

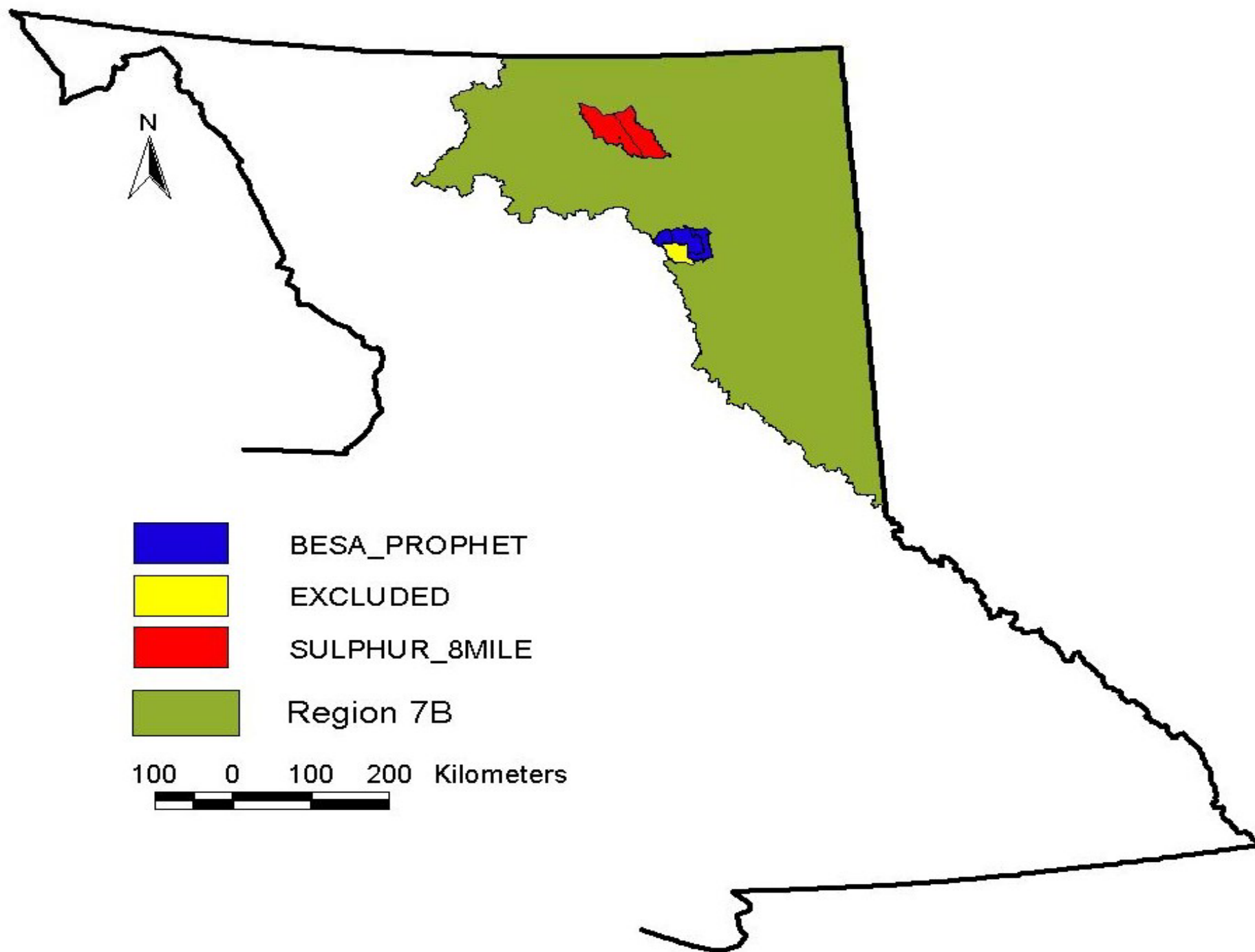
Stone's Sheep Situation in NE BC





Presentation of Preliminary Results

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-  BESA_PROPHET
-  EXCLUDED
-  SULPHUR_8MILE
-  Region 7B

100 0 100 200 Kilometers



The Literature Review

Category	Bighorn	Thinhorn	Total
Existing Research		24	24
Habitat	5	19	25
Population	3	14	18
Predation	4	13	18
Health	1	16	18
Disturbance & Management	22	13	41
Total	37	105	154

Existing Research --

comprehensive, multi-year, baseline collections

- 6 projects identified:
 - K. Parker: UNBC ongoing
 - Peace Williston: ongoing
 - Seip 1983
 - Hoefs and Cowan 1979
 - Luckhurst 1973
 - Geist 1971

Existing Research

- Stone's sheep study plan – baseline study objectives:
 1. To define habitat use and selection by Stone's Sheep
 2. To assess health of northern sheep herds
 3. To quantify levels and causes of mortality in sheep, adults and juveniles
 4. To assess population status of sheep
 5. To determine movements and resource selection by predators
 6. To define the influence of factors in optimum foraging strategies

Existing Research, what have we gained?

	Obj. 1 Habitat	Obj. 2 Health	Obj. 3 Mortality	Obj. 4 Population Status	Obj. 5 Predators	Obj. 6 Foraging Strategies
Depth of Understanding (Summary of all projects)	High to V-High	Nil to Low	Low to Moderate	Low	Moderate to Low	High to V-High

Research projects were assessed against the 6 objectives for understanding learned: Nil, Low, Moderate, High, V-High

Population Status

- data from 15 ground and aerial inventories between 1969 and 2004 were acquired; survey objectives, survey effort, survey area, and survey intensity varied
- All data was for areas in or in close proximity to the Besa Prophet Pre-tenure area or the Sulphur 8 Mile Pre-tenure area
 - Excluding Peace Williston Study.

Data – how far back did we really look?

WINTER SURVEY REPORT

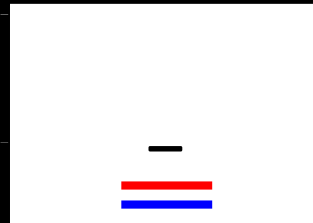
A. R. D. A. WILDLIFE INVENTORY

WINTER 1969/70

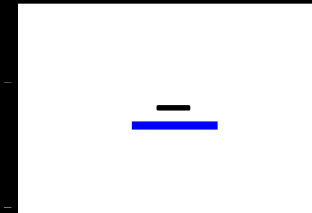
A. LUCKHURST

Population demographics

$n = 12$



$n = 8$



Sulphur8 Mile



Besa Prophet



Total Count of Sheep Observations

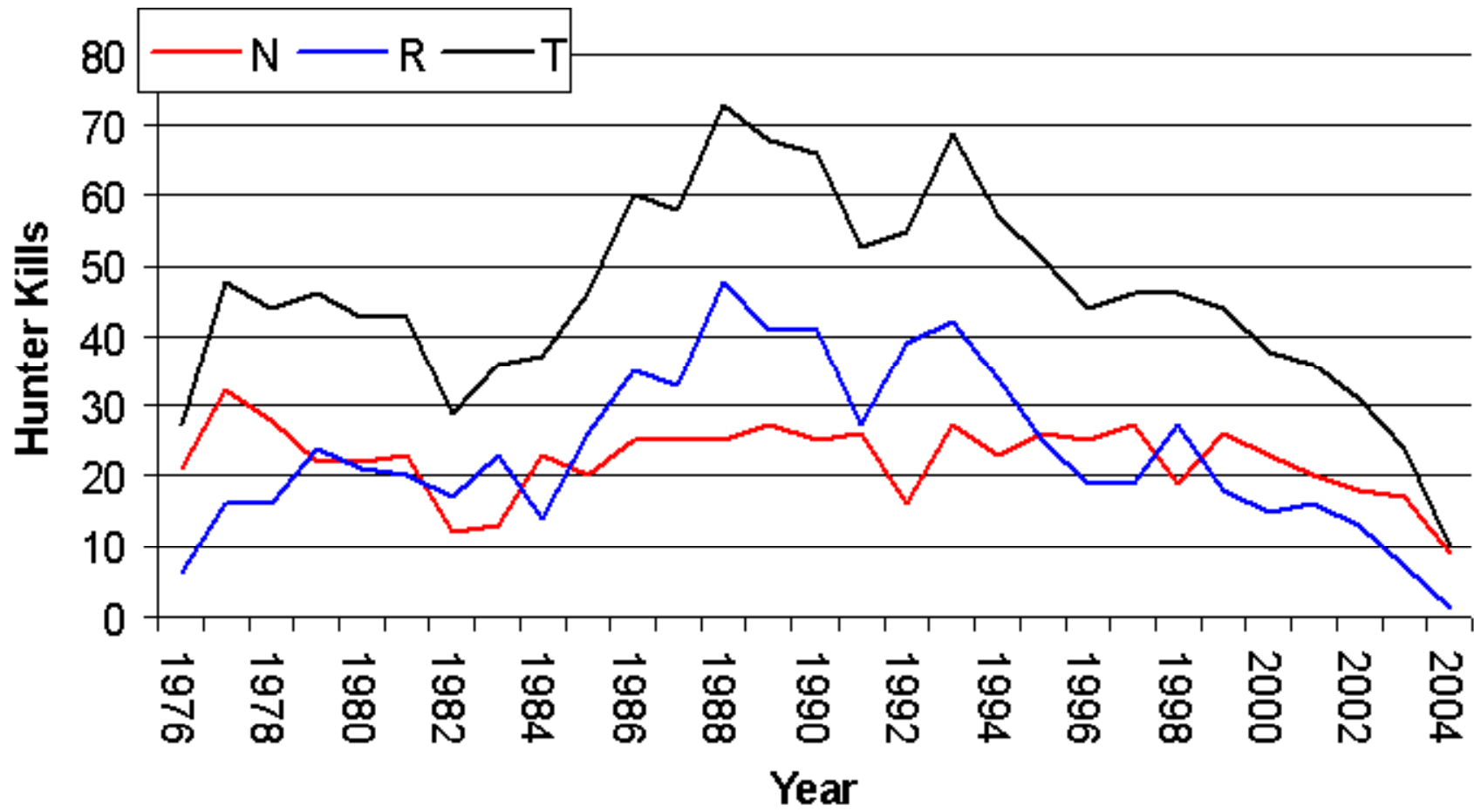
Pre-tenure Area	Year	Count
S8M	1977	997
S8M	2004	888

Besa Prophet	1994	536
Besa Prophet	2002	543

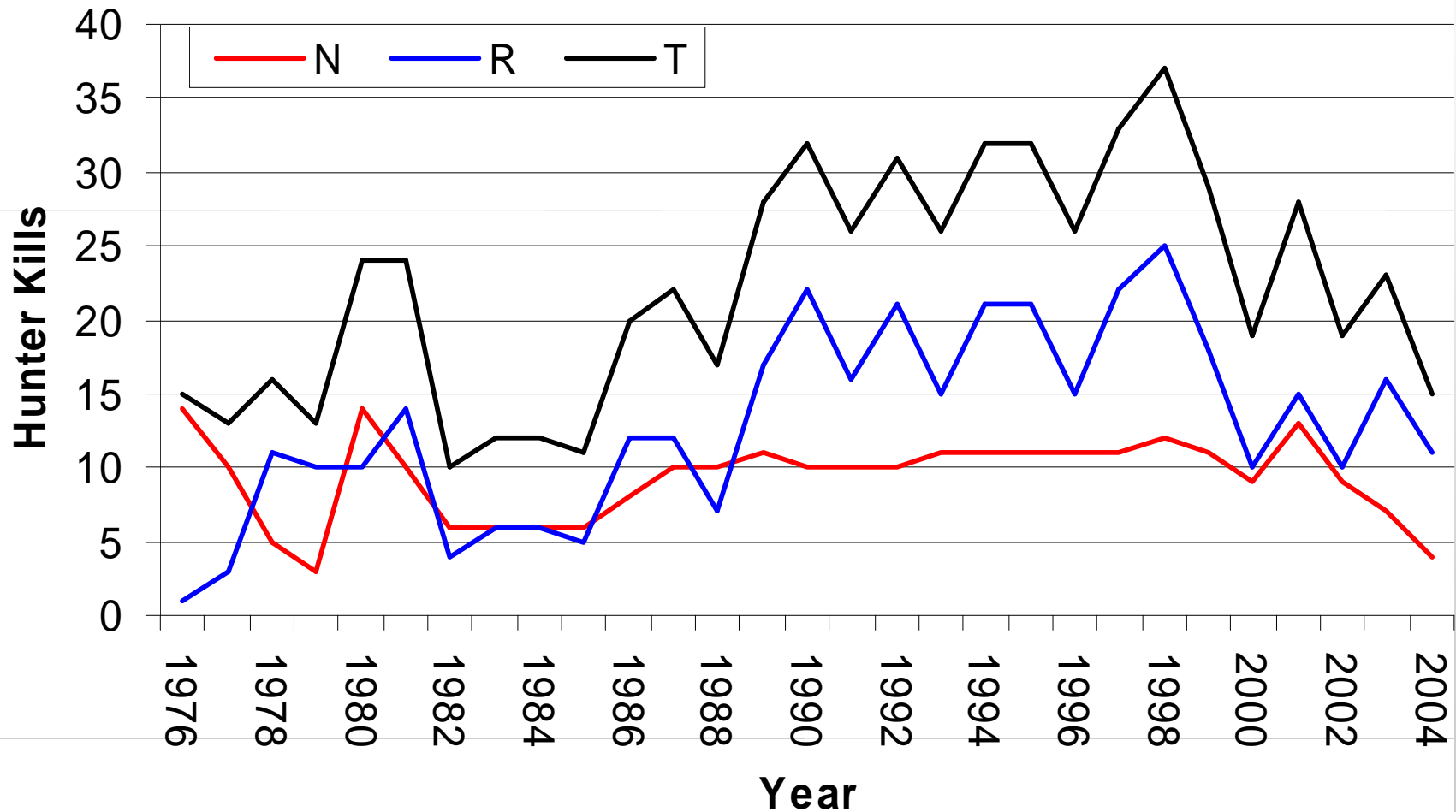
Compulsory Inspection Data – Region 7B



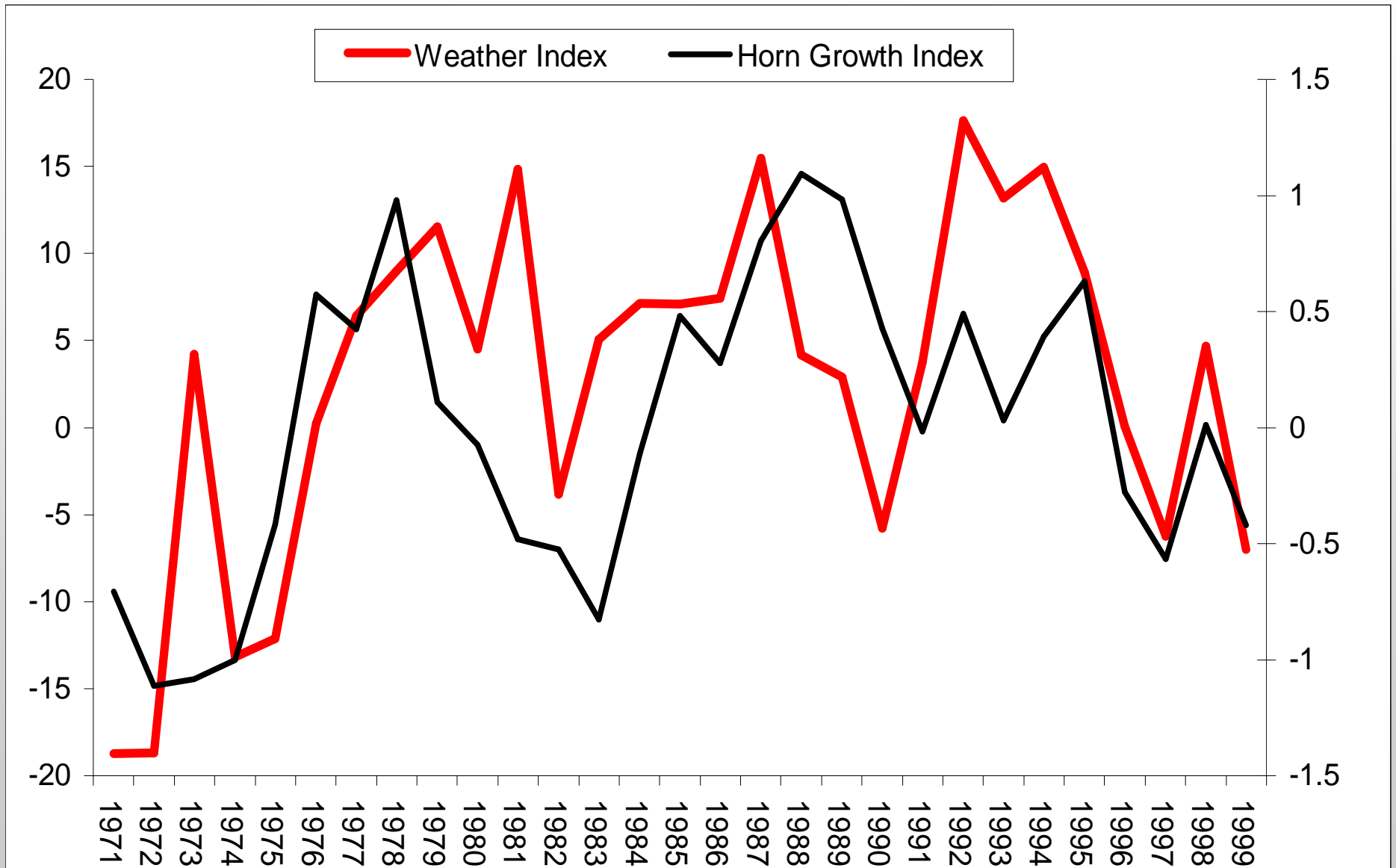
Compulsory Inspection Data – MU 7-42 (Besa Prophet)



Compulsory Inspection Data – MU 7-54 (S8M)



Weather and Productivity



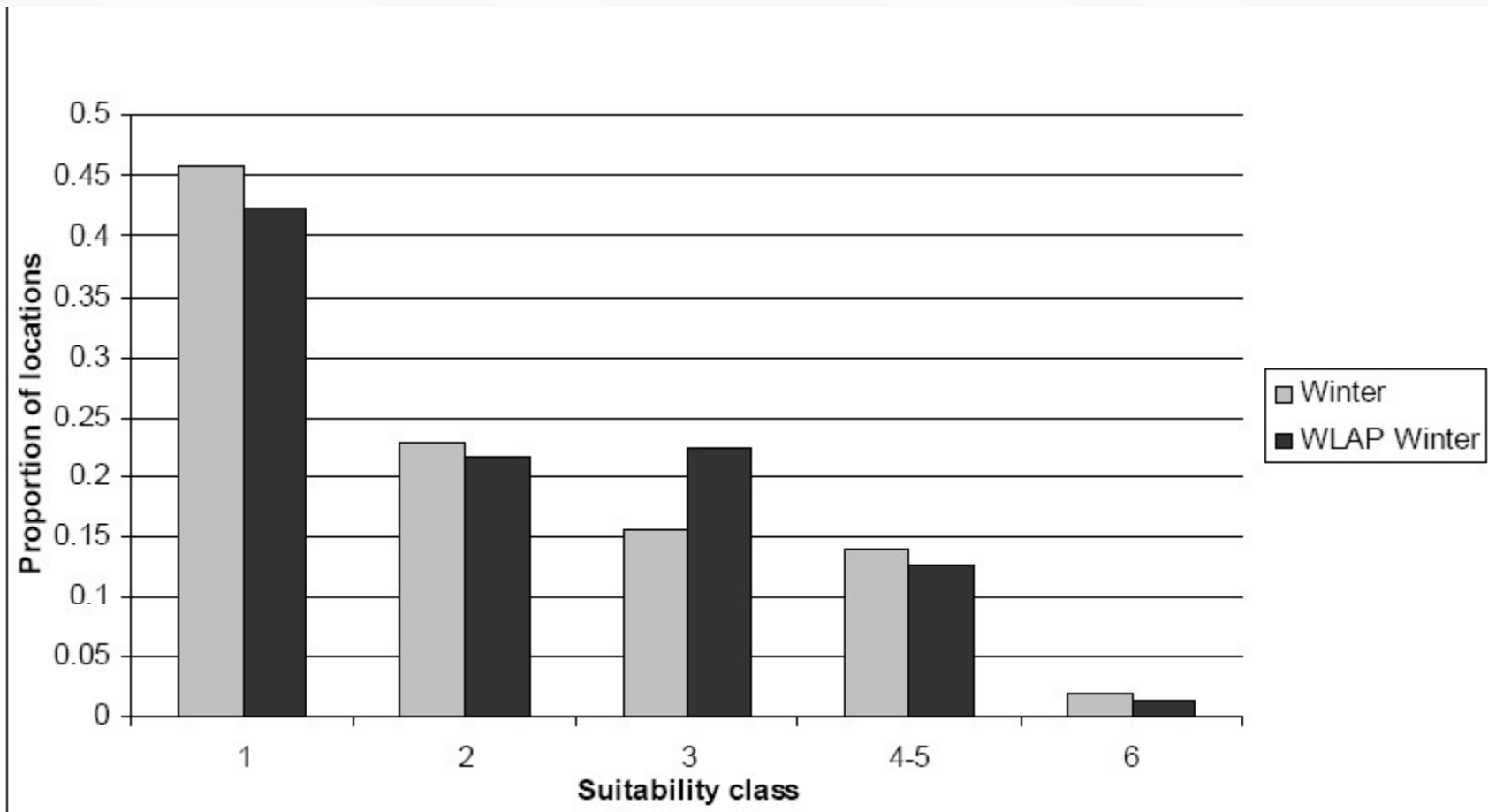
Habitat –

Management is most often applied from a spatial perspective

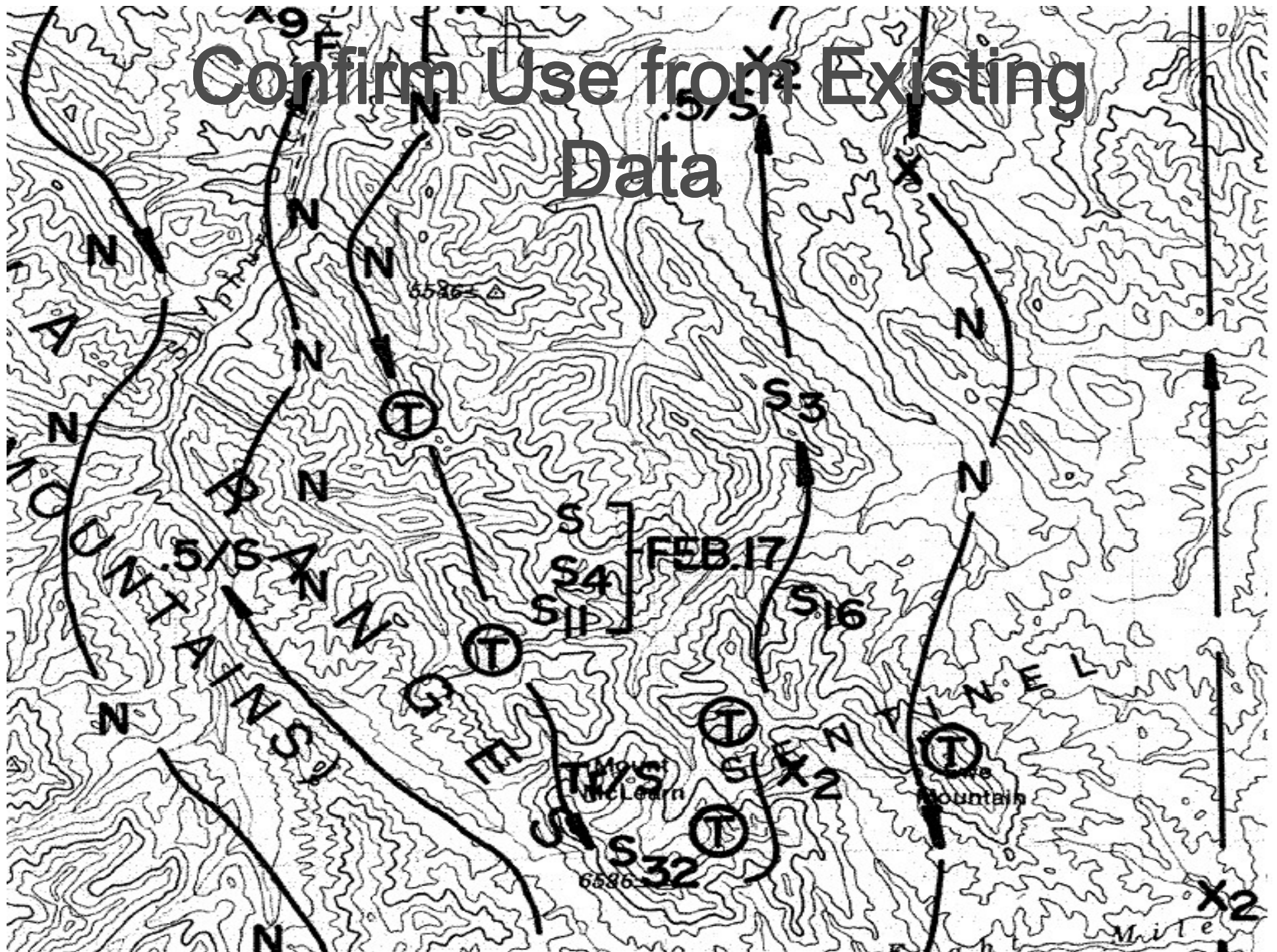
- There are learnings -take from what we know:
 - Sheep Behaviour - V. High Habitat Fidelity
 - Topography is a key (slope, aspect, ET)
 - Forage productivity
 - Apply WLAP model for Winter Range and confirm use from existing inventory data.
Digitize historical geo-referenced data.

Winter Habitat Model

Analysis from K. Parker



Confirm Use from Existing Data



Health

- We do not have enough data on Stone's Health.
- To date, nothing out of the expected range of variability has been observed from recent looks at serum samples and from parasite surveys in MK.
- Awareness – domestic sheep and goats.
- Incorporate a suitable long term sampling protocol – consider trying the outfitter sample collection system used in NWT by Dr. E. Jenkins

Predation

- Conflicting data on relationships between wolves and sheep:
 - Opportunistic kills at low levels – sheep are not a major prey source for wolves (Carey / Heofs)
 - Sheep population levels have cycled with wolf controls (Elliot, Bergerud)
 - The question::: What about the multiple prey factor?? – Parker?
 - None of the existing research studies specifically highlight predation as a major population driver

Disturbance & Access Management

- Sheep are sensitive to aerial disturbances
 - heli-recreation needs to be considered

Aerial Telemetry and wildlife capture has been shown to displace Mtn. Goats and caribou and to influence study results.
- Sheep have done well with industrial disturbances (mines) but do not do well with increased hunting pressure and other results of increased access.
 - Access controls are the major factor to be addressed.

From Problem Analysis to Suggested Solutions

1. Use what we have already learned
 1. Digitize historical geo-referenced data
 2. Traditional use data collections
 3. Start a data library
 4. Apply habitat models
2. We need long term data for population level assessments – stronger monitoring system needed
3. We need better data collections to assess health factors for Stone's sheep – monitoring system
4. WE need to be able to monitor and to test the impacts of previous, current, and future management practices against indicators for sheep – Adaptive Management.