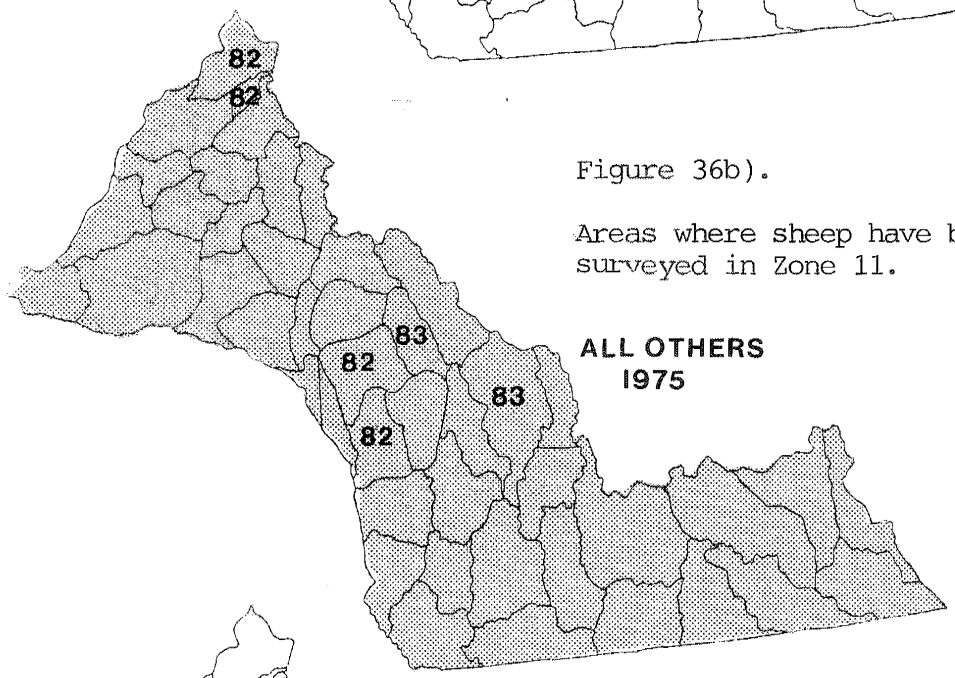


Figure 36b).

Areas where sheep have been systematically surveyed in Zone 11.

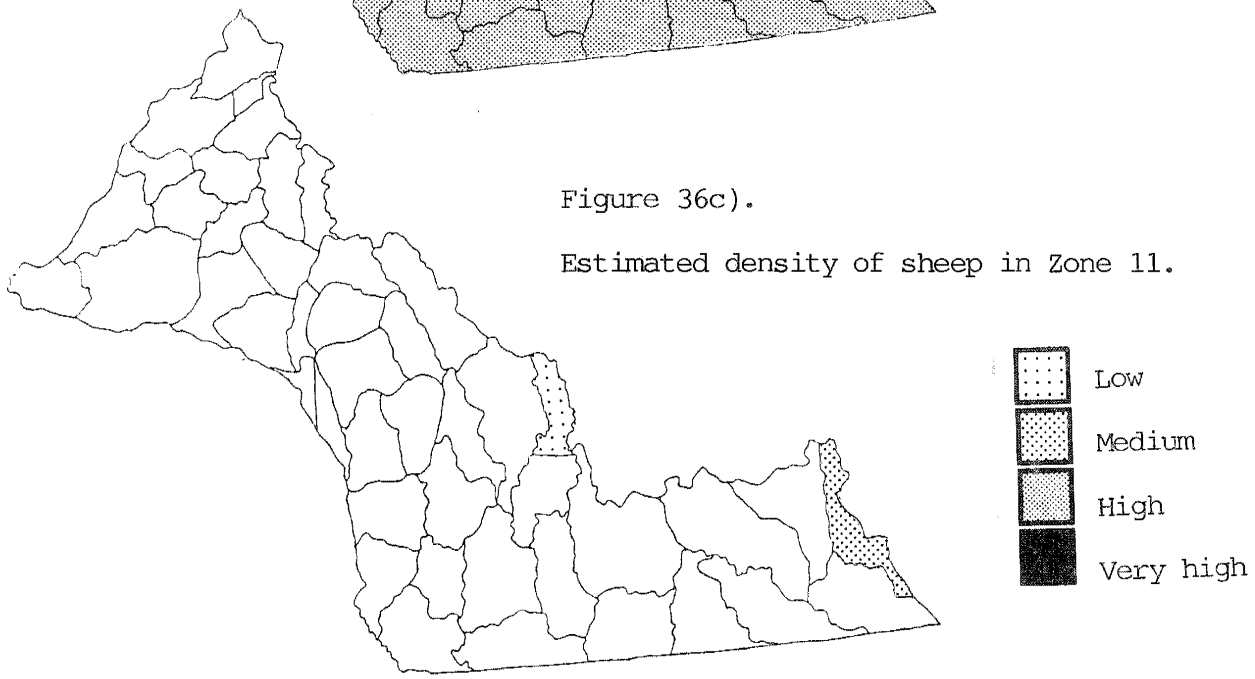


Figure 36c).

Estimated density of sheep in Zone 11.

Table 10. Characteristics of the annual sheep harvest by licensed hunters, and sheep hunting effort and success of resident hunters. In Game Management Zone 11, 1979-1988.

Characteristics of the licensed ram harvest

Average number shot per year by:

Residents:	0.1
Non-residents:	2.0
Total:	2.1

Age:

Average:	9.4
Median:	9
Percent 10 years or older:	41.2
Percent 8 years or older:	83.3

Horn measurements (or the longest horn):

Average total length:	35.5
Maximum total length:	42.0
Percent broomed:	29.4
Percent 40" or greater:	5.9

Other characteristics:

Percent Dall:	88.2
Percent Fannin:	11.8
Percent Stone:	0

Hunter Effort and Success:

Average number of hunters:	4.7
Average number of days hunted:	27.7
Average number of days hunted per hunter:	5.9
Average number of days per ram killed:	221.6

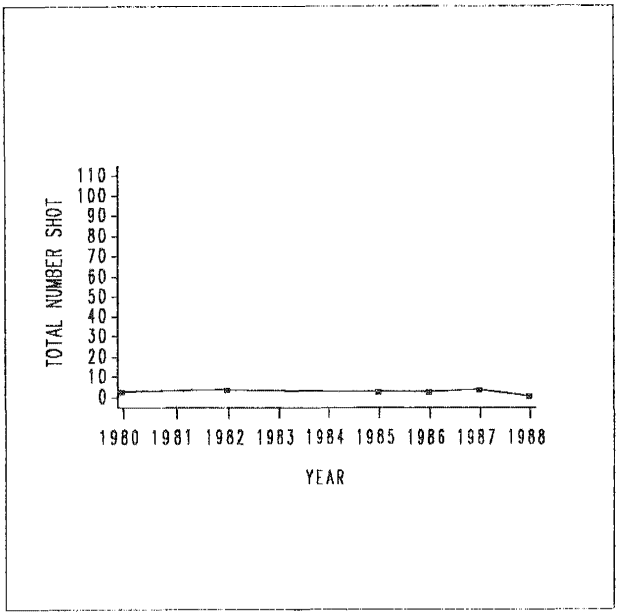


Figure 37a).

Number of rams shot, against year, in Zone 11.

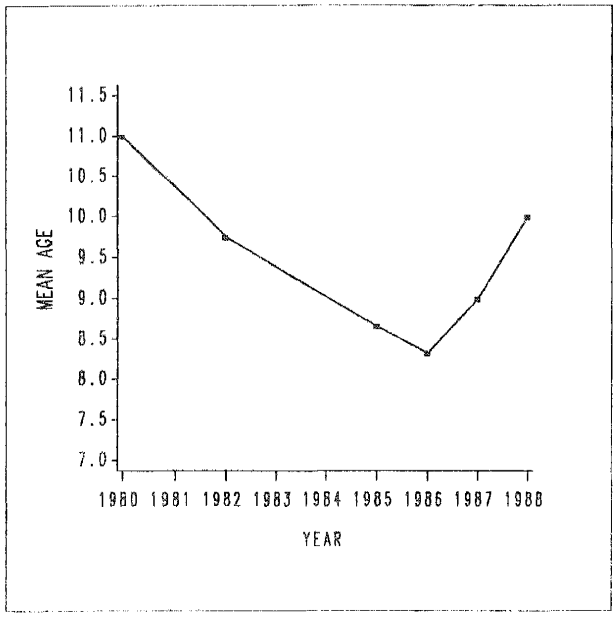


Figure 37b).

Mean age of rams shot, against year, in Zone 11.

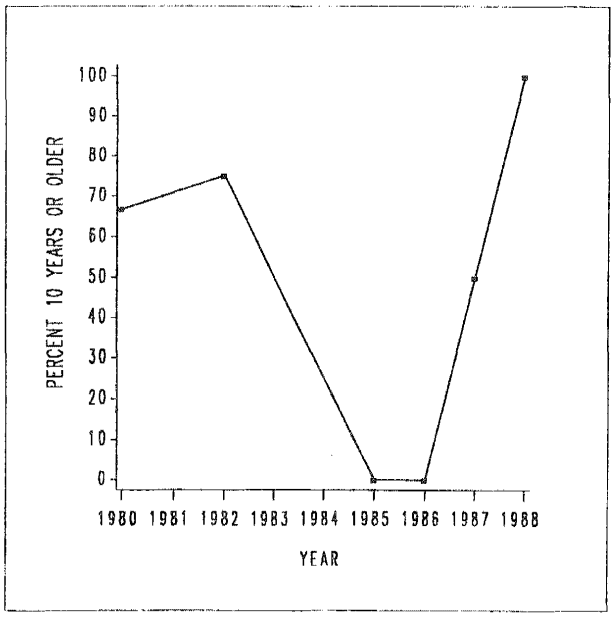


Figure 37c).

Proportion of rams shot which were at least 10 years old, against year, in Zone 11.

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Appendix 1. **Yukon Biological Submission Form**

Yukon
Department of Renewable Resources

YUKON BIOLOGICAL SUBMISSIONS

8003

SPECIES: 1 SHEEP; 2 GOAT; 3 GRIZZLY BEAR; 4 BLACK BEAR; 5 MOOSE; 6 CARIBOU; 7 OTHER (SPECIFY)

KILL TYPE: 1 OPEN SEASON; 2 QUOTA; 3 PERMIT; 4 ROAD KILL; 5 FOUND IN FIELD; 6 CONFISCATED; 7 ANIMAL CONTROL; 8 OTHER (SPECIFY)

RECORDER'S NAME _____ LOCATION _____ YEAR MON DAY

HUNTER INFORMATION

1 RESIDENT
2 NON-RESIDENT

LICENCE NUMBER | SEAL NUMBER | PERMIT OR QUOTA NO IF APPLICABLE | OUTFITTER NAME | AREA

HUNTER'S LAST NAME | ADDRESS

KILL INFORMATION

ZONE | SUB ZONE | SPECIFIC LOCATION

HABITAT: 1 ALPINE; 2 SUB-ALPINE; 3 FOREST; 4 WET MEADOW; 5 RIVER SIDE; 6 LAKE SHORE; 7 DUMP; 8 ROAD; 9 OTHER (SPECIFY)

KILL DATE: YEAR MON DAY HOUR

DAYS HUNTED FOR SPECIES IN CURRENT YEAR

AGE

CONFIDENCE IN AGE: GOOD 1, FAIR 2, POOR 3

SEX OF ANIMAL: 1 MALE; 2 FEMALE

TOOTH OR JAW SUBMITTED: 1 YES; 2 NO

REPROTRACT OR BACULUM SUBMITTED: 1 YES; 2 NO

PELT EXAMINED: 1 YES; 2 NO

PHOTO TAKEN? 1 YES; 2 NO

FOLLOW-UP CORRESPONDENCE: 1 YES; 2 NO (SPECIFY)

SPECIMEN: 1 KEEP; 2 RETURN; 3 N/A

SHEEP AND GOATS

TOTAL LENGTH
BASE CIRCUM
TIP SPREAD

MEASURE LONGEST HORN

	LENGTH	CIRCUMFERENCE
TIP TO 1ST		
TIP TO 2ND		
TIP TO 3RD		
TIP TO 4TH		
TIP TO 5TH		
TIP TO 6TH		
TIP TO 7TH		
TIP TO 8TH		
TIP TO 9TH		
TIP TO 10TH		
TIP TO 11TH		
TIP TO 12TH		
TIP TO 13TH		
TIP TO 14TH		
TIP TO 15TH		
TIP TO 16TH		

SHEEP ONLY

BODY COLOR: 1 WHITE; 2 FAWN (GREY); 3 DARK

TAIL COLOUR: 1 WHITE; 2 DARK

HORN MEASURED: 1 RIGHT; 2 LEFT

LENGTH TO THIRD ANNULI ON SHORT SIDE

PLUG NUMBER

BEARS ONLY

COLOUR OF UPPER SIDE: 1 BROWN; 2 BLONDE; 3 BLACK; 4 SILVER TIP; 5 LIGHT BROWN

CONDITION OF PELAGE: 1 NORMAL; 2 RUBBED

RUMP FAT (OF BEAR): 1 NONE; 2 0" TO 1"; 3 OVER 1"

TEETH WEAR: 1 NO WEAR; 2 INCISORS ONLY; 3 SOME WEAR ON MOLARS; 4 HEAVY WEAR ON MOLARS

SKULL MEASUREMENTS (IN MILLIMETERS)

SKULL LENGTH — 1 FLESH ON
ZYGOMATIC WIDTH — 2 FLESH OFF

GRIZZLY ONLY FRONT CLAW COLOUR: 1 LIGHT; 2 DARK; 3 BOTH

COMMENTS (ALL SPECIES)

COPY DISTRIBUTION:
1. YELLOW - DATA PROCESSING COPY
2. WHITE - DISTRICT C.O.
3. PINK - APPROPRIATE BID
4. GREEN - HUNTER
5. GREEN - OUTFITTER

YG(1784) NCS REV. 2/85

DATA PROCESSING COPY

Appendix 2. **Yukon Resident Hunter Questionnaire Form**

Yukon
Renewable Resources

Dear Hunter,

Management of Yukon wildlife depends on the co-operation of all hunters. This form requests information about your hunting activities. PLEASE COMPLETE & RETURN THIS FORM EVEN IF YOU DID NOT HUNT THIS PAST SEASON. Only answer questions about game species which you hunted. Report only your own kills. Please indicate all locations you hunted, the Game Management Subzone (eg. GMS 7-99) and the number of days you hunted there. Then, if you shot an animal, please specify the location, type of kill and kill date. PLEASE NOTE: HUNT LOCATIONS ARE CONFIDENTIAL.

Thank you.

A Moose Hunting 1987

1. DID YOU HUNT MOOSE IN 1987 ? YES☐ NO☐ IF 'NO', GO TO SECTION B

2. WHERE DID YOU HUNT MOOSE? (Distance and direction to nearest landmark)	GMS	GMS	GMS	GMS	3. HOW MANY DAYS DID YOU HUNT THERE? in Aug.	in Sept.	in Oct.

4. DID YOU KILL A MOOSE IN 1987 ? YES☐ NO☐ IF 'NO' GO TO SECTION B

5. WHERE DID YOU KILL YOUR MOOSE? (Distance and direction to nearest landmark)	GMS	6. TYPE OF KILL BULL	COW	CALF	7. KILL DATE? Month	Day
		☐	☐	☐		

B Caribou Hunting 1987

1. DID YOU HUNT CARIBOU IN 1987 ? YES☐ NO☐ IF 'NO', GO TO SECTION C

2. WHERE DID YOU HUNT CARIBOU? (Distance and direction to nearest landmark)	GMS	GMS	GMS	GMS	3. HOW MANY DAYS DID YOU HUNT THERE? Aug.	Sept.	Oct.	Nov.	Dec.	Jan.

4. DID YOU KILL A CARIBOU IN 1987 ? YES☐ NO☐ IF 'NO', GO TO SECTION C

5. WHERE DID YOU KILL YOUR CARIBOU? (Distance and direction to nearest landmark)	GMS	6. TYPE OF KILL Bull	Cow	7. KILL DATE? Month	Day
		☐	☐		
		☐	☐		

C Sheep Hunting 1987

1. DID YOU HUNT SHEEP IN 1987 ? YES☐ NO☐ IF 'NO', GO TO SECTION D

2. WHERE DID YOU HUNT SHEEP? (Distance and direction to nearest landmark)	GMS	GMS	GMS	GMS	3. HOW MANY DAYS DID YOU HUNT THERE? in Aug.	in Sept.	in Oct.

4. DID YOU KILL A SHEEP IN 1987 ? YES☐ NO☐ IF 'NO', GO TO SECTION D

5. WHERE DID YOU KILL YOUR SHEEP? (Distance and direction to nearest landmark)	GMS	6. TYPE OF KILL	7. KILL DATE Month	Day
		Full Curl ☐		

D Wolf, Wolverine & Coyote Hunting 1987

NOTE: THIS SECTION IS FOR NON-TRAPPERS ONLY. PLEASE INCLUDE ALL ANIMALS KILLED SINCE JANUARY.

1. DID YOU HUNT WOLF YES☐NO☐, WOLVERINE YES☐NO☐, OR COYOTE YES☐NO☐ IN 1987?

2. WHERE DID YOU HUNT? (GENERAL LOCATION)	GMS	GMS	GMS	3. How many did you take ? Wolf	Wolverine	Coyote	4. Kill month Wolf	Wolverine	Coyote

E Goat Hunting 1987

1. DID YOU HUNT GOAT IN 1987? YES ☐ NO ☐ IF 'NO', GO TO SECTION F

2. WHERE DID YOU HUNT GOATS? (Distance and direction to nearest landmark)	GMS	GMS	GMS	GMS	3. HOW MANY DAYS DID YOU HUNT THERE? in Aug.	in Sept.	in Oct.

4. DID YOU KILL A GOAT IN 1987? YES ☐ NO ☐ IF 'NO', GO TO SECTION F

5. WHERE DID YOU KILL YOUR GOAT? (Distance and direction to nearest landmark)	GMS	6. TYPE OF KILL? BILLY	NANNY	7. KILL DATE? Month	Day
		☐	☐		

F Grizzly Bear Hunting 1987

1. DID YOU HUNT GRIZZLY BEAR IN 1987? YES ☐ NO ☐ IF 'NO', GO ON TO SECTION G

2. WHERE DID YOU HUNT GRIZZLY BEAR? (Distance and direction to nearest landmark)	GMS	GMS	GMS	GMS	3. HOW MANY DAYS DID YOU HUNT THERE? in Spring	in Aug.	in Sept.	in Oct.

4. DID YOU KILL A GRIZZLY BEAR IN 1987? YES ☐ NO ☐ IF 'NO', GO TO SECTION G

5. WHERE DID YOU KILL YOUR GRIZZLY BEAR? (Distance and direction to nearest landmark)	GMS	6. TYPE OF KILL? BOAR	SOW	7. KILL DATE? Month	Day
		☐	☐		

G Black Bear Hunting 1987

1. DID YOU HUNT BLACK BEAR IN 1987? YES ☐ NO ☐ IF 'NO', GO TO SECTION H

2. WHERE DID YOU HUNT BLACK BEAR? (Distance and direction to nearest landmark)	GMS	GMS	GMS	GMS	3. HOW MANY DAYS DID YOU HUNT THERE? in Spring	in Aug.	in Sept.	in Oct.

4. DID YOU KILL A BLACK BEAR IN 1987? YES ☐ NO ☐ IF 'NO', GO TO SECTION H

5. WHERE DID YOU KILL YOUR BLACK BEAR? (Distance and direction to nearest landmark)	GMS	6. TYPE OF KILL? BOAR	SOW	7. KILL DATE? Month	Day
		☐	☐		
		☐	☐		

H Upland Game Bird Hunting 1987

1. DID YOU HUNT UPLAND GAME BIRDS IN 1987? YES ☐ NO ☐ IF 'NO', GO TO SECTION I
2. DID YOU HUNT UPLAND GAME BIRDS WHILE BIG GAME HUNTING? YES ☐ NO ☐
3. DID YOU USE A BIRD DOG WHILE HUNTING? YES ☐ NO ☐

4. WHERE DID YOU HUNT UPLAND GAME BIRDS? (General location)	GMS	GMS	GMS	5. # OF DAYS	6. HOW MANY DID YOU BAG THERE? Spruce Grouse	Blue Grouse	Ruffed Grouse	Sharp Tailed Grouse	Ptarmigan	Unidentified Grouse

I Migratory Game Bird Hunting 1987

1. DID YOU HUNT MIGRATORY GAME BIRDS IN 1987? YES ☐ NO ☐
2. DID YOU HUNT MIGRATORY GAME BIRDS WHILE BIG GAME HUNTING? YES ☐ NO ☐
3. DID YOU USE A BIRD DOG WHILE HUNTING? YES ☐ NO ☐

4. WHERE DID YOU HUNT MIGRATORY GAME BIRDS? (Waterbody)	GMS	GMS	GMS	5. # OF DAYS	6. How many did you bag there? DUCKS	GEESE	SNIPE

Please return this form. Thank You.