

TEACHING/RESEARCH/SERVICE
Forest/Range/Wildlife
Fisheries/Utilization



University of Idaho

College of Forestry,
Wildlife and Range Sciences
Moscow, Idaho 83843

July 8, 1975

Mr. Earl F. Dodds
District Forest Ranger
Big Creek Ranger District
McCall, Idaho 83638

Dear Earl:

Reference is made to your letter of July 3 concerning our research projects in the Idaho Primitive Area.

I see no conflicts between the wilderness management regulations you outlined and the research activities we have begun. We certainly do not anticipate using any but the existing landing strips in the area, and will discuss any change in our plans with you should they arise.

We appreciate the offer to use Forest Service stock and facilities. I feel there has been much more cooperation between the University and Forest Service than has been indicated in the past, and I am sure this cooperation can continue to improve to the benefit of both.

Very sincerely,

Kenneth M. Sowles
Assistant Dean

KMS:ms

cc: J. Ehrenreich
H. Bolt

Mr. Earl Dodds
District Forest Ranger
Big Creek District
Payette National Forest
McCall, Idaho 83638

STATE DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Payette National Forest
Big Creek Ranger District
McCall, Idaho 83638

JUL 2 1975

Dear Earl:

2320

Enclosed is a copy of a proposal for research in the Idaho Primitive Area.

JUL 3 1975

I believe this research project on recreational impact is the type of study you discussed with me at Big Creek last year.



Would you review and comment on this proposal so we will be sure to include those items of interest to you.

Also, I am including the applications for renewal of our Taylor Ranch grazing permit.

Reference the study description
proposed in the Idaho Primitive Area. We have reviewed these in the light of Wilderness Management regulations and have the following broad concerns:
1. The use of motor vehicles and equipment in the Primitive Area.
2. The use of aircraft in the Primitive Area.

Best regards,

Kenneth M. Sowles

KMS/cm

Enclosures

The Wilderness Act provides that Wildernesses may be used for scientific purposes, but only in a manner which preserves the wilderness environment. An important point is that such a study should be carefully analyzed to be sure it is (1) essential for management of the Wilderness resource, (2) technical data is not available outside the area, and (3) method of data collection, if project is pursued, is modified to the extent possible to minimize adverse effects in Wildernesses. The proposed wildlife studies are worthy studies by themselves, but in our opinion, not essential to management of the Wilderness resource. In view of this, landing of aircraft would have to be confined to existing airstrips.

Following are our comments on individual projects:

1. Elk Habitat Investigations.

If essential to the project, elk traps may be used in the Wildernesses provided corrals and other facilities are removed immediately after trapping operations. Facilities should remain in place only on a seasonal basis.

2. Big Horn sheep.

The principles for studying elk also apply to Big Horn sheep. Possible use of helicopters in ram removal operations may be

To Hon. Cecil D. Andrus, Governor

UNIVERSITY OF IDAHO

From John H. Ehrenreich, Dean

Inter-Office Memorandum

Subject Wilderness Research -- Idaho Primitive Area

Date February 5, 1975

Attached is a package of core research proposal briefs for your consideration.

We at the University of Idaho feel there is a great necessity to establish long-term research projects to protect the Idaho Primitive Areas' unique characteristics. It is important to make the public and law makers aware of the importance this area has to, not only Idaho, but the whole nation. This can be done only by well formulated research projects by nationally and internationally known scientists.

We would like to establish these projects with seed monies from your office and then continue with monies from other sources such as NSF, Boone and Crockett, Wildlife Federation, Federal, and possibly the Pacific Northwest Regional Commission.

The package of projects would require \$96,000 to start and the Student Wilderness Study Honorarium will require an additional \$10,000.

The timber inventory portion of the package is already funded through the present Productivity Study, and the Bighorn Sheep Study is funded by the College.

I am sure you can understand the significance of this request since we will be dealing with those factors you have been most concerned with.

John H. Ehrenreich, Dean

PRIMITIVE AREA ELK-HABITAT INVESTIGATIONS

The basic objectives of this study are to relate movement patterns, habitat use, and population dynamics of elk to environmental conditions in the Chamberlain Basin and associated winter range complex. Year-long investigations involving aerial and ground observation of elk marked with radio-transmitters will be the basic approach to obtaining information. A characterization of the elk population as an integral component of the entire complex and of factors influencing the natural regulation of population size will culminate the research effort.

PRIMITIVE AREA ELK-HABITAT INVESTIGATIONS

The Chamberlain Basin elk population represents a part of a predator-prey-habitat complex in which man's influence is as yet minimal. As such it offers a unique opportunity to investigate populations in relation to other environmental conditions in a relatively undisturbed system. There is a need to understand such natural systems in order to understand man's impacts and management efforts elsewhere.

Objectives of this investigation include (1) determination of movement patterns of elk using the Chamberlain Basin; (2) to relate habitat use to vegetation development and food habits as well as other environmental factors as subsequently become identified; (3) to assess conditions and trends of important habitats relative to elk use; (4) to determine factors influencing recruitment and mortality of each herd segment; and (5) to predict elk population trends through assessment of population and habitat criteria.

Traps established at Chamberlain and Cold Meadows will be used to capture elk from which selected individuals will be fitted with radio transmitters to follow movement and habitat use patterns. Systematic aerial and ground monitoring of locations of radio-marked individuals will be used to obtain data. An attempt to determine constancy of affinities to each habitat type and to each location used by marked elk will be made. Currently established exclosures and permanently marked plots will be used to determine condition-trend and utilization, in coordination with U.S. Forest Service and Idaho Fish and Game Department personnel. Additional habitat studies will be implemented as the study progresses and important sites are identified. Aerial search of calving areas and winter ranges will be used to record sex and age composition of the elk population. Collections of lower mandibles and other skeletal parts for age determination from elk killed by hunters and predators will be made.

A five-year study is necessary to obtain the data necessary to fulfill objectives. The project can employ a research assistant with temporary help or two graduate students, plus principal investigator. Extensive cooperation with U.S. Forest Service and Idaho Fish and Game Department personnel is required.

Idaho Primitive Area

Timber Resources Survey and Evaluation

The objective of this project is to determine the commercial timber values in the highest productive timber areas of the primitive area. The duration of the project will be three months during the summer of 1975 and include 2, two man teams. One team starting from the McCall side and one team starting from the Salmon side. Information will include size class, species, stocking levels and log grades. This project will be funded from the present Productivity Study.

In the Idaho Primitive Area there is obviously a considerable volume of commercial timber. There has been much speculation as to how much or how little volume there really is. However, there exists no accurate data from which to make reliable assumptions.

We propose to examine and inventory these areas within the Primitive Area which appear to be most productive. What percentage of the total area will be inventoried will depend on time and accessibility.

Included in this inventory will be the size class and species of timber, the stocking of the areas, and, time permitting, we will establish permanent plots for future reference.

Personnel to be involved are the principal investigator and four graduate students. The schedule of work will be ten days in the primitive area and four days out. This schedule will continue for three months during the summer, after which the data collected will be analyzed and prepared for use at the College of Forestry, University of Idaho.

This data will be used to give better information on the timber value within the Idaho Primitive Area and also be included in the Idaho Productivity Study.

RECREATIONAL IMPACT

As early as 1962 the Outdoor Recreation Resources Review Commission recognized that "inappropriate and destructive wilderness recreation is frequently due to inadequate skill and knowledge". The commission's report also called for government agencies to enlarge their public education programs concerning "wilderness purposes, regulations and wilderness recreation techniques". Little activity ensued, however, and only now is this educational challenge being accepted by agencies administering wilderness. Even so, the educational messages are being disseminated on a diffuse basis, with little effort being made to understand the differences between target audiences and the most effective methods of reaching them. This study will identify relative wilderness knowledge among user groups, attempt to reveal communication patterns responsible for the knowledge levels, and result in recommendations for more effectively using communication channels to promote low impact wilderness recreation.

Description

The study will be conducted in a cross section of the Idaho Primitive Area during the summer and autumn of 1975. The selected area will include both low and medium to high areas of use. Data will be obtained through a combination of written and oral interview techniques.

Most recreationists selected for the study will be contacted in the field on randomly selected trails. Group leaders (Boy Scouts, church groups, etc.) comprise a particularly important user category because of their influence on a large number of other individuals. To provide a sufficient quantity of group leaders in the study, the numbers of those contacted in the field will be augmented by names taken from trailhead registers and contacted by phone or in their homes. Similarly, outfitters comprise an important user group. However, to prevent interfering with their businesses; a mutually satisfactory time will be arranged to interview these individuals and their clientele.

The questionnaire will be used to obtain two bodies of data. First, socio-economic and experience information which will provide bases for comparisons and correlations. A side benefit of this information will be the usual user characteristic profiles sought by managers for baseline data and indications of trends. The second part of the questionnaire will be a concealed test of the respondents' knowledge of low impact wilderness use. The scores from these tests will be useful for establishing priority target groups for educational efforts.

Oral interviewing will be used in the attempt to discover communication patterns, particularly sources of information having an influence on the respondent's behavior. This will be extremely valuable in allowing government agencies and other organizations to focus their educational efforts on media, individuals or other communication channels that can most effectively facilitate an improved change in wilderness behavior.

Aquatic Ecology
of
Idaho Primitive Area High Lakes and Streams

C. Michael Falter, Principal Investigator
February 4, 1975

The research program described herein will define the aquatic ecology of selected pristine and impacted high lakes and streams of the Idaho Primitive Area, providing baseline and change-rate data on which to base effective management of these fragile systems.

This proposed five-year investigation has 2 objectives:

- 1) To describe the aquatic ecology of a selected range of pristine alpine to sub-alpine lakes and streams in the Idaho Primitive Area; and,
- 2) To determine the impact of surrounding human and animal use activity on the aquatic ecology of selected alpine to sub-alpine lakes and streams in the Idaho Primitive Area.

Objective 1:

The Idaho Primitive Area contains a very large number of alpine to sub-alpine lakes and streams that have historically received little use pressure. These areas present unique natural aquatic habitats in Idaho which may serve as "barometer" lakes and streams comparators to help evaluate more intensively used areas. These aquatic habitats should also be studied as unique systems on their own merits undisturbed, pristine environments.

We will survey potential study sites in the Chamberlain Basin, Big Creek Lakes area, Big Horn Crags, and the Sleeping Deer Lakes area, finally selecting three lake and three stream sites for in-depth study.

A lake and a stream site will be selected from each of the three basic geological landforms in the Idaho Primitive Area:

- a) The Precambrian Belt Series, metamorphosed sedimentary rocks;
- b) The Permian-Triassic Seven Devils Series and Casto Volcanics; and,
- c) The Batholith Granitics.

Segregation by watershed geochemistry is important because different geochemistry will govern productivity of surface waters in these watersheds. These six sites will also be selected for isolation, low use, and balanced aquatic communities. The water chemistry, algae, zooplankton, benthos, and fish populations of these sites will be evaluated with minimum disturbance of the natural systems. Study of these pristine aquatic systems will emphasize summer and fall conditions, but some effort will be expended to define under-ice winter lake and stream dynamics. Work towards this phase of the study will be most intensive in the first three project years.

Objective 2:

This study phase will emphasize user impact on the more accessible high lake and streams in the Primitive Area. In project years 3, 4, and 5, we will select several sites rejected in the first phase because of easy accessibility and altered environmental conditions. We will then analyse use-related impacts, including eroded stream and lake banks; silted-in shoreline, littoral, or riffle areas; decreased benthic invertebrate and fish habitat; high water turbidity; shoreline weed beds; and accelerated lake aging through increased nutrient inputs. The principal investigator has described the sensitive nature of these high lake and stream systems in past work on lakes of the Beartooth Primitive Area in Montana. Comparison of these impacted sites with pristine sites of similar watersheds will enable not only estimation of the degree of degradation but also estimates of the rate of change. Long-term management plans may then be accordingly formulated.

Research Proposal
Wilderness Research Center

Title: An investigation of factors affecting population size in an unexploited coyote population

Major aims of the study are 1) to study the dynamics of unexploited coyote population in a wilderness environment and 2) to determine what factors are responsible for maintenance of population size and density. Self-regulating mechanisms will be given particular attention since little is known of this phenomenon and its possible importance to management.

There is need for an understanding of natural regulatory mechanisms which operate in an unexploited population of coyotes. The effects of food abundance or food shortage on such a population may be predicted, but little has been documented on self-regulatory factors. An understanding of such mechanisms, if they exist, could be most helpful in the management of coyote populations. The relationship of such a population of coyotes to mule deer populations is important and could have management implications in many areas of the West.

The study will be conducted in the Idaho Primitive Area, a 1 1/4 million acre area managed by the U. S. Forest Service as wilderness since the 1930's. No coyote control has been carried out in the area since the mid-1940's. No domestic livestock are grazed anywhere in the Idaho Primitive Area; coyotes prey only on wild species. The actual research will be carried out in the Big Creek drainage in the central part of the Primitive Area. The Project Leader conducted mountain lion research in this area for 10 years - logistics have been worked out. Coyotes will be live-trapped, individually marked, and instrumented with radio transmitters. Data will be collected from individuals and the population throughout the year on all aspects of the project. I would expect to coordinate the project closely with the Denver Lab and Logan Predator Units of the FWS.

A Proposal for Research on Modifications of Social Behavior
in Bighorn Sheep

Abstract

A strongly developed social order and traditional movement patterns play a very important role in the ecology of bighorn sheep. Serious questions have been raised about the practice of harvesting prime adult rams, the cohort that lends stability to the social system. This project proposes to investigate the effects of two levels of ram removal on 1) migratory movements, 2) social stability, and 3) reproductive success. The research will be organized into three stages: 1) a 2-year study to gather baseline data, 2) a second 2-year phase to investigate the influence of old-ram removal, and 3) a third 2-year phase to investigate effects of removal of all sexually mature rams. Small bands of a few sheep each will be studied and the removed sheep relocated in restocking operations. The study will be centered in the Big Creek drainage in the Idaho Primitive Area.

A Proposal for Research on Modifications of Social Behavior
in Bighorn Sheep

A strongly developed social order and traditional migratory patterns play a very important role in the life and success of bighorn sheep. Adult rams are the dominant animals who maintain the social hierarchy and lead the migratory journeys. Serious questions have been raised about the effect of sport hunting which tends to remove these animals that lend stability to the system. A study of sheep in relatively undisturbed habitats, but where the population can be manipulated, is needed to investigate effects of modifying the sex and age structure. This research project proposes to study the influence of two levels of ram removal on 1) migratory patterns, 2) social stability, and 3) reproductive success.

The study will be centered at the Taylor Ranch on Big Creek, a tributary of the Middle Fork of the Salmon River. Small bands of sheep will be identified and those removed will be relocated in restocking operations. The research will be organized into three stages. The first 2-year segment will be to study social organization, reproductive success and migratory patterns on summer and winter range. Selected animals will be captured and marked for later identification. Some will be equipped with radio transmitters and tracked intensively. The purpose of this part of the study will be to gather baseline data. The second phase, lasting for two years, will address itself to effects of removal of dominant rams from one small band. Procedures used in the first phase will be repeated to detect any behavioral changes induced. The third phase is a more severe removal with all three-quarter curl rams taken. This amounts to 4-5 animals from another small social unit. The bighorn sheep population on the Big Creek drainage is from 90 to 120 animals composed of many small social units. This proposed project affects two of these units.

RESEARCH PROSPECTUS
HABITAT, BEHAVIOR AND POPULATIONAL STUDIES OF
YELLOW-BELLIED AND HOARY MARMOTS IN THE IDAHO WILDERNESS AREA

by Jerran T. Flinders
Assistant Professor of Wildlife Resources
University of Idaho

Abstract

Two species of marmots are found in the Idaho Wilderness Area and adjoining forest area. This provides a unique opportunity to study two closely related wildlife species in rather pristine habitat. Marmots may compete with other native herbivores for available forage and are, in turn, important summer prey of resident carnivores. This study will provide new information on both species of marmot. The degree of competition for food and habitat will be quantified. Differences in population density, mortality and productivity will be measured. This is proposed as a two-year study.

Background and Purpose

Both the yellow-bellied marmot (*Marmota flaviventris*) and the hoary marmot (*M. caligata*) are found in the Idaho Wilderness Area and adjacent forest. This marks the southern limit of distribution of the hoary marmot and provides a unique opportunity to study two closely related wildlife species in the same general habitat. Marmots are mammals characteristic of the limited meadow regions of the area and compete with other herbivores such as elk, deer and bighorn sheep for the available forage. They provide an important summer food base for native predators such as the bobcat, coyote and raptorial birds. Marmots are usually easily observed by wilderness hikers and may add immeasurably to the "wilderness experience." The overall purpose of the study will be to provide new ecological and behavioral information on the two species of marmot in relatively unexploited populations and habitat. Studies of population dynamics, behavior, food habits, and habitats will provide information needed to predict relative habitat suitability for each species and the degree of competition between the species. The results of this study will be available for comparisons with other studies of both herbivores and carnivores in the Idaho Wilderness Area.

Objectives

The objectives of this study are: (1) Behavioral studies to involve both intraspecific and interspecific components as well as in-depth studies of dietary and habitat selection; (2) To quantitatively measure the abiotic and biotic habitats of the two species and determine the amount of similarity between habitats that are selected; (3) To determine population densities, reproductive success, amount of over-winter mortality and yearly population turnover for each species as an aid in predicting the relative success of the two marmot populations.

Work Schedule

Marmots hibernate through the late fall, winter and early spring months; thus this study will be conducted during those months when the marmots are active. If work could begin as soon as the marmots emerge this spring, field work could be completed by the fall of 1976. As animals emerge from hibernation they will be live-trapped, sexed, weighed, aged, ear-tagged (with numbered tags), measured and released. This initial trapping period of about two weeks will be followed by another trapping period to determine population density. Fresh fecal pellets as well as a limited sample of marmot stomach contents will be collected for a measurement of spring diets. The microscopic method will be used to determine food habits. Behavioral studies will be on-going throughout the summer. Measurements of the habitats will begin near mid-summer. Marmots will be trapped again in early fall just prior to hibernation. Trapped animals will again be sexed, weighed, aged, measured, ear-tagged (to include the young of the year) and released.

The second summer's research will follow the same schedule except for research-dictated changes. Funding will be needed for the two months work of the Principal Investigator (Jerran T. Flinders) and one Research Assistant for two full years.

Cultural Resource Inventory of the Idaho Primitive Area

Abstract

During the period 15 June through 15 August a three subject area project is proposed for the lower Big Creek drainage area and the Taylor Ranch/Cabin Creek region. This interdisciplinary project would assess the historical, archaeological, and architectural resources of the area with recommendations for future funding, agency management, and the development of an on-site interpretive center at Taylor Ranch.

As a preliminary project it would be impossible to inventory the total Idaho Primitive Area. It is proposed to concentrate on the lower Big Creek area including the Taylor Ranch and Cabin Creek properties. The area not only has these original Forest Reserve homesteads but has prehistoric archaeological sites including house pits, Indian burial grounds, petroglyph sites, and historic period archaeological sites dating from the Sheep Eater War. Amateur archaeological artifact collections are known to be awaiting inventory and donation if a proper interpretive facility is provided.

The historical survey would be under the field direction of Richard Walker. Mr. Walker has already made the necessary contacts with local informants such as Jess Taylor and knows the area well. Two months would be spent in gathering basic data through tape recorded interviews and archival research. One month would be devoted to analysis and the writing of the final report.

The archaeological survey of the region would be under the field direction of Mr. Thomas Inverson working with one field assistant. Sites would be recorded on the standard University of Idaho site survey form with detailed notes and photographic record. Sample test excavations would be made in selected sites to provide a better evaluation of the potential for future full scale excavations. The field work would take 2 1/2 months with 1/2 month devoted to the final report.

The rock art (pictographs and petroglyphs) of the area would be surveyed and recorded photographically by Ms. Keo Boreson during a one month period. This work would follow the procedure she has developed during the past two summers in more accessible regions of the state.

The primitive log cabin construction of the Taylor Ranch and Cabin Creek properties would be recorded through detailed drawings and photographs by Mr. Robert Weaver during a one month period with a second month devoted to the completion of the drawings and the preparation of a final report.

A detailed bibliography of the region and the integration of the several reports listed above would be accomplished by Walker and Roderick Sprague during September.

OPPORTUNITIES FOR SUMMER STUDY
Student Wilderness Study Honorarium

Undergraduate independent study in the Idaho Primitive Area
\$750 honorarium plus expenses
Academic course credit

Undergraduates in the College of Forestry, Wildlife and Range Sciences who are interested in spending a summer conducting independent research of their own choosing are invited to submit a research proposal to the Dean, College of Forestry, Wildlife and Range Sciences, for summer field studies at the Taylor facility in the Idaho Primitive Area. Proposals may cover any area of natural resource management/ecology, and will be awarded on a competitive basis to persons submitting the best proposals. Proposals will be judged by a faculty committee on innovation, literature search, detail in methods used, potential for attainment of objectives, and educational value. Students whose proposals are approved will receive academic course credit under FWR 499 (directed studies in fisheries, forest, range, recreation, and wildlife sciences) upon completion of the summer work and acceptance of a research report. Food, housing, air travel to and from the Taylor facility, and most equipment will be provided. An honorarium of \$750 will be awarded. Interested students are urged to discuss ideas with advisors and other faculty. Deadline for submitting proposals will be April 1.