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AN ECOLOGICAL STUDY OF ROCKY MOUNTAIN
BIGHORN SHEEP WINTER RANGES IN THE EAST
KOOTENAY REGION OF BRITISH COLUMBIA

EMNE 265

by

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TABLE OF CONTENTS

Page

| | |
|--|----|
| INTRODUCTION | 1 |
| General | 1 |
| The Study Area | 2 |
| Description of the East Kootenay Region | 3 |
| METHODS | 8 |
| Range Composition | 8 |
| Animal Distribution | 9 |
| Soils | 9 |
| Range Exclosures | 10 |
| Range Productivity Rating | 10 |
| Climatological Stations | 11 |
| <u>ECOLOGY OF THE BULL RIVER BIGHORN WINTER RANGE</u> | |
| RESULTS | 12 |
| A. Climate | 12 |
| B. Soils | 14 |
| C. Topography | 16 |
| D. History of Vegetation | 17 |
| E. Plant Communities | 17 |
| F. Animal Distribution in Relation to Topography and Plant Associations | 27 |
| DISCUSSION AND CONCLUSIONS | 29 |
| MANAGEMENT PROPOSALS | 32 |
| SUMMARY | 33 |
| LITERATURE CITED | 35 |
| APPENDICES | 36 |

ECOLOGY OF THE WIGWAM FLATS BIGHORN WINTER RANGE

| | |
|--------------------------|----|
| RESULTS | 1 |
| A. Climate | 1 |
| B. Soils | 3 |
| C. Topography | 5 |
| D. History of Vegetation | 5 |
| E. Plant Communities | 7 |
| F. Animal Distribution | 12 |

| | |
|----------------------------|----|
| DISCUSSION AND CONCLUSIONS | 13 |
| MANAGEMENT PROPOSALS | 18 |
| SUMMARY | 19 |
| APPENDICES | 21 |

ECOLOGY OF THE PREMIER RIDGE BIGHORN WINTER RANGE

| | |
|----------------------------|----|
| RESULTS | 1 |
| A. Soils | 1 |
| B. Topography | 2 |
| C. History of Vegetation | 3 |
| D. Plant Communities | 4 |
| E. Animal Distribution | 10 |
| DISCUSSION AND CONCLUSIONS | 12 |
| SUMMARY | 16 |
| MANAGEMENT PROPOSALS | 18 |
| APPENDICES | 20 |

ECOLOGY OF THE COLUMBIA LAKE BIGHORN WINTER RANGE

| | |
|----------------------------|----|
| RESULTS | 1 |
| A. Climate | 1 |
| B. Soils | 3 |
| C. Topography | 3 |
| D. History of Vegetation | 4 |
| E. Plant Communities | 4 |
| F. Animal Abundance | 8 |
| DISCUSSION AND CONCLUSIONS | 9 |
| MANAGEMENT PROPOSALS | 12 |
| SUMMARY | 13 |
| APPENDICES | 15 |

ECOLOGY OF THE STODDART CREEK BIGHORN WINTER RANGE

| | |
|--------------------------|---|
| RESULTS | 1 |
| A. Climate | 1 |
| B. Soils | 3 |
| C. Topography | 4 |
| D. History of Vegetation | 5 |
| E. Plant Communities | 6 |

CONTENTS cont'd

Page

| | |
|----------------------------|----|
| F. Animal Abundance | 8 |
| DISCUSSION AND CONCLUSIONS | 11 |
| MANAGEMENT PROPOSALS | 13 |
| SUMMARY | 15 |
| APPENDICES | 17 |

LIST OF TABLES

| <u>Table</u> | <u>Page</u> |
|---|-------------|
| I. Eleven year average temperature and precipitation records from the Aberfeldie Weather Station. Data from B. C. Department of Agriculture (1962)... | 13 |

Tables in Appendices

| | |
|--|----|
| <u>Appendix I.</u> Scientific and common names and authorities for plant and animal species mentioned | 36 |
| <u>Appendix II.</u> Profile descriptions of representative soils of the Bull River bighorn winter range | 39 |
| A. Regosolic Dark Gray Chernozemic Soils | 40 |
| B. Regosolic Brown Wooded Soils on Steep Slopes | 41 |
| C. Regosolic Brown Wooded Soils on Terraces | 42 |
| D. Regosolic Minimal Brown Wooded Soils | 43 |
| E. Minimal Brown Wooded Soils | 44 |
| <u>Appendix III.</u> Plant community structure in the study sites of the Bull River bighorn winter range | 45 |
| A. Summary of major plant species C/F and nature of ground cover for two sites, one in the <u>Agropyron-Festuca</u> and the other in the <u>Agropyron-Symphoricarpus</u> communities | 46 |
| B. Summary of major species C/F and nature of ground cover for five sites of the <u>Purshia-Poa</u> community . | 47 |
| C. Summary of major species C/F and nature of ground cover for four sites, two in the <u>Agropyron-Purshia</u> community, one in the <u>Purshia-Bromus</u> sere | 48 |
| D. Summary of major species C/F and nature of ground cover for four sites, three of the <u>Amelanchier-Ceanothus-Poa</u> sere and the other of the <u>Poa-Symphoricarpus</u> sere | 49 |

Table

Page

| | |
|---|----|
| <u>Appendix IV.</u> Ungulate use of various topographical and communital structures on the Bull River bighorn winter range | 50 |
| A. The distribution and relative abundance of domestic and wild ungulates on the basis of fecal deposits, according to topographical features and plant associations..... | 51 |

LIST OF FIGURES

| <u>Figure</u> | <u>Page</u> |
|---|-------------|
| 1. Location of the Rocky Mountain bighorn winter ranges in the East Kootenays, British Columbia | 4 |
| 2. Cover-type map of the Bull River bighorn winter range showing locations of study sites | 19 |
| 3. The <u>Agropyron-Festuca</u> Community | 20 |
| 4. The <u>Purshia-Poa</u> Community | 22 |
| 5. The <u>Agropyron-Purshia</u> Community | 23 |
| 6. The <u>Amelanchier-Ceanothus-Poa</u> Community | 25 |
| 7. The <u>Poa-Symphoricarpos</u> Community | 26 |

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INTRODUCTION

General

Rocky Mountain bighorn sheep¹ of the East Kootenay region of British Columbia have recently suffered a drastic reduction in numbers as a result of an epidemic-like disease and depleted winter ranges. Bandy (1966) outlined the factors involved in the decline of the Bull River population in the winter of 1964-65. He explained that a complex of environmental factors, including poor winter range conditions, lungworms (Protostrongylus spp.) and other parasites, adverse climatic factors, and a bacterial eruption of a Pasteurella multocida-like organism, caused this population to die out. The epidemic then spread northward and affected bighorn herds on the Premier Ridge and Columbia Lake ranges in the fall and winter of 1965-66. Eventually, in the fall and winter of 1966-67, the epidemic reached the northernmost herd occupying winter ranges in the Rocky Mountain Trench, the Stoddart Creek-Kootenay National Park herd.

As a result of the die-off on the Bull River range, Dr. P. J. Bandy of the Wildlife Research Division initiated a series of studies designed to determine the pathological agents involved, to assess the distribution of

¹See appendix I for a complete list of scientific names authorities for animals and plants.

overwintering bighorn sheep, the parasite burdens of the affected sheep and the degree of mortality suffered by bighorn sheep herds. In addition, he established a study of range conditions in 1966. These studies are currently limited to those which serve as bighorn sheep winter ranges and upon which significant mortalities have occurred. It is the purpose of these studies to delimit and describe the floristic composition of the ranges, to assess their condition and productivity in relation to the needs of sheep, to ascertain the effect of various factors such as climate, soil and grazing upon productivity, and to measure the degree and distribution of range use by wild and domestic stock.

Additional studies were established in 1966 and 1967 to assess the effect of protection from grazing to measure the response of range plants to fertilization and to determine the suitability of certain grass species for a range improvement program. As the results of these studies will not be available for some time, they are not included in this progress report.

The Study Area

The ranges studied are located in the East Kootenay region of British Columbia in the south-east corner of the province. This region includes all lands bounded by the British Columbia-Alberta border to the east, the Canada-United States border to the south, the height of land on the Purcell Mountains to the west and the Trans-Canada highway, Highway No. 1 to the north. Included in this region are the

headwaters of the Flathead, Elk, Kootenay, and Columbia rivers.

Bighorn populations in the East Kootenays are found in the Rocky Mountains on the east side of the Rocky Mountain Trench but not in the Purcell Mountains to the west. Bighorn winter in six localities in the Rocky Mountain Trench, from Elko north to Edgewater, and in five known areas at higher elevations in the Rocky Mountains (see Figure 1). Intensive use of winter ranges by bighorn bands is confined to small specific areas, although movement between some of these ranges is known to occur and small bands may be found between the localities shown in Figure 1.

The winter ranges under study are located at: Elko, north of the confluence of the Elk and Wigwam Rivers (Wigwam Flats); Bull River, north of the Bull River from the Bull River townsite to the Aberfeldie Dam; Premier Lake, north of Wolf Creek and east of the Kootenay River to the south end of Premier Lake; Columbia Lake, from Canal Flats north along the east side of Columbia Lake to Fairmont Hot Springs; and Radium Hot Springs, along the west facing slopes of the Rocky Mountains from Windermere Creek north to Edgewater (Stoddart Creek range).

Description of the East Kootenay Region

The following description is paraphrased from a report by Wright and Jungen (1966). The East Kootenay region is an area of upland continental-type climate, with well defined

