

A HOLOCOENOTIC STUDY OF THE
AIRSTRIPS IN THE IDAHO PRIMITIVE AREA

A Solicitation of Interest for
Research Support.

Submitted to: The Wilderness Research Center
Forest, Wildlife and Range Experiment Station
University of Idaho
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October 6, 1975

INTRODUCTION

The purpose of this pre-proposal is to provide information concerning the role of airstrips in the structure and function of the Idaho Primitive Area as a wilderness socio-ecosystem. In the following paragraphs we show potential funding agencies that:

- 1) A definite management or policy problem exists.
- 2) The problem is due in great part to the broad management latitude provided in the Wilderness Act with respect to aircraft usage in wilderness.
- 3) Answers provided by the outlined research program will allow a more rational consideration of management alternatives by appropriate decision-making bodies.

Included in the pre-proposal is a brief review of the present situation, an overview of our research design, a listing of the factors proposed for evaluation, and a tentative budget.

Although the study plan is directed specifically at the Idaho Primitive Area, research results will apply, at least in part, to the Selway-Bitterroot Wilderness Area and similar wilderness areas.

DEFINITION OF PROBLEM

Confusion over the intent of the Wilderness Act is causing uncertainty about the right of public access by air transportation to the Idaho Primitive Area (IPA). Both public officials^{1/} and interested citizens have expressed opinions on the importance and role of back-country airstrips. The degree to which these airstrips conflict with legal wilderness status for the area is a major concern.

While opinions have been aired for and against continued use of the airstrips, there is a need for factual data before a tenable decision can be reached. At present there are no existing evaluations of the role of these airstrips with regard to protection of wilderness values, public access, and ecological relationships. In a public letter to Governor Cecil Andrus on June 6, 1975, Vern Hamre, Regional Forester of U.S. Forest Service Region Four, stated,

"Presently, we do not have any (research) studies underway which are considering the future status of any of the airstrips within the Primitive Areas."

This proposal is designed to provide some of the information necessary to evaluate the role of airstrips in the IPA. The proposed comprehensive approach would treat the airstrips as a component of a larger, social-ecosystem in a systems context, and allow for analyses of all significant aspects of the problem and the interaction between them.

^{1/} Letters dated May 28, 1975, June 6, 1975, and June 17, 1975 between Governor Cecil D. Andrus and Mr. Vern Hamre, Regional Forester, Region 4, U.S. Forest Service, as published in Rudder Flutter, Vol. 31, No. 3, August 1975. An official publication of the Idaho Transportation Department, Boise.

News Release by Senator Frank S. Church dated September 19, 1975.

PRESENT SITUATION

Wilderness Law and Interpretation

Although dealt with in the Wilderness Act of 1964 (78 Stat. 89.), the use of aircraft in wilderness areas is not specifically and unambiguously delimited (McCloskey, 1966). Two subsections^{2/} of the Act, Section 4 (c) and Section 4 (d) (1), deal specifically with aircraft usage. The first subsection generally prohibits all motorized equipment, including "landing of aircraft," with exceptions made for necessary administration of the area to meet minimum requirements including emergencies involving the health and safety of persons in the area.

Subsection 4 (d) (1) contains a special provision for the use of aircraft within wilderness areas "where these uses have already become established . . . subject to such restrictions as the Secretary of Agriculture deems desirable." This special provision will apply to the IPA if it is included within the National Wilderness Preservation System. The regulation of aircraft usage in the IPA would then be subject to Forest Service administrative discretion. Relatively wide latitude is given to the Forest Service in management of a particular area because of ambiguities in the central provisions of the Act. The wording in the definition of wilderness, Section 2 (c), recognizes that some impairment of naturalness is acceptable. "Temporary," "appear generally," "primarily," and "substantially" all appear as qualifiers to the complete naturalness of a wilderness area. The wilderness administrator must decide what degree of change from complete naturalness is acceptable and then manage for that level of use. Thus, the first step in management of aircraft usage is to determine the character of change that occurs under specific levels and types of use.

^{2/}The subsections are reproduced and included in Appendix I.

Existing Airstrips

Approximately 18 airstrips exist on or immediately adjacent to the IPA (Appendix II). Of these landing sites, about one-third are privately owned, about one-half are maintained by the Forest Service, and the remainder are under the jurisdiction of various state organizations. The degree of use of the landing sites ranges from almost none to quite intensive.

Under their present proposal to Congress, the Forest Service plans to discontinue use of airstrips at Bernard Creek and Soldier Bar, once the Wilderness is established. No decisions have been made concerning other landing sites.

OVERVIEW ON RESEARCH DESIGN

Baseline Information on Aircraft Activity

Aircraft activity at each of the airstrips listed in Appendix II will be estimated, using record sheets given to field operators, event recorders where possible, and direct sampling where the above two procedures are not feasible.

Transient and non-transient enroute air activity will be determined using several techniques. An attempt will be made to utilize active fire lookout stations to record observed aircraft flight activity during the periods they are manned. In addition, the Federal Aviation Administration's Enroute Air Traffic Control Center Radar, stationed on high ground near Cottonwood, will be investigated as a possible source of information on enroute traffic. VFR (Visual Flight Regulations) flight plans will be sampled, if necessary, at nearby Flight Service Stations.

Wilderness User Information

We anticipate that a majority of the over-all research effort will be involved in collecting data pertaining to the wilderness visitor. This is necessary due to the broadly varying types, patterns, and seasons of use in the IPA.

A variety of instruments will be used in gathering wilderness visitor data. It is anticipated that the major means of data collection will employ interviewing and trip diaries. Interviews will be employed at back country airstrips to determine the characteristics of the users arriving by aircraft and their activities. Interviewing at trailheads and boat launching sites at the perimeter of the IPA will be used to determine how trail and river users feel about aircraft. Trip diaries will be used to gather data with respect to the number of encounters that occur between trail and river users and aircraft.

Ecological Parameters

Back-country airstrips tend to be situated on ecosystems often in short supply within the larger forest; e.g. alluvial sand bars and mountain meadows. In addition, it is reasonable to assume that aircraft activity into and out of the airstrips causes some modifications of ecosystem structure and function.

We propose to obtain the following information about ecosystems upon which airstrips are situated: Habitat type, successional state and trend. We also intend to assess disturbance at selected IPA airstrips by evaluating population abundance and species diversity of small mammal and bird populations. This will be accomplished by comparing airstrip areas with similar non-airstrip areas.

Hunting activity will be evaluated by estimating hunter densities and success ratios of those hunting within the IPA who use aircraft for transporting themselves or their game.

Economic Factors

Interviews with users (hunters, fishermen, outfitters, governmental agencies) of the IPA will provide the basic data from which many of the estimates proposed will be derived. These data will be integrated with regional economic impact models to assess the direct and indirect impacts of changes in utilization of the IPA.

FACTORS PROPOSED FOR EVALUATION

There are essentially four segments to the project as we propose it: a baseline study of aircraft activity, an analysis of wilderness user values, an ecological study, and an economic evaluation. However, it is important to emphasize that the segments are closely interrelated.

Baseline

1. Flight activity to and from each airstrip in the IPA by season and use activity.
2. Transient flight activity over, but not landing within, the IPA by altitude and season.

Social

1. Level and type of use by visitors utilizing air transport to the IPA.
2. Spatial distribution of wilderness users utilizing air transport in comparison to those penetrating from the perimeter by other means.
3. Relationship of use-patterns to significant wilderness sites.
4. Effect of transient and non-transient air traffic on wilderness experience as expressed by wilderness users.
5. Relationships between transportation mode and types and seasons of wilderness use in the IPA.
6. Over-all value of airstrips in the protection of wilderness values.
7. Degree of demonstrated use of airstrips for emergency purposes, and alternative solutions to emergency problems.

Ecological

1. Effect of airstrip closure on hunting activity in the IPA, with consideration of the relative ability and/or necessity for controlling herd sizes of big game species.
2. Relationships between the airstrips and population densities and species diversity of small mammals and birds of the surrounding area as an indicator of ecological disturbance.
3. Effects of airstrips on natural succession of ecological communities.

Economic

1. The economic dependency on airstrip operation of businesses and communities located in counties that border on the IPA.
2. The possible effect resulting from the closure of IPA airstrips on income received by the Idaho Fish and Game Department.
3. The costs of utilizing areas by alternative means where airstrips are closed.
4. The direct and indirect costs of maintaining airstrips in the IPA.

	1976-77		1977-78	
	Grantor	UI	Grantor	UI
I. Salaries	\$20,600	\$4,100	\$20,600	\$4,100
J. Mitchell, Asst. Prof. 3 mo. @ \$1600	1,200	1,200	1,200	1,200
J. Schomaker, Asst. Prof. 3 mo. @ \$1600	1,200	1,200	1,200	1,200
J. Flinders, Assoc. Prof. 2 mo. @ \$1700	850	850	850	850
B. Godfrey, Assoc. Prof. 2 mo. @ \$1700	850	850	850	850
J. Magee, Res. Assoc. 18 mo. @ \$700	6,300		6,300	
2 Research Assistants 2 yr. @ \$3600	7,200		7,200	
2 Irregular Help Workers 12 mo. @ \$500	3,000		3,000	
II. Staff Benefits	2,480	660	2,480	600
16% of Faculty & Res. Assoc.	1,664	680	1,664	660
8% of GRA and IH.	816		816	
III. Travel	11,730		12,530	
Aircraft Rental 400 hr. @ \$50	10,000		10,000	
Auto Travel 10,000 mi. @ \$.16	800		800	
Per diem 15 da @ \$28	210		210	
240 da @ \$6.	720		720	
Symposia Travel to present 2 papers			800	
IV. Operating Expenses	4,800	2,600	4,700	3,000
Computer Costs	800	800	1,200	1,200
Office Supplies & Copying	500		500	
Field Supplies	500		500	
Secretarial Assistance	1,800	1,800	1,800	1,800
Mailing Costs	1,000		500	
Phone Calls	200		200	
V. Capital Equipment	2,900		150	
4 Event Recorders @ \$500	2,000			
2 Pr. Binoculars @ \$50	100			
Small Mammal Traps	650			
Chemicals, Microscope Slides	150		150	
VI. Publication Costs	100	100	600	600
Progress Reports	100	100	100	100
2 Journal Articles			500	500
VII. Overhead				
33.45% of Salaries	6,890	1,370	6,890	1,370
TOTAL	\$49,500	\$8,830	\$47,950	\$9,730

We view this study as a two-year project, with a chance for an additional two year extension if more information is desired.

LITERATURE CITED

McCloskey, M. 1966. The Wilderness Act of 1964: it's background and meaning. Oregon Law Rev. 45:288-321.

Appendix I.

DEFINITION OF WILDERNESS

(c) A wilderness in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

PROHIBITION OF CERTAIN USES

(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

SPECIAL PROVISIONS

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control of fire, insects, diseases, subject to such conditions as the Secretary deems desirable.

Appendix II. Existing Airstrips, Idaho Primitive Area

Airstrip	Location	Ownership	R/W Length	Elevation	Remarks
Bernard Creek	44°59'N 114°44'W	USFS	1,900	3,626	
Big Creek	45°09'N 115°19'W	USFS	3,600	5,750	Two miles outside IPA boundary ?
Cabin Creek	45°08'N 114°56'W	PVT	2,200	4,200	Not open to public
Chamberlain Basin	45°23'N 115°12'W	USFS	4,300	5,765	Very Relatively Heavy Use
Cold Meadows	45°17'N 114°57'W	USFS	4,600	6,705	Heavy use
Dewey Moore Ranch		PVT(?)	700	4,300	Very Difficult for who?
Flying B Ranch	44°58'N 114°44'W	PVT	2,500	3,647	Not open to Public
Hoodoo	45°04'N 114°33'W	USFS	2,400	8,245	1 mile outside IPA boundary Rarely used
Indian Creek	44°46'N 115°06'W	USFS	5,200	4,662	
Mackay Bar	45°23'N 115°30'W	PVT	1,900	2,045	3 miles outside IPA boundary. Not open to Public Low boundary
Mahoney Creek	44°45'N 114°55'W	USFS	1,400	4,618	
Mile High Ranch	?	Idaho Fish & Game	800	5,500	Very Difficult — not used — very few know it ever existed
Pistol Creek Ranch	44°44'N 115°09'W	PVT	2,700	4,796	Not open to Public
Root Ranch	45°19'N 115°02'W	PVT	1,900 ^{? longer}	5,650	Not open to Public
Soldier Bar	45°06'N 114°48'W	USFS	1,150	4,190	Emergency use only ^{no!}
Taylor Ranch	45°07'N 114°54'W	U of I	2,300	3,850	
Thomas Creek	44°44'N 115°00'W	State of Idaho	1,900	4,400	
Vines Ranch	?	?	1,000	4,000	

Mitchell, John E.

Assistant Professor of Range Management

Education:

B.S. - Range Management, Washington State Univ., 1963

M.S. - Range Ecology, Utah State Univ., 1965

Ph.D. - Systems Ecology, Colorado State Univ., 1973

Experience:

Teaching:

Range Methods and Techniques

Range Communities

Models for Resource Decisions (Range)

Research:

- 1) Land use management of forested rangelands.
- 2) Revegetation of mine spoils in northern Idaho.
- 3) Ecological relationships among components of subalpine campground ecosystems.
- 4) Influence of range insects in production and nutrient cycling.
- 5) Modeling of nutrient cycles in hardwood forests.

Graduate Students Advised to Completion: None

Publications:

9 publications in refereed journals including the following:

1. A preliminary model for nutrient cycling in a deciduous forest ecosystem. In F.G. Howell (ed.) Mineral cycling in Southeastern ecosystems. USAEC Symposium Series (in press). 1975.
2. The role of grasshoppers in a shortgrass prairie ecosystem. *Envir. Entomology* 3:358-360. 1974.
3. An analysis of the beta-attenuation technique for estimating standing crop of prairie range. *Jour. Range Mgt.* 25:300-304. 1972.

Affiliations and Awards:

American Association for the Advancement of Science

Alpha Zeta

Ecological Society of America

Sigma Xi

Society for Range Management

Xi Sigma Pi

Presentations:

Numerous local presentations and five presentations at national scientific meetings on various subjects dealing with range ecology.

Schomaker, John H.

Assistant Professor, Wildland Recreation Management

Education:

B.A. - Carleton College (Minn.), Chemistry, 1965
M.S. - Utah State University, Outdoor Rec., 1973
PhD - Colorado State Univ., Outdoor Rec., 1975

Experience:

Teaching:

Recreational use of wildlands
Wildland recreation management
Seminar in alternative futures
Wilderness Management

Research:

Development of means to identify wilderness campsites-ISORT, USU, 1971-72.
Criteria for potential wilderness campsites-U.S. Forest Service Intermountain Station, 1972-74
Effect of cultural preferences on alternative futures-U.S. Forest Service Region 2, 1973-74.
Congestion information and dispersion of wilderness recreationists-McIntire-Stennis, 1974-75.

Publications:

Recreation carrying capacity in wilderness--a series of topical papers. Inst. for the Study of Outdoor Recreation and Tourism. Utah St. U., 119p.
Answering questions about tourism--a growing economic development tool. Utah Science 33(1):7-9
The addition of aryl azides to norbornene--a kinetic investigation. Journal of American Chemical Society 87(2):306-311.
Development of means to assess the ability of wilderness areas to produce recreation opportunities. M.S. thesis. 44p.
Wilderness camping opportunities: An identification technique. Utah Tourism and Recreation Review 2(1):1-2.

Affiliations:

American Association for the Advancement of Science
National Recreation and Parks Association
Xi Sigma Pi
Phi Kappa Phi

- Education:** B.S. -- Biology, University of Utah, 1967
M.S. -- Zoology, University of Utah, 1968
Ph.D. -- Animal Ecology, Colorado State University, 1971
- Experience:**
- Teaching:** 17 different courses including the following:
Introductory Wildlife
Wildlife Ecology (and Techniques Laboratory)
Principles of Fish and Wildlife Ecology
Big Game Management
Principles of Waterfowl Management
Upland Game Ecology
Wildlife Habitat Management
Wildlife Behavior
Contemporary Resource Use
- Research:** Sample of selected projects listed:
Diets and habitats of jackrabbits in southeastern Colorado
Influence of brushlands on white-tailed deer diets in north-central Texas
Rio Grande turkey diets in brushlands of north-central Texas
Role of prescribed burning in quail habitat management
Foodniche of coyotes in Rolling Plains of Texas
- Publications:** Most recent publications include:
1975. Spring population responses of cottontail and jackrabbits to cattle grazing shortgrass prairie. J. Range Manage. 28(4):290-293.
1975. Foodniche of coyotes in the Rolling Plains of Texas. J. Range Manage. 23(1):22-47.
1974. Anomalous third molars in a Texas white-tailed deer. Southwestern Nat. 18(4):468-469.
1973. Abundance and dispersion of leporids within a short-grass ecosystem. J. Mammal. 54(1):287-291.
1972. Diets and habitats of jackrabbits in northeastern Colorado. Colo. State Univ. Range Sci. Dept. Sci. Ser. 12:1-29.
- Affiliations & Awards:** Sigma Xi, honorary scientific society
Phi Sigma, honorary biological society
The Wildlife Society
National Wildlife Federation
American Society of Mammalogists
Society for Range Management

Godfrey, Bruce E.

Associate Professor of Agricultural
and Forest Economics

Education:

B.S. - Utah State Univ., 1967
M.S. - Utah State Univ., 1968
Ph.D. - Oregon State Univ., 1971

Experience:

Teaching:

Economics of Conservation
Economics of Natural Resource Development
Range Improvement and Management Planning
Farm Management

Research:

Economics of Range Improvements
An Analysis of Rangeland Policies in the U.S.
Economics of Multiple Use Allocations
Wild River Recreational Carrying Capacity
Econ. of Big Game Hunting in Idaho
Characteristics of the Idaho Forest Industry

Foreign Experience:

None

Graduate Students Advised to Completion:

M.S. - 2

Publications:

Use Rates, Resource Flows and Efficiency of
Public Investments in Range Improvements.
American Journal of Agricultural Economics.
Vol. 54, No. 4. November 1972 (with Joe Stevens).
Recreational Carrying Capacity & Wild Rivers:
a Case Study of the Middle Fork of the Salmon
River. Proceedings of the Western Agricultural
Econ. Assn. July 1972 (with Robert Peckfelder).
Range Land Improvement Practices in Idaho.
Forest, Wildlife & Range Exp. Sta., Information
Series No. 1 April 1972.
An Economic Analysis of Range Improvements in the
Oakley Valley Area of S. Idaho. Idaho Agri. Exp.
Sta. Progress Report No. 159. Sept. 1972.

Affiliations and Awards:

Phi Kappa Phi
American Economics Association
Western Ag. Economics Association
American Ag. Economics Association
Society for Range Management
Sigma Xi

Presentations:

Numerous to range managers, ag. business and
federal government employees.