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HUMAN BEHAVIOR ASPECTS OF FISH AND WILDLIFE CONSERVATION

AN ANNOTATED BIBLIOGRAPHY



DALE R. POTTER
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Abstract

The bibliography covers nonbiological or human behavior aspects of fish and wildlife conservation including sportsman characteristics, safety, law enforcement, professional and sportsman education, nonconsumptive uses, economics, and history. There are 995 references from 218 different sources. Also included are a list of reference sources used, an author index, and keywords, along with a keyword index.

KEYWORDS: Recreation, wildlife, hunting, fishing, bibliography.

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An Annotated Bibliography

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1973

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Robert E. Buckman, Director

Portland, Oregon

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INTRODUCTION

This annotated bibliography was compiled to aid students, teachers, researchers, conservationists, and managers seeking literature on nonbiological or human behavior aspects of fish and wildlife conservation. Examples of specific topics included are: sportsman characteristics, preferences, opinions, and attitudes; economic impact of sportsmen and wildlife; hunter safety and law enforcement; the wildlife profession, education, and administration; nonconsumptive uses of wildlife; and history.

The authors were impressed by the great number and diversity of articles on human behavior aspects of fish and wildlife but dismayed at the lack of rigorous research on the subject.¹ The following table presents a categorized summary of the 218 different reference sources in which the 995 articles listed in this bibliography were found. This overview of articles and their sources suggests substantial concern with people problems by managers, reflected in talks and papers to conferences and by articles in their department-sponsored magazines.

<i>Reference Type</i>	<i>Number</i>	<i>Percent</i>
Conference proceedings	338	34
State Game-Conservation Department periodicals	142	14
Scientific journals	148	15
Conservation, trade journals, and outdoor magazines	122	12
Ph.D. dissertations, Master's theses	113	11
Federal-State-university-foundation sponsored reports	102	10
Other	<u>30</u>	<u>3</u>
	995	99

^{1/} For an earlier assessment of *human behavior-wildlife literature* see: Hendee, John C., and Dale R. Potter. 1971. *Human behavior and wildlife management: needed research*. 36th North Am. Wildl. Nat. Resour. Conf. Proc. 36: 383-396.

We hope this compilation of annotated references to the literature will provide needed impetus and information to increase the amount and quality of research and professional debate about human behavior aspects of fish and wildlife conservation.

The abstracts accompanying most of the articles attempt to describe substantive content and conclusions rather than describing what the article is about.

This bibliography has several features to aid the user. (1) "Abbreviations and Frequency of Referenced Material" gives the exact abbreviations for all journals, magazines, and other sources cited in the bibliography and the number of articles referenced. This list reflects the great diversity of sources in which wildlife conservation topics are covered. (2) The section "Other Bibliographical Sources Used to Locate References" may be useful to readers seeking additional wildlife or natural resource materials. (3) The "Author Index" lists in alphabetical order all of the authors included in the bibliography; this includes all junior authors in addition to senior authors. (4) The keywords with each reference and the "Keyword Index" will aid the user in two ways. The index is used like any book index--you look up specific topics of interest and go directly to the numbered references on that topic. In addition, the keywords listed with each reference give a quick review of topics covered in that document and may include some topics not mentioned in the annotation.

We apologize in advance for any injustices, inaccuracies, or omissions that are sure to result from the review of such a massive amount of material. Readers are urged to correspond with the authors regarding errors contained in this bibliography. If appropriate references have been omitted, we would appreciate receiving a copy or knowing of their title and source. Our objective is the most complete collection of annotated references possible on the subject, "human behavior aspects of fish and wildlife conservation." These should be sent to:

Wildland Recreation Research
Pacific Northwest Forest and Range
Experiment Station
4507 University Way N.E.
Seattle, Washington 98105

Persons desiring publications included in this bibliography should go to the reference source cited or write to the agency which sponsored the publication. Neither the Pacific Northwest Forest and Range Experiment Station nor the authors can provide copies of any references listed in this bibliography, except material published by the Station.

The authors wish to thank the Wildlife Management Institute and the American Petroleum Institute for partially funding the compilation of this bibliography. In addition, the able assistance is acknowledged of the following students in compiling this bibliography: Robert Muth, Maureen McLean, and Mary Price, University of Washington, Steve Lewis, Seattle Pacific College, and Glenn Uno, Washington State University.

ABBREVIATIONS AND FREQUENCY OF REFERENCED MATERIAL²

<i>Abbreviation</i>	<i>Number of References Included</i>	<i>Source</i>
Am. Assoc. Advan. Sci. Symp.	1	American Association for the Advancement of Science Symposium
Am. Fish. Soc. Trans.	3	American Fisheries Society Transactions
Am. For.	34	American Forests
Am. For. For. Life	1	American Forests and Forest Life
Am. Nat. Assoc. Wildl. Manage. Inst.	1	American Nature Association and Wildlife Management Institute
Ariz. Fish Game Dep.	1	Arizona Fish and Game Department
Ariz. Game Fish Comm. Fed. Aid Wildl. Restoration Div.	1	Arizona Game and Fish Commission, Federal Aid in Wildlife Restoration Division
Audubon	2	Audubon
Auk	1	The Auk
Biometrics	1	Biometrics
Bobbs-Merrill Co., Inc. Inter-Univ. Case Prog.	1	The Bobbs-Merrill Company, Incorporated, Inter-University Case Program
Brigham Young Univ. Pac. Southwest. For. Range Exp. Stn.	1	Brigham Young University and Pacific Southwestern Forest and Range Experiment Station
Bull. Ecol. Soc. Am.	1	Bulletin of Ecological Society of America
Bur. Outdoor Rec.	1	Bureau of Outdoor Recreation
Bur. Res. State Wis. Dep. Nat. Resour.	1	Bureau of Research, State of Wisconsin Department of Natural Resources
Bus. Week	1	Business Week
Calif. Fish Game	19	California Fish and Game

^{2/} *Colleges and universities represented by theses and dissertations are listed separately at the end of this list.*

Can. Audubon	1	Canadian Audubon
Can. Raptor Soc.	1	Canadian Raptor Society
Colo. Div. Game Fish Parks	2	Colorado Division of Game, Fish and Parks
Colo. Outdoors	3	Colorado Outdoors
Colo. State Univ. Dep. Econ.	2	Colorado State University, Department of Economics
Conf. <i>Am.</i> Game Trans.	5	Conference American Game Transactions
Conf. Int. Assoc. Game Fish Conserv. <i>Comm.</i> Proc.	74	Conference International Association of Game and Fish Conservation Commission Proceedings
Conf. Int. Union Conserv. Nat. Nat. Resour.	1	Conference of the International Union for Conservation of Nature and Natural Resources
Conf. Natl. Acad. Sci. Res. Counc. Arctic Inst. North Am.	1	Conference of the National Academy of Science Research Council, Arctic Institute of North America
Conf. North Am. Wildl. Nat. Resour. Trans.	27	Conference North American Wildlife and Natural Resources Transactions
Conf. North Am. Wildl. Trans.	81	Conference North American Wildlife Transactions
Conf. Northeast Wildl. Trans.	2	Conference Northeast Wildlife Transactions
Conf. Southeast, Assoc. Game Fish <i>Comm.</i> Proc.	51	Conference Southeastern Association of Game and Fish Commissioners Proceedings
Conf. West. Agric. Econ. Res. Counc. Proc.	1	Conference Western Agricultural Economics Research Council Proceedings
Conf. West. Assoc. State Game Fish <i>Comm.</i> Proc.	88	Conference Western Association of State Game and Fish Commissioners Proceedings
Congr. Int. Union Game Biol. Trans.	2	Congress of the International Union of Game Biologists Transactions
Conservationist	3	The Conservationist
Conserv. Volunteer	1	Conservation Volunteer

Dep. Fish. For. Ottawa Can.	1	Department of Fisheries and Forestry, Ottawa, Canada
Dep. Fish Game, State Calif.	1	Department of Fish and Game, State of California
Dep. Rec. Conserv. Fish Wildl. Branch B.C.	1	Department of Recreation and Conservation, Fish and Wildlife Branch, British Columbia
Down East	1	Down East
Dubuque, Iowa: William C. Brown co.	1	Dubuque, Iowa: William C. Brown Company
East Alton, Ill.: Conserv. Dep. Winchester West. Div., Olin Corp.	3	East Alton, Illinois: Conservation Department, Winchester Western Division, Olin Corporation
Ecology	1	Ecology
Field Stream	11	Field and Stream
Fla. Wildl.	24	Florida Wildlife
For. Chron.	1	The Forestry Chronicle
For. Q.	4	Forestry Quarterly
Garden Club Am. Bull.	1	Garden Club of America Bulletin
Guns Hunting	1	Guns and Hunting
Idaho Wildl. Rev.	2	Idaho Wildlife Review
Int. Conf. Conserv. Nat. Nat. Resour. Proc.	1	International Conference for Conservation of Nature and Natural Resources Proceedings
Iowa State Coll. J. Sci.	1	Iowa State College Journal of Science
Izaak Walton League Outdoor Am.	1	Izaak Walton League, Outdoor America
Izaak Walton Mag.	1	Izaak Walton Magazine
J. Environ. Educ.	7	The Journal of Environmental Education
J. For.	29	Journal of Forestry
J. Leisure Res.	5	Journal of Leisure Research
J. Mammology	1	Journal of Mammology

J. Range Manage.	2	Journal of Range Management
J. Soil Water Conserv.	4	Journal of Soil and Water Conservation
J. Wildl. Manage.	72	Journal of Wildlife Management
J. Wildl. Program Manage.	1	Journal of Wildlife Program Management
La. Conserv.	1	Louisiana Conservationist
Land Econ.	1	Land Economics
Life	1	Life
Life Sci.	1	Life Science
London: Adam and Charles Black Ltd.	1	London: Adam and Charles Black, Limited
London: Ernest Benn Ltd.	1	London: Ernest Benn, Limited
Mich. Academician	1	Michigan Academician
Mich. Conserv.	5	Michigan Conservationists
Mich. Dep. Conserv.	5	Michigan Department of Conservation
Mich. Dep. Nat. Resour.	6	Michigan Department of Natural Resources
Minn. Conserv. Volunteer	1	Minnesota Conservation Volunteer
Mont. State Univ.	1	Montana State University
Natl. Rev. (Br.)	1	National Review (British)
Natl. Shooting Sports Found.	2	National Shooting Sports Foundation
Natl. Wildl.	11	National Wildlife
Nat. Resour. J.	2	National Resources Journal
Naturalist	2	Naturalist
N. Brunswick, N.J.: Rutgers Univ. Press	1	New Brunswick, New Jersey: Rutgers University Press
N.D. Outdoors	2	North Dakota Outdoors
Nev. Outdoors Wildl. Rev.	1	Nevada Outdoors and Wildlife Review
New York: Appleton-Century-Crofts Inc.	2	New York: Appleton-Century-Crofts, Incorporated

New York: Boone and Crockett Club	1	New York: Boone and Crockett Club
New York: Charles Scribner's Sons	2	New York: Charles Scribner's Sons
New York: Funk and Wagnalls Co.	1	New York: Funk and Wagnalls Company
New York: Macmillan Co.	2	New York: The Macmillan Company
N.H. Fish Game Dep.	2	New Hampshire Fish and Game Department
N.M. Dep. Game Fish	1	New Mexico Department of Game and Fish
North Am. Game Breeders Assoc. Conv.	1	North American Game Breeders Association Convention
Northwest Sci.	1	Northwest Science
N.Y. Fish Game J.	9	New York Fish and Game Journal
N.Y. Hist. Soc. Q.	1	New York Historical Society Quarterly
N.Y. State Conserv.	13	The New York State Conservationist
Ohio Agric. Exp. Stn.	1	Ohio Agricultural Experiment Station
Okla. State Univ.	1	Oklahoma State University
Edinburgh and London: Oliver and Boyd Ltd.	1	Edinburgh and London: Oliver and Boyd, Limited
Oreg. State Game Comm. Bull.	1	Oregon State Game Commission Bulletin
ORRRC	2	Outdoor Recreation Resources Review Commission
Outdoor Calif.	1	Outdoor California
Outdoor Life	8	Outdoor Life
Outdoor W.Va.	1	Outdoor West Virginia
Pac. Northwest River Basins Comm.	2	Pacific Northwest River Basins Commission
Parks Rec.	5	Parks and Recreation
Pa. State Agric. Exp. Stn.	2	Pennsylvania State Agriculture Experiment Station
Pa. State Univ. Dep. Agric. Rural Sociol.	1	Pennsylvania State University, Department of Agriculture and Rural Sociology

Philadelphia: J. B. Lippincott Co.	1	Philadelphia: J. B. Lippincott Company
Public Land Law Rev. Comm.	1	Public Land Law Review Commission
Purdue Univ. Agric. Exp. Stn.	1	Purdue University Agriculture Experiment Station
Reading, Mass: Addison-Wesley Publ. Co., Inc.	1	Reading, Massachusetts: Addison-Wesley Publishing Company, Incorporated
Recreation Symp. P'roc. USDA For. Serv. Northeast. For. Exp. Stn.	1	Recreation Symposium Proceedings, United States Department of Agriculture, Forest Service, Northeastern Forest Experiment Station
Resour. Future, Inc.	1	Resources for the Future, Incorporated
Rod Gun	3	Rod and Gun
Rod Gun Can.	2	Rod and Gun in Canada
Rural Sociol.	1	Rural Sociology
Rutgers Univ. Bur. Econ. Res.	1	Rutgers University, Bureau of Economic Research
Sat. Evening Post	4	Saturday Evening Post
Sat. Rev. Lit.	1	The Saturday Review of Literature
Sci. Counc. Can.	1	Science Council of Canada
Science	1	Science
S.D. Conserv. Dig.	1	South Dakota Conservation Digest
S.D. State Univ. Agric. Exp. Stn.	1	South Dakota State University, Agriculture Experiment Station
Shooting Sports Assoc. Inc.	1	Shooting Sports Associated, Incorporated
Soc. Am. For. Proc.	1	Society of American Foresters Proceedings
Soil Conserv.	2	Soil Conservation
South, Ill. Univ. Dep. For.	1	Southern Illinois University, Department of Forestry
Spectator	1	Spectator
Sportfishing	1	Sportfishing

Sporting Arms Manuf. Inst.	1	Sporting Arms and Manufacturing Institute
Sports Illus.	15	Sports Illustrated
TAM Archery World	1	TAM Archery World
Tex. Game Fish.	19	Texas Game and Fisheries
Univ. Ariz. Bur. Bus. Public Res.	1	University of Arizona, Bureau of Business and Public Research
Univ. Ariz. Coll. Bus. Public Adm.	1	University of Arizona, College of Business and Public Administration
Univ. B.C.	1	University of British Columbia
Univ. Ky. Water Resour. Inst.	1	University of Kentucky, Water Resources Institute
Univ. Mass. Agric. Exp. Stn.	1	University of Massachusetts, Agriculture Experiment Station
Univ. Md Agric. Exp. Stn.	1	University of Maryland, Agriculture Experiment Station
Univ. Mo. Agric. Exp. Stn. Resour. Dev. Econ. Div.	1	University of Missouri, Agriculture Experiment Station and Resource Development, Economics Division
Univ. Nevada Agric. Exp. Stn.	1	University of Nevada, Agriculture Experiment Station
Univ. Nevada Max C. Fleischmann Coll. Agric.	1	University of Nevada, Max C. Fleishmann College of Agriculture
Univ. N.M. Bur. Bus. Res.	1	University of New Mexico, Bureau of Business Research
Univ. R.I. Agric. Exp. Stn.	3	University of Rhode Island, Agriculture Experiment Station
Univ. Utah Bur. Econ. Bus. Res.	1	University of Utah, Bureau of Economic and Business Research
Univ. Vt. Agric. Exp. Stn.	1	University of Vermont, Agriculture Experiment Station
Univ. Wis. Bur. Bus. Res. Serv.	2	University of Wisconsin, Bureau of Business Research and Service
Univ. Wis. Coll. Agric. Life Sci.	2	University of Wisconsin, College of Agriculture and Life Science
U.S. Congr. 1st Sess.	4	United States Congress, 1st Session

U.S. Congr. 2nd Sess.	1	United States Congress, 2nd Session
USDA Biol. Surv. Bull.	1	United States Department of Agriculture, Biological Survey Bulletin
USDA Econ. Res. Serv.	1	United States Department of Agriculture, Economic Research Service
USDA For. Serv.	2	United States Department of Agriculture, Forest Service
USDA For. Serv. North Cent. For. Range Exp. Stn.	2	United States Department of Agriculture, Forest Service, North Central Forest and Range Experiment Station
USDA For. Serv. Southeast. For. Exp. Stn.	3	United States Department of Agriculture, Forest Service, Southeastern Forest Experiment Station
USDA For. Serv. Pac. Southwest For. Range Exp. Stn.	2	United States Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station
USDI Bur. Sport Fish. Wildl. Serv.	10	United States Department of the Interior, Bureau of Sport Fisheries and Wildlife Service
Utah Sci.	1	Utah Science
Utah State Univ. Agric. Exp. Stn.	1	Utah State University, Agriculture Experiment Station
Utah State Univ. Inst. Soc. Sci. Res. Nat. Resour.	1	Utah State University, The Institute for Social Science Research on Natural Resources
Va. Polytech. Inst. Dep. For. Wildl. Res.	2	Virginia Polytechnic Institute, Department of Forestry and Wildlife Research
Va. Wildl.	4	Virginia Wildlife
Wash. Dep. Fish.	1	Washington Department of Fisheries
Washington, D.C.: Wildl. Soc.	1	Washington, D.C.: The Wildlife Society
Wash. State Coll. Econ. Bus. Res.	2	Washington State, College of Economics Business Research
Wash. State Game Bull.	1	Washington State Game Bulletin
Wild Cascades	1	The Wild Cascades (Northwest Section of Sierra Club)

Wildl. Manage. Inst.	2	Wildlife Management Institute
Wildl. N.C.	3	Wildlife of North Carolina
Wildl. Soc. News	2	Wildlife Society News
Wis. Conserv. Bull.	40	Wisconsin Conservation Bulletin
Wis. Conserv. Dep.	4	Wisconsin Conservation Department
Wyo. Wildl.	2	Wyoming Wildlife

College and University Sources for Theses and Dissertations

Auburn Univ.	1	Auburn University
Colo. Agric. Mech. Coll. Colo. State Univ.	2	Colorado Agricultural and Mechanical College, Colorado State University
Colo. State Univ.	1	Colorado State University
Columbia Univ.	1	Columbia University
Cornell Univ.	5	Cornell University
George Peabody Coll. Teach.	1	George Peabody College for Teachers
Iowa State Univ.	3	Iowa State University
Johns Hopkins Univ.	1	Johns Hopkins University
Kans. State Univ.	1	Kansas State University
La. State Univ.	3	Louisiana State University
Mankato State Teach. Coll.	1	Mankato State Teachers College
Mich. State Univ.	7	Michigan State University
Mont. State Univ.	2	Montana State University
N.C. State Coll.	1	North Carolina State College
Northwest. Univ.	1	Northwestern University
N.Y. Univ.	1	New York University
Ohio State Univ.	3	Ohio State University
Oreg. State Coll.	7	Oregon State College
Oreg. State Univ.	4	Oregon State University

Pa. State Univ.	2	Pennsylvania State University
Princeton Univ.	1	Princeton University
South. Ill. Univ.	3	Southern Illinois University
Springfield Coll.	1	Springfield College
Syracuse Univ.	2	Syracuse University
Tex. A&M Univ.	2	Texas Agricultural and Mechanical University
UCLA	1	University of California at Los Angeles
Univ. Ala.	1	University of Alabama
Univ. Alaska	1	University of Alaska
Univ. Calif.	1	University of California
Univ. Colo.	1	University of Colorado
Univ. Conn.	1	University of Connecticut
Univ. Fla.	1	University of Florida
Univ. Ga.	1	University of Georgia
Univ. Idaho	1	University of Idaho
Univ. Maine	2	University of Maine
Univ. Mass.	5	University of Massachusetts
Univ. Mich.	12	University of Michigan
Univ. Minn.	2	University of Minnesota
Univ. Mo.	2	University of Missouri
Univ. N.C.	1	University of North Carolina
Univ. Okla.	1	University of Oklahoma
Univ. Tex.	1	University of Texas
Univ. Wash.	4	University of Washington
Univ. Wis.	4	University of Wisconsin
Univ. Wyo.	2	University of Wyoming
Utah State Univ.	8	Utah State University
Va. Polytech. Inst.	3	Virginia Polytechnic Institute

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Oreg. State Coll.

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1. Abbey, Edward
1970. Let us now praise mountain lions. Life 68(9): 52B-58, illus.

Ignorance and mythology surround the mountain lion; he is hunted, trapped, poisoned, and, in Arizona, bountied because a few domestic animals occasionally fall prey. Predator control programs "eliminate all the wild-life except the deer, which are reserved for the licensed deer slayer." Wildlife managers are in the middle between lion preservationists and live-stock owners and hunter groups favoring control of all "varmints." Many social and biological questions important to the survival of the mountain lions are raised.

KEYWORDS: Antihunting, predator.
2. Abramson, Norman J.
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In 1961 an estimated 118,070 (ratio of 0.875) persons purchased 134,936 special California's angling licenses. Approximate standard errors of the number of purchasers and the ratio are 2,305 and 0.017, respectively. Estimates were obtained from a random sample of 7,493 license stubs.

KEYWORDS: Research methods, fishing, California.
3. _____ and Catherine L. Berude
1969. Distribution of California angling effort in 1968. Calif. Fish Game 55(4): 260-264.

A post-card survey of licensed anglers showed the distribution of 1968 sport fishing effort in ocean waters, fresh waters, and the waters of San Francisco Bay and the Sacramento-San Joaquin Delta. Estimated percentages of total angler-days spent in these three water categories are 25.2, 64.2, and 10.6, respectively. Proportions of licensees fishing in each type of water are estimated at 0.436, 0.747, and 0.167, although the proportions of anglers fishing exclusively in the particular water category are 0.111, 0.382, and 0.017. An estimated 10 percent of all licensees did not fish. Survey results differ significantly from 1961 estimates.

KEYWORDS: Fishing, crowding, California.
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Administrators should regulate and protect birds before catering to the pleasure of the shooter. They must protect vanishing game from aliens and market hunters through respect for the law and enforcement of it.

KEYWORDS: Management, legislation.
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The role of wildlife research and the development and execution of public policies are discussed.

KEYWORDS: Administration, research needs, historical value.

6. ———. 1925. The conservation of predatory mammals. *J. Mammology* 6: 83-96.

Scientific, educational, social, and economic values of predators and methods of conservation and policies for management are mentioned.

KEYWORDS: Historical value, predator, conservation, economics, benefits.

7. ———. 1926. The fundamentals of cooperation among wild life agencies. 69th U.S. Congr. 1st Sess. Senate Doc. No. 117: 66-70.

Techniques for recognizing the major wildlife interest groups and for formulating and executing public wildlife policies are discussed.

KEYWORDS: Administration

8. Adams, Harry E.
1938. Deer census and kill records of the Lake States. 3d Conf. North Am. Wildl. Trans., p. 287-295, illus.

For 4 years, checking stations were maintained at the forest boundaries on all main roads to obtain information on residence of hunters, number of days hunted, number and sex of deer shot, and opinions as to the trend of the deer population. Average acres of hunting territory per hunter decreased from 150 in 1934 to 115 in 1937. No correlation was found between hunting success and legal restrictions.

KEYWORDS: Harvest statistics, management, big game, surveys.

9. Adams, Kramer A.
1956. Multiple use on private lands. *Am. For.* 62(8): 14-15, 58-59, illus.

Hunter damage to private property such as from fires, vehicles, theft, vandalism, and trespassing is discussed. More hunter education and control and the opening of more private lands to recreation are suggested to correct the public's misconception of "multiple use."

KEYWORDS: Landowner-private, law violation, resource use.

10. Adams, William H. Jr.
1958. On the status of "wildlife management" as a scientific profession. 12th Conf. Southeast. Assoc. Game Fish Comm. Proc. 12: 275-279.

KEYWORDS: Profession, management, education, historical value.

11. Adams, Wm. C.
1932. Uniform non-resident licenses for all States. 24th Int. Assoc. Game Fish Conserv. Comm. Proc. 24: 41-46.

Uniform non-resident hunting and fishing fees are needed to force the sportsman to pay for his privileges. States that have more to offer in game opportunities should set a higher fee. Nationally the license fee is

not predicated on what the privilege is worth but on political considerations or the state of public sentiment.

KEYWORDS: License fee, fishing.

12. Albrecht, James Conrad

1965. The recreation resources of the Malheur National Wildlife Refuge. M.S. thesis, Oreg. State Univ., 112 p., illus.

This thesis purports to examine and evaluate, through library research and personal interviews, the resources of the Malheur National Wildlife Refuge with respect to current and potential use for recreation. The refuge system and its financing are discussed, sections covering the Malheur Refuge are purely descriptive in nature. (The major value of this thesis is the collection of information under one cover. Bibliography, 73.)

KEYWORDS: Refuge, non-consumptive use.

13. Albright, H. M., and T. G. Joselin

1930. The drift of the elk. Sat. Evening Post 202(52): 41-42, 44, 46, 138, illus.

The plight of Montana and Wyoming elk is outlined. They face possible extinction through starvation and over-hunting. Conservation movement and congressional action are reviewed.

KEYWORDS: Big game, conservation, legislation, historical value.

14. Allen, Dorothy E.

1961. The legacy of man and beaver in Michigan. M.S. thesis, Univ. Mich.

Restricted to Univ. of Mich. campus use.

KEYWORDS: Michigan, small game.

15. Allen, Durward L.

1962. Our wildlife legacy. (Rev.) 422 p., illus. New York: Funk & Wagnalls Co.

Of particular interest are chapters 17, "Biopolitics," and 18, "We'll call it yours and mine." Chapter 17 deals with State legislatures, game departments, and public opinion in decision making. Chapter 18 tells about properties and rights held in common which could be lost to hunters as pressure grows unless they see clearly and act quickly.

KEYWORDS: Politics, Federal-State jurisdiction.

16. _____

1972. The need for a new North American wildlife policy. 37th Conf. North Am. Wildl. Nat. Resour. Trans., 7 p.

This article has an historical perspective of the national policy of wildlife conservation and restoration formed in 1930. A new wildlife and human population policy must be integrated to reflect changed values and attitudes. Unless this is done, future populations will not be able to enjoy wildlife and the environment. There is evidence of a refinement in the public's taste in favor of more sporting methods of hunting, fishing, and non-consumptive use. Bow hunting and bird watching are examples. Problems of the past still exist and new ones have arisen, including

compensation for landowners for producing wildlife for public use, abuse of public lands and wildlife by special interests, State and Federal jurisdictional disputes, custodial obligation of non-game species, water and habitat destruction, off-trail vehicles, and finally human population growth. A population policy of zero growth and then progressive reduction of human numbers is needed.

KEYWORDS: Administration, historical value.

17. Amidon, Paul H.

1968. New York deer hunters: A comparison of deer law violators and non-violators. M.S. thesis, Syracuse Univ., 143 p., illus.

A sample of 150 convicted game violators (50 serious, 50 safety, and 50 miscellaneous violators) and 150 assumed nonviolators was drawn from each of four management areas. A mail questionnaire was pretested and then sent to 1,200 hunters, yielding a total usable response of 58.7 percent after two followup mailings. Nonrespondents were not investigated. Comparisons indicated generally no significant difference between violators and nonviolators for amount of time spent hunting. The party permit system was judged a good method for harvesting surplus deer, "hunting pressure was about right," and hunting regulations were "not too restrictive." Regulations were considered too much directed at the less important aspects of hunting. Reasons for illegal kill were for tangible benefits such as years of hunting experience, hunting success as perceived by the hunters, investment in equipment, and income. The deer killed per year of hunting experience was significantly higher for violators in three of the four areas studied. Characteristics of five New York deer management areas show that the effects of deer law violators are not uniform throughout the State. In one area illegal kill limits the size of a herd on a range which could support more deer, while in another area an adequate deer harvest is not obtained annually even when illegal kill is taken into consideration. (Questionnaire is included. Literature cited, 26.)

KEYWORDS: New York, law violation, characteristics, big game, research methods.

18. Andrews, Wade H., Alten B. Davis, Kenneth S. Lyon, Gary E. Madsen, R. Welling Roskelley, and Bruce L. Brower

1972. Identification and measurement of quality of life elements in planning for water resources development: An exploratory study. Utah State Univ. Inst. Soc. Sci. Res. Nat. Resour., Res. Rep. No. 2. 184 p., illus.

An interview provided the main bulk of data on income distribution, work, leisure, esthetics, level of living, and water resources. Rural and urban populations were randomly sampled in each Utah county. Fishing was used as a means to measure water resource enjoyment. Fish enjoyment factors included social interaction, esthetic enjoyment, escape from pressures, and fishing itself. The highest rated single factor in fishing enjoyment was interaction with the family.

KEYWORDS: Esthetics, fishing, Utah, politics, benefits.

19. Anonymous

1908. Value of game. For. Q. 6(1): 104.

Income derived from hunting leases and amount of game meat sold are presented for Austria, Germany, France, Scotland, Switzerland, Prussia, and Hungary.

KEYWORDS: User fee, historical value, benefits, foreign country-general.

20. _____
1910. Hunting in Prussia. For. Q. 8(4): 560.

The Prussian minister of agriculture briefly cites examples from Baden, Alsace-Lorraine, and Bavaria to show that renting the government forests for hunting to the highest bidders results in small income (Bavaria rents 1 million acres for little over 6 cents an acre) and much damage to the forest.

KEYWORDS: Germany, historical value, management, economics.

21. _____
1911. Value of hunting in Germany. For. Q. 9(3): 511.

Brief data are given on money value of game killed in Prussia and on the cost per acre for hunting leases.

KEYWORDS: Germany, user fee, historical value, benefits.

22. _____
1913. Game in Prussia. For. Q. 11: 284.

Foresters and landowners must be deprived of their ancient hunting privileges so that communal forests might be leased. By so doing, income from forests will increase, and the value of the trees as well as the game will be promoted.

KEYWORDS: Germany, management, historical value.

23. _____
1920. Hunting in the State forests of the German States. J. For. 18(2): 175-179.

Management's object should be the insurance of greatest lasting returns to the State treasury, the protection of the silvicultural interests of the forest, and the prevention of injury to the general hunting business. Leasing is undesirable due to game stock or forest depletion.

KEYWORDS: Historical value, Germany, management.

24. _____
1935. The conservation of wildlife. Am. For. 41(9): 482-487, illus.

A summary of historical conservation events, personalities, and legislation includes the following topics: wildlife and the pioneers, the market hunter, game laws, early game conservationists, organized game protection, wildlife administration, and migratory birds.

KEYWORDS: Historical value, conservation, waterfowl, upland game birds, administration, legislation.

25. _____
1936. Wildlife management on private and State lands. Am. For. 42(3): 120-121, 147, illus.

Reviews are given on two papers concerning wildlife restoration. Aldo Leopold deals with the role of private land in wildlife management and concludes that the present program is lop-sided. The inherent characteristics of wildlife and land-use call for maintaining wildlife over large areas which would necessitate management of private lands. Elliott S. Barker discusses wildlife management by State agencies. Covered are jurisdictional questions, license fees, resource inventory, regulations, management plans, and restoration and maintenance of habitat.

KEYWORDS: Management, land owner-private, conservation, Federal-State jurisdiction, license fee.

26.

1952. Voluntary sportsmen. Wis. Conserv. Bull. 17(2): 9-11.

In 1950, 204 purchasers of voluntary sportsmen's licenses were asked to indicate their occupations, comment on the Conservation Bulletin, and indicate interest response to a list of news stories and conservation projects.

KEYWORDS: Wisconsin, preferences, conservation, communications, characteristics.

27.

1955. Is public hunting doomed? Part I. Field Stream 60(6): 40-41, 94-97, illus.

Public hunting opportunity is still good in the West due to open space, lower population, and much public-owned land. Although big game hunters are provided with many hunting opportunities, there are few public areas for waterfowl or upland game bird hunters. Each of the western game departments is attempting to induce farmers to open their lands to bird hunting. California promises strict supervision and law enforcement to farmers. Oregon posts "Hunting by Permission" signs and has also sponsored hunter's courtesy days and youth hunting preserves. Washington, too, has replaced "No Hunting" signs with "Hunting by Permission" signs and has turned poor-quality land into good hunting areas. In Utah, Hunter fees are used by the farmers for civic projects. Unfortunately, in both Utah and Colorado it is difficult to hunt unless one belongs to a private club since most marshland is in private club ownership. Nevada regulates hunter numbers on private land and extends protection to property owners. The Idaho Landholder Sportsman's Council serves as a planning conference between hunter, owner, and the game department. Public hunting has not died in the West because existing problems are being vigorously attacked. (Also see Part II (Titus and Laycock 1955) and Part III (Page and Camp 1955).)

KEYWORDS: Administration, landowner-private, waterfowl, upland game birds, farmer-sportsman relations, surveys.

28.

1956. The impact of hunting and fishing. Tex. Game Fish. 14(9): 6.

A popular summary of National expenditures by type was taken from the 1955 U.S. Fish and Wildlife Service National Survey.

KEYWORDS: Fishing, economics, surveys.

29. _____ 1957a. The boom in shooting preserves. Bus. Week Dec. 14,(1476): 164-165, 167-168, 170, illus.
- The growth of shooting preserves stems from the increasing numbers of hunters and proportionately decreasing size of the hunter's bag. Commercial preserves are open to the public, and hunters are charged a fee for each bird they shoot. Clubs also manage preserves for the benefit of members. Memberships are offered for an annual fee. Shooting preserves are subject to several problems. The average operator makes only \$5,000 a year on recovery of 5,000 birds. Recovery rate of released birds seldom exceeds 75 percent, and in some States bird take is restricted. While only 5 percent of the 1957 hunters used a shooting preserve, it is estimated that 50 percent of the Nation's hunters will use them regularly some day.
- KEYWORDS: New York, upland game birds, waterfowl, commercial hunting, refuge, plant and shoot.
30. _____ 1957b. Yellow good, red poor for hunters' clothing? Wis. Conserv. Bull. 22(3): 18.
- An article from *Outdoor California* magazine is summarized, describing tests conducted at Washington's Fort Lewis to determine the safest protective color to wear while hunting. Results indicate a best rating for bright yellow and very poor rating for red. Eight percent of the male population is colorblind and cannot easily distinguish red.
- KEYWORDS: Safety.
31. _____ 1961. National survey of hunting and fishing. Tex. Game Fish. 19(10): 6-9, illus.
- Popular presentation of results from the 1960 U.S. Fish and Wildlife Service National Survey is given. Also discussed is how Texas meets the demand of sportsmen.
- KEYWORDS: Fishing, economics, characteristics, Texas, surveys,
32. _____ 1969a. Game management notes. Fla. Wildl. 23(1): 30, illus.
- On the average, it took hunters 29.1 days to kill a deer, 19.9 to bag one turkey, and 8.3 days to bag a wild hog. Quail hunters, averaged slightly over three birds per day of hunting and 84,100 hunters averaged 8.4 man-days of quail hunting each.
- KEYWORDS: Harvest statistics, Florida.
33. _____ 1969b. Who has jurisdiction over wildlife? Idaho Wildl. Rev. 22(3): 14, illus.
- KEYWORDS: Federal-State jurisdiction, legislation, management.
34. _____ 1971. It's time to give the predators a break. Am. For. 77(11): 8-9.

Man is a predator, but we control his illegal activities by dealing with individual law violators, not by indicting the whole human race. Why not do the same with animal predators? Present predator control methods are dangerous to many species other than the ones specified for control. Large numbers of innocent animals are slaughtered for the sins of a few. The Missouri "extension trapper system" is discussed as a system which deals with the problem predator, not the entire species.

KEYWORDS: Predator, Missouri, management, trapping.

35. Armstrong, W. W.

1958. The economic value of hunting and fishing in Arizona in 1956. Ariz. Fish Game Dep. Wildl. Bull. No. 4, 36 p, illus.

Descriptive study highlights the importance of hunting as an economic activity. Mail questionnaire survey yielded 61-percent return of 3,570 residents and 50-percent return of 675 nonresidents after two followup letters and a personal followup contact. Resident sportsmen spent \$39,795,000 (\$302 each) and nonresidents spent \$3,300,000 (\$161 each) on hunting and fishing in Arizona in 1956. These figures do not include \$900,000 spent on licenses and permits. Fifty-five percent of the resident and 73 percent of the non-resident expenditures were for fishing. The \$44 million expenditures approach those from several important industries in the State. Retail trade is probably the largest single industry in the State, but the amount spent for hunting and fishing in the State exceeds retail sales in nine of the State's 14 counties. Comparisons are also made with rental incomes, restaurant sales, and annual crop and livestock income. (Validity of findings may be in question due to high nonresponse. Questionnaire is included.)

KEYWORDS: Fishing, economics, Arizona.

36. Arrington, O. N.

1948. Arizona's hunter reports. 28th Conf. West. Assoc. State Game Fish Comm. Proc. 28: 93-101.

The proceedings stress the importance of knowing the State's annual kill and hunting pressure, discuss four methods for gathering hunter report information (license stubs, checking stations, hunter canvass questionnaire, and hunter report cards), summarize and analyze deer report card returns for both 1946 and 1947, and tabulate deer, turkey, and elk permit-report card costs.

KEYWORDS: Arizona, research methods, harvest statistics, big game, upland game birds.

37. _____ and P. M. Cospers

1953. The economic aspects of wildlife resources in Arizona. Ariz. Game Fish Comm. Fed. Aid Wildl. Restoration Div., 20 p, illus.

Mail questionnaire survey of 3,782 Arizona resident and non-resident hunters yielded 2,907 returns (76.9 percent) with two followups. The third return questionnaire was tabulated separately to estimate non-response bias, and this group's reported expenditures were less than those for early respondents. Tables and charts list the total expenditures and percent distribution on 13 items for six game species. Resident and non-resident expenditures are shown by species. Transportation, food-lodging, and rifles-shotguns constitute more than 50 percent of hunter expenditures.

High hunter spending in the State is influenced by the large number of game species, lengthy hunting seasons, a large percentage of residents that hunt, and the distance they must travel. Residents spend more than twice as much on firearms as nonresidents. Hunting expenditures in Washington and Colorado are contrasted, and the value of Arizona wildlife is compared with other Arizona incomes and expenditures. For example, life insurance premiums totaled over \$19 million, while hunter expenditures were almost \$6.5 million.

KEYWORDS: Arizona, economics.

38. Ashcroft, William H.
1967. The socio-economics of recreational use of the Cache elk herd. M.S. thesis, Utah State Univ., 77 p., illus.

This is an excellent thesis pointing to changing preferences in wildlife use from consumptive to non-consumptive. Interviews are summarized of 530 out of 65,000 non-consumptive users who took a free sleigh ride through the Cache elk herd wintering grounds at Hardware Ranch, Utah. Elk were primary purpose of 98 percent of the visits. Visitors spent an average \$1.22 per trip, and \$80,000 for all visitors. Sleigh riders were willing to pay more before the ride than after, but present use could be maintained with a fee of \$0.25. Based on willingness to pay, use would drop 62 percent with a fee of \$0.75 to \$1.00. Optimal fee was \$0.50 with a 26-percent drop in use but a total revenue of \$22,000 per year. Present facilities and sleigh rides are provided by game department from hunting license fees. Mail questionnaires to 517 elk permit holders yielded a 41-percent return. Results indicated over 30 percent made only one hunting trip to the area; but for every permit holder, two or three people came along. Fifty-six percent said they hunt elk for "both meat and pleasure but mostly meat." Figures over 33 years show an increase in the number of \$15 permits and a steady decrease in hunter success. Hunters spent an average \$14 on first hunting trip of the season. Recommendations include a \$0.50 sleigh ride fee, improvement of facilities, and management primarily for sightseers.

KEYWORDS: Economics, preferences, harvest statistics, user fee, non-consumptive use, Utah, big game.

39. Atkeson, Thomas Z.
1958. Shotgun versus rifles in gray squirrel hunting. J. Wildl. Manage. 22(1): 99-100.

Study involved seven managed hunts on Alabama's Wheeler National Wildlife Refuge. Data were gathered from checking station interviews and questionnaires with an enforced 80-percent return. Data reveal 3,881 persons using shotguns bagged 13,904 and crippled 2,108 (15.2 percent) gray squirrels. They spent about 19 cents per animal on ammunition, and 146 riflemen spent less than 6 cents, bagged 377 squirrels, and crippled 46 (12.2 percent). Riflemen hunted longer, fired more shots, took less game, spent less per squirrel, and crippled at a lower rate.

KEYWORDS: Harvest statistics, small game, Alabama.

40. Atwood, Earl L.
1956. Validity of mail survey data on bagged waterfowl. J. Wildl. Manage. 20(1): 1-16, illus.

Knowledge of the pattern of occurrence and characteristics of response errors obtained during an investigation of the validity of post-season surveys of hunters was used to devise an effective two-step method for removing response-bias errors from survey data. Development of this method and its application to post-season hunter-take survey data increased the reliability of the data from below practical management significance up to the approximate reliability limits corresponding to the sampling errors.

KEYWORDS: Research methods, waterfowl.

41. _____ and Aelred D. Geis
1960, Problems associated with practices that increase the reported recoveries of waterfowl bands. J. Wildl. Manage. 24(3): 272-279.

Recovery of banded birds is around 50 percent. Special checking stations, publicity campaigns, rewards, and color-marking programs increase recovery but give inconsistent bias. Removal of incentive programs would increase reliability by stabilizing the ratio between reported and unreported birds.

KEYWORDS: Waterfowl, research methods, management.

42. Audubon Society
1972. The Audubon view. Audubon 74(1): 98.

This National Audubon Society policy statement regarding hunting states that the society has never been opposed to hunting of game species. They will advocate restrictions including closure of seasons if the welfare of a species warrants, but when the species recovers the society will again agree to increased take by hunters. The society's objective is wildlife and environment conservation--not the promotion of hunting. Therefore, the society does not advocate hunting; it just does not oppose it.

KEYWORDS: Administration.

B

43. Bade, August
 1941. California's game management area law. Calif. Fish Game 27(3): 149-153, illus.

The 1939 game management area law provides a landowner (of at least 120 acres) with a game management area license which costs \$10 per year and permits him to stock his area with quail or pheasant and to have a season set by the game commission. Correct procedures for license application, posting and banding, charging of fees, reporting on hunter statistics, sanitation, and law violations are discussed.

KEYWORDS: Management, landowner-private, California, user fee.
44. Bailey, James L.
 1965. Enforcement problems relevant to juvenile law violations. 19th Conf. Southeast. Assoc. Game Fish Comm. Proc. 19: 457-464.

KEYWORDS: Enforcement.
45. Bandirola, Louis S.
 1965. Economic values and conservation implications of fishing derbies. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 245-246.

KEYWORDS: Fishing, economics, conservation.
46. Barclay, John, and Karl E. Bednarik
 1968. Private waterfowl shooting clubs in the Mississippi flyway. 33rd Conf. North Am. Wildl. Nat. Resour. Trans. 33: 130-142.

A questionnaire-interview study of 31 percent of approximately 3,941 private waterfowl clubs controlling over 1 million acres in 12 flyway States showed an estimated 5,000 waterfowling clubs control at least 2.5 million acres and habitat while Federal and State areas manage only 1.7 million acres. It was also concluded that 22 percent of the flyway's moderate to high value habitat is in private control, and club hunters do not secure a disproportionate share of the harvest although their effort is more productive. Thirty-eight percent of the man-days at private clubs are devoted to activities other than hunting. Clubs furnish opportunities for fishing, bird watching, and picnicking.

KEYWORDS: Harvest statistics, waterfowl, management, clubs, surveys.
47. Barclay, John Scribner
 1965. Significant factors influencing the availability of privately owned rural land to the hunter. M.S. thesis., Pa. State Univ., 112 p., illus.

Mail questionnaires were sent to a sample of 1,463 owners of rural land 15 acres or larger in three Pennsylvania counties. Returns from 44 percent of the landowners provided the following information. Private land ownership accounts for 95, 82, and 65 percent of the total land areas of York, Huntington, and Sullivan Counties, respectively. Combined public and private land restricted against hunting is 47, 27, and 34 percent.

respectively. Factors affecting availability of private land are the owner's attitude and educational level, as well as trespass problems and posting. The owner's attitude is significantly influenced by his occupation type, hunting interest, and membership in State cooperative programs. Nearly 90 percent of those posting in each county were willing to grant permission to hunt on occasion.

KEYWORDS: Pennsylvania, access, farmer-sportsman relations, landowner-private.

48. Barker, Elliott S.

1941. Hunters and fishermen and the private property owner. 21st Conf. West. Assoc. State Game Fish Comm. Proc. 21: 33-38.

Farmer-sportsman relations are discussed based upon a questionnaire sent to western State administrators.

KEYWORDS: Farmer-sportsman relations, administration, surveys.

49. Barnes, Duncan

1962. The troubled hunter. Sports Illus. 17(8): 14-15, illus.

Inconsistency between government Fish and Wildlife Service duck population surveys and those made by Ducks Unlimited, a private organization, confuses the duck hunter.

KEYWORDS: Waterfowl, management.

50. _____

1966. Please don't feed the waterfowl. Sports Illus. 25(18): 32-39, illus.

The Migratory Bird Treaty Act makes it illegal to shoot ducks and geese over any area that has been deliberately baited, yet baiting continues despite the shortage of waterfowl.

KEYWORDS: Waterfowl, legislation, enforcement.

51. Barnes, Wm. B.

1946. The sportsman's questionnaire method of estimating the game kill in Indiana. 11th Conf. North Am. Wildl. Trans. 11: 339-348, illus.

A sportsman questionnaire was used as a convenient, inexpensive method for collecting kill statistics and other data pertinent to the success of the open season. Questionnaires were mailed to 15,121 randomly selected resident license holders and 1,630 free permittees. Only 6,116 were returned. Described are the purpose of surveys, other kill estimate methods, criteria, approach, followup, costs, and a formula for deducting non-use licenses. More importance is placed on average kill per hunting effort than on any other data.

KEYWORDS: Indiana, research methods, harvest statistics.

52. Bart, William M.

1972. A hierarchy among attitudes towards animals. J. Environ. Educ. 3(4): 4-6, illus.

Eighty-eight college students completed a "like-dislike" questionnaire for 30 North American animals. Responses were ranked by popularity,

and a tree theory analysis was performed to determine the hierarchy among the attitudes toward animals. Results show that the most popular animals were the horse, dog, and deer, while the least popular were the spider, snake, rat, and scorpion. A positive attitude toward rare and endangered species implied positive attitudes toward many other animals; however, a positive attitude toward a socially popular animal (horse) gave little or no indication of attitudes towards other animals. The rare and endangered animal received low popularity rankings. An example of the hierarchy model shows that liking a shark implies liking a pelican and a seal. Educators might utilize the hierarchy concept to formulate conservation education programs.

KEYWORDS: Preferences, non-consumptive use, big game, small game, education.

53. Bartley, Arthur

1961. Ducks Unlimited. *Am. For.* 67(4): 31, 64-66, illus.

Composition, explanation of policy, and history of the Ducks Unlimited conservation organization are presented.

KEYWORDS: Waterfowl, conservation, historical value.

54. Baumgartner, David Michael

1969. Forest resource use and management by large private hunting and fishing clubs in northern lower Michigan. Ph.D. diss., Mich. State Univ., 140 p.

Eighty-four hunting and fishing clubs 640 acres or larger were identified in northern lower Michigan. They control about 185,000 acres. Very few of the club forests, streams, or lakes have elaborate manmade recreational facilities. Hunting and fishing are the most popular activities. Large clubs control economic sources of raw materials to the region's pulp and paper industry, and over three-fourths have engaged in commercial cutting in the past 5 years. Forty-five percent of the large clubs are using management plans developed by foresters from the pulp and paper industry. The primary purpose of cutting is for wildlife habitat improvement rather than revenue. Although club archery and rifle deer hunters have over twice the average success of State hunters, it is doubtful that deer herds are under management control. The future of deer hunting and forestry practices are questioned unless professionals are more successful in showing club managers the need for deer herd control. Club managers are typically married, middle-aged, and highly educated professionals, business owners, or executives. (Condensed from Dissertation Abstracts.)

KEYWORDS: Fishing, Michigan, big game, landowner-private, management.

55. Baumgartner, F. M.

1942. An analysis of waterfowl hunting at Lake Carl Blackwell, Payne County, Oklahoma, for 1940. *J. Wildl. Manage.* 6(1): 83-91, illus.

Game kill records for 1940 indicate that hunters averaged 1.67 birds per day during 1,252 hunter days. Sunday overcrowding reduced average daily kill. Crippling losses show one duck was lost for every bird bagged. The controlled hunt was a success both economically and from the hunter's standpoint. Waterfowl species are listed by importance to hunters.

KEYWORDS: Waterfowl, economics, Oklahoma, management.

56. Baxter, John L., and Parke H. Young
1953. An evaluation of the marine sportfishing record system in California. Calif. Fish Game 39(3): 343-353, illus.

Data reveal that catch records have improved in quantity and quality. The records of total numbers of fish landed are said to appear accurate, and there has been some increase in the accuracy of individual species reports. The sport catch reports of important game fish are cited as being accurate enough to fulfill their intended purpose. Maintenance of the interest and support of sport boat personnel is of primary importance.
KEYWORDS: Fishing, research methods, California.
57. Beaufort, the Duke of
1948. The case for hunting. Natl. Rev. (Br.) 131(790): 585-590.

The President of the British Field Sports Society defends fox and stag hunting. This type of hunting has the hound killing the animal hunted and the gunless hunter riding horseback in pursuit. The main arguments against hunting are: it's cruel, it's the sport of the idle rich, it involves unnecessary expenditure and consumption of food for hounds and horses, and it causes crop damage. These points of contention are refuted and discussed as being false.
KEYWORDS: Antihunting, England.
58. Beebe, Frank L.
1971. The myth of the vanishing peregrine. North Surrey, Br. Columbia, Can., Can. Raptor Soc., 31 p.

This pamphlet purports to be a study in the manipulation of public and official attitudes. "The myth of the vanishing peregrine is a political wedge by which the high priests of the protectionist cause are attempting to obtain advisory control, with its implied legislative control of these birds, over most of Europe and all of North America," according to the author. The myth is perpetuated for the specific purpose of halting growth of falconry. The author attempts to show that publicly supported researchers have a conspiracy to get raptorial birds classified as "endangered species" because grants are available for the study of such species. "The peregrine does not belong entirely to nature," and, according to the author, "by right of history and tradition and by right of the intrinsic behavior of the species, this bird belongs to man. Falconers simply value these birds for their own personal enjoyment and wish to breed them in the context of enlightened self-interest." If falconers have to relinquish this historical right, they will go underground. Presented is a case history of the argument surrounding the myth of the vanishing peregrine from a falconer's viewpoint.
KEYWORDS: Falconry.
59. Belak, Edmund R., Jr.
1972. The outdoor magazines revisited. J. Environ. Educ. 4(1): 15-19.

This study is a content analysis of three major outdoor magazines--Field and Stream, Outdoor Life, and Sports Afield--for their development of environmental thought for randomly sampled issues in 1908, 1934, 1968, 1969, and 1970. Twenty keywords were used for tallying articles. In 1908 and 1934 these magazines carried articles mainly on wildlife problems, and

most of their environmental information was centered on fish and game. By 1970 these magazines contained almost a third more environmental information than they did in 1968, but little attention was given to air pollution and almost nothing on cultural problems. From 1968 through 1970 these magazines still centered environmental information around fish and game issues. The author concludes that outdoor magazines should place more emphasis on problems of air, water, and land quality and, if possible, cultural problems.

KEYWORDS: Communications, education, conservation.

60. Bell, James G.
1950. Public hunting grounds popular with city hunters. Wis. Conserv. Bull. 15(7): 20-21.

Origin of hunters using public hunting grounds in Wisconsin was discussed. One out of five came from Milwaukee and about 30 percent from the cities in the States of three regions of population concentration. (No information is given on sampling of the 16,884 hunters contacted and analysis of data is limited.)

KEYWORDS: Wisconsin, characteristics.

61. ——— Lloyd F. Gunther, and Laurence R. Jahn
1956. Horicon Marsh: the managed goose hunt - 1955. Wis. Conserv. Bull. 21(4): 23-25, illus.

Description of third annual managed hunt on Horicon Marsh presents hunter numbers, success, and conduct. Popularity of hunt led to problems of excessive use. (See Wiita and Bell 1959 and Bell, Jahn, and Gunther 1955.)

KEYWORDS: Wisconsin, waterfowl, harvest statistics, management.

62. ——— Laurence R. Jahn, and Lloyd Gunther
1955. Horicon's managed goose hunt - 1954. Wis. Conserv. Bull. 20(3): 12-14, illus.

Use figures, hunting pressure, success, and comments by hunters are discussed with area management problems based upon administrative records. (See Bell, Gunther, and Jahn 1956 and Wiita and Bell 1959.)

KEYWORDS: Waterfowl, Wisconsin, harvest statistics, management.

63. Bell, Thomas A.
1957. A study of the economic values of Wyoming's wildlife resources. M.S. thesis, Univ. Wyo., 140 p.

Mail questionnaires were sent to 3,263 resident and non-resident hunters and fishermen, 5-day tourist fishermen, and resident trappers to determine their economic impact on Wyoming. Eighty percent of the questionnaires were returned after three followup reminders. No less than \$23 million was spent for licenses, equipment, and other expenses. Resident sportsmen spent \$15 million while nonresidents spent \$8.3 million. Resident sportsmen spent 22 percent of their expenditure on transportation while nonresidents spent 38 percent on lodging and food. Both were the highest single expenditure in their category. Wyoming's wildlife resources compared favorably with the important agricultural industries of the State.

KEYWORDS: Wyoming, resident vs. nonresident, fishing, trapping, economics.

64. Bellrose, Frank C., Jr.
1947. Analysis of methods used in determining game kill. J. Wildl. Manage. 11(2): 105-119, illus.
- Due to non-response bias, misinformation, and exaggeration of kill figures, it is suggested that check stations, interview surveys, or special calendars are more expedient methods for obtaining pertinent game kill statistics than are application reports, license reports, or questionnaires. Several game kill methods are evaluated with data on Illinois waterfowl kill.
- KEYWORDS: Research methods, Illinois, waterfowl.
65. Benjamin, J. R.
1939. The Ohio Plan of State-supervised hunting on private lands. 4th Conf. North Am. Wildl. Trans. 4: 635-644, illus.
- First year report is given on Ohio Division of Conservation program to supervise public hunting on private land to provide demonstrations of minimum cost of hunting, protection, education of landowners and hunters, and proper game management practices. Fifteen privately regulated demonstration areas ranging from 800 to 4,000 acres were approved for a 5-year program. The Division of Conservation was granted power to issue permits, post land, practice game management, and enforce laws without expense to owners. First year tables show for each area the total acreage, hunters registered, length of season, and the numbers of rabbits, pheasants, and partridges killed. Hunting pressure over season is graphically shown.
- KEYWORDS: Landowner-private, harvest statistics, management.
66. Bennett, C. L., Jr., L. A. Ryel, and L. J. Hawn
1966. A history of Michigan deer hunting. Mich. Dep. Conserv. Res. Dev. Rep. No. 85, 66 p., illus.
- This report brings together all available information about deer hunting in Michigan. Some of the tables date back to the late 1800's. A tabular history is given for the following topics: firearm and archery legislation and regulations, license sales and fees, areas closed to firearm and archery hunting, hunting season and bag limits, harvest statistics, hunter numbers, and hunting accidents. A few tables are broken down into resident and non-resident comparisons.
- KEYWORDS: Big game, legislation, harvest statistics, archery, Michigan, resident vs. nonresident, historical value, accident, license fee.
67. Bennett, Logan J.
1949. Rural conservation education from the viewpoint of the Fish and Wildlife Service. 14th Conf. North Am. Wildl. Trans. 14: 200-203.
- Four needs for rural conservation education are: greater appreciation by citizens of several hundred million migratory birds, greater appreciation of water conservation, greater awareness of the fact that on rangelands the evidence shows benefit to all including desirable livestock and humanity, and, last, that trout and bass are indicators of good farming.
- KEYWORDS: Education, waterfowl, resource use.

68. Bennitt, Rudolf

1945. Some social factors influencing quail hunting in Missouri, **1938-1944.** J. Wildl. Manage. 9(3): **195-202.**

Data came from hunting reports on an average of **403** quail hunters each year for **7** years ending in **1944.** Metropolitan hunters averaged fewer trips and fewer hours afield per season, fewer convoys flushed per day, fewer birds bagged per man-hour, and a higher proportion of crippled birds than rural resident hunters. They traveled farther afield and did a higher proportion of their hunting on the **12** "special days" of the season. The amount of quail hunting in Missouri was halved between **1939** and **1944,** with relatively heavier hunting pressure on the **12** special days.

KEYWORDS: Missouri, upland game birds, characteristics.

69.

1946. University objectives in professional wildlife training. J. Wildl. Manage. 10(3): **218-227.**

Comprehensive university training is needed and must extend beyond compartmentalized wildlife and biology courses to include general education and personal and social development. The role of colleges and universities should be to foster intellectual, social, and personal attainments that the term "profession" connotes. Because there will always be few jobs, quality not quantity should be stressed. Programs should screen upward and downward, i.e., identify potential leaders and failures.

KEYWORDS: Education.

70. Benson, Fred C.

1959. An analysis of Connecticut's free deer permit system. M.S. thesis, Univ. Conn., **74** p., illus.

Legislation resulting from over **\$20,000** in deer damage claims allowed landowners, members of families, and employees to kill crop-destructive deer at any time. Persons not owning or leasing property may hunt deer under a paid permit system. A landowner may endorse three such applications to hunt on property he controls. In **1956-57,** deer were recorded killed on **491** separate properties by free permittees. Of this total, **431** interviews, mail questionnaires, and telephone contacts covered **87.8** percent of the property owners, **87.6** percent of the acreage involved, and **87.3** percent of the total free deer kill. In the **2** years, **214 (49.6** percent) of the properties were farms, **120 (27.8** percent) were semifarms, and **97 (22.5** percent) were nonfarms. Chi square tests indicated no significant difference in the types of property supporting deer killed. In the **2** years, **220 (51.0** percent) of the property owners reported deer damage, but only **13** owners reported damage beyond which they did not feel compensated by the year-round hunt. Such non-compensated damage estimates varied from **\$50** to **\$30,000** per property. Deer damage included browsing of laurel, "rubbing" of maple trees, and hay damage. Only **21.1** percent of the property owners issued paid permits and only **12.6** percent of the total available were issued. Only **32.2** percent of the persons given free deer permits used them. Of these, **68.4** percent killed deer but only **8.7** percent of the recorded deer were killed from March through September, the months when most crops would be most liable to deer damage. Landowners favored restricting paid permittees to shotguns only and preferred to eliminate small bore rifles. About **63** percent of the land owners approve of the archery seasons but did not mention "wounding of too many unrecovered deer" as the reason. Conclusion is that the majority of Connecticut property owners

regard animals as a recreational asset rather than as an agricultural liability. Extensive data allow evaluation of the deer damage problem and result of legislative attempt to cope with it. (Questionnaire-interview included. Literature cited, 4.)

KEYWORDS: Connecticut, preferences, archery, landowner-private, big game.

71. Berryman, Jack H.

1957. Our growing need: a place to produce and harvest wildlife. J. Wildl. Manage. 21(3): 319-323.

Development of a system of payment to the landowner is suggested to guarantee maintenance of habitat and adequate harvest opportunity.

KEYWORDS: Economics, philosophy, landowner-private, management.

72. _____

1958. Maintaining fishing and hunting opportunities--a constructive approach. 48th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 48: 66-72.

More people with more money, leisure, and mobility have placed increased demands on fishing and hunting stock. Suggestions to maintain fishing and hunting opportunities include an immediate study on social and economic aspects of management, a more efficient distribution of fishing and hunting pressure, an evaluation of existing resource legislation, application of zoning, and placement of fish and game management on an economic basis. Any reform coming from the above suggestions must be legally, economically, and administratively sound; it must also have the approval of landowners and sportsmen. A landowner compensation plan will pay the landowner for a continual supply of game. The sportsman, in paying, accepts his responsibility in conservation.

KEYWORDS: Landowner-private, management, fishing.

73. _____

1961. The responsibility of State agencies in managing hunting on private lands. 26th Conf. North Am. Wildl. Nat. Resour. Conf. Trans. 26: 285-297.

Question is debated of whether a responsibility to management exists. A seven-point program is suggested to set philosophy in action, which includes: intensifying management, improving relationships, improving coordination, reaching a broader public, considering the total environment, developing the economic potential of the wildlife resource, and reorienting education.

KEYWORDS: Landowner-private, administration, philosophy, education.

74. Bersing, Otis S.

1945. The hunter's report of the 1944 deer kill. Wis. Conserv. Bull. 10(10): 3-11, illus.

Deer tag returns yield information on harvest statistics, migration of hunters to Wisconsin counties, and percent success.

KEYWORDS: Harvest statistics, Wisconsin, big game.

75. _____
1950. Controlled hunting: what does it mean? Wis. Conserv. Bull. 15(12): 15-18.
- Controlled hunting on a Wisconsin wildlife refuge regulates hunting pressure, prevents over-shooting, and insures wise harvesting.
- KEYWORDS: Wisconsin, refuge, management.
76. _____
1966. A century of Wisconsin deer. Wis. Conserv. Dep., Game Manage. Div. Publ. 353-66. 2d ed., 272 p., illus.
- This book presents historical data on deer hunting in Wisconsin from 1850 to 1964. Included are year, length and type of seasons, number of open counties, estimated gun kill, license sales, a chronology, deer population-location maps, deer tag sales, first closed counties, age and sex of kill, rank of counties having the highest gun kill, unit harvest per square mile of deer range, deer harvest by day, deer weights, and record deer. Similar data are given for bow and arrow deer hunting.
- KEYWORDS: Wisconsin, big game, historical value, harvest statistics, archery.
77. Besadny, C. D., and Nick Calabresa
1967. Hunters welcome. Wis. Conserv. Bull. 32(5): 6-7, illus.
- About 1,638 farmers open 235,000 acres to hunting under provisions of the Federal cropland adjustment program.
- KEYWORDS: Farmer-sportsman relations, Wisconsin, access.
78. Bevins, Malcolm I., Robert S. Bond, Thomas J. Corcoran, Kenneth D. McIntosh, and Richard J. McNeil
1968. Characteristics of hunters and fishermen in six northeastern States. Univ. Vt. Agric. Exp. Stn. Northeast. Reg. Res. Publ. Bull. 656, 76 p., illus.
- A mailed questionnaire posed 56 questions to 10,000 hunters and fishermen from Maine, Massachusetts, New York, Pennsylvania, Vermont, and West Virginia, yielding a 69-percent return. Report includes characteristics, patterns of participation in hunting or fishing, interest indices such as willingness to pay, sportsmen's magazines read, hours of participation, type of game pursued, and accessibility to opportunities. All age groups were represented. Sportsmen are slightly more educated than the general population. An average of 54 hours of vacation time was used for hunting and 41 hours for fishing. From 20 to 25 percent belong to sportsmen's clubs; 43 percent of the hunters and 38 percent of the fishermen were willing to pay for a day's outing. Over half have rural backgrounds; average income was just over \$7,000 per year. The percent who hunted in 1965 for seven respective species or fished for eight respective species are given. Only 17 percent of the sportsmen had problems gaining access to land--mostly because of posting. (Research design and sampling are explained. Comparison of sportsmen characteristics is difficult, because general population characteristics are presented as medians while study findings are presented as means.)
- KEYWORDS: Fishing, economics, preferences, research methods, characteristics, surveys.

79. Bianchi, Dennis H.
1969. The economic value of streams for fishing. Univ. Ky. Water Resour. Inst. Res. Bull. No. 25, 119 p., illus.

Stream fisheries should be economically valued and their loss deducted from the net benefits of a proposed reservoir. Using personal interviews the Kentucky Conservation Department contacted 3,172 stream fishermen. Economic value was determined by fitting data to a gravity-type model for predicting annual fishing use from the magnitude and distribution of surrounding population. Also utilized was unit value of a fisherman-day, which is estimated from the willingness to travel to find a suitable fishing site and estimated cost of that travel. Unit values were found to vary as functions of geographical location within Kentucky and stream size. The annual number of fisherman-days varied directly with stream size. The method seeks to determine the economic value of stream fishing under average Kentucky conditions. The method underestimates values associated with very desirable fishing sites and overestimates values of sites made undesirable by adverse natural conditions or disruptive human activity. No attempt was made to evaluate esthetic or other intangible stream qualities.

KEYWORDS: Kentucky, fishing, economics, resource use.

80. Biggs, John
1957. The question of reciprocal licenses. 47th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 47: 67-74.

KEYWORDS: Administration, fishing, license fee, resident vs. nonresident.

81. Biggs, John A.
1960. Wildlife and recreation on public lands--the next 50 years. 50th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 50: 97-106.

The history of the United States reveals that large areas were set aside to become National Forests, Parks, Monuments, and public land areas. Private lands were soon exploited to their utmost, and there followed an intensive, tragic exploitation of public lands for private use. This exploitation peaked in the early 1900's, and the right and interest of the public in these lands became paramount. In the years ahead, private exploitation will subside, public Lands will become a valuable national resource, recreational and wildlife management uses will gradually dominate, and specialized types of recreational use will dwindle in favor of a multiple-use recreational philosophy. The total acreage of nationally-owned lands will not dwindle, and the harvesting of ever-increasing wildlife will become one of their greatest attractions.

KEYWORDS: Historical value, landowner-public, non-consumptive use.

82. Bird, Ronald
1963. Income potential of various kinds of farm recreational enterprises in Missouri. Univ. Mo. Agric. Exp. Stn. & Resour. Dev. Econ. Div., B783, 36 p., illus.

Many recreational enterprises adopted by Missouri farmers as a primary source of income were unsuccessful due to the operators' lack of experience in business, their inability to forecast the demand for their facilities, their use of word-of-mouth advertising only, and a lack of time and money spent to make the facilities attractive. Lack of credit was not a factor

that limited the expansion of the enterprises. The presence of public facilities benefited some but hindered others. The sale of deer hunting privileges and the rights to fish in farm ponds were ventures which did not justify their investments. Liability insurance premiums exceeded the gross returns in many cases. Successful operations were characterized by well located facilities and full-time, highly trained operators who had the ability to forecast facility demand.

KEYWORDS: Missouri, landowner-private^y fishing, economics.

83. Blair, Frank D.

1951. The future of free hunting. *Conserv. Volunteer* 14(81): 1-8.

Free hunting can continue if soil and water are preserved and farmer-sportsman relationships improved.

KEYWORDS: Economics, farmer-sportsman relations.

84. Blaisdell, James P.

1964. A history of the conservation effort in Wyoming and the Wyoming Game and Fish Commission to 1950. M.A. thesis, Univ. Wyo., 138 p.

Early conservation efforts to 1920 are described in detail along with the events leading up to the formation of the Game and Fish Commission in Wyoming. The Commission's history is presented for the years 1937-50. (Extensive references.)

KEYWORDS: Wyoming, historical value, administration.

85. Bledsoe, Henry

1960. Advantages and disadvantages of nonresident hunters. 40th Conf. West. Assoc. State Game Fish Comm. Proc. 40: 87-90.

Non-resident hunters spent \$10,381,629 in Colorado in 1959. Hunting license sales provide 63.7 percent of the revenue of the game department, and 46.7 percent of this comes from non-resident hunters. In 1959 resident hunters killed a total of 70,032 deer, while nonresidents took 37,088. Resident elk hunters took 8,553 animals, and nonresidents took 2,267. Although nonresidents are frequently accused of violating game laws, check station figures show that they are less likely to violate laws than are the residents. Unfortunately, resident hunters find that many landowners expect them to pay the same high fees for hunting privileges that the non-residents are willing to pay. Nonresidents, however, spend more time in the field, have a higher success ratio than resident hunters, and help the State to obtain adequate deer harvests.

KEYWORDS: Resident vs. nonresident, user fee, Colorado, harvest statistics, economics, big game.

86. Boden, Wayne A.

1962. Wildlife recreation on industrial forest lands. M.S. thesis, Univ. Mich., 86 p.

Restricted to University of Michigan campus use.

KEYWORDS: Non-consumptive use, landowner-private.

87. Boles, Donald Edward

1956. Administrative rule making in Wisconsin conservation. Ph.D. diss., Univ. Wis., 335 p.

An administrative study describes public pressure leading to the creation in 1927 of a six-member conservation commission to improve administration and planning and to remove conservation from partisan politics. In 1933, the commission's powers were extended to fish and game. The primary sources of initiating conservation rules are department personnel, private groups, and the conservation congress or other advisory committees. The second major source involves public hearings. The most-utilized administrative review comes from direct submission of petitions. Personality plays an important role in rule formation due to the absence of formal standards in administrative review. The Wisconsin Supreme Court, recognizing this administrative process in conservation, has not interposed its attitudes in place of those of the administrators. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Wisconsin, legislation, conservation, historical value.

88. Bolle, Arnold W., and Richard D. Taber

1962. Economic aspects of wildlife abundance on private lands. 27th Conf. North Am. Wildl. Nat. Resour. Trans. 27: 255-267.

This unfinished survey focuses on wildlife productivity rather than consumption. Land in the United States is categorized as aquatic (high wildlife productivity, leasing for \$10-\$100 per acre per year), farm or agricultural (medium productivity, but rarely leases), and forest and range (low productivity, leasing for \$0.10-\$1.00 per acre per year). Farm lands show greatest potential for increasing hunting opportunity, but farms are becoming less of a family-household environment and more of an industrial business production unit. Improvement of landowner-sportsman relations rests upon improving the business function of farm land resources. Paid hunting on private lands, if made public policy, would provide incentive for perpetuation of wildlife habitat and abundance while providing income for farm-produced but State-controlled wildlife. (References cited, 11.)

KEYWORDS: Economics, user fee, landowner-private.

89. Bond, Robert S., and James C. Whittaker

1971. Hunter-fisherman characteristics: factors in wildlife management and policy decisions, p. 128-134. *In* Rec. symp. Proc., USDA Forest Serv. Northeast. For. Exp. Stn.

Results from a previous study of Northeast hunters are reviewed covering the learning experience, time for participation, utilization of and accessibility to the resource base, and type of fish and game harvested (see Bevins et al. 1968). Two motivational studies (More 1970, Spaulding 1970a) are reviewed, both illustrating the point that there is more to participation than killing game and catching fish. Game managers are urged to consider such factors in their decisions. Some opinions expressed by the authors are as follows. Future research efforts would be enhanced if managers better communicated their needs for information about hunters and fishermen. Knowledge of what is needed is necessary before collection of information. More in-depth motivational research is needed. Professional resource personnel can become social scientists and with backgrounds in both fields can contribute more than those with knowledge in only one discipline.

KEYWORDS: Research needs, benefits, characteristics, administration.

90. Bourjaily, Vance
1967. You can tell a hunter by what he hunts. *Natl. Wildl.* 5(6): 15-17.
- The hunter is categorized and humorously characterized according to the type of game he pursues. He is the romantic esthete, the boisterous sportsman, the fastidious type, the table hunter, the American traditionalist, the big game hunter, the shooter, or the adventurer.
- KEYWORDS: Characteristics.
91. Bowden, G., and P. H. Pearse
1968. Nonresident big game hunting and the guiding industry in British Columbia. *Dep. Rec. Conserv., Fish Wildl. Branch, Br. Columbia Study Rep. No. 2*, 69 p., illus.
- Mail questionnaires were sent to 6,422 non-resident hunters to determine their hunting experience in the Province. After one followup mailing, 4,525 questionnaires or 74.6 percent were returned. Mail questionnaires were also sent to all 649 licensed guides in British Columbia, and 62.6 percent or 406 were returned. In 1966, 117,000 hunters hunted big game in British Columbia, of which 5.5 percent were nonresidents. During the last 5 years, non-resident hunters have increased 11.5 percent annually. Non-resident hunters tend to be meat hunters seeking moose, while residents consist mostly of trophy hunters. Non-resident hunters, mostly from the United States, spent \$3.7 million in British Columbia in 1966, of which \$2.2 million went for guide and packer fees. Nonresidents provide 93 percent of the clientele of the guide industry. In 1966, there were 1,237 guides, and 36 percent of them suffered financial losses. Local exclusive rights to commercially exploit game are often controlled by inefficient guides. Non-resident hunters object to a law requiring them to hire a guide.
- KEYWORDS: Economics, resident vs. nonresident, guide, Canada.
92. Bowers, Robert R.
1960. The hunter's conflict. *Am. For.* 66(3): 15-16, 46-47.
- An avid hunter becomes a farmer-landowner and changes attitude about hunter-landowner conflict. A farmer's primary consideration must be economic return. Desire to share game often conflicts with obligation to making a living from his land. Sportsmen are bargaining for privileges, not rights. They can become a farmer's asset not risk by paying for privileges to hunt or by offering a day's labor on the farm.
- KEYWORDS: User fee, philosophy, economics, landowner-private.
93. Boyce, Arlow
1967. Farmland for you. *Mich. Conserv.* 36(5): 20-23, illus.
- Michigan's cropland adjustment program provides free hunting privileges on 2,000 private farms throughout the State.
- KEYWORDS: Farmer-sportsman relations, Michigan, access.
94. Braaten, Duane Ole
1970. Characteristics and angling desires of western Washington trout anglers, and a simulation of the fishery-management system so as to optimize angler enjoyment. Ph.D. diss., Univ. Wash., 155 p., illus,

This study of western Washington trout fishermen considered their characteristics and behavior and the values they placed on fish of different lengths and numbers. Data were gathered from a mail questionnaire sent to 6,000 licensed King County anglers. A logbook was used by 400 angling participants. Data indicated the following: no strong relationship between place of residence and distance traveled to lakes; 37 percent of the anglers fished on a lake more than 100 miles from home; the average fisherman was a 42-year-old married man with above-average income and education; and increased benefits to anglers could be obtained if the present 8- to 9-inch trout stocked in western Washington were reared to 11 inches, then released.

KEYWORDS: Fishing, benefits, characteristics, Washington, surveys.

95. Brander, Michael

1964. The hunting instinct, the development of field sports over the ages. 176 p., illus. Edinburgh and London: Oliver and Boyd Ltd.

Presented is an overall picture of the development of field sports such as hunting, hawking, shooting, and fishing. These are presented in relation to other historical events. For example, the development of hunting instinct during the 250 years following the Norman Conquest is presented along with the development of forest laws and the transition from the Dark Ages to the Middle Ages. Major literary works on the subject are critically surveyed in their appropriate historical places.

KEYWORDS: Literature, historical value, fishing, England, falconry, big game, small game, waterfowl, upland game bird, tradition.

96. _____

1968. A dictionary of sporting terms. 224 p., illus. London: Adam & Charles Black, Ltd.

Major sections of the dictionary include angling, falconry, game shooting, horsemastership, and hounds and hunting.

KEYWORDS: Dictionary, library, historical value, fishing, falconry.

97. Braun, Clait E.

1967. The future of public hunting. Colo. Outdoors 16(6): 13-14.

Rising land values, increased demand for hunting sites, plus a wide disparity between production costs and benefits of wildlife to the landowner, are resulting in a decrease of wildlife abundance and private lands for public hunting. Support by conservation agencies, State fish and game departments, and sportsmen of a small trespass fee to hunt on a private owner's land might alleviate the situation. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: Economics, landowner-private, resource use.

98. Braun, Clait Evan

1965. A survey of the land values directly attributed to waterfowl within the contiguous United States. M.S. thesis, Mont. State Univ., 132 p., illus.

Of 588 duck and waterfowl clubs contacted by questionnaire, 59 percent responded. State game departments, Federal land assessors, personal observation, and interviews supplemented questionnaire data. About 11,000

waterfowl clubs control over 5.2 million acres in the Atlantic, Mississippi, Central, and Pacific flyways. Club members are assessed fees of at least \$10 per year for membership. Land values attributed to waterfowl were related to type of fowl, hunting potential, dependability of flights, nearness to population centers, cropland vs. wetland, hunt regulations, potential harvest per acre, availability of free public lands, and alternative land uses. Hunting land values have increased no more than inflation since 1940 except goose hunting opportunities. Per-acre values range from a mean of \$3.60 on the Mississippi flyway to \$26.18 on the Pacific flyway with returns per acre greatest on cropland and least on wetland. Harvest statistics show, "As acres controlled per member increased, waterfowl harvest per acre decreased." Waterfowl club location, size, membership, and management of lands are discussed. Waterfowl populations, duck stamp sales, and harvest data are presented and their management implications discussed. (Over 160 citations but about one-third are personal communications.)

KEYWORDS: Harvest statistics, economics, management, refuge, surveys, waterfowl, clubs.

99. Breth, Harris

1948. Under the wildlife "blanket of ignorance"? 13th Conf. North Am. Wildl. Trans. 13: 176-181.

If wildlife makes "news," then the aim of wildlife management--to provide more game and fish for more sportsmen--will be fulfilled. A nationwide public relations program, based on the following, is outlined: dramatization of the deer story, asking national service organizations to set up permanent wildlife committees, holding quarterly State press conferences, thinking, talking and achieving "expansion" rather than "conservation," and setting up a clearinghouse of wildlife information to coordinate the program. Once America has the "facts" the problem is as good as solved.

KEYWORDS: Management, public relations, communication.

100. Brewer, Durward, and Glenn A. Gillespie

1969. Socioeconomic factors affecting participation in water-oriented outdoor recreation. U.S. Dep. Agric. Econ. Res. Serv. ERS-403.

Demand for water-oriented recreation can be estimated by assessing the socioeconomic characteristics of a given metropolitan population. In St. Louis, Mo., about 67 percent of 1,000 families interviewed said that recreation activities occupied one-sixth of all leisure reported. As family income increased, so did the amount of recreation. While boat fishing increased with increasing income, bank fishing remained approximately equal for all income groups. Fishing remained relatively constant for all education levels. The sex of the household head influenced family recreation activity. More children than adults participated in all activities except fishing and sightseeing. Boating, fishing, and hunting remained relatively constant as leisure time increased up to 60 hours, then declined rapidly. Almost 90 percent of the respondents were willing to pay a fee for use of facility. The mean entrance fees indicated for boat fishing, bank fishing, and hunting were \$2.29, \$1.38, and \$2.17, respectively.

KEYWORDS: Fishing, Missouri, economics, characteristics, preferences, user fee, non-consumptive use.

101. Briggs, Philip T.

1965a. The sport fisheries for winter flounder in several bays of Long Island. N. Y. Fish Game J. 12(1): 48-70, illus.

The sport fishermen for winter flounder in several bays were studied from 1961 through 1963, and data were obtained from personal interviews with 35,824 anglers. An average of 193,482 anglers landed an average of 2,665,619 winter flounder each year. In all bays, the catch, the number of anglers, and catch per effort were highest in the spring. Fluctuations in the catch are discussed. Length-weight data reveal that winter flounder were in their poorest condition in the spring when fishing effort and the catch were greatest. Anticipated increase in fishing pressure for flounders would be best directed toward the fall fishery and season expansion in some particular bays.

KEYWORDS: New York, fishing, harvest statistics.

- 102.

1965b. The sport fishery in the surf on the south shore of Long Island from Jones Inlet to Shinnecock Inlet. N. Y. Fish Game J. 12(1): 31-47, illus.

The surf sport fishery between Jones Inlet and Shinnecock Inlet was studied by aerial census and by personal interviews with 8,457 day surf anglers and 2,401 night surf anglers. The number of anglers increased markedly from 1961-63. Night anglers generally had higher catches per effort for striped bass and bluefish than their daytime counterparts'. Variations in abundance and fishing success for the other species are discussed. Better beach access is needed.

KEYWORDS: Fishing, harvest statistics, New York.

- 103.

1968. The sport fisheries for scup in the inshore waters of eastern Long Island. N. Y. Fish Game J. 15(2): 165-185, illus.

The sport fisheries for scup were studied between May 1 and Nov. 30, 1964-66. Data were obtained from personal interview of 18,078 daytime anglers, aerial observation, and from measurement taken on 4,824 scup. Together, anglers using rowboats and open boats accounted for two-thirds or more of all scup anglers. Rowboat anglers were most successful in May, while open boat anglers were most successful from midsummer to early fall. Differences between these and other sport fisheries for scup as well as seasonal fluctuations in scup abundance are discussed.

KEYWORDS: Fishing, harvest statistics, New York.

104. Bromley, A. W.

1945. Evaluation of the New York State experimental cooperative landowner-sportsman controlled public hunting grounds program, 1939-1943. 10th Conf. North Am. Wildl. Trans. 10: 9-29, illus.

The goal of the cooperative landowner-sportsman program was to solve the posted-land problem. It failed because only four or five of the 14 experimental areas realized consistently heavy hunting pressure, and cost per permit on most areas was prohibitive. The following must apply to future operation, or hunter complaint will outweigh good will: a reduction of unit permit cost, a daily hunter quota of 300, a success ratio of one

bird to three permittees, and artificial propagation of birds to meet the success ratio. The average cost per permit would be \$1.25, given a total annual cost of \$7,000 and a possible 5,600 permits issued per season.

KEYWORDS: New York, upland game birds, farmer-sportsman relations, economics, management, plant and shoot.

105. Brown, J. Hammond (Chairman)
1942. Problems of the sportsman. 7th Conf. North Am. Wildl. Trans. 7: 30-61.

Conference session entitled "Problems of the Sportsmen" included seven papers: "Problems of the Sportsman in Canada," by D. J. Taylor, "What the Sportsman Is Doing Through Ducks Unlimited," by E. S. Russenholt, "The Emergency Conservation Committee and the Sportsman," by C. N. Edge, "The State Game Administrative and the Sportsman," by Lithgow Osborne, "Pan-American Game Protection and the Sportsman," by T. Gilbert Pearson, "The Izaak Walton League and the Sportsman," by Kenneth A. Reid, and "Relations of the United States Fish and Wildlife Service to Sportsman," by Ira N. Gabrielson.

KEYWORDS: Canada, conservation, historical value, administration.

106. Brown, William G., Ajmer Singh, and Emery N. Castle
1965. Net economic value of the Oregon salmon-steelhead sport fishery. J. Wildl. Manage. 29(2): 266-279, illus.

Gross and new economic values are estimated from angler expenditure data obtained by mail survey during 1962. The net economic value is the annual value of the sport fishery resource to a single owner if a market existed for the opportunity of fishing for salmon and steelhead and it was measured from demand functions. Demand functions were based on income and distance traveled by the anglers. Net economic value was estimated to be about \$3 million in 1962. If income and population trends of the past 10 years in Oregon continue, a 50-percent increase in net economic value by 1972 is predicted.

KEYWORDS: Research methods, Oregon, fishing, economics.

107. Brumsted, Harlan B.
1957. A workshop for sportsmen. 22d Conf. North Am. Wildl. Trans. 22: 607-619, illus.

Significant to this New York event was the fact that leaders among the State's sportsmen were interested not only in game and fish but also in basic limnology, flood control, and production forestry. The workshop has built an understanding between sportsman organizations and the Department of Conservation. Participants have, to an increasing degree, applied their workshop experience in solving local problems.

KEYWORDS: New York, resource use, education.

108. Buchheister, Carl W.
1963. The potential of State wildlife programs. 43d Conf. West. Assoc. State Game Fish Comm. Proc. 43: 46-51.

The National Audubon Society president recommends that game commissioners, who unhappily depend on revenues from hunting and fishing licenses and have only a narrow base of public support sustaining their programs, should broaden their programs to include a recognition of the recreational, esthetic, ecological, and scientific values of all wild things.

KEYWORDS: Administration, esthetics, non-consumptive use.

109. Buckingham, Nash
1937. The duck hunting racket. *Am. For.* 43(2): 52-55, 94-95, illus.
Federal Government failure to finance enforcement of the Migratory Bird Treaty Act has led to widespread abuse of its intent. Although the treaty states that "ducks shall not be sold" private duck clubs and shooting resorts flank migratory bird refuges with "strictly commercial" business operations. A court test case of the status of commercial duck shooting is needed to determine if such business is a violation of the spirit of the treaty which states "Ducks shall not be sold nor offered for sale in any manner."
KEYWORDS: Philosophy, enforcement, waterfowl, law violation.
110. Bucknall, Edmund J.
1967. Elk population control. *Trail & Timberline*. Colo Mt. Club. (Reprinted in *Wild Cascades*, Feb.-Mar. 1969, p. 18-19. North Cascades Conserv. Council.)
Disagreement over methods in National Parks to equalize elk populations with the range-carrying capacity has led to hunting on adjacent park areas, transplanting, shooting by Park Rangers, and allowing natural starvation to occur. Reduction by Rangers is attacked by hunter's groups, but managers argue that hunting would instill a fear of man in park animals and reduce the possibility for visitors to see wildlife from the roads. No public hunt could approach the degree of control possible when carefully selected and equipped Rangers do the harvesting.
KEYWORDS: Big game, antihunting.
111. Bugg, J. S.
1967. Why an association of hunters? 47th Conf. West. Assoc. State Game Fish Comm. Proc. 47: 151-158.
The goals of the National Hunter's Association are outlined. They include: land acquisition, improved farmer-hunter relations, sportsman education, and cooperation with conservation organizations.
KEYWORDS: Farmer-sportsman relations, clubs, education.
112. Bullock, K. E.
1964. The joint venture of private and public management of our wildlife resources. 44th Conf. West. Assoc. Game Fish Comm. Proc. 44: 106-109.
To decrease problems with game management on private lands, the private landholders should be drawn into management programs. If they are not, the intensity of management will be much less than needed to produce the quantity of game for future needs.
KEYWORDS: Landowner-private, management.
113. Bunn, Lowell
1956. States favor either-sex deer hunts. *Wis. Conserv. Bull.* 21(12): 10-13.
Poll of 38 State game departments showed no opposition to either-sex hunts. Potential harvest, number of hunters, success ratio, total kill, and opinion of either-sex hunts are presented by State. Discussion promotes either-sex hunts.
KEYWORDS: Either-sex hunt, big game, surveys, harvest statistics.

114. Bureau of Economic and Business Research
1963. The economic value of fishing and hunting in Utah. Univ. Utah
Bur. Econ. Bus. Res. Publ. No. 64-12, 19 p.

This publication is a second updating of a 1955 study. Each updating was made by adjusting money figures to account for inflation and increases in population. The author admits the weakness of this procedure but claims the figures are only educated "guesstimates" or rough indicators. In 1955, sportsmen expenditures were \$43.9 million, in 1959 the corresponding figure was estimated at \$58.6 million or a 33.4 percent increase, and in 1963 the estimate was \$69.9 million or a 19.2 percent increase over 1959 figures. Non-resident expenditures amounted to 9 percent of the total in 1959 and 1963, but license fees amounted to over 50 percent of the total fees collected. Resident expenditures are broken down into 14 categories, with equipment, transportation, and food leading the list. Non-resident expenditures are broken down into seven categories, with food, miscellaneous, and transportation leading the list.

KEYWORDS: Economics, Utah.

115. Burger, George V.
1962. Licensed shooting preserves in Wisconsin. Wis. Conserv. Dep.
Tech. Bull. 24, 40 p., illus.

Wisconsin first licensed shooting preserves in 1931. Original regulations had been revised seven times by 1957 restricting size, number, and location of preserves. Present regulations allow a 75-percent harvest of planted birds and a 105-day shooting season. In 1957 only two of 72 licensed preserves operated commercially. Between 1935 and 1958, license cancellations about equaled new applications. In 1956, 37 preserves were used by about 700 hunters, or annually about 19 hunters per preserve. The Wisconsin shooting-preserve system has not resulted in financial gain, but most lands are in farm use. A major revision of regulations in 1959 removed the restriction against licensing areas including pheasant wintering grounds, eliminated extra credits for hens stocked in spring, lengthened the preserve hunting season, provided a minimum stocking requirement, and increased incentive for habitat management.

KEYWORDS: Refuge, management, Wisconsin, historical value, plant and shoot.

116. Burghardt, Gordon M., Ronald O. Hietala, and Michael R. Pelton
1970. Knowledge and attitudes concerning black bears by users of the
Great Smoky Mountains National Park, p. 255-273. *In* Bears--
their biology and management. Int. Conf. Conserv. Nature &
Nat. Resour. Proc., Morges, Switzerland. New Ser. No. 23.

Questionnaire interviews on knowledge of bears, attitude, and demographic information were administered to 500 representative Park visitors. Analysis yielded data on visitor age, education, occupation, and residence. Most visitors knew that a young bear is called a cub but 10 percent knew the words "sow" and "boar," over two-thirds correctly recognized that the black bear eats primarily plant material, two-thirds knew that a bear can run faster than a human, over three-fourths said that bears would not make good lifelong pets, 47 percent correctly estimated the average life expectancy, and less than 10 percent knew the correct weights of bears. Data on characteristics of Park visitors in relation to knowledge of bears showed males with higher scores than females, and hunters scored better

than nonhunters. Sources of knowledge in order of importance were found to be park literature, road signs, books and magazines, personal experience, exhibits, television, other people, Park Naturalist talks, Park Rangers, and zoos or museums. Visitor attitudes showed that almost 90 percent wanted all native animals to be in the Park, aggressive behavior and proximity were given as the most troublesome bear behaviors, over half the visitors felt that troublesome bears should be removed to another area in the Park, "feeding bears" was the most often given reason for injuries by bears, two-thirds felt that present regulations were adequate, and finally when asked what they would do if they met a bear on a trail, 30 percent of the visitors said they would walk slowly away, 25 percent mentioned standing motionless, and 17 percent said they would run.

KEYWORDS: Big game, characteristics, non-consumptive use, preferences, education.

117. Burgin, Bryan E.

1959. Hunting accidents and hunter training - 1958. N. Y. State Conserv. 13(5): 30, illus.

New York hunting accidents are summarized for 1958: how inflicted, game hunted, and causes.

KEYWORDS: New York, accident.

- 118.

/ 1962. Gun law for boys. Conservationist 17(2): 5, illus.

/KEYWORDS: New York, education, safety, legislation.

119. Burks, Sterling Leon

1963. Utilization of Tishomingo Wildlife Management Unit by waterfowl and hunters. M.S. thesis, Okla. State Univ., 41 p., illus.

A portion of this thesis is concerned with the economic effect of an influx of hunters upon an Oklahoma community situated near the Tishomingo Wildlife Management Unit. Data were gathered from the records of businesses in Tishomingo and from personal interviews of hunters at check stations. Eight expense categories revealed that 1,607 hunters spent an average of \$4.97 in Tishomingo and a total expenditure of \$7,986. Hunters who bought decoys spent an average of \$37 each for them. Geographical origin of hunters is included, along with total number of hunting trips, average hours hunted, and total waterfowl kill.

KEYWORDS: Economics, Oklahoma, waterfowl.

120. Burr, Alice S.

1952. Conservation laws and penalties. Fla. Wildl. 5(9): 18-19, illus.

Maximum wildlife violation penalties of the 1800's are contrasted with minimum current penalties in an appeal for adequate penalty laws by Florida's legislature. For example, in 1895 a person violating the quail bag limit could be fined \$25 to \$50 or serve 60 days' hard labor for each bird in excess of limit. (No records of such convictions cited.) A random sample of 100 fishing violations from 1944-50 showed 29 violators were fined \$10 or less, 19 were released, and 38 were required to purchase licenses and pay court fees.

KEYWORDS: Fishing, enforcement, historical value, law violation.

121. Burr, J. G.
1930. Does game increase when the landowner has a share in the game crop? 17th Conf. Am. Game Trans. 17: 25-33.
- The history of the development of Texas' paid hunting system is given. The system has increased the game crop, as farmers find that game farming pays as well as, or better than, other crops. Landowners under the system are allowed to charge hunters \$4 per day, or if the land is leased, 25 cents per acre for 1 year or less.
- KEYWORDS: User fee, landowner-private, Texas.
122. Burress, Ralph M.
1961. Fishing pressure and success in areas of flooded standing timber in Bull Shoals reservoir, Missouri. 15th Conf. South-east. Assoc. Game Fish. Comm. Proc. 15: 296-298.
- In 1958, creel censuses on Bull Shoals reservoir yielded data on anglers who fished exclusively in three areas of flooded standing timber. The total acreage of the timbered area is 6.3 acres of a possible 2,380 acres. During 1959, nearly 15 percent of all anglers counted were timber fishermen. Fishing pressure in the timber was 5,138 hours per acre, as compared with 97 hours per acre in the rest of the census area. **Fish** harvest in the timbered area was 3,054 pounds per acre while the rest of the area averaged only 113 pounds per acre. In 29 months, 821 timber fishermen and 1,580 open water anglers were interviewed. Their rates of success and rates of catch were 94.8 percent and 1.25 fish per hour and 90.6 percent and 1.36 fish per hour, respectively.
- KEYWORDS: Crowding, harvest statistics, fishing, Missouri.
123. Burroughs, R. D.
1939. An analysis of hunting records for the Prairie Farm Project, Saginaw County, Michigan, 1937. J. Wildl. Manage. 3(1): 19-25, illus.
- Records from an 8,401-acre regulated pheasant hunting area show an average of 128 hunters spent about 3.7 hours per day hunting. Total cock pheasant kill was equivalent to 47 cocks per square mile. Dogs were used by 75 percent of the hunters, who bagged 87 percent of the pheasants.
- KEYWORDS: Crowding, harvest statistics, Michigan.
124. _____ and Laurence Dayton
1941. Hunting records for the Prairie Farm, Saginaw County, Michigan, 1937-1939. J. Wildl. Manage. 5(2): 159-167, illus.
- Hunting records kept on 8,400 acres during a 3-year period reveal hunting pressure in gun hours, cock pheasant kill, and kill per square mile. Sixty percent of the kill was made during the first week of the season and 80 percent by Monday of the second week. In 1939, 76 percent of the hunters were from four principle eastern Michigan cities.
- KEYWORDS: Crowding, harvest statistics, Michigan.
125. Burrows, George Howard, II
1955. Model for a wildlife conservation field guide. PhD. diss., Cornell Univ., 419 p.

Demonstrated is the need for a popular wildlife conservation field guide for central eastern United States and Canada. A model guide should answer the following questions: (1) Any species threatened by extermination now? (2) Which are in danger? (3) What can the reader do to save them? (4) What is the management status of each species? and (5) Is the species increasing or decreasing? The guide should discuss the esthetic and recreational importance of each animal and present concise data on its habitat, productivity, and protection.

KEYWORDS: Conservation, Canada, non-consumptive use, communications.

126. Butler, A. J.

1930. Sport in classic times. 213 p., illus. London: Ernest Benn Ltd.

This historical classic cites a list of classical authorities and discusses the forms of sport hunting, fishing, and fowling. Included are articles on the advantages of hunting according to Homer, Orion, Plato, and others; the hunter and his equipment; a treatise on horse and hound hunting; large game (stag, boar, lion, bear, etc.); fishing and its techniques, including fly fishing; fowling in ancient times; and a discussion of other sports such as cock fighting and chariot racing.

KEYWORDS: Historical value, fishing, waterfowl, big game.

C

127. C., J. B.
1957. Canned duck calls on the pan. *Am. For.* 63(7): 8, 50, illus.

A mechanical high-fidelity recorder than lures ducks and geese within range of hunters' guns is the subject of much controversy. Opponents suspect that the device could lead to a massacre of the duck and geese population. The kill of geese in one Maryland county was estimated 50 percent higher than it was prior to hi-fi recorder use. The recorded sounds of contented geese feeding appear to be equally effective, in good weather or bad, and broadcast up to a quarter of a mile.. A manufacturer defends his invention by stating, "It's no threat to the species providing wildlife officials enforce the bag limits." Increasing numbers of conservation groups and sportsmen have urged outlaw or regulation of these canned calling devices.

KEYWORDS: Waterfowl, conservation, Maryland.
128. Cahalane, Victor H.
1939. The evolution of predator control policy in the National Parks. *J. Wildl. Manage.* 3(3): 229-237.

A summary is given of 67 years of National Park predator policy which was affected by legal and natural limitations, public sentiment, and scientific inquiry. The rapid recovery of hooved mammals following near-extirmination in the twentieth century was imperfectly perceived; and although predators became a necessity in the maintenance of a balance, persecution continued for at least a decade.

KEYWORDS: Predator, historical value, administration.
129. Cain, Stanley A.
1965, ~~What~~ is the place of fish and wildlife in outdoor recreation programs. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 4-9.

Water-skiing is used as an example to point out the pitfalls of predicting outdoor recreation trends. Skiers already interfere with fishing but provisions are made to accommodate both groups to minimize the conflict. Some conflict is inevitable and should be welcomed. It is better for an agency to have a variety of enemies than to be monolithic. Fish and game departments should stress the "quality experience" rather than the full creel or the size of the bag. Programs must benefit all types of outdoor recreation yet must preserve the grandeur of the continent as a heritage for future generations.

KEYWORDS: Administration, non-consumptive use, conservation, resource use.
130. Calhoun, A. J.
1950. California angling catch records from postal card surveys: 1936-1948; with an evaluation of postal card nonresponse. *Calif. Fish Game* 36(3): 177-234, illus.

The data provide annual estimates of total and average catch and numbers of anglers. Overall angling pressure increased fivefold from 1935 to 1948. Angling increased for each of the fishes surveyed, but average

annual catch declined for all but sunfish. A personal interview survey was conducted in 1948 to evaluate the influence of post-card nonresponse upon estimates. No bias of estimates of mean catches, numbers of anglers, total catches, or trout angler migrations was revealed, although nonresponse is an important source of error in California angling catch estimates.

KEYWORDS: Fishing, California, research methods.

131. Calkins, Frank J.

1963. Farmers' reactions toward upland bird hunting in two Utah counties, 1957. M.S. thesis, Utah State Univ., 63 p., illus.

Four hundred farm operators were interviewed, of which half were bird hunters themselves. Four percent of their land was closed to hunting, 44 percent was open, 31 percent was posted, and 21 percent was open with permission. Causes of land closure include protection of property, past damage or nuisances, private club control, and protection of pheasants. Seventeen percent of the farms suffered damage ranging from \$2.50 to \$213, but 65 percent reported rarely or never experiencing damage. Nuisances include open gates, shooting too close to buildings, hunting out of season, and hunting from roads. (Literature cited, 36.)

KEYWORDS: Utah, upland game birds, farmer-sportsman relations, landowner-private.

132. Campbell, Howard

1958. The economic value of hunting and fishing in New Mexico. N. M. Dep. Game Fish Bull. No. 7, 35 p., illus.

Mail questionnaires went to 3,225 resident and 692 non-resident sportsmen. Usable returns came from 60 percent of the residents and 62 percent of the nonresidents. Sportsmen spent an average \$231 yearly on their sport for a total by all sportsmen of \$31.8 million. Sportsmen spent more time fishing than hunting, both preferred trout over warm-water species, and deer and quail were the most popular game animals. The value of wildlife has high economic importance compared with agriculture and mining in the State.

KEYWORDS: Fishing, preferences, New Mexico, economics, resident vs. non-resident.

133. Cantwell, Robert

1965. A wretched mess of type, mostly about fishing. Sports Illus. 23(25): 71-74, illus.

Historical sketch is given of "The Wretched Mess News," a publication which began as a parody of other fishing periodicals and now combines wacky advice to the angler with attacks against conservation injustices.

KEYWORDS: Fishing, communications, Montana, literature.

134. Carey, Henry R.

1926. To whom does American wildlife belong? Am. For. & For. Life 32(394): 579-582, 620, illus.

The outdoors does not belong exclusively to the hunters and fishermen nor to any class. Conservationists and nature-lovers pay taxes and support the game laws, so wildlife management must consider them. Philosophical plea is made for broader conservation policies, especially for non-game animal species.

KEYWORDS: Management, philosophy, predator, non-consumptive use.

135. Carlson, Karen Andrea

1969. The Kenya Wildlife Conservation Campaign: a descriptive and critical study of inter-cultural persuasion. Ph.D. diss. Northwest. Univ., 368 p.

An analysis was made of the American and European unsuccessful attempts to introduce wildlife conservation to the population of Kenya. Wildlife was used as a fulcrum in which one culture attempted to make its values acceptable to another. The persuasion campaign was based on the American hypothesis that appreciation of wildlife is dependent on the audience's knowledge of a subject. The Africans did not accept conservation because educational materials were not similar to traditional persuasive devices, and cultural values about wildlife were not reinforced. Exposure to wildlife as esthetically valuable was not sufficient to change the attitude that wildlife was basically a source of food. Theory and practice of intercultural persuasion will be accurate only when careful analysis is made of interests, information, and cultural values of the audience. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Kenya, education, tradition.

136. Carroll, Theron

1957. Why kill does? Tex. Game Fish. 15(12): 10-13, 23-25, illus.

KEYWORDS: Big game, education, either-sex hunt, management.

137. Carter, W. D. "Pete"

1970. An experiment in promoting quality antelope hunting. 50th Conf. West. Assoc. State Game Fish. Corn. Trans. 50: 479-483.

A 3-year program to promote "quality" hunting showed that, of 66 antelope permits issued, 66 were successful, and 81 percent of the permittees shot a buck within first 2 days of season. Special regulations were imposed including a 2-1/2-hour prehunt indoctrination to acquaint hunters with life history, management practices, early hunting traditions, Boone and Crockett scoring, and skills of hunting. Many hunters were more impressed with hunting without competition than with abundance of game. Information was obtained from each hunter on number of buck antelope passed up before shooting, length of stalk, number of shots fired, number and location of hits, whether animal was as big as he had thought, whether the head would be mounted, and how he evaluated the hunt. (Significant implications about quality hunting are offered, but conclusions are based upon unreported data and opinions.)

KEYWORDS: Preferences, big game, education, harvest statistics.

138. Castle, Emery N., and William G. Brown

1964. The economic value of a recreational resource: a case study of the Oregon salmon-steelhead sport fishery. Conf. West. Agric. Econ. Res. Council. Proc., Rep. No. 13, 12 p., illus.

This paper provides a critical examination and study of Oregon's salmon-steelhead sport fisheries undertaken to estimate the empirical demand function (economic values) of outdoor recreation resources. The study consisted of 3,700 mail questionnaires which had a 67-percent return. Demand was estimated by using transfer costs. These costs are those which are not normally included in prices, such as travel costs. Problems in assuming a monopolistic consumption occur, as well as determining competitive returns. (References cited, 16.)

KEYWORDS: Economics, fishing, Oregon, resource use.

139. Chalk, John D., D. I. Rasmussen, Frank C. Edminster, Colin McF. Reed, Arnold Nicholson, and J. Paul Miller
1940. Is the farmer-sportsman council the answer? 5th Conf. North Am. Wildl. Trans. 5: 54-82.

A discussion by five panel members includes the following topics: the history of game management in Utah and the appointment and progress of the State Game Refuge Committee and Board of Elk Control, the administration by farmers of a typical soil conservation district, local policy in Pennsylvania where farmers want protection and courtesy rather than pay, and encouragement of youth participation.

KEYWORDS: Historical value, farmer-sportsman relations, Utah, Pennsylvania.

140. Chalmers, Patrick
1936. The history of hunting. 384 p. Philadelphia: J.B. Lippincott Co.
This text gives a history of hunting from a classical medieval beginning to Victorian times. The English and Norman influences on hunting are presented.

KEYWORDS: Historical value.

141. Cheatum, E. L.
1953. The deer management problem in southern New York. N. Y. State Conserv. 8(1): 22-23, illus.

Three license management techniques to cope with increasing numbers of hunters are explored: (1) Continue present system with periodic hunter's choice seasons, an education program warning of degrading effect of hunter concentration, better safety program, and increased enforcement; (2) issue licenses on a quota system for antlerless deer; and (3) divide deer season into segments in which licenses are good for only part of the total season, thus spreading the hunting pressure.

KEYWORDS: Big game, New York, management.

142. Chesness, Robert A., and Maynard M. Nelson
1964. Illegal kill of hen pheasants in Minnesota. J. Wildl. Manage. 28(2): 249-253.

Hunter interviews are compared with postseason X-rays of dead birds as a method for determining hen kill. Interviews with 1,157 hunters indicated an illegal hen kill of 3 to 6 percent compared with 11 percent for X-rays. Biases in the X-ray technique seem compensating, thus suggesting greater accuracy than hunter interviews, which tend to underestimate illegal hen kill. Study results compared closely with other studies. (References, 8.)

KEYWORDS: Minnesota, research methods, upland game birds, law violation.

143. Child, George W.
1971. Angler motivation in fishing site selection. M.S. thesis, Univ. Mass., 85 p., illus.

Study objectives were to determine sport fishing motivation, to explain distribution of fishing effort, to analyze characteristics of fishing sites within a 20-mile area in Massachusetts, and to predict the success of freshwater sport fishing. A 53-percent mail questionnaire sample was taken of all license holders within the 20-mile area. Results are based upon less than a 25-percent return rate. Regression analysis and multiple discriminant

analysis used in analyzing data failed to produce empirical conclusions. (References, 40.)

KEYWORDS: Massachusetts, fishing, preferences.

144. Childs, Leslie

1932. The rights of sportsmen to use public lakes and streams. *Am. For.* 38(8): 459.

KEYWORDS: Landowner-private, legislation, historical value, access.

145. Christiansen, John R., William S. Folkman, J. Loraine Adams, and Pamela Hawkes

1969. Forest fire prevention knowledge and attitudes of residents of Utah County, Utah, with comparisons to Butte County, California. Brigham Young Univ. & Pac. Southwest For. & Range Exp. Stn. Soc. Sci. Res. Bull. No. 5, 26 p., illus.

Comparative interview study is between 901 respondents of Utah County and 761 of Butte County. Nearly eight of 10 of the Utah County residents had visited a National Forest once during the year preceding the study. Frequency of visits was related to age, sex, marital status, education, occupation, income, and residence. Knowledge about fire prevention was higher among the Utah population than among the comparable Californians. Frequent forest visitors, especially hunters and fishermen, scored better than average on the knowledge test. The mean percentage scored by Utah County residents was 81 while the mean score of hunters and fishermen was 96. Participation rate in fishing and hunting in Utah County ranked below sightseeing and picnicking but ahead of camping and hiking. Fire was used in connection with fishing 36 percent of the time and with hunting 53 percent of the time. Most respondents felt forest fires were a threat to public forest property, but few felt their personal property was threatened. Responsible attitudes were characteristic of older, urban-dwelling, fire-experienced, authority-tolerant, and fire-knowledgeable persons. Of the respondents, 58 percent indicated they had heard or read about forest fires in Utah from newspapers, radio, or TV. Fire prevention programs should be geared to ill-informed but active forest users. (See Folkman 1963 and 1965.)

KEYWORDS: Fire, characteristics, California, Utah, education.

146. Christiansen, Rudolph A., Sydney D. Staniforth, Aaron Johnson, Jr., and Rollin B. Cooper

1969a. Economic aspects of privately owned fishing enterprises in Wisconsin. Univ. Wis. Coll. Agric. Life Sci. Rep. No. 46, 13 p., illus.

A sample of 58 of Wisconsin's 1,516 private fishing enterprises was surveyed. Boat rental and fishing pond enterprises geared to trout averaged 8.3 and 6.5 acres, respectively. Almost 50 percent of the operators had other full-time jobs. The boat rental enterprises had an average capital investment of \$19,113. The average return to family labor and management for 45 enterprises was \$2,183. Operators mentioned "getting along with the public" and "knowing the business" as important management factors and ranked high taxes as their most important problem.

KEYWORDS: Economics, fishing, Wisconsin, landowner-private.

147. _____, Sydney D. Staniforth, Aaron Johnson, Jr., and Rollin Cooper

1969b. An economic survey of privately owned shooting preserves in Wisconsin. Univ. Wis. Coll. Agric. Life Sci. Res. Rep. 47, 11 p., illus.

The 22 licensed preserves surveyed were primarily stocked with 8- to 12-week-old pheasants costing \$1.50 per bird and hunted for about \$5.25 each by hunters. The average investment per shooting preserve was \$20,063 with a range from \$5,100 to \$75,000. Average acreage was 267, and land values were about 85 percent of the total investment. In 1965 gross recreation income averaged \$7,056 per enterprise. Annual operating costs were 60 percent of gross income, most of this going for pheasant purchases. The return to family labor and management averaged \$1,637 after deducting depreciation and use of capital from net income. It was concluded that shooting preserves concentrate around large population centers and are part-time, highly seasonal recreation enterprises. Advertising and public relations upgrading is needed if the volume of business is to increase.

KEYWORDS: Landowner-private, plant and shoot, Wisconsin, upland game birds, economics, refuge,

148. Churchill, Warren

1957. Conclusions from a ten-year creel census on a lake with no angling restrictions. *J. Wildl. Manage.* 21(2): 182-188, illus.

Escanaba Lake in Wisconsin has been under experimental management since 1946 with no restrictions on hook and line fishing for any species. Complete harvest records were kept and other information was collected by a compulsory permit system. In 10 years, 97,387 fish weighing 49,414 pounds were harvested. Perch and walleye made up 80 percent of the catch. Fishing success varied from 0.17 to 1.1 fish per hour. Fishing restrictions in effect elsewhere would have reduced the 10-year catch of game fish by more than 50 percent. There was no evidence of depletion after 10 years of unrestricted fishing.

KEYWORDS: Fishing, harvest statistics, Wisconsin, management.

149. _____ and Howard Snow

1964. Characteristics of the sport fishery in some northern Wisconsin lakes. *Wis. Conserv. Dep. Tech. Bull.* No. 32, 33 p., illus.

Data on the fisheries of two research projects which were obtained by a creel census using compulsory fishing permits include the following: from 1957-61, 55,127 fishing trips were made; for 1958-61, 64 percent of all anglers were men, 16 percent women, and 20 percent children under 16. Two-thirds of the Five Lakes anglers and four-fifths of the Murphy Flowage anglers were from Wisconsin. Over half the angling trips were made in summer, 26 percent in spring, 5 percent in fall, and 14 percent in winter. At Murphy Flowage, boat fishermen averaged 4.2 hours per trip and bank fishermen averaged 2.4 hours. Average catch for all anglers was 6.7 fish per trip. A great variety of methods and baits was used by the anglers. The highest rate of catch of both game fish and panfish occurs in the winter. Conclusions are drawn for guiding anglers, managers, and planners.

KEYWORDS: Wisconsin, fishing, harvest statistics, characteristics.

150. Cicchetti, Charles J., Joseph J. Seneca, and Paul Davidson

1969. The demand and supply of outdoor recreation, an economic analysis, 301 p., illus. *Rutgers Univ. Bur. Econ. Res.*

A national analysis was made of supply and demand relationships in outdoor recreation participation. Objective was to develop a theoretical supply-demand system model for simulation and prediction of participation

in specific outdoor recreation activities (including hunting). National recreation use in 1965 showed 310.7 million recreation days with a projected increase to 408.4 million by 1980 and 449.6 million by 2000. Hunting showed 131.8 million recreation days in 1965, is expected to increase to 135.5 million days by 1980, but decrease to 107.3 million days by 2000. Crowding and/or population density are credited for the decline in hunting after 1980. Other recreation activities are included. (Competent detailed analysis of national recreation participation data is perhaps the best to date.)

KEYWORDS: Economics, fishing, landowner-private.

151. Clark, John R.

1962. Salt-water angling and the resources problem. 27th Conf. North Am. Wildl. Nat. Resour. Trans. 27: 347-350.

A survey conducted by the Bureau of Census canvassed 45,000 persons in 18,000 households for information on the salt-water fishery and its role in the national recreation picture. Survey data indicate that 6,198,000 salt-water anglers took 632,872,000 fish in 1960, a heavier drain on the resource than expected. Present predictions call for a near fivefold increase in salt-water anglers by the end of the century.

KEYWORDS: Crowding, fishing, research methods, resource use, surveys.

152. Clarke, C. H. D.

1958. Autumn thoughts of a hunter. J. Wildl. Manage. 22(4): 420-427.

Many emotional arguments are advanced against hunting, but the main question is this: Is it right or good for man to inflict death or pain on a wild animal? Albert Schweitzer expresses reverence and awe for life and affirms that civilization is decaying. This idea is similar to Aldo Leopold's "ecological conscience" of conservation ethics which is closer to the heart of the problem of civilization, but the biologist views killing animals as harmful only if the whole organic complex is upset. Hunting also has been examined in terms of "play"--something beyond simple physical need. Hunting satisfaction is partly esthetic but also deeply rooted in the maintenance of an old and harmonious relationship with nature. The hunter cannot be blamed for death so long as his conscience, ruled by his respect for nature, governs his actions. Cruelty, or the willful infliction of pain, plays no part in the purpose of hunting. The goal of shooting is a clean kill. Hunting remains, as it was in the beginning, completely assimilated to the basic processes of organic nature, in which death and life spring from each other.

KEYWORDS: Antihunting, philosophy.

- 153.

1960. Fishing and hunting in relation to recreational planning in the Canadian provinces. 50th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 50: 117-121.

KEYWORDS: Administration, Canada, resource use.

154. Clawson, Marion

1958. Statistics on outdoor recreation. 165 p., illus. Resour. Future, Inc., Wash., D. C.

Book contains valuable trend data and commentary on hunting and fishing statistics. Chapter on "Hunting and Fishing as a Type of Outdoor Recreation"

(p. 93-106) summarizes national figures based on hunting and fishing license sales and on the survey of fishing and hunting (see U.S. Bureau of Sport Fisheries and Wildlife 1955). Tables, graphs, and maps present national and State breakdown of license purchases and costs and age distribution of sportsmen, broken down by resident and non-resident sportsmen. Trend data are also presented for 1923-56. Appendix tables 18 through 24 present information in more detail.

KEYWORDS: Economics, fishing, resident vs. nonresident, non-consumptive use.

155. Clement, Roland C.

1969. Instincts, laws, and ducks. 34th Conf. North Am. Wildl. Nat. Resour. Trans. 34: 346-352.

Opposing views on human aggression are discussed. Is aggression the source of all progress and merely in need of constructive outlets, or is it a social maladjustment at the root of violence? Hunting has yet to be studied from the viewpoints of psychology or ethology. Most comments on hunting are casual, speculative, or made to bolster another point of view. Whether or not hunting is an instinct, hunters should not be expected to behave ethically if they are encouraged to seek satisfaction afield and are then frustrated by circumstances the lawmaker well knew could not lead to satisfaction. Federal wildlife agencies should discontinue the promotion of hunting and stick to environmental conservation, according to this National Audubon Society member.

KEYWORDS: Antihunting, management, philosophy.

156. Coleman, Earl P.

1968. The Miranda and Escobedo decisions and their effect on wildlife law enforcement. 22d Conf. Southeast. Assoc. Game Fish Comm. Proc. 22: 524-527.

KEYWORDS: Enforcement, education, administration, legislation.

157. Conger, Dane H.

1962. Hunting and fishing in National Parks. 52d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 52: 24-29.

Hunter harvest of surplus park animals in cooperation with or under the supervision of the State involved is favored.

KEYWORDS: Resource use, big game, administration, refuge.

158. Conway, Ralph C.

1943, Proposed public shooting grounds program. Wis. Conserv. Bull. 8(11): 3-9.

Early legislation, history, and management practices of Wisconsin's public hunting and fishing grounds are reviewed with suggestions for the acquisition of new areas, the schooling of new personnel, and the management of damage claims and settlements.

KEYWORDS: Administration, landowner-private, refuge, historical value, economics, Wisconsin.

159. Conway, William G.

1966, Why have zoos? Parks Rec. 1(6): 488-490, illus.

KEYWORDS: Urban wildlife, non-consumptive use.

160. _____
1969. The consumption of wildlife by man, *Parks Rec.* 4(2): 21-26, 46-50, *illus.*
- The loss of many specimens of rare wildlife through the pet trade's uninformed personnel and lack of regulations is discussed. Medical research, zoo demands, the skin trade, sport and food hunting, and the changing environment also threaten many. More than 28 million animals are imported yearly for zoos, laboratories, and pets. Many statistics are presented.
- KEYWORDS: Urban wildlife, non-consumptive use.
161. Cook, Robert C.
1952. Health-wealth-future security. 17th Conf. North Am. Wildl. Trans. 17: 81-87.
- This comment was made after the formation of a statement of policy of the newly formed National Resources Council. Author makes strong recommendation that the objective of the council should be an ecological approach to the conservation program which accounts for social, geographical, and biological phenomena.
- KEYWORDS: Conservation, resource use.
162. Cooke, R. J.
1965. Program for improved fishing and hunting. *Rod Gun* 66(8): 20-21, *illus.*
- The Canadian Industries Limited Wildlife Management Fellowship plan which was introduced to provide Canada with trained scientists to further conservation is discussed.
- KEYWORDS: Administration, Canada, education, conservation.
163. Cooper, James A.
1969. An evaluation of species identification levels for a sample of Massachusetts waterfowl hunters. M.S. thesis, Univ. Mass, 57 p., *illus.*
- Effective species management requires hunters capable of identifying species. A questionnaire employing profiles of 37 species of waterfowl and closely related birds tested the ability of hunters to identify waterfowl species. Data were collected by mail survey and personal interview. The response rate was 62 percent for the questionnaires and 41 percent for the interviews attempted. An average 42 percent of the birds were identified correctly in the mail survey, but only 29 percent in the personal interview survey. Only four birds (the Canada goose, the drake mallard, drake wood duck, and the drake pintain) were known well enough by the hunters to be selectively harvested. Most hunters tested could not distinguish the female mallard from the black duck. The waterfowl hunter with the highest ability to identify waterfowl may be characterized as a hunter who started hunting at an early age, hunts frequently, participates in sportsman club activities and in the special black duck season, and reads a sportsman's magazine. He also bags most of the waterfowl, hunts on the coast, and is willing to take a waterfowl knowledge examination if this becomes necessary to obtain a duck stamp.
- KEYWORDS: Management, waterfowl, research methods, Massachusetts, characteristics.

164. Copelin, Farrell F., Earl Craven, Charles O. Gilliam, and Jim Adcock
1964. Waterfowl hunting activities and harvest in the Tishomingo National Wildlife Refuge, Oklahoma, 1960-1963. 18th Conf. Southeast. Assoc. Game Fish Comm. Proc. 18: 79-90, illus.
KEYWORDS: Management, waterfowl, refuge, Oklahoma.
165. Cornwell, George W.
1967. The potential contributions of wildlife extension education. 32d Conf. North Am. Wildl. Nat. Resour. Trans. 32: 211-227.
This excellent conceptual description of wildlife extension education includes: an historical review, an examination of the functions of an idealized State program, a discussion of the nature and caliber of Federal leadership in wildlife extension, and recommendations for future expansion of national and State wildlife extension efforts.
KEYWORDS: Education, administration, research needs, historical value, communications.
166. Cospers, P. M.
1958. Selling hunting season recommendations. 38th Conf. West. Assoc. State Game Fish Comm. Proc. 38: 197-199.
KEYWORDS: Administration, public relations, Arizona.
167. Cottam, Clarence
1947. Some improvements needed in wildlife research. J. Wildl. Manage. 11(4): 339-347.
Improvements for wildlife conservation research include emphasis on urgent management problems, development of a scale of relative values in determining priority of research assignments, better administration and supervision, clear justification of researcher modifications, development of a simplified cost-accounting system, current analysis and clearer publication of data, credit given where due, and finally, a better appreciation of the importance of research as a foundation for practical information and management.
KEYWORDS: Research needs, profession, administration,
168. _____
1950. The *why* of migratory waterfowl regulations. 40th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 40: 119-129.
Also see condensed version, same author and title, in *Texas Game and Fisheries* 9(1): 4-7, 31, illus.
KEYWORDS: Waterfowl, management, conservation.
169. Couture, Lawrence H.
1953. A study of the economic, esthetic and recreational values of the wildlife resources of Massachusetts. M.S. thesis, U. Mass., 93 p., illus.
Mail questionnaires were sent to 2,000 (0.6 percent) of the State's 314,536 resident license buyers. A raffle drawing of \$10 was made to prompt questionnaire returns. Total response was 52.7 percent after one followup letter. Expenditures were also tabulated for 203 nonrespondents

who were interviewed personally. Hunters and fishermen contribute over \$55.9 million to Massachusetts yearly for sporting goods. The sale of resident licenses during 1951 totaled \$610,535 and the value of the coastal sport fishery is estimated at \$18 million. Proportionally, the greatest sum of money was spent directly or indirectly for fishing. Sportsmen most preferred deer and rabbit hunting. Trout were the preferred game fish on more than 51 percent of all fishing trips. Almost 71 percent of the trips made to coastal areas were for striped bass exclusively.

KEYWORDS: Fishing, Massachusetts, economics, non-consumptive use, preferences, characteristics, benefits.

170. Coyner, James G.

1961. Enforcement of wildlife laws along State lines. 41st Conf. West. Assoc. State Game Fish Comm. Proc. 41: 245-249.

KEYWORDS: Enforcement, legislation, historical value, law violation, administration.

171. Crawford, Bill T.

1951. The field bag-check method of determining hunting success, pressure and game kill. 16th Conf. North Am. Wildl. Trans. 16: 307-315.

Because compulsory license tab reports, data collections by licensing agents, questionnaires, and personal interviews after the season are often unreliable, Missouri instituted a method of hunter inventory in the field. Processing and systematizing of these reports yield data on a statewide and a regional basis. The bag check system also yields figures on participation by the unlicensed rural hunter. The main application is in heavily pressured small game and waterfowl areas where cost of collecting hunting statistics by this system is negligible.

KEYWORDS: Research methods, Missouri, harvest statistics.

172. Crawford, Glenn Henderson

1941. Improving Louisiana's inland fishing through promotional means. M.S. thesis, La. State Univ., 119 p.

A variety of social and environmental factors have decreased Louisiana's fresh water fish supply since 1902. Public opinion should be used in improving this condition. Different questionnaires were sent to 64 parish sheriffs, 25 city organizers, 11 radio stations, 25 sporting goods dealers, and 15 newspapers. Of the 140 questionnaires sent, only 50 percent were returned. Results showed that public interest in fishing is greater than 10 years previous because of better transportation and roads, more leisure, better equipment, advertising, more areas accessible, etc. Suggestions are presented for integrating conservation in the public school classes such as English, civics, history, home economics, science, agriculture, physical education, and industrial arts. Presented also are a brief history of conservation of fresh water fish in Louisiana and possibilities for fresh water fishing. Author recommends closed season during spawning, \$5 non-resident license fee, lowering bag limit to 50 fish per day, more artificial lakes, and elimination of pollution.

KEYWORDS: Fishing, Louisiana, public relations, education, historical value.

173. Creed, William A.

. 1963. Make mine BIG! Wis. Conserv. Bull. 28(5): 8, illus.

Article proposed "trophy hunting" as hunting's most satisfying goal with interesting data on probabilities of such kills. Few "hunters would exchange a crack at a real trophy for a lesser-deer!" Few bucks under 3½ years old are trophies, according to author. But, in Wisconsin, two tallies showed that only two out of 10 and 11 of 100 bucks harvested had reached 3½ years, while four and two out of 1,000 were 6 years old. Raising bucks to trophy size presents difficult management problems, although it **is** done in central Europe for a few hunters at a high price. Hunting in large roadless areas and where hunters are few **is** suggested for locating a trophy.

KEYWORDS: Preferences.

174. Crinigan, Richard P., Jr.

1962. Hunter's vision screening tests. Conservationist 16: 29.

Nine hunter screening tests are described, including color vision, depth perception, and convergence tests.

KEYWORDS: Safety, accident.

175. Croft, Robert L.

1963. A survey of Georgia bow hunters. 17th Conf. Southeast. Assoc. Game Fish Comm. Proc. 17: 155-163.

A mail survey of archery hunters during the 1962-63 hunting season yielded 95-percent returns giving a sample of 458 archers. Results show that 94 percent of these hunters hunted more than one species. An estimated 578 bow hunters spent 2,839 days to take 141 deer with an average hunting success of 24.5 percent. There were 111 deer hit where sportsmen did not recover the game. Hunting success increased with hunting experience. (Questionnaire is included.)

KEYWORDS: Big game, archery, Georgia.

176. Crutchfield, James

1964. Fish and wildlife values in relation to other resources. 44th Conf. West. Assoc. State Game Fish Comm. Proc. 44: 48-56.

Water and land utilization projects are subject to sophisticated techniques of evaluation, and the same techniques should be used with fish and wildlife in order to compete with other resources. Free hunting and fishing resulted from a resource overabundance that is now depleted. User fees would provide the real value people place on recreation. Studies using cost of overcoming distance as a measure of willingness to pay are expensive, technically difficult, and soon outdated. This technique is conceptually correct and estimated a market better than "phony techniques" such as the gross expenditure on equipment, facilities, and services, or the "What are you willing to pay?" technique. The true conservationist has everything to gain from economic evaluation. For example an evaluation of competing uses of water and land would probably cast serious question on irrigation for agriculture since 92 percent of the western States' water is used for production of crops already in surplus supply. Multiple purpose projects are constantly overvaluing benefit; and undervaluing costs. When we defend fish and wildlife everywhere and under all circumstances, we lose the confidence of legislators and the public.

KEYWORDS: Resource use, economics, user fee.

177. Crutchfield, James A.

1962. Valuation of fishery resources. Land Econ. 38: 145-154.

Determining the value of sport fishing, if nothing more than a measure of the cost of providing it, will not provide answers to crucial policy decisions. At most, expenditures will indicate the economic impact on local economies. Careful regional delineation and an "import-export" money flow is required to achieve a sound evaluation. Similarly, fisherman expenditures and a relationship of leisure hours to GNP are incorrect in principle. Conserving resources for recreational purposes, when viewed as an absolute and adhered to regardless of the strength of competing demands, is incorrect in principle and has not influenced public policy. A number of possibilities exists for valuation of all income-producing resources. Reasonable estimates of man-days and numbers of participants among the important sport fisheries is one. The use of differential fees might work on an experimental basis. The punch-card technique used for steelhead and salmon in Oregon and for steelhead in Washington could be put on a fee basis. There are strong grounds for arguing that sport fishing is grossly underpriced.

KEYWORDS: Economics, benefits, fishing, user fee, resource use, non-
consumptive use.

178. Cunningham, David A., Henry J. Montoye, Helen L. Metzner, and Jacob B. Keller

1970. Active leisure activities as related to occupation. J. Leisure Res. 2(2) : 104-111.

Relationships between occupational classes and participation in "active" leisure activities were studied by questionnaire among 1,648 working men, age 16 to 69 from Tecumseh, Michigan. Contrary to previous studies, little or no relationship was found between participation in active leisure activities and occupational grouping. Golf may be the only exception, with greater white-collar participation. Hunting and fishing participation percentages were 25 and 23 percent, respectively, second only to lawn mowing (40 percent) and gardening (29 percent). Blue-collar bias usually found among hunters and fishermen was not present.

KEYWORDS: Non-consumptive use, fishing, research methods.

179. Cushwa, Charles T., and Burd S. McGinnes

1963. Sampling procedures and estimates of year-round recreation use on 100 square miles of the George Washington National Forest. 28th Conf. North Am. Wildl. Nat. Resour. Trans. 28: 457-465, illus.

Mail questionnaires were sent to 1,532 recreationists who visited private camps, developed sites, and undeveloped areas. First-year results indicated that estimates of total use could be accurately made without knowledge of optimum allocation of sampling effort. Accuracy of estimates depends on selection of strata and efficient allocation of sampling effort. In this study approximately 700,000 man-hours of recreation use (including hunting and fishing) were examined in the light of area resources and recreation opportunities. Recreation use such as hunting, sightseeing, fishing, and primitive camping differed considerably from a nationwide survey which ranked first driving and walking for pleasure. Use was clearly related to the forest resource and the recreation opportunity available.

KEYWORDS: Research methods, fishing, Virginia, West Virginia, non-consumptive use.

180. _____ Burd S. McGinnes, and Thomas H. Ripley
1965. Forest recreation: estimates and predictions in the North
River area, George Washington National Forest, Virginia. Va.
Polytech. Inst. Dep. For. Wildl. Res. Bull. 558, 47 p., illus.

A total of 1,532 households were interviewed for information concerning use of a 100-square-mile study area. Developed-site camping, hunting, sight-seeing, and fishing were the most important forms of recreation, with deer hunting providing by far the **most** hours of use. User attitudes most relating to participation were distance from the area, age, education, occupation, and income.

KEYWORDS: Research methods, non-consumptive use, Virginia, characteristics.

D

181. Dahlberg, Burton L.
 1959. Those good (?) old days. Wis. Conserv. Bull. 24(2): 25-28, illus.
 Harvest statistics from the 1937 and 1957 hunting seasons in Wisconsin are contrasted. The 1957 season provided about a fourfold increase in harvest of deer for three times as many hunters as did the 1937 season. Greater harvest was accompanied by increased hunter pressure.
 KEYWORDS: Crowding, Wisconsin, harvest statistics, big game.

182. Dahne, Robert A.
 1960. Where does your dollar go? Fla. Wildl. 14(4): 29-32, illus.
 Of every dollar in Florida's game fund, 49.5 cents goes to law enforcement, 23 cents to game management, 10.5 cents to fish management, 9.5 cents to information and education, and 7.5 cents to administrative and fiscal activities.
 KEYWORDS: Economics, Florida, administration.

183. Dale, Fred H.
 1961. Research problems in wildlife administration. J. Wildl. Manage. 25(3): 265-271.
 Problems common to administrators and their research staffs are raised. These include personnel selection, training level, salary, research freedom, specialists in adjacent disciplines, and objectivity. The legitimate function of research is investigating factual relationships and interpreting cause and effect.
 KEYWORDS: Research needs, profession, administration.

184. Dambach, Charles A.
 1956. Is liberalized fishing a success in Ohio? Wis. Conserv. Bull. 21(9): 13-16, illus.
 Liberal regulations have increased fishing opportunities. They have not increased the catch per hour but have resulted in larger fish caught without diminishing the fish population.
 KEYWORDS: Fishing, management, Ohio.

185. _____ and Ernest E. Good
 1939. Profits for the farmer. Soil Conserv. 4(9): 227-228.
 Returns to the farmer from wildlife management are not all economic, but hunters take the biggest share of the game crop. Two systems of hunter control operate in the Ohio Valley. The Williamson Plan requires the hunter to obtain a ticket from a farmer before each hunt. The organization is generally built around some community enterprise. The Wood County System sells season permits to sportsmen at a range of prices, making the purchaser a member of the association. A part of the annual income is given to the community church or school, and the remainder is prorated to the farmers on an acreage basis.
 KEYWORDS: Ohio, farmer-sportsman relations, historical value, management.

- 186 Dana, Samuel T.
1951. Wildlife in today's economy: social aspects. 16th Conf. North
Am. Wildl. Trans. 16: 27-41.

Wildlife influences how man thinks, acts, and talks; it has both economic and social values for the community; it affects the personal characteristics of the individuals who hunt and fish; it is symbolically used by nations and football teams; and it influences art and literature. Although wildlife has been recognized as valuable by international treaty and is thrilling and appealing to the imagination and the emotions, it may be playing a decreasing part in the shaping of culture.

KEYWORDS: Non-consumptive use, benefits.

- 187 Danielson, Ephraim Alfred
1939. An analysis of farmer-sportsmen relationships as a guide to
upland game management in the Willamette Valley, Oregon. M.S.
thesis, Oreg. State Coll. 126 p., illus.

A personal interview and written questionnaire were used with 316 farmers and 193 sportsmen to determine social and economic factors operating in relation to hunting on farmlands. The farmers as a group were interested in upland game birds, but many birds are destroyed as a byproduct of normal farm practices. They also feared that large numbers of game would lead to many hunters and crop damage. Hunter-caused damage and too many dogs were the farmer's greatest problems. Sportsmen did not always ask hunting permission, but many said they had never been refused hunting privileges. Sportsmen believed that 28 percent of the birds were taken illegally by farmers. Sportsmen favored better law enforcement, even though they reported only 5 percent of the illegal hunting they observed personally. They believed that 22 percent more land was closed to hunting than was closed 10 to 15 years before. A majority of hunters were willing to offer inducement for hunting privileges, if farmers made an effort to practice game management. They preferred direct payments on a per-bird basis; the average willingness to pay was 24 cents per bird. Sportsmen and farmers gave suggestions to improve upland game hunting conditions.

KEYWORDS: Farmer-sportsman relations, economics, upland game birds, Oregon, preferences.

188. Dasmann, William P., Henry A. Hjersman, and Daly Gilsenan
1958. California's first general either-sex deer hunting season.
Calif. Fish Game 44(3): 231-251, illus.

This article focuses on the 1956 hunting season: (1) to present a history of events leading up to the either-sex hunt, (2) to summarize the deer kill, (3) to outline the problems that arose during the hunt, and (4) to evaluate the 1956 harvest and the 1957 harvest. A total of 2,811 individuals and 49 organizations went on record as favoring the general either-sex hunt. Hunter distribution and behavior are given in very general terms. At one checking station 7,158 hunters were polled. Sixty-two percent favored the either-sex hunt, 27 percent opposed it, and 11 percent were undecided. After the hunt, public reaction was mixed, but strong opposition to the hunt forced legislation by which the Fish and Game Commission can no longer order general area-wide either-sex hunts. Such hunts must be ordered on the basis of management units, crop damage, or restricted instances of animal surpluses.

KEYWORDS: California, either-sex hunt, historical value, preferences.

189. Davey, Stuart P.
1967. The role of wildlife in an urban environment. 32d Conf. North Am. Wildl. Nat. Resour. Trans. 32: 50-60.
- The function and role of wildlife resources in our society are changing. Desirable wildlife species can greatly improve the quality of the urban environment. State and Federal agencies responsible for wildlife resources can systematically direct the enhancement of wildlife species within urban areas through existing wildlife programs and improved coordination with city planners. Wildlife resources will also enlighten the public appreciation of our ecosystem. Wild animals will not be preserved even in wild places unless there is an interest among city voters.
- KEYWORDS: Non-consumptive use, management, resource use, profession, urban wildlife.
190. Davis, Herbert C.
1939. Research and statistics applied to public relations. 31st Conf. Int. Assoc. Game Fish Conserv. **Corn. Proc.** 31: 88-91.
- KEYWORDS: Public relations, education, California.
191. Davis, Robert K.
1964. The value of big game hunting in a private forest. 29th Conf. North Am. Wildl. Nat. Resour. Trans. 29: 393-403, illus.
- Benefits of big game hunting in 5,000 acres of the Maine woods are defined by the sum of the maximum prices which the hunters would pay rather than be deprived of the privilege of hunting. Total willingness to pay was about \$10.32 per household. Study estimates show the area has a social productivity of \$29,000 as a hunting area or a public value equal to 8.6 percent of its private value. If the estimated willingness of hunters to pay is accepted as a measurement of the social value of hunting, then hunting is a significant social product of this land in relation to its private productivity.
- KEYWORDS: Big game, economics, research methods, Maine.
192. Davis, William C.
1962. Values of hunting and fishing in Arizona, 1960. Univ. Ariz. Bur. Bus. Public Res. Spec. Stud.. No. 21, 61 p., illus.
- Interviews with 1,600 randomly selected hunters and fishermen in Arizona yield data on characteristics, motives, economic impact, and preference for additional services. Six categories of hunting and fishing are covered: cold and warm water fishing and big and small game, waterfowl, and general game hunting. Extensive data are presented in tables and graphs; appendix covers definitions, study assumption, methodology, and details of statistical analysis. Arizona's sportsmen spend over \$40,000,000 each year compared with \$2,000,000 by public agencies for recreation, health, esthetics, association, etc. (See Davis 1967).
- KEYWORDS: Fishing, economics, preferences, harvest statistics, research methods, characteristics, Arizona.
193. _____
1967. Values of hunting and fishing in Arizona in 1965, Univ. Ariz. Coll. Bus. Public Adm. 91 p., illus.

Interviews in 1965 with 1,000 randomly selected Arizona sportsmen indicated 88 percent of the 276,500 sportsmen were State residents. Comparison with 1960 figures indicates that the proportion of young people entering the sport seems to be diminishing, although two out of three learned to hunt before the age of 20 and roughly half of these had participated in the sport for 20 years or more. Skilled and semiskilled workers composed 40 percent of the total sportsmen, managerial and office workers, 13 percent, and professionals and semiprofessionals, 10 percent. Incomes have risen since 1960; only 45 percent of the sportsmen had incomes of less than \$7,000 per year. Total expenditures for 1965 were \$63,227,900, more than 50 percent above 1960, with fishermen accounting for 62.7 percent of the total. "Recreation" was mentioned by 37 percent of the sportsmen as the primary reason for participation. "Economic value of game as food" was next with 15 percent, but it had increased 10 percentage points from the 1960 survey. "Bodily health" with 10 percent had decreased 13 percentage points from the 1960 survey. Esthetic, association, intellectual, character, and religious were other motivating forces of participation. Sportsmen were accompanied by nearly 1.5 million unlicensed companions on at least 10 percent of the hunting or fishing trips. Sportsmen reflected a favorable image (89 percent) of the Arizona Game Department but little knowledge of the Department's activities. The fish hatchery-stocking program was mentioned by 32 percent as excellent. The average sportsmen's knowledge of the function of the Game Department was "woefully limited." Only two services of the Department were correctly identified by over 50 percent of the sample. Sportsmen recommended regulation modifications, habitat and access improvement, and increased selective stocking. An equitable advance in license fees is suggested by this study. (Valuable as a comparison with the 1960 survey (Davis 1962).)

KEYWORDS: Fishing, economics, preferences, harvest statistics, research methods, characteristics, Arizona.

194. Day, Albert M.

1943. Wildlife contributions to the war. *Am. For.* 49(7): 326-330, 366-368, illus.

War needs for meat and hides have focused attention on byproducts of sportsmen's activities as an important economic asset. Although wildlife should make its contribution to the war effort, war should not be an excuse for unbridled exploitation of the resources.

KEYWORDS: Military, historical value, economics, benefits.

- 195.

1946. The problem of increased hunting pressure on waterfowl. 11th Conf. North Am. Wildl. Trans. 11: 55-66.

Propaganda concerning Ducks Unlimited along with other overselling and publicity have built a resistance in the minds of American hunters against any regulatory restraint. A current increase in hunting pressure exists at a time when the annual increase of fowl has already been overshot. Annual regulation is the only quick means of adjusting this pressure to supply.

KEYWORDS: Crowding, waterfowl, management.

196. Denmead, Talbott

1937. Legislative review, game and fish laws, 1937-38. 29th Conf. Int. Assoc. Game Fish Conserv. *Comm. Proc.* 29: 16-20.

KEYWORDS: Legislation, historical value.

- 197 Dennett, Dan, and John Haygood
1966. Management areas hunts successful. *La. Conserv.* 18: 8-11, illus.

This educational article stresses the deer management advantages of either-sex harvests on 15 Louisiana areas. Local hunter opposition has prevented these hunts until now and some groups still oppose them.

KEYWORDS: Big game, management, Louisiana, harvest statistics, either-sex hunt.

- 198 Denson, Eley P., Jr.
1964. Comparison of waterfowl hunting techniques at Humboldt Bay, California. *J. Wildl. Manage.* 28(1): 103-120, illus.

This comparative study (1959 and 1960 seasons) reveals that open-water shooters were more successful than land-based hunters, scullers were most efficient (one bird bagged per hunting hour), private club members bagged the most ducks per day averaging slightly less than the limit each, and pass shooters lost twice as many birds as they bagged. A review of regulations suggests revisions in pass shooting and pleasure boat controls.

KEYWORDS: Management, waterfowl, harvest statistics, California.

199. Dermid, Jack Franklin
1956. Techniques useful in photographing wild birds and mammals. M.S. thesis, Oreg. State **Coll.**, 157 p., illus.

Before photography was attempted, a study was made of animal life histories to anticipate or lessen photographic difficulties. Remote control photography using the 4x5 Speed Graphic was found to be the quickest and easiest approach for quality night photographs. The Graflex camera proved best for flight photography while the Rolleiflex was best for animals just released. The single-lens reflex was well suited to photography taken from blinds, particularly waterfowl shots. Different light sources are discussed, but flashbulbs provided a dependable, easily portable, and sufficient source of light in most cases. Various methods of camera mounting and remote control shutter tripping were examined. Methods are given for cleaning vegetation from around nests and in controlling foregrounds and backgrounds. Other discussion included: the possibility of moving nests to better photographic situations, the use of dummy cameras to condition animals, the use of introduced perches, the use of blinds, stalking, and jack-lighting techniques. The use of camera trips and their many shortcomings are discussed, as are techniques in placing cameras along trails at night. Plans for constructing a portable and permanent canvas blind are given.

KEYWORDS: Non-consumptive use.

200. De Roos, Robert
1960. The trout's mouthpiece. *Sports Illus.* 12(11): 64-65, illus.

University of California zoologist, Dr. Paul Needham, shows that many methods now practiced in the name of fish management to satisfy the fisherman's enormous appetite are wasteful. Most fishermen don't know how to fish: 5 percent of the fishermen catch 25 percent of the fish and 65 to 75 percent never catch fish. In 1959, 183 million trout were planted in the United States, costing \$4 million and probably only 30 percent of these were recovered by fishermen.

KEYWORDS: Fishing, management.

201. Dickey, Charley
1957a. Shooting preserves in the south. 11th Conf. Southeast. Assoc. Game Fish Comm. Proc. 11: 34-38.

The article gives a general description of a private shooting preserve. Operators tend to tie up more land than they need: 1,000 acres is sufficient, but 100 acres is minimum. The State should exercise control over preserve operations, such as minimum bird release per season and licensing. Preserves are difficult to operate and there is no "fast money" to be made in them. Generally they are a full-time occupation by a single owner.

KEYWORDS: Surveys, landowner-private, legislation, plant and shoot.

202. _____
1957b. Shooting preserves in the United States. 22d Conf. North Am. Wildl. Nat. Resour. Trans. 22: 396-404.

States are encouraged to sanction shooting preserves that are privately owned and operated, with fees, extended seasons, and no bag limits on released game. State regulations should include a maximum acreage and a minimum seasonal release of each species. States are urged to issue special non-resident licenses to shoot on preserves, to make their own rulings on domestic ducks, and to cooperate with free enterprise to help meet sportsmen's demands.

KEYWORDS: Management, landowner-private, plant and shoot, refuge.

203. _____
1961. The future role of shooting preserves. 26th Conf. North Am. Wildl. Nat. Resour. Trans. 26: 247-253.

Preserve types, trends, regulations, operator-breeder liaisons, and management techniques are discussed.

KEYWORDS: Landowner-private, plant and shoot, refuge, management.

204. _____
1962. Shooting preserves in the west. 42d Conf. West. Assoc. State Game Fish Comm. Proc. 42: 132-136.

Shooting preserves are privately owned and operated areas where pen-raised game is stocked for hunting. A brief history of preserves is presented which points out that they are mainly for the benefit of the city hunter and they do not adversely affect either public game or public shooting. Discussion focuses on State legislation necessary for private preserves, state licensing, and characteristics of preserve operation. Three types of preserves are private clubs with closed membership, clubs which accept the general public, and preserves open to the public on a day-use basis.

KEYWORDS: Surveys, legislation, license fee, plant and shoot.

205. Dickinson, Nathaniel R., and C. W. Severinghaus
1969. The 1967 deer season in the Moose River Recreation Area. N.Y. Fish Game J. 16(1): 1-18, illus.

Of 6,457 hunters, 3,293 were holders of special antlerless deer licenses which quadrupled their chances for bagging deer. Although the take of 497 deer followed the typical pattern (high the first week, then dropping sharply), hunting success in terms of effort was best during the season's last 9 days. Most hunting was done within 1 mile of the road, with 97 percent of the total harvest coming from 60 percent of the area.

KEYWORDS: Big game, harvest statistics, New York, either-sex hunt.

- 206 Dieringer, Jack A.
1965. Economic values and conservation implications of fishing derbies.
45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 243-244.

Fish derbies involving awards have been used as a management tool to increase the return of tagged fish. Returns increased from 10 to 70 percent in a Lake Tahoe study. Cash awards of \$1,500 are not great, especially when prizes are donated. Derbies involving planted fish for the exclusive use of children are discouraged because they do not foster good sportsmanship, nor the art of angling.

KEYWORDS: Fishing, economics, Nevada.

- 207 Dietz, L.
1967. Gunning Maine's ledges. *Down East* 14(4): 18-21, 44, illus.

Hunting for sea-ducks is more demanding than regular duck hunting. Sea-duck gunning may be the fastest of wing-shooting sports in the East. The activity takes place on rocky ledges overlooking the open sea. The hunter must also be a seaman to retrieve his *game*. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of **Outdoor Recreation**.)

KEYWORDS: Waterfowl, Maine.

208. Dietz, Lew
1954. Woods detective. *Sports Illus.* 1(13): 54-56, illus.

A special investigator for the Maine Department of Fish and Game discloses many stories of his 10 years of investigating some 250 hunting accidents. He concludes that the veteran hunter is the greatest menace. In 219 accidents, 95 percent of the shooters were familiar with their firearms, 80 percent knew the country, and 86 percent had shot deer before. A good hunter has quick visual perception and conditioned reflexes to hear, see, and fire with deadly accuracy. Almost three-quarters of Maine's accidents occur in areas of low hunter density. Under such conditions the seasoned hunter often is psychologically prepared to see deer. In most cases he fires automatically and gets his deer, but often gets his fellow man.

KEYWORDS: Maine, accident, benefits, big game.

209. Dimmick, Ralph W., and W. D. Klimstra
1964. Controlled duck hunting in Illinois. *J. Wildl. Manage.* 28(4): 676-687, illus.

Data for 1957, 1958, and 1959 on two types of controlled areas operated by the Illinois Department of Conservation relate the amount of hunting provided to the costs of operation for the permit system (requires pre-registration and permit to hunt in State-constructed blinds) and the marked-blind-site system (allows hunters to build blinds and retain daily priority at marked sites). Total hunter utilization and annual hunting pressures were significantly greater on the latter areas, while the permit system distributed hunting pressures more equally. On the basis of man-days of hunting per unit area, marked-blind sites showed a more efficient use of space. Total waterfowl kill was higher on the marked-blind-site areas, although average daily bag was lower. Higher bag averages on permit areas were attributed to lower hunting pressure and to the influence of adjacent

private-club feeding and resting areas. Costs to the State were significantly greater on areas operated by the permit system, averaging \$4.26 per man-day in 1957, \$3.30 in 1958, and \$11.66 in 1959; marked-blind-site areas averaged \$0.59, \$0.75, and \$1.74 per man for the respective years.

KEYWORDS: Management, waterfowl, economics, harvest statistics, Illinois.

210. Donlin, Bob

1959. Montana's hunter safety program. 39th Conf. West. Assoc. State Game Fish Comm. Proc. 39: 369-373.

Methods and results of Montana's safety program are given. Education is the most important tool to combat firearm and hunting casualties. Young hunters are required by legislation to take a gun-handling course before securing a big game hunting license.

KEYWORDS: Safety, education, Montana.

211. Dorian, Henry

1965. The economic value of the chukar partridge to Nevada. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 55-56.

Decline in Nevada's sage hen population prompted release of chukar partridges in 1935. The chukar inhabits range which was previously deficient in other species of game birds and is now the State's number one upland game species. In 1964, more than 11,000 sportsmen hunted chukar. Assuming that each chukar hunter spent an average of \$25 in his quest for the bird in 1963, the economic impact on purchasing would have been \$275,000. Adding the estimated value of the birds harvested (\$2 per bird), the total value comes to \$529,000. Total economic impact of chukar hunting during the years 1951-63 would be about \$2,704,550 or \$208,000 per year.

KEYWORDS: Upland game birds, Nevada, economics, harvest statistics, benefits.

212. Drahos, Nick, and Roy Irving

1954. New York's first 2-deer special season. N.Y. State Conserv. 9(2): 26-27, illus.

Diary account of 800 people waiting in lines to apply for a special antlerless deer and one buck permit.

KEYWORDS: Big game, either-sex hunt, preferences, New York.

213. Drumaux, L.

1925. Forests, hunting, and fishing from the economic viewpoint in Belgium. J. For. 23: 670-676.

The organization and value of wildlife to forest management in Belgium are highlighted. Belgium income from hunting for 1922 was 9,390,000 francs. The value of game was 16,500,000 francs while commerce in guns, ammunition, and equipment for Belgian hunters was 7,000,000 francs. Total income from hunting was 37,730,000 francs. This total does not include subsidiary values to dog raisers, hotels, or merchants. Products of river and stream fishing during 1922 were 65,000 francs for leasing, 419,000 francs for permits and licenses, and 7,500,000 francs for the value of the fish--a total of 7,984,000 francs. Benefits from custom duties on hunting and fishing were 52,830,833 francs for the same year.

KEYWORDS: Economics, Belgium, fishing, benefits, historical value.

214. Drury, Newton B.

1952. Recreation--natural--aesthetic values. 17th Conf. North Am. wildl. Trans. 17: 62-71.

The recreational, natural, and esthetic aspects of wildlife can be best used in terms of experiences and observation. The concept of protection of scenery and nature conservation reaches its highest phase in the National Park system which is an exception to the usual treatment of public lands. Recreation is a byproduct of the management processes of many Federal and State agencies. A Federal policy on parks and recreation and wilderness preservation should emphasize the national aspect of recreation areas and should also appraise the duty and capability of the States and of local, county, and regional planners. Conservation of nature including wildlife is an essential part of the American tradition, a gage of the national dignity, and an assurance of national health and sanity.

KEYWORDS: Conservation, non-consumptive use, esthetics.

215. Duggan, Alfred

1957a. The lady and the trout. Part I. The lady and the trout: the writing of the "treatise." Sports Illus. 6(19): 75-87, illus.

An eminent medievalist and author discusses Dame Juliana Berners, a 15th century English nun who launched five centuries of sport and literature. This first of four parts reviews Dame Berners' life and writings in fishing. Her writings describe every known method of fishing without a net. (Also see Duggan 1957b, McDonald 1957, McDonald and Webster 1957.)

KEYWORDS: Fishing, historical value, England, literature.

1957b. Part II. The lady and the trout: the treatise of fishing with an angle. Sports Illus. 6(20): 72-79, illus.

A new rendering of Dame Juliana's original text is presented on why fishing is the best of all sports, on how to prepare the necessary equipment, and how to lure and catch the fish you seek. (Also see Duggan 1957a, McDonald 1957, McDonald and Webster 1957.)

KEYWORDS: Fishing, historical value, England, literature.

- Durbon, William B.

1965. Eye tests for hunters? 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 42-49.

Accidents are typically caused by males 20 years and older having 3 or more years of experience. Forty percent of the casualties took place during small game hunts and occurred in the afternoon under clear visibility. An insurance company rates hunting 16th on the list of dangerous sports. The National Uniform Hunter Casualty Report could require determination of the visual status of the shooter involved. Such information, properly collected and carefully analyzed, should be a prerequisite and the basis for consideration of a compulsory visual ability test. Author does not believe that visual problems play an important role in hunting accidents.

KEYWORDS: Safety, accident.

218. Durbon, Wm. B.
1968; The nonresident--friend or foe? 48th Conf. West. Assoc. State Game Fish Comm. Proc. 48: 91-97.

Any non-resident policy of discrimination of "fee upmanship" endangers the concept of State's rights and encourages an unwanted national license program. Restrictions placed on nonresidents in other States would not work in Idaho because they would result in under-harvest of vast back-country areas, and resident fees would be increased if the non-resident revenue were lost. Idaho's non-resident hunter currently pays 53.7 percent of the hunting bill but takes only about 10-12 percent of the game. In a mobile society, people are not hampered by distance, and State commissioners must provide opportunity for residents and nonresidents alike to avoid Federal intervention.

KEYWORDS: License fee, Idaho, Federal-State jurisdiction, resident vs. nonresident .

219. Durell, James S.
1962. A study of Kentucky hunters who hunted only in their home counties. 16th Conf. Southeast. Assoc. Game Fish Comm. Proc. 16: 171-175.

The license fees of the enthusiastic hunter do not support the deer and waterfowl programs he often demands. The vast majority of casual hunters must make up these deficits. Hunters hunting in their home counties were thought to be less enthusiastic than those who traveled further. Questionnaires and interviews of 1,176 home-county hunters showed little variation from the statewide average. A survey of all hunters in Kentucky in 1961-62 indicated 90 percent of the hunters sought only small upland game hunting. Only 47 percent of the hunters left their home counties to hunt, and only 28 percent went farther than the adjoining counties.

KEYWORDS: Kentucky, characteristics, preferences.

220. _____
1967. A brief study of hunters and the owners of the land on which they hunt. 21st Conf. Southeast. Assoc. Game **Fish** Comm. Proc. 21: 81-87.

Data and statistics on hunting were examined to determine why fewer hunting licenses were bought in Kentucky in 1966 than in 1957. Questionnaires were mailed to 2,335 hunters (1 percent of the license holders), who returned about 46 percent of those mailed. These hunters indicated 92 percent of their hunting was on private land and only 25 percent had used public land. The State's most productive game areas are in remote country; by concentrating management on these areas, Kentucky has benefited only 25 percent of the hunters and less than 10 percent of the hunting. Private landowners provide 92 percent of the hunting privileges. Hunting on private land is essential to this valuable sport and perhaps to the survival of the wildlife profession.

KEYWORDS: Crowding, landowner-private, Kentucky, characteristics, economics.

221. Duryea, Perry B., and William E. Tinney
1952. ~~Game~~ laws--and law enforcement. N.Y. State Conserv. 7(2): 2-3.
New York regulates the sportsman principally through legislation.

Regulations are voluminous, complicated, and hard to follow. There is need for simple, clearer, and more enforceable laws.

KEYWORDS: New York, legislation, enforcement.

222. Duthie, George A.

1929. Relation of land ownership to ownership of wild life. J. For. 27(3): 264-266.

In Europe the landowner also owns the game. In the United States it is contrary to the principles of a democratic government that a few individuals should own a natural resource to the exclusion of the general public, and game is supervised, protected, and regulated by the States. The public interest should be the basis for any answer to the question of State or Federal regulation. The chief trouble with State control has been political, but Pennsylvania and New York are noted for non-partisan wildlife administrations. When wildlife problems are wider than State lines, then Federal control is in the public interest. Federal control is unnecessary when a State's administration is inefficient; public sentiment reform will suffice.

KEYWORDS: Landowner-private, Federal-State jurisdiction.

223. Dyber, John Andrew

1948. A proposed college course for teaching the theory and techniques of fresh-water fishing. M.E. thesis, Springfield Coll., Mass., 139 p., illus.

The syllabus was developed for a three-term college course to cover information pertinent to New England. Fall term emphasis is on historical background, conservation practices, natural history of fish and theory and technique of bait casting. Winter term stresses ice fishing, natural history of aquatic insects, and the theory and technique of tying artificial flies. Spring term stresses care and repair of equipment, streamcraft, and the theory and technique of fly casting. (References provided, 16.)

KEYWORDS: Fishing, education.

224. Dyer, A. Allen, and R. S. Whaley

1968. Predicting use of recreation sites. Utah State Univ. Utah Agric. Exp. Stn. Bull. 477, 21 p.

The study attempts to predict recreation use at two fishing sites and in a campground in Utah through the use of predictive models developed for shopping-center market analysis. Relevant factors influencing the choice of recreation opportunity included opportunities available at the site, competing opportunities, and travel distance. Step-wise deletion multiple regression analysis was used to identify variables in the use prediction model. Seventy-four percent of the variation in use of the two streams can be accounted for by the above independent variables. Respondent age, income, and the percentage of urban population added little to the ability to predict recreation site use. The authors indicate the difficulty in developing generalized prediction equations for various kinds of recreation sites or for the same kind of site in different geographic areas. (Study deserves attention by managers and researchers interested in site selection and recreation valuation.)

KEYWORDS: Fishing, Utah.

225. Dyer, Archie Allen
1968. The value of a trout stream fishery. M.S. thesis, Utah State Univ., 50 p., illus.

Personal interviews with Utah trout stream fishermen were used to calculate consumer's surplus in order to evaluate the economic value of fishing. This method considered cost-per-mile traveled, length-of-stay, and hours fished. Results show that the capitalized value of annual gains are in excess of \$88,600 for one creek and \$118,600 for another. These values must be exceeded before other uses can have priority.

KEYWORDS: Economics, Utah, fishing, resource use.

226. Dziedzic, Eugene S., and J. Burton Lauckhart
1966. Feel free to hunt. 46th Conf. West. Assoc. State Game Fish Comm. 46: 239-244.

A new concept, "Feel free to hunt," was possible because authority to enforce signs posted on private lands owned or leased by the Department of Game was recently provided for in Washington's Game Code. A pilot program in the Columbia Basin tested this concept and found it favorable. The cost was 10 cents per acre. This entire approach is based on the policy that free hunting is most desirable.

KEYWORDS: Resource use, user fee, landowner-private, Washington.

E

227. Eabry, Steve

1970. Distribution of big game licensees in New York. N.Y. Fish Game J. 17(2): 88-94, illus.

About 8.5 percent or 44,498 of the big game and archery licenses sold in 1965 were sampled. Fifty-seven percent of the licenses sold were from rural zones where 19 percent of the population resided. In contrast, 43 percent were from urban zones where 81 percent of the population resided. Nonresidents came from 23 States. An average of 35 persons did not buy a license to hunt big game for each one person who did. The proportion was much higher in urban areas than in rural areas, ranging to 167 in New York City.

KEYWORDS: New York, resident vs. nonresident, crowding.

228. East, Ben

1972a. The big lie. Outdoor Life 149(6): 65-67, 100, 103, 104, 106, illus.

Television, the most influential of the mass media, has been used to escalate nationwide antihunting sentiment. The film "Say Goodbye" was to be a documentary on endangered wildlife species, but it actually portrayed hunters as ruthless killers and hunting as the cause of most wildlife problems. More than one sequence was staged or phony. Three law suits were brought against the production, but a congressional hearing did little to repair the damage done in the public mind. The sponsor received over 50,000 letters praising the film against about 20 attacking it. Few of America's 20 million hunters challenged the TV show. Through 1971, television and radio continued their attack on hunting. Another film titled "Animal World" charged hunters with the plight of the whooping crane. Another television show suggested that the national crime rate would drop if all hunters turned in their guns. Only token effort was given to obtaining rebuttals from wildlife-oriented or sporting-goods people. American hunters must take action by voicing objections to media that mislead an uninformed public about the relationship between hunting and wildlife. TV films have shown very atypical hunting situations and yet have seriously threatened sport hunting.

KEYWORDS: Antihunting, public relations, communications, legislation.

- 229.

1972b. The big lie: Part II, four-alarm fire. Outdoor Life 149(7): 56-57, 92-97, illus.

Attacks are being made against hunting in State legislatures, the U.S. Congress, and the courts by protectionists who decry killing. There is much ignorance of biological game principles. Hunting is necessary for the proper management and well-being of wildlife. No species under modern management has become endangered or extinct. In 1971 court actions and legislation outlawing the killing of various game animals were either introduced or passed in 10 States. One organization has attempted to restrain controlled hunts in New Jersey, Virginia, and Maryland. A precedent could jeopardize all State and Federal use of controlled hunts to reduce surplus populations of big game. It is imperative that sportsmen's groups contact these organizations and keep the lines of communication open.

KEYWORDS: Antihunting, communications, legislation, public relations.

230.

1972c. The big lie: Part 3, It's time to act. Outdoor Life 150(2): 51-53, 116, 118-120, 122, illus.

The first 2 years of this decade have witnessed the launching of a well organized program to bring hunting to an end by law. This campaign has resorted to falsehood and misrepresentation to delude millions of uninformed people into believing that hunting is cruel, wasteful, and contrary to conservation. Hunters forged the Nation's conservation movement by financially supporting Federal conservation programs long before the word "ecology" became popular. Sportsmen's license fees yielded nearly \$200 million in the United States last year, and excise taxes on arms, ammunition, and tackle provided an additional \$48 million. If hunting were outlawed, conservation funds from that source would die out. The antihunting movement can be met by communicating to the public a basic understanding of the ecology of game populations. Fundamental changes are required in hunter attitudes, shooting regulations, and proficiency in firearms handling.

KEYWORDS: Antihunting, management, legislation, public relations, education, communications.

231. Eberhardt, Lee

1960. Estimation of vital characteristics of Michigan deer herds. Mich. Dep. Conserv. Game Div. Rep. No. 2282, 192 p., illus.

Detailed comparison was made of three methods of estimating deer population levels. Data from the sex-age-kill method and hunting effort demonstrated that vulnerability to hunting is not constant. There is a sharp decline in vulnerability during the first week of hunting season and an inverse relationship between number of hunters per unit area and hunter efficiency.

KEYWORDS: Big game, Michigan, research methods, management.

232. Eckles, T. V.

1951. The unwise catering to pressure group demands. 41st Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 41: 58-61.

Action toward pressure group demands may be the greatest indicator of progress made by game and fish commissions. Some requests by pressure groups form a precedent. Adopting such demands often means complete disregard for financial and biological limitations. The unsound policy of catering to pressure groups has many ill effects, especially when it "reduces the confidence of worthwhile personnel." All proposals should be considered on their merits. Failure to adopt a scheme must be concrete and presented only after completion of an unbiased survey. New educational programs with biological truths afford great possibilities in meeting pressure groups.

KEYWORDS: Administration, preferences, clubs.

233. Edson, Marshall

1949. The hunter's choice in big game management. 29th Conf. West. Assoc. State Fish Game Comm. Proc. 29: 122-128.

Paper is mostly oriented toward the animal resource but has a brief history of either-sex hunting in the United States. (Literature cited, 7.)

KEYWORDS: Big game, either-sex hunt, management, harvest statistics, Idaho, historical value.

234. Edwards, R. Y., and C. D. Fowle
1957. Harmony or discord? A critical look at wildlife management.
J. Wildl. Manage. 21(3): 349-350.

Wildlife management is emerging from an era of laws, regulations, predator control, and game farms. It is a specialty, but to succeed it must recognize social, economic, and biological factors in its own and related fields. Wildlife production is not controlled by wildlifers but by foresters, farmers, city planners, engineers, and others who modify the land and greatly influence the quality and composition of wildlife habitats and populations. Because a wildlife manager has little control over land, he must integrate activities with the other land users even though others have little to gain from integration with wildlife management. Current concepts of good land use and wildlife management assume that benefits to man are spiritual and social as well as economic. Wildlife management will succeed if the gap is narrowed between what people would get without wildlife management, and what they want and need. A biological and ecological knowledge of wildlife is not enough to achieve this goal.

KEYWORDS: Philosophy, profession, non-consumptive use, management.

235. Einarsen, Arthur S.
1939. Oregon's open season on antelope in 1938. 4th Conf. North Am. Wildl. Trans. 4: 216-220, illus.

Depending on antelope concentrations, 300 permits were issued among three counties for the 5-day open season. Extreme success (72.34 percent) indicates necessity for a short, controlled season on the antelope after a period of protection. Hunter party numbers should be limited. Game stalking is preferred to mass shooting, and powerful guns are required to bag an antelope.

KEYWORDS: Management, harvest statistics, Oregon, big game.

236. Eisele, Timothy T.
1970. Wisconsin waterfowl hunter attitudes on regulations and management policies. M.S. thesis, Univ. Wis., 123 p., illus.

Questionnaire responses from 442 Wisconsin goose and duck hunters provided the following data: hunters averaged 16 years of experience, spent 10 days hunting, and bagged 11 ducks during the 1969 season. A true-false test indicated that hunters are well informed. Hunters favored species-oriented regulations, Wisconsin's present goose tagging system, and 10 extra days in the hunting season rather than a larger bag limit. Most hunters derived their waterfowl information from newspapers, the State Department of Natural Resources, and magazines. Another test showed the Department knew hunters' attitudes more often than hunters knew the Department's attitudes. (An expanded abstract of this thesis appears in *The Journal of Environmental Education* 1972, 4(1): 22-25.)

KEYWORDS: Characteristics, management, preferences, waterfowl.

237. Elder, William H.
1946. Implications of a goose concentration. 11th Conf. North Am. Wildl. Trans. 11: 441-446.

In 1927, the Illinois Conservation Department developed an island refuge at Horse Shoe Lake where corn and wheat were planted to attract

Canada geese. By 1941 thousands of geese had congregated and become oblivious to danger. Land surrounding the lake was rapidly developed by commercial goose shooting clubs. Hunter numbers increased from a few hundred in 1934 to 5,000 in 1944. Limitations imposed by Federal and State authorities, including reducing the bag limit from five to two birds and the season from 60 to 5-1/2 days, have failed to keep the kill within reason. Before other States develop concentrations of geese, there must be serious consultation between State and Federal officials, biologists, and enforcement officers.

KEYWORDS: Management, Illinois, refuge, waterfowl.

238.

1965. Primeval deer hunting pressures revealed by remains from American Indian middens. *J. Wildl. Manage.* 29(2): 366-370, illus.

Deer jaws from Indian middens available from five prehistoric and historic deer populations in Missouri are compared with two contemporary samples from areas where either-sex deer hunts are legal. Findings show that a light fawn kill by Indians (8 percent of population contrasted with 30 percent for modern hunting) may reflect a voluntary conservation practice by Indians, modern deer populations are being more closely cropped, and the proportion of old deer in the harvest is declining. The proportion of old deer reflects a definite trend: 20-26 percent for prehistoric times, 3-11 percent for historic times, and only 2 percent in modern times. Rapid population turnover in contemporary deer populations indicates that equipment and rapid transportation enable modern man to exert a greater hunting pressure during a 1-week season than Indians did by hunting year-round.

KEYWORDS: Anthropology, tradition, crowding, harvest statistics, big game, historical value, conservation.

239. Elkins, W. A.

1952. Pressing problems in administration of wildlife resources in Alaska, p. 268-281. In *Science in Alaska*, Conf. Natl. Acad. Sci. Res. Counc., 1950. North Am. Montreal: Arctic Inst.

One section of this paper deals with problems created by human populations. The three most important problems are: the influx of transients who hold the "get it now--we won't be here tomorrow" attitude; those related to the economy of the native people, if they are bound to the same laws as white men even though their existence depends on fur, fish, and game; and lastly, problems caused by competition for traplines. One problem Alaska does not have is closed land; only 2 percent of Alaska's total land area is closed to hunting.

KEYWORDS: Alaska, access, management, native claims.

240. Ellefson, Paul V., and Gale C. Jamsen

- 1971a. Economic appraisal of Michigan's sport fishery, January 1-April 24. Mich. Dep. Nat. Resour. Res. Dev. Rep. No. 227, 36 p., illus.

Salmon, steelhead trout, and other sport fisheries were evaluated utilizing distance traveled, number of angler days, and fisherman expenditures. These data were fitted to Clawson-type recreation demand curves. The economic value of the salmon-steelhead fishery totaled \$587,600. The value of other sport fishing resources was estimated at \$5.1 million.

Fishermen spent an average \$33 on all trips taken during the study period, they averaged 5 days of fishing, their average income was \$9,838, and their average age was 38 years.

KEYWORDS: Fishing, Great Lakes, economics, Michigan, characteristics.

241. _____ and Gale C. Jamsen

1971b. Michigan's salmon-steelhead trout fishery: an economic evaluation. *Mich. Academician* 4(2): 237-244, illus.

Travel costs and average distance that anglers drive in getting to fishing sites were obtained from a mail questionnaire survey. These data were fitted to Clawson-type recreation demand curves. The net economic value of the resource was estimated to be \$8.34 million. Fishermen from the southeast portion of the State traveled the greatest distances and spent the most money per day fished, while fishermen in the north-central portion of the State traveled the least and had the lowest cost for each day fished.

KEYWORDS: Michigan, economics, Great Lakes, fishing.

242. Elrod, Joseph H., and John R. Kelley, Jr.

1966. Cost analyses of sport fishing in commercial catfish ponds. 20th Conf. Southeast. Assoc. Game Fish Corn. Proc. 20: 273-278, illus.

Over a period of about 6 months, 1,434 of the 13,528 people who fished on the Auburn University Fisheries Research Unit ponds were interviewed as they fished to determine selected expenditures per trip. In addition to the \$1 pond permit fee, fishermen spent \$1.25 per trip for travel and \$0.89 per trip for bait and equipment. Average distance traveled round trip was 34.5 miles. Total expenditures were estimated to have been \$42,628 for 150 days of fishing. Permit expenditure was \$13,528, bait expenditure \$6,872, equipment \$5,297, and travel expense \$16,931. The gross expenditure was \$1,740 per surface acre of water.

KEYWORDS: Economics, fishing, Alabama.

243. Emerson, Frederick B., and James H. Burbank

1967. Landowner feelings about wildlife in the Tennessee Valley. 21st Conf. Southeast. Assoc. Game Fish Corn. Proc. 21: 88-94, illus.

TVA foresters polled 676 private landowners in 1964 for information about tree planting and game development. The survey covered 31.2 million acres of private land in 397,100 ownerships. Forty-one percent of the owners hunt, 69 percent allow hunting without qualification, and 15 percent would allow hunting with permission. Over 26 million acres are potentially open to hunting. Thirty-six percent are willing to improve their lands for game at their own expense if given free professional advice.

KEYWORDS: Surveys, landowner-private, access.

244. Empey, LaMar T., and Walter L. Slocum

1955. Stability of farmer's attitudes in a conflict situation involving farmer-hunter relations. *Rural Sociol.* 20(3-4): 242-248, illus.

Responses were obtained from 190 farmers (100 percent of the population) in a before-and-after analysis of farmers' attitudes in a conflict situation.

Most farmers were not influenced by a group organized to influence opinion and action. Farm ownership and previous traumatic experience with hunters were found to be associated with the farmers' decisions to restrict hunting. Data support the hypothesis that actual experience with a situation tends to reduce prejudice against it. It is concluded that: attitudes, if defined as internalized predispositions to act, tend to be stable, although verbalized responses tend to be unstable; changes in attitudes often involved the activation of previous experiences; predispositions to act were not necessarily more typical of individuals in whom cross-pressures operated; and opinion leaders did not influence the decision of most farmers.

KEYWORDS: Landowner-private, farmer-sportsman relations, preferences.

245. Erickson, David L.

1970. Attitudes and communications about wildlife. 35th Conf, North Am. Wildl. Nat. Resour. Trans. 35: 372-383, illus.

An effective message is one that is designed for an audience characterized by a type of attitude. Q-methodology was used to determine the attitude types of 49 persons consisting of hunters, farmers, watchers, and "other." Two wildlife-attitude types were identified: "protectionists," those who want to save vanishing wildlife, and "reductionists," those who view many wildlife as destructive to agriculture. Protectionists are more likely to be watchers and "other" than hunters; farmers are more apt to be reductionists but hunters and watchers are not. Results have implications for management policy and communication design.

KEYWORDS: Communications, management, preferences.

246. _____ and G. Norman Van Tubergen

1972. "The wolf men." J. Environ. Educ. 4(1): 26-30.

An estimated 16,000 letters were written in response to "The Wolf Men," a television documentary, intended to create a concern for the preservation of timber wolves. The Bureau of Sport Fisheries sampled 320 of the first 1,600 letters they received. Results indicate that most letter writers believe that all subspecies of timber wolves are endangered and they want government action to protect wolves from hunting. Most believe that the bounty system serves as an incentive to the wolf's demise. While 38 percent mentioned opposition to the hunting of wolves per se, 35 percent opposed only hunting from aircraft as shown in the movie. The most prevalent reason (35 percent) given for protecting the timber wolf was that it is part of our American heritage and part of nature. A significantly greater proportion of women responded to the TV program than men, and a higher proportion of the letters came from the West than from the South. Wildlife agencies should work with film producers to insure that factual information is communicated. For example, it is only the eastern timber wolf, not all wolves, that is classified as endangered. Writers were also uninformed about Federal versus State jurisdiction over wildlife.

KEYWORDS: Predator, communications, education, preferences.

247. Erickson, David Lee

1969. Attitudes about wildlife and preferences in television programs: a communication study. Ph.D. diss., Ohio State Univ. 185 p.

The study was designed to hypothesize the relationship between attitudes toward wildlife and selected demographic and other characteristics and the

relationship between types of wildlife attitudes and types of television program preferences. Q-methodology was used for determining attitudes and preferences. Three types of persons evolved. The "protectionist" was primarily concerned about saving vanishing wildlife and protecting it from hunting; the "reductionist" views much wildlife as destructive to agriculture and favors hunting and controls; and the "balance of nature" type perceives predators and controlled hunting as important in maintaining a balance. "Protectionists" are more apt to be watchers and nonhunters, and farmers are apt to be "reductionists." The four types of television programs preferred were labeled: "believable-moral intellectual," "believable-conflict," "unbelievable fiction," and "believable fiction-low complexity." The protectionist type is most related to the believable fiction-low complexity type. The reductionist type was slightly related to the believable-conflict type. (Condensed from Dissertation Abstracts.)

KEYWORDS: Preferences, management, communications.

- 248 Errington, Paul L.

1940. On the social potentialities of wildlife management. J. Wildl. Manage. 4(4): 451-452.

Wildlife management is essential to human welfare in its economic and recreational aspects. It also offers consistent parallels between humans and wildlife in population phenomena and behavior. If man ever learns to manage himself, some of the foundation may have been laid by workers in this and other ecological fields.

KEYWORDS: Profession, philosophy, management, benefits.

- 249

1947. A question of values. J. Wildl. Manage. 11(3): 267-272.

Intangibles are often the greatest "trophies." The appeal, with or without a gun, of the out-of-doors is conditioned by diversity and completeness of native fauna and flora. Management mistakes include altering the landscape that should be left alone, and "vermin control." Wildlife management must safeguard even unpopular species. Hunting is logically justified only when it is not detrimental to both game and non-game species, which means that the hunting toll must be confined to biological surpluses. The wildlife profession should accept broader responsibilities for non-consumptive outdoor values.

KEYWORDS: Antihunting, management, esthetics, predator, non-consumptive use.

250. Eschmeyer, R. W.

1937. The Michigan creel census. 2d Conf. North Am. Wildl. Trans. 2: 625-634.

Discussed are the general creel census and the intensive census which gave such data as fisherman catch per hour and per day, sex and residence of the angler, empty creels, effectiveness of methods and baits, time of day, and type of weather.

KEYWORDS: Fishing, harvest statistics, Michigan, characteristics.

- 251.

1955a. Fish conservation fundamentals; part three: regulations. Fla. Wildl. 8(12): 28-29, 47, illus.

KEYWORDS: Conservation, management, fishing, enforcement.

252. _____ 1955b. Fish conservation fundamentals; part 6: creating more fishing waters. Fla. Wildl. 9(3): 22-23, illus.
KEYWORDS: Conservation, landowner-private, management, fishing.
253. _____ 1955c. Fish conservation fundamentals; part seven: using the tools. Fla. Wildl. 9(4): 24-25, illus.
KEYWORDS: Conservation, education, administration, preferences, profession, research needs.
254. _____ 1955d. Fish conservation fundamentals; part 8: commercial fishing. Fla. Wildl. 9(5): 28-29, illus.
Covered are monetary values, employment, and intangible values of sport fishing versus commercial fishing. The conclusions are that fish are more valuable when taken by sport fishing; and where fish supplies are inadequate for both kinds of fishing, the commercial fishing must give way to angling. Economic data are from four western States and the Chesapeake Bay in Maryland.
KEYWORDS: Conservation, economics, fishing, management, benefits.
255. _____ 1955e. Fish conservation fundamentals; part 9: research. Fla. Wildl. 9(6): 18-19, 40, illus.
KEYWORDS: Conservation, research needs, fishing.
256. _____ 1955f. Fish conservation fundamentals; part ten: education. Fla. Wildl. 9(7): 14-15, illus.
KEYWORDS: Conservation, fishing, education, communications, public relations.
257. _____ 1956a. Fish conservation fundamentals; part eleven: the value of angling. Fla. Wildl. 9(8): 30-31, illus.
KEYWORDS: Conservation, fishing, economics, esthetics, surveys, benefits.
258. _____ 1956b. Fish conservation fundamentals; part 12: the modern program. Fla. Wildl. 9(9): 26-27, illus.
KEYWORDS: Conservation, administration, profession, management, education.
259. _____ 1956c. Fish conservation fundamentals; conclusion: the sportsman's role. Fla. Wildl. 9(10): 22-23, illus.
KEYWORDS: Conservation, preferences, clubs.
260. Evison, Lee Earl
1971. Pheasant hunters at western Washington regulated hunting areas: characteristics, motivations, and opinions. M.S. thesis, Univ. Wash. 62 p., illus.

Questionnaires and followups were sent to 1,296 regulated hunting area hunters, who gave a return rate of 87.9 percent. Results indicate that most hunters preferred to hunt upland game or waterfowl, 96 percent of them were male, and 74.4 percent were between the ages of 25 and 65. Thirty-three percent had attended or graduated from college, and 9.3 percent had postgraduate college training. Half the hunters lived in a large city or suburb. Annually, 47.2 percent of the hunters earned \$12,000. Availability of game accounted for 36.5 percent of the first-listed reasons for hunting regulated areas, convenience accounted for 30.8 percent, and access was listed by 21.8 percent. Of the hunters who listed problems of the areas, 58.6 percent mentioned crowding and 10.9 percent mentioned scarcity of game.

KEYWORDS: Management, Washington, research methods, characteristics, preferences, upland game birds.

261. Evrard, James O.
1970. Testing and teaching waterfowl identification. *Environ. Educ.* 1(4): 119-120.

The success of waterfowl species management depends largely upon the hunter's ability to identify waterfowl in flight and to refrain from shooting protected species. A study of 20 experienced and 20 novice hunters in 1967 indicated that many hunters cannot shoot selectively. The experienced hunters correctly identified seven out of 10 ducks, while the novice hunters identified only five out of 10 birds and generally performed below the levels required by selective shooting regulations. In 1968, 33 hunters of average experience and comparable skill completed a field identification training program before being field tested. The hunters "shot" waterfowl with a 35-mm. camera, the photos being used to check their identification and the estimate of range. The trained hunters correctly identified eight out of 10 waterfowl and the untrained hunters seven out of 10, but both did poorly on range estimation, "shooting" three out of 10 ducks beyond effective killing range of a 12-gage shotgun.

KEYWORDS: Waterfowl, education, research methods.

F

262. Faass, Norbert C.
 1958. How the States can more adequately enforce the license provisions against non-qualified holders of resident licenses. 38th Conf. West. Ass'oc. State Game Fish Comm. Proc. 38: 306-307.
 KEYWORDS: Law violation, enforcement, administration, resident vs. nonresident.

263. Farley, John L.
 1956. National survey of fishing and hunting. 46th Conf. Int. Game Fish Conserv. Comm. Proc. 46: 191-196.
 Background information is given on the 1955 National Survey of Fishing and Hunting. (See U.S. Bureau of Sport Fisheries and Wildlife 1955.)
 KEYWORDS: Fishing, economics, surveys.

264. Fine, I. V., and E. E. Werner
 1960a. Economic significance of hunters in Wisconsin. Univ. Wis. Bur. Bus. Res. Serv. I(6), 16 p.
 Separate questionnaires were mailed to big game hunters, small game hunters, voluntary sportsmen, and bow and arrow hunters. Returns ranged from 36.6 percent to 66.1 percent. Data reveal that an average of 1.94 overnight trips were taken by all license holders in 1959. Hunters tend to use non-commercial accommodations. In 1959, hunters spent approximately \$75,184,809 for hunting expenditures (fees, clothing, amusements, accommodations, meals, and transportation) and \$57,789,206 on equipment. Approximately 40 percent of all hunters attempted to secure information about hunting facilities. Sportsmen who operated boats mentioned launching facilities as the most frequent improvement needed. More than 55 percent of big and small game hunters were in the less than \$6,000 income brackets, whereas the opposite is true of the bow and arrow hunters.
 KEYWORDS: Archery, characteristics, Wisconsin, economics.

265. _____ and E. E. Werner
 1960b. Economic significance of fishing in Wisconsin. Univ. Wis. Bur. Bus. Res. Serv. I(10): 10 p.
 Mail questionnaires were sent to 4,000 resident and 4,000 non-resident fishing license holders from Wisconsin. The questionnaire return rate was a very low 30 percent. The non-resident fishermen took more trips and stayed longer than resident fishermen. More than 40 percent stayed in commercial overnight accommodations. Approximately \$188 million was spent for fishing, and nonresidents spent about one-third more than the resident fisherman. Four out of 10 fishermen reported that they attempted to secure fishing information and of these, 77 percent were successful in getting information. Suggestions for improving boat facilities are listed. Fisherman occupation, income, and age are also listed. (Questionnaire is included.)
 KEYWORDS: Fishing, economics, Wisconsin, characteristics.

266. Fish and Wildlife Studies Committee
 1971. Fish and wildlife appendix XIV. 453 p., illus. *In* Columbia-North Pacific Region comprehensive framework study. Pac. Northwest River Basins Comm.

This appendix is one of a series making up a complete study on water and related lands in the Columbia-North Pacific Region. A history of fish and wildlife is followed by a regional summary of all fish and wildlife, their status and future needs, means to satisfy demand, needed research, legislation, and policy changes.

KEYWORDS: Fishing, management, harvest statistics, resource use, research needs, economics, legislation, administration.

267. Fish and Wildlife Technical Committee

1970. Appendix XI. Fish and wildlife. 239 p., illus. *In* Comprehensive study of water and related land resources, Puget Sound and adjacent waters, State of Washington. Pac. Northwest River Basins Comm.

One of 15 appendices providing supporting data for an overall water resource study, this appendix describes the uses of the Puget Sound Area by fish and wildlife, defines the locations of greatest importance and overall utilization, and presents a plan to conserve and enhance fish and wildlife short- and long-range needs. Information specific to human aspects of fish and wildlife management is included in the following areas of discussion: the present status and future needs of sport salmon fishing, game fish in streams, sport marine fish angling, sport shellfish harvest, means to satisfy the needs of salmon, marine, and shellfish through fisherman access development, and the present status and future needs of wildlife (big game, upland game, fur animals, waterfowl, and other wildlife).

KEYWORDS: Fishing, Washington, economics, management, harvest statistics, upland game birds, waterfowl, big game, characteristics, access, non-consumptive use, surveys.

268. Fish, Frederic F.

1967. Sport fishery statistics from the inland waters of North Carolina. 20th Conf. Southeast. Assoc. Game Fish Comm. Proc. 20: 404-408.

Data were obtained from 28,454 interviews conducted during routine license and creel checks between April 1964 and March 1965. Data show that only 53 percent of the anglers contacted were licensed. Of those who had licenses, 32 percent used cane poles, 49 percent used casting rods, 9 percent used fly rods, and 63 percent used natural bait. Of the unlicensed anglers, 64 percent used cane poles, 26 percent utilized casting rods, 4 percent had fly poles, and 98 percent used natural bait. Harvested fish are listed along with an explanation of license categories.

KEYWORDS: North Carolina, fishing, preferences.

269. Fobes, Charles B.

1945. Weather and the kill of white-tailed deer in Maine. J. Wildl. Manage. 9(1): 76-78, illus.

There are four major factors which determine the number of deer killed legally during a hunting season: deer population, hunter pressure, length of season, and hunting conditions. Hunting conditions constitute the most important factor and are regulated by the weather elements. As precipitation and rainy days increase, the deer kill also increases due to a quiet, moist forest floor. Light snow and the clearing after a heavy rain also favor hunter success.

KEYWORDS: Harvest statistics, Maine, big game.

270. Foley, Donald D.
1955. Certain aspects of waterfowl hunting in New York as indicated by bag-check data for 1953 and 1954. N.Y. Fish Game J. 2(2): 205-219, illus.

In 1953, 1,585 hunters on New York State shooting areas bagged 2,012 birds; in 1954, 2,929 hunters bagged 2,944 birds. Statewide, the black duck was the single most important species in terms of the number bagged. Hunting success averaged one bird bagged per 4 or 5 gun-hours. The use of dogs increased hunting success, as did the use of blinds. Hunting success on Long Island was increased substantially due to a later open season.

KEYWORDS: Waterfowl, New York, harvest statistics.

271. Folkman, William S.
1963. Levels and sources of forest fire prevention knowledge of California hunters. USDA For. Serv. Res. Pap. **PSW-11**, 22 p., illus. Pac. Southwest For. & Range Exp. Stn., Berkeley, Calif.

Data were obtained from 31 percent (3,060) of the mail questionnaires to 10,542 licensed hunters. Males 30-35 years of age from the smaller urban centers (under 25,000 population) make up the bulk of the California hunter population. They are mainly from the skilled, semiskilled, and professional-managerial occupations. Their level of knowledge about forest fire prevention averaged 78.9 percent correct for two 16-question tests. Knowledge was weak on California land ownership, the time of day when fires spread most rapidly, and legal implications of negligence. Most frequently reported sources of information about fire prevention are Forest Rangers, signs, and Smokey Bear. One hunter in five incorrectly listed lightning as the primary cause of fires. Conclusion is that California hunters know quite a lot about fire prevention. (Questionable results due to very low (21 percent) return. Questionnaire and five references are included. Also see Folkman 1965 and Christiansen 1969.)

KEYWORDS: Education, fire, California, safety, characteristics.

272. ——— 1965. Residents of Butte County, California: their knowledge and attitudes regarding forest fire prevention. USDA For. Serv. Res. Pap. **PSW-25**, 32 p., illus. Pac. Southwest For. & Range Exp. Stn., Berkeley, Calif.

An interview survey of 761 respondents out of 851 contacted established fire prevention knowledge and attitude levels of Butte County residents and related these levels to the degree of exposure to high fire risk forest environment and to the socioeconomic characteristics of the sample. Solitary, back-country hunters who do not stay in campgrounds where fire hazards are low, who are farther from water than fishermen, and who hunt in the most hazardous season of the year are significant fire risks in spite of their comparatively high knowledge of safe fire use. Fishing and hunting were ranked fourth and fifth in number of participants in a list of eight recreational activities. Study is oriented toward forest users' in general. (Questionnaire and nine references are included. Also see Folkman 1963 and Christiansen 1969.)

KEYWORDS: Fire, characteristics, education, California, safety.

273. Foote, Leonard E.
 1945. Vermont's wild game resource: non-resident income. *J. Wildl. Manage.* 9(1): 81-82.
- Almost \$160,000 is spent in Vermont annually by non-resident hunters, with 80 percent going to private business and the remainder to the Fish and Game Service. Post-card questionnaires were sent to 1,800 of the 2,269 non-resident hunters purchasing licenses in 1943 in four Vermont counties. Results are based upon a 38-percent return. The average non-resident spent \$5.01 per day, hunted 8.6 days a season, and traveled 140 miles by car in Vermont at a cost of \$7.59. The deer herd brings in \$80,000. Each deer killed by a nonresident was valued at \$227, and each unit of small game was worth \$6.50.
- KEYWORDS: Economics, resident vs. nonresident, Vermont.
274. _____
 1961. Southeastern State water legislation in relation to fish and wildlife. 15th Conf. Southeast. Assoc. *Game Fish Corn. Proc.* 15: 401-410.
- KEYWORDS: Management, legislation.
275. Foran, A. E.
 1934. A model uniform State game and fish law. 26th Conf. Int. Assoc. Game Fish Conserv. *Corn. Proc.* 26: 97-104.
- KEYWORDS: Landowner-private, legislation, management.
276. Forester, Richard T.
 1971. Landowner utilization of a wild pheasant resource. *Calif. Fish Game* 57(4): 298-306, illus.
- Of 340 property owners in the study area, 221 were interviewed to determine the utilization and economic importance of the wild ringneck pheasant resource in Stanislaus County, California. Only 7 percent of the landowners leased their lands for pheasant hunting. Over 1,600 hunters were given permission to hunt on unleased lands without fee, and 219 hunters paid for their hunting on leased lands. Compensation received by landowners for hunting rights was \$9,905. Hunter success ranged from 6.6 birds per hunter per year on leased lands to 2.8 birds per hunter on unleased lands.
- KEYWORDS: Characteristics, upland game birds, California, user fee.
277. Forrest, Nathan K.
 1968. Effects of commercialized deer hunting arrangements on ranch organization, management, costs, and income--the Llano Basin of Texas. M.S. thesis, Tex. A&M Univ., 135 p.
- In 1964, \$246,001 of a total \$3,452,051 for all farm and ranch products sold in Llano County was derived from commercial hunting, fishing, and other recreational services. Two groups of personal interviews with 86 ranchmen covered livestock production, deer herd management practices, deer leasing systems used, investments, expenses, and returns involved in the deer enterprise. Budget and investment data for domestic livestock on four ranches of 1,000 to 4,900 acres in size were developed. Gross income per acre from lease deer hunting enterprise on the four representative ranches was \$0.89, \$0.61, \$0.86, and \$0.99, respectively. Cash costs and non-cash

costs per acre for leases averaged about \$0.05 per acre for each category. Representative net ranch income ranged from \$1,819 on the 1,000-acre ranch to \$8,311 on the 4,900-acre ranch. Returns to capital and management figured as a percentage of total investment ranged from 0.099 to 0.815 percent on ranches with leases. Four leasing methods were used: season leasing, day hunting, season leasing with a doe hunting option, and a combination of season and day hunting. The total costs of operating these hunting arrangements varied from \$0.09 per acre for season leasing to \$0.33 per acre for day hunting. Labor requirements for the deer enterprise averaged 12 times higher when managed by day hunting compared with season leasing. The expenses of the season lease with doe hunting option and season and day lease combination ranged from \$0.19 to \$0.27 per acre. Deer enterprise net income varied from \$0.52 per acre on a 1,700-acre ranch managed under a season lease arrangement to \$1.66 per acre on a 1,000-acre ranch which was day hunted. On a 2,850-acre ranch the season lease with doe hunting option and the season and day lease combination arrangements had the highest net returns at \$1.12 per acre. Compared with the recommended harvest rate of 35 percent, the average percentage of the deer herd harvested ranged from 16 to 57 percent. While the larger ranches were able to spread overhead costs over more factors of production and were more efficient, the smaller ranches had the highest returns per acre due to surplus labor. Day hunting was the most flexible system and has the potential for maximum returns. It demands more labor and investment than the other hunting arrangements. Season leases are best suited to large ranches with limited labor. (Bibliography, 25.)

KEYWORDS: Texas, economics, big game, management, lease, user fee.

278. Fortney, Charles T., Robert M. Dimit, Donald R. Field, and Howard M. Sauer
1972. Attitudes of South Dakota farm operators toward wetlands and waterfowl production. S.D. State Univ. Agric. Exp. Stn. Bull. 592, 11 p.

Of 292 farmers interviewed, those with over 10 or less than 5 percent of their lands in wetlands had more favorable attitudes toward waterfowl production programs, as did those who hunted ducks or geese. Variables of tenure status, type of farming operations, property in native hay or pasture, property under cultivation, and reference group influences were not related toward waterfowl production attitudes.

KEYWORDS: Waterfowl, farmer-sportsman relations, preferences.

279. Fosburgh, P. W.
1953. Problems in free public hunting. N.Y. State Conserv. 7(4): 2-4.

Four interrelated problems are discussed: the means of encouraging biologically sound game management, protection of the interests and rights of landowners, the promotion of safety in hunting, and the means of improving the conduct of sportsmen afield.

KEYWORDS: Management, landowner-private, safety, education.

280. Frey, David G., Hubert Pedracine, and Lawrence Vike
1939. Results of a summer creel census of Lakes Waubesa and Kegonsa, Wisconsin. J. Wildl. Manage. 3(3): 243-254, illus.

A 1938 report on fishing data from two glacial, eutrophic lakes includes discussion of seasonal fishing trends, quality, success by species, pounds removed, fisherman number and hours, a comparison with records from previous years, and stocking records.

KEYWORDS: Fishing, harvest statistics, Wisconsin.

281. Friley, Charles E., Jr.

1954. Daily patterns of pheasant hunting pressure. J. Wildl. Manage. 18(2): 255-259, illus.

Report cards, required permits, and station checks at Michigan's Rose Lake Wildlife Experiment Station yielded the following. A shortened hunting day, particularly Saturday or Sunday, caused a high concentration of gun pressure within the first 2 hours, which increased hunter congestion and farmer grievances. Whether the opening-hour shift aids game conservation has not been determined, but preliminary analysis of other data showed no reduction in total opening day kill and no reduced hunting pressure.

KEYWORDS: Crowding, farmer-sportsman relations, Michigan.

282. Frye, Thos D.

1952. How can wildlife management keep pace with modern trends? 42d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 42: 57-64.

This subjective discussion on organizational and management practices and principles defines protectionists, annihilationists, and conservationists, and discusses administrative considerations to keep pace with modern trends. Examples are: build an organizational structure with present-day business efficiency, clearly define authority and responsibility between administrator and commissioners, select equipment and personnel to meet new trends.

KEYWORDS: Profession, education, management, administration.

283. Furst, S. Dale, Jr.

1947. Outlook in wildlife law enforcement. 37th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 37: 46-51.

In a law enforcement questionnaire study conducted by the Pennsylvania Game Commission, replies were received from 40 States, the U.S. Fish and Wildlife Service, and six Provinces in Canada. Statistics are based on a comparison of a 2-year period with the previous 2-year period. The total increase in penalties between the biennia was from \$1,455,440 to \$2,433,293 in the 40 States and from \$62,117 to \$115,134 in Canada. Factors contributing to increased violations include postwar psychology, an increase in the number of sportsmen, better economic conditions, and the high cost of living. There is approximately a two-to-one feeling that the problem is being solved. Stricter enforcement, increased personnel, public education, better equipment, and increased fines are suggested. Violations of game and fish laws are a comparatively new kind of crime, and public education and sensible legislation are essential to establishing the criminal aspects of game and fish law violations in the public mind.

KEYWORDS: Enforcement, surveys.

G

284. Gabrielson, I. N., John C. Huntington, John H. Baker, and I. T. Quinn
1938. The hows and whys of annual waterfowl shooting regulations.
3d Conf. North Am. Wildl. Trans. 3: 217-240.

A panel discusses the seemingly harsh waterfowl shooting restrictions in effect in the middle and late thirties, including suggestions for the development of a more satisfactory system of regulations. The four speakers represent the U.S. Biological Survey, More Game Birds in America, the National Audubon Society, and the Alabama Conservation Commission.

KEYWORDS: Waterfowl, management,

285. Gabrielson, Ira N.
1946. Trends in hunting and fishing. 36th Conf. Int. Assoc. Game
Fish Conserv. Comm. Proc. 36: 151-156.

The obvious trend is increased hunting and fishing pressure which was underestimated during World War II. A decline in public standards has increased bird-crippling. Administrators should discourage meat and pot hunters, provide more recreation per unit of game, increase the production of existing environment, and inform the public of limitations on the productive capacity of fish and game in each State.

KEYWORDS: Fishing, management.

286. _____
1948. What is wrong with wildlife administration? Wis. Conserv.
Bull. 13(12): 3-7.

Sportsmen's groups are encouraged to eliminate some of the chief defects in current State game administrations by insisting that: the State conservation department be free from partisan and personal political interference, that it have adequate authority, that it resist uninformed pressures from hunting and fishing groups, that it have an adequate law enforcement staff, trained researchers, and adequate personnel to inventory game, that it have a sound education program, and that it devote its funds to produce more fish and wildlife.

KEYWORDS: Administration, conservation, clubs, historical value.

287. _____
1951. Wildlife management. 274 p., illus. New York: MacMillan Co.

Chapter 11, titled "Sportsmanship," gives a brief history of the decline of sportsmanship, what needs to be done now, and eight elements of goal sportsmanship.

KEYWORDS: Management, philosophy.

288. _____
1956. Sound wildlife administration. 10th Conf. Southeast Assoc.
Game Fish Comm. Proc. 10: 2-6.

Four basic essentials for good wildlife management are adequate financing, adequate authority, and continuity of personnel and of programs. The role and function of the commission form of administration are discussed.

KEYWORDS: Administration, management, license fee, historical value.

- 289, _____
1959. Wildlife conservation. (2d ed.) 244 p., illus. New York:
The MacMillan Co.
- Of particular interest is chapter 13 titled, "Nongame Birds and Mammals." Non-game animals affect human interest according to whether they have a real or imaginary effect. Species that are "valuable" are divided into those that have economic use and those that have esthetic appeal.
- KEYWORDS: Non-consumptive use, economics.
290. _____
1965. Review of current international trends in fish and wildlife affairs. 55th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 55: 72-77.
- Examples of wildlife development on many continents indicate international concern. Programs in Africa, North America, and Mexico; the World Wildlife Fund; the International Whaling Commission; and the prospects for an international environmental conference under the United Nations are discussed.
- KEYWORDS: Mexico, conservation, Africa, administration, education.
291. Gale, Larry R.
1954. The effects of season changes on hunting effort and game kill. 8th Conf. Southeast. Assoc. Game Fish Comm. Proc. 8: 117-120.
- An annual kill survey revealed that a contraction of 12 days in the squirrel season did not result in less participation, fewer hunts, or smaller average season kill. Both hunting and season kill were closely related to squirrel population levels and weather. Similarly, increasing the rabbit and quail seasons by 8 days did not affect hunting effort or kill. The percentage of participating hunters, the average number of hunts, and average kill all rose coincidentally with a 34-day extension of the grouse season.
- KEYWORDS: Management, small game, upland game birds, harvest statistics, Kentucky.
292. Gallizolli, Steve
1961. 10 year survey reveals some enlightening facts about hunters versus quail. Tex. Game Fish. 19(3): 9-11, illus.
- Increasingly liberal quail hunting regulations stem from research which shows that legal hunting is not a factor in determining quail population levels.
- KEYWORDS: Upland game birds, Arizona, management.
293. Gamble, Hays B., and Ronald A. Bartoo
1963. Economic returns from timber and wildlife on northeastern farmlands. J. Wildl. Manage. 27(3): 457-466.
- A study of 18 Pennsylvania farms in Sullivan County in 1961 indicated net annual timber returns of \$330 per farm. This figure compares with annual returns of \$257 per farm for rooming and boarding hunters, \$42 for leasing hunting rights, and \$26 for fee hunting. Timber annually returned a gross of \$5.24 per acre, while deer annually averaged 95 cents per acre.

Total returns to the county for all wildlife were one-quarter that of timber. While deer and hunter damage cost \$200 per farm year, hunter expenditures in surrounding communities amounted to about \$546 per farm. Sullivan County landowners have little economic justification for habitat improvement or offering hunting opportunity.

KEYWORDS: Landowner-private, economics, Pennsylvania, benefits.

294. Garrett, J. R., G. J. Pon, and D. J. Arosteguy
1970. Economics of big game resource use in Nevada. Univ. Nev. Max C. Fleischmann Coll. Agric. Bull. 25, 22 p., illus.

The demand for hunting, the value of the habitat in improving hunting, and how to use this value in evaluating select range improvement activities for livestock and deer are estimated. Equations for demand and regression are given, based upon hunter expenditure per trip. A consumer surplus model indicates an estimated total value for the State of \$1,037,876, and a value ranging from \$24,107 to \$155,042 among the eight areas studied.

KEYWORDS: Big game, economics, management, Nevada, resource use, benefits.

295. Garrett, James R.
1970. Characteristics of Nevada hunters. Univ. Nev. Agric. Exp. Stn. Bull. 22, 66 p., illus.

Questionnaires were sent to a 6.25-percent sample of all 1967 licensed resident and non-resident hunters. Following the 1968 season, another questionnaire was sent to approximately 2.5 percent of the registered hunters and all resident hunters of antelope, bighorn sheep, and elk. Each questionnaire included one followup. On the average, a Nevada resident hunter is a married male, 30-40 years old, has two children, is a skilled worker, has a high school education, earns \$9,699 per year, hunts with three other persons, has hunted in the central Nevada management area for 6 years, has lived in Nevada for 11 years, and has a total of 16 years of hunting experience. He spent about 20 hours or 3 days hunting in 1967, and 57 percent of the hunters did not bag a deer. The average non-resident Nevada hunter is from northern California, resembles resident hunters in most ways but is over 50, self-employed, spends 4.8 days hunting, and usually hunts in a party of five. Resident hunters spent about \$81.33 each compared with \$265.25 for the non-resident. The number of deer thought to be in an area and previously hunted areas were primary attractions. Slightly over half the residents but fewer nonresidents expressed dissatisfaction with the abundance of deer. All hunters were satisfied with deer size, the number of hunters encountered, accessibility, and terrain. The majority of hunters did not prefer a developed campground. (Arrangement and presentation of data require reader's discretion.)

KEYWORDS: Nevada, characteristics, preferences, economics, resident vs. nonresident, California.

296. Gartner, F. Robert, and Keith E. Severson
1972. Fee hunting in western South Dakota. J. Range Manage. 25(3): 234-237.

Experiments from 1966 to 1970 on a 100-square-mile area suggest that landowners who defer hunting on their land for a couple of years to build up trophy deer might realize substantial income. Up to \$45 per hunter-day could be charged for guide service, food, and lodging. Theoretically,

\$3,600 could be realized from 10 hunters for 8 days. Hunting of this type provides income and new social contacts for ranchers, cuts livestock losses, and promotes better range management. One problem of managing for trophy deer is the imbalance in deer herd sex ratio caused by harvesting trophy bucks but not removing surplus females.

KEYWORDS: Economics, South Dakota, landowner-private, guide.

297. Geis, Aelred D.

1963. Role of hunting regulations in migratory bird management. 28th Conf. North Am. Wildl. Nat. Resour. Trans. 28: 164-172, illus.

Review of available information suggests that the phenomena which cause hunting regulations to have little effect on the status of resident game species do not apply to migratory game birds. Hunting regulations influence the proportion of migratory game bird populations that are harvested, which in turn influences annual mortality rates. Furthermore, there is little evidence to suggest that increased hunting mortality is compensated for by either a reduction in non-hunting mortality or increased production. This emphasizes the important role of hunting regulations in migratory bird management.

KEYWORDS: Waterfowl, management.

298. George, Robert Worth

1966. A comparative analysis of conservation attitudes in situations where conservation education is a part of the educational experience. Ph.D. diss., Mich. State Univ., 153 p.

A total of 1,618 persons, including high school and college students and adults, were asked 64 questions to assess their conservation attitudes. Significant differences in conservation attitudes appeared between groups. High school students had the lowest total score and adults, the highest. Age and education were associated with the most significant differences in attitudes of high school students; age and sex were associated with the college student group; and sex and residence with adults. Extracurricular activities with a conservation theme influenced attitudes the greatest. Attitudes toward conservation do change with interest in and exposure to conservation knowledge, (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Conservation, preferences.

299. Gerstell, Richard

1938. Measured game and recreational production on controlled shooting areas. 3d Conf. North Am. Wildl. Trans. 3: 570-575.

Methods of establishment and operation are given for 2-year permit system of hunting pheasants, grouse, rabbits, and squirrels. Cost of establishment was \$250, with \$335 annual operating expense. Operating statistics given for three Pennsylvania areas during 1936-37 show an average of 4.2 hunting hours per man. In one area it took an average of 11 hours hunting per bird killed, and in another area it took an average of 3.3 hours per rabbit killed. (References, 3.)

KEYWORDS: Harvest statistics, economics, management, Pennsylvania.

300. Gilbert, Bil

1967. Hunting is a dirty business. Sat. Evening Post, Oct. 21. Reprinted in Wild Cascades, Feb.-Mar. 1969, p. 16-17.

The sports-hunting establishment is the most pampered, privileged, subsidized recreation group in existence. Sports hunters are characterized as enlightened conservationists whose fees and political support make possible wildlife research, protection, and preservation. The truth is that about half of the State game funds are spent to hire wardens to protect wildlife from gunners. About 25,000 public State and Federal "conservation" workers cost nearly \$500 million a year to make it easier and quicker for gunners. The annual refuge budget is about \$30 million, and the annual income from duck stamps is only \$5 million. Hunters are minority users of wildlife; and although their numbers are declining, they still grab more privileges. One solution is to allocate wildlife agency funds from general State revenues. The increase in numbers of non-hunting wildlife users suggests a source of conservation funds that might more than compensate for the loss of hunters' fees.

KEYWORDS: Economics, management, antihunting.

301. Gilbert, Douglas L.

1951. Economics and related biology of the black bear in Colorado. M.S. thesis, **Colo. Agric. Mech. Coll.** (Colo. State Univ.), 164 p.

Two-year study on 118-million-acre area in Southwest Colorado assessed the controversy between stockmen and sportsmen. Of 11 reported livestock losses to bears, only three were valid, five questionable, and three definitely due to other causes. Letters sent to 60 game departments in United States, Canada, Alaska, and Mexico revealed that hunting license fees ranged from \$1.50 to \$7.50 for residents, \$10 to \$50 for nonresidents, and bounties ranged from \$3 to \$15. Questionnaires sent to 250 people including stockmen yielded a 25-percent return and indicated that 97 percent and 79 percent, respectively, had never known of bears killing cattle or sheep. Extensive data were given on bears' biology, life history, and description. Author recommends treating the bear as a game animal with protection for recreational uses but suggests continuing control where livestock values are high and bear damage is imminent. (Excellent literature review and descriptive life history information about black bear. Literature cited, 139.)

KEYWORDS: License fee, Colorado, harvest statistics, predator, big game.

- 302.

1956. Television as a wildlife-education medium. *J. Wildl. Manage.* 20(4): 456-458.

A wildlife conservation education TV program, its problems, operation, and programing are described.

KEYWORDS: Education, communications, Colorado.

303. Gilbert, Douglas Lee

1963. Public relations and communications in wildlife management. Ph.D. diss., Univ. Mich., 209 p.

Principles of good public relations pioneered in big business and government have been delineated and presented with wildlife management examples. A questionnaire to 50 State conservation departments provides data. Presented are suggestions and techniques to aid the wildlife management agency in selecting and training public relations personnel and in using various communications media as methods of contact. Few State conservation agencies have public relations departments, and their information

and education departments are grossly understaffed and undersalaried.
(Condensed from *Dissertation Abstracts*.)

KEYWORDS: Public relations, education, management, surveys, communications.

304. Giles, Robert H.

1969. A strategy for resolving a wildlifer's dilemma. *Wildl. Soc. News* 123: 33.

Public officials are responsible for presenting several "best" alternatives to the public for their decision, but there is conflict between participatory democracy and expertise in decisionmaking. Wildlifers have been deciding game population goals that are the prerogative of citizens to establish and have irresponsibly presented "right" answers instead of alternatives with advantages, risks, and costs. They assume maximum faunal productivity is their management goal. They need to clarify wildlife management objectives in terms of human benefits and better interpret political, social, economic, and human values and ecological concepts. Wildlifer's role needs clarification in relation to the commission he serves, and the actual decision risks should be left to wildlife commissioners. (A rebuttal "Sincerely Yours" by Malcolm G. Edwards is in *The Wildlife Society News*, No. 126, Feb. 1970.)

KEYWORDS: Administration, public relations, profession.

305. Giles, Robert H., Jr., and Robert F. Scott

1969. A systems approach to refuge management. 34th Conf. North Am. Wildl. Nat. Resour. Trans. 34: 103-115, illus.

The systems approach is a style of thought and action that treats animals, organizations, ideas, problems, land, and resources as systems. Adopting and implementing it in the National Wildlife Refuge System, its foundations, its advantages and limitations, and its broad implications and future directions are discussed.

KEYWORDS: Refuge, management.

306. Gillham, Charles Edward

1946. The goose and the golden egg. 11th Conf. North Am. Wildl. Trans. 11: 478-486.

By citing examples of their contributions to safety, education, conservation, and research and the economic values derived from supplying guns and ammunition and by discussing who hunts, what the hunter shoots, and how much he kills, the arms and ammunition manufacturers make it evident that they do not wish to see the "recreation goose" threatened. Accordingly, all types of shooting should be forever perpetuated, people should have a place to hunt regardless of the bag limit, and much of the desire to shoot should be satisfied by trap and skeet shooting.

KEYWORDS: Economics.

307. Gilligan, James P.

1954. Wildlife values in western wilderness area management. *J. Wildl. Manage.* 18(4): 425-432.

A review of the initial purpose, development policies, and present status of the western wilderness areas includes a discussion of harvesting problems on wilderness areas, the conflict between wilderness retention and

game population, and examples of helicopter landing sites, cabins, fencing, corrals, grazing, commercial timberland, dams, and other developments which have changed the authenticity of the original wilderness area idea. Primitive methods of game harvest can be encouraged by reducing non-resident license fees and by providing special-rate transportation or extra game bonuses.

KEYWORDS: Management, conservation.

308. Glading, Ben

1968. The role of private hunting clubs in California. 48th Conf. West. Assoc. State Game Fish Comm. Proc. 48: 129-141.

Population pressure, urbanization, and the abundance of good pheasant and deer habitat on private lands have contributed to the increase of California private clubs and hunting preserves. The development of these clubs is traced. Clubs vary considerably in management: for a lucrative hobby, a large scale enterprise, a 100-percent pheasant hunting operation, a multiple use recreation area, or a means of ending severe erosion caused by wild goats.

KEYWORDS: Big game, California, upland game birds, economics, historical value, clubs.

309. Glassen, Harold W.

1952. Do States still own their game and fish? 42d Conf. Int. Assoc. Game Fish Conserv Comm. Proc. 42: 32-38.

KEYWORDS: Legislation, Michigan, enforcement, historical value, Federal-State jurisdiction.

310. Goddard, Stephen V.

1962. Factors affecting the waterfowl hunter utilization and the waterfowl kill at the Bear River Migratory Bird Refuge, 1960-1961, M.S. thesis, Utah State Univ., 107 p., illus.

Interviews were taken from 1,266 Utah hunters over 2 years. The following information was gathered: home county of hunter, his age and sex, where he hunted on the refuge, type of concealment used, transportation used and miles driven, hunter success, times hunted both in and out of the refuge, hunter use of retriever and decoys, why the refuge was chosen for hunting, years hunter had hunted the refuge, why he chose the concealment he used, and whether other areas of the refuge would be hunted if access were available. Field observations determined hunter distribution and types of concealment used by hunters. (Interview schedule is included, along with 36 reference sources.)

KEYWORDS: Utah, waterfowl, preferences, crowding, characteristics.

311. Goldman, E. A.

1927. What to do with the Yellowstone elk? Am. For. For. Life. 33: 279-282, illus.

The remarkable comeback of the Yellowstone elk and the alternatives for managing future increases are discussed.

KEYWORDS: Big game, historical value, management, Wyoming.

312. Goodson, Brantley
1968. Some general aspects of human motivation. 22d Southeast. Assoc. Game Fish. Comm. Proc. 22: 538-541.

A law enforcement officer's interest, attitude, and performance depend to a large extent on motivation. Suggestions for motivating officers are included.

KEYWORDS: Enforcement, profession.

313. Gordinier, Earl J.
1957. Yield and public use of Michigan State game areas, 22d Conf. North Am. Wildl. Trans. 22: 404-412, illus.

Data obtained through hunter car counts, a post-card poll, and field surveys yielded the following. Hunting pressure on upland areas averaged at least three times the pressure on private farmland, checking stations on two waterfowl areas indicated an average daily hunter pressure nearly 14 times that of the upland areas, and hunting pressure was heavier on unlimited areas than on controlled areas. Non-hunting recreational uses included camping, fishing, picnicking, and swimming. The cost of the program during 1955-56 averaged \$2.85 per acre. Advantages of the game area program are: they support 6-1/2 percent of the total hunting effort in southern Michigan, they offer 1 to 2 million hours of non-hunting recreation annually, they use previously useless lands, and they demonstrate applied conservation and serve as game management laboratories.

KEYWORDS: Crowding, non-consumptive use, Michigan, harvest statistics.

314. Gordon, C. Douglas, D. W. Chapman, and T. C. Bjornn
1969. The preferences, opinions, and behavior of Idaho anglers as related to quality in salmonid fisheries. 49th Conf. West. Assoc. State Game Fish Comm. Proc. 49: 98-114, illus.

Each of six Idaho fishing license classes was sampled by mail questionnaire of 10,000 anglers. After one followup reminded, returns were estimated at 50 percent. A telephone interview with 143 nonrespondents disclosed no significant differences between respondents and nonrespondents. Anglers had strong and specific preferences, opinions, and behavior patterns that were significantly influenced by age and income. For example, as age increases, preference shifts from mountain lakes to salmonid fishing in lowland lakes. These relationships should be monitored to provide suitable angling opportunities for all socioeconomic groups. Many anglers are willing to pay more to maintain or improve specific fisheries. A reduction of bag limits is preferred over restrictions on seasons or other regulations. Most anglers preferred to catch a few medium-sized fish rather than many small ones or one large one.

KEYWORDS: Fishing, user fee, Idaho, characteristics, preferences.

315. Gordon, Seth
1930. Giving the game policy the laboratory test. 17th Conf. Am. Game Trans. 17: 7-24.

The American Game Policy proposed in 1929 resulted in two points of agreement; first, sportsmen must pay for their shooting or go without, and second, unless the landowner is given a square deal and a workable partnership with sportsmen he will be more rebellious, allow no hunting and ignore

the game crop. This paper reports on a plan to conduct a 19,000-acre laboratory test in Michigan to determine what can be done to produce and harvest a farm game crop without hinderance to the farm operation.

KEYWORDS: Farmer-sportsman relations, license fee, administration, plant and shoot, Michigan, historical value.

316. _____ 1956. California's pheasant tag system. Wis. Conserv. Bull. 21(8): 11-12.
- A California hunter pays from \$1 to \$10 for pheasant tags. This plan aids law enforcement and sportsmanship and insures that those who benefit from the program contribute funds to support it.
- KEYWORDS: California, upland game birds, user fee.
317. Gordon, Seth, Jr.
1940. A sampling technique for the determination of hunters' activities and economics thereof. M.S. thesis., Univ. Mich.
- Restricted to University of Michigan campus use. (See Gordon 1941.)
- KEYWORDS: Characteristics, economics, research methods, Michigan, harvest statistics.
318. _____ 1941. A sampling technique for the determination of hunters' activities and the economics thereof. J. Wildl. Manage. 5(3): 260-278, illus.
- A 1939 Michigan interview of 300 licensed and non-licensed hunters revealed that the order of questions was related to the correctness of the responses. Resident hunters in one county expended almost \$66,000 in the 1938 season, invested \$20,000 in guns, and trapped furs valued at \$15,000. Half of the hunters interviewed had incomes less than \$500. During 94,000 hunter hours, 3,900 pheasants and 14,000 rabbits were bagged.
- KEYWORDS: Economics, harvest statistics, characteristics, Michigan, research methods.
319. Gordon, Seth E.
1931. The dog, the deer and the buck law. 23d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 23: 77-81.
- The history behind the law prohibiting the hunting of deer with dogs is discussed.
- KEYWORDS: Big game, Pennsylvania, historical value, legislation.
320. Gottschalk, John S.
1966. The 1965 national survey of fishing and hunting. 56th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 56: 154-158.
- Brief summary is given of the Bureau of Sport Fisheries and Wildlife 1965 National Survey of Fishing and Hunting.
- KEYWORDS: Surveys, fishing, economics.
321. _____ 1972. The German hunting system, West Germany, 1968. J. Wildl. Manage. 36(1): 110-118, illus.

Germany's extensive game populations are intensively managed by limiting hunting to less than 0.1 percent of the population. Game research is extensive and supported by hunting clubs. A comparison is made between management techniques of 1935 and 1968. Approximately 84 percent of West Germany is usable for hunting, but hunting rights may cost as much as \$5,000 per year. Hunters are preoccupied with the trophy aspects of hunting, because seasons are long and there are no bag limits.

KEYWORDS: Germany, clubs, preferences, resource use, management, historical value.

322. Graham, Charles T.
1964. Fee hunting in the State of Washington. 44th Conf. West. Assoc. State Game Fish Comm. Proc. 44: 103-105.

KEYWORDS: Washington, upland game birds, management,

323. Grahame, Arthur
1960a. Happy hunting? Outdoor Life 126(4): 66-68, 146-150, illus.

Various hunting programs are covered. Game-farm systems from Pennsylvania and New York and cooperative programs in Connecticut, Tennessee, Washington, Utah, and Arkansas are explained. It would be less costly in the long run to lease or arrange paid hunting on private land than to attempt large-scale acquisition of land for public hunting. Paid hunting could change the hunter from an unwelcome or tolerated intruder to a sought-after customer by farmers. An overall plan is needed which can be modified to fit varying conditions in the country.

KEYWORDS: Access, management, landowner-private, user fee.

324. ———
1960b. Paid hunting, threat or hope? Outdoor Life 126(2): 33-35, 86-90, illus.

The current trend shows increasing posted hunting lands and an increase in fee hunting. Eighty-five percent of all hunting is done on 1-1/2 billion privately owned acres. The day of free hunting is nearly over and the problem is not maintaining free hunting, but maintaining hunting within the financial reach of the average man.

KEYWORDS: User fee, management, access, landowner-private.

325. ———
1960c. Paid hunting is here, part 2. Outdoor Life 126(3): 62, 63, 116-120, 124, 125, illus.

The article outlines paid hunting systems in the United States: pay-as-you-shoot hunting on commercial shooting preserves, hunting on game preserves owned or leased by sportsmen, informal partnerships or organized non-commercial hunting clubs, hunting on land owned or leased by State game commissions which charge a fee in addition to the hunting license, hunting on land controlled by community organizations that charge fees and contribute profits to community or charitable causes, landowners charging sportsmen a right-of-way fee to gain access to free public land, landowners charging individual sportsmen a camouflaged hunting fee, and hunting on land for which the owner charges a direct fee.

KEYWORDS: Landowner-private, management, user fee, access.

326. _____ 1963. No more free hunting? *Outdoor Life* 131(2): 14, 15, 102, 103, illus.
- Increasing amounts of private land are being taken out of free hunting status and placed in the 'paid hunting' category. Public lands will follow this trend. Supply and demand will endanger paid hunting by driving the price above the limits of most hunters. What is needed is a guide for development of paid hunting.
- KEYWORDS:** Management, landowner-private, user fee, access.
327. Gramlich, Francis James
1965. A study of factors related to low deer harvests in a portion of eastern Maine. M.S. thesis, Univ. Maine, 106 p., illus.
- Data on the variables of timber harvest, forest fire occurrence, accessibility, remoteness, forest cover types, hunting pressure, and hunters were related to deer harvest in southeast Maine using multiple regression to determine factors related to consistently low deer harvest. Data were collected by (1) random sample interview questionnaire of 347 individuals, and (2) ground and aircraft surveillance of hunter vehicles to provide an index of hunting pressure. Results show that remoteness (also reflecting lower pressure) and hunter-related factors are more important to low deer harvests than environmental factors. Remoteness (more than 1 mile from a road) accounted for at least 60 percent of the variation (.01 level of significance) in deer kill within the low-harvest area. Also, "The number of hunters and their length of stay in camp have no uniform effect on hunting pressure or deer harvest." Further, harvest was not linearly correlated with total human population of the area. Hunter opinions are almost unanimous that deer populations are lower now than in earlier years, but the opinions are evenly divided on whether or not hunting pressure has increased over the years. (Bibliography, over 60 entries.)
- KEYWORDS:** Big game, preferences, harvest statistics, characteristics, Maine.
328. Gray, James Madison
1964. Estimated annual consumer hunting expenditures for license purchasers in the coastal plain of Virginia, 1963-1964 hunting seasons. M.S. thesis, Va. Polytech. Inst., 65 p., illus.
- Mail questionnaire study of 552 Virginia Coastal Plain hunters (0.4 percent of population) is stratified by big game, small game, and waterfowl license holders. A 51.8 percent return cost \$.58 per mailed questionnaire. License holders listed before and after the randomly chosen hunters were contacted if nonresponse resulted from first contact. Thirty-five expense categories including equipment, food, transportation, and dogs showed a total projected expenditure of \$34.6 million for the 1963-64 hunting season in Virginia. Transportation was the major expense for resident and non-residents, while guns were largest expense for county residents. State residents proved to be youngest hunters while county hunters were oldest. (Primary concern is with sampling and methodological problems. Numerous tables in appendix.)
- KEYWORDS:** Economics, research methods, Virginia.

329. Green, Bernal L. , and H. A. Wadsworth

1967. Boaters, fishermen, hunters--what affects participation and what do they want? Purdue Univ. Agric. Exp. Stn. Res. Bull. No. 829, 32 p., illus.

Four variables affect boating participation: participation increases with income and number of years that a boat has been owned but declines with increased days of paid vacation and increased distance traveled to boating areas. For fishing, people classed as clerical and craftsmen tend to make more short fishing trips than professionals, single persons take more short trips than married persons, and fewer long fishing trips are taken when wives are not employed or when distances traveled increase. Average one-way distance traveled was 19 miles on short trips and 284 miles on long trips. Three variables significantly affect participation in hunting: managers, craftsmen and operatives take fewer long hunting trips, while those in sales spend more days on long hunting trips than professionals; participation tends to decline with age; and those who took more short fishing trips also took more short hunting trips. Hunters averaged, one way, 19 miles on short hunting trips and 226 miles on long hunting trips. Data were obtained from questionnaires returned by 50 percent of 1,737 boat owners and 43 percent of the 18,000 fishermen-hunters contacted.

KEYWORDS: Non-consumptive use, fishing, characteristics, Indiana, economics, research methods.

330. Greenberg, Robert Edward

1964. An analysis of opposition to scientific management of Michigan's deer herd. M.S. thesis, Univ. Mich.

Restricted to University of Michigan campus use.

KEYWORDS: Management, big game, Michigan, preferences.

331. Greene, A. F. C.

1954. Does fisheries research pay dividends to the angler? 34th Conf. West. Assoc. State Game Fish Comm. Proc. 34: 55-60.

Deterrent to good management is the disparaging connotation of "research" and the hesitance of administrators to recognize the values of research findings. Research enables us to remove uncertainty and biased opinions, to assure greatest returns for money spent, and to liberalize regulations. Research makes more fishing available to the angler through studies of stocking, hatchery management, and reclamation projects. (This is a general plea for the acceptance of fisheries research and a general overview of its benefits.)

KEYWORDS: Management, fishing, research needs.

332. Greene, Jeffrey C.

1970. Characteristics of some Michigan shooting preserve users. J. Wildl. Manage. 34(4): 813-817.

Characteristics of 241 users of Michigan shooting preserves were determined by mail questionnaire. Most hunters visited preserves because of lack of game birds during the open season. Over half of the preserve hunters did not use preserve-owned hunting dogs. Two-thirds of the hunters lived in urban areas and they averaged 26 years of hunting experience. Compared with other hunters, preserve hunters were found to have higher incomes, more

formal education, and more professional/proprietor types of occupations. Users seemed satisfied with their hunting experiences.

KEYWORDS: Refuge, Michigan, characteristics.

333. Greenough, Tallent

1965. Should fish and game be used to attract the tourist industry. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 30-35.

KEYWORDS: Fishing, oregon, user fee, management, non-consumptive use.

334. Greenwood, Anthony

1949. Should blood sports go? Spectator 182(6291): 71,72.

According to this British article, hunting is morally indefensible as it is cruel to animals and degrading to participants; it is an inefficient, uneconomical way of controlling pests. Fox hunting is an expensive form of destruction and its cost is not borne entirely by those who can afford to hunt. The true cost of hunting is extreme because hunting land could otherwise be used for food production, property is damaged by hunters, and the slaughter of lambs and poultry by foxes preserved for hunting is great.

KEYWORDS: Economics, predator, antihunting, England.

335. Gregg, Frank

1955. What's wrong with State conservation magazines? 20th Conf. North Am. Wildl. Trans. 20: 616-624.

KEYWORDS: Literature, public relations, conservation.

336. Grieb, Jack R., and David C. Bowden

1966. Effects of pre-hunting season notification on hunter questionnaire data. 46th Conf. West. Assoc. State Game Fish Comm. Proc. 46: 233-238.

Half of 12,000 randomly sampled license buyers were contacted by explanatory letter before the survey and 50 percent were not. Of those receiving the letter 71 percent responded to the questionnaire. Data indicate that hunter reports of game bird and rabbit hunting activity, harvest, and location do not differ significantly between the two groups. Pre-survey contact has little or no effect on questionnaire answers, and it is therefore recommended that current hunting license stubs be used to determine hunting statistics for small game and waterfowl species.

KEYWORDS: Research methods, harvest statistics.

337. Gutermuth, C. R.

1949. Forest-wildlife ideologies. J. For. 47(11): 886-889.

Paper emphasizes the importance of "people management" in natural resource management, discusses Forest Service progress and failure, and suggests that public participation, appropriations, and management support can be obtained only if wildlife "sells" its program to the public.

KEYWORDS: Public relations, management.

338. Guthrie, W. Alan

1969. Game stocking, does subsidizing nature pay? Va. Wildl. 30(4): 10-11, illus.

KEYWORDS: Management, upland game birds, small game, historical value.

339. Guyant, Tom

1958. Unseen deer. Tex. Game Fish 16(4): 4.

Michigan's department of conservation placed a known number of deer within a 647-acre tract. From three to 10 hunters spend 18 days over a 3-year period hunting them. The hunters consequently realized that deer--even thickly populated--are hard to get. During buck-only hunts, shooters saw one deer for every 0.9 of an hour and a buck each 10.2 hours. They saw 27 percent of the available deer but only 10 percent of the available bucks.

KEYWORDS: Management, Michigan, big game.

H

340. Hamilton, Lawrence S., and E. T. Van Nierop
1965. Should we fish and boat on our reservoirs? N.Y. State Conserv.
20(2): 12-14, illus.
Public health and economic and legal aspects of the multiple use of
reservoirs are considered.
KEYWORDS: Resource use, New York, fishing, economics.
341. Hamnett, W. L.
1961. Hunter safety training as a part of I&E in North Carolina.
15th Conf. Southeast. Assoc. Game Fish Corn. Proc. 15: 432-434.
Growth of the State's hunter safety program is outlined. Conclusion
is that the volunteer program is more effective among sportsmen than is
the mandatory program.
KEYWORDS: North Carolina, safety, education.
342. Handley, Rolland B., and Austin C. Shattles
1955. The development of public hunting areas in Mississippi. 9th
Conf. Southeast. Assoc. Game Fish Corn. Proc. 64-67.
In Mississippi, managed areas developed for controlled hunting total
397,000 acres, with another 500,000 acres available when funds permit. The
Red Creek Wildlife Management Area is an outgrowth of a refuge. Fees are
not paid for leasing the land: landowners provide land in exchange for
protection of their interests. All State areas are being developed to pro-
vide wide utilization of resources by as many people as possible.
KEYWORDS: Mississippi, landowner-private, management.
343. Handman, William
1961. ~~What~~ the tourist division of the Georgia Department of Commerce
is doing to promote hunting and fishing in Georgia. 15th Conf.
Southeast. Assoc. Game Fish Corn. Proc. 15: 455-457.
Promotional devices include billboards, brochures, a travel exhibit,
publicity releases, and a travel survey to determine the importance of
hunting and fishing to Georgia's tourist industry.
KEYWORDS: Fishing, economics, Georgia, public relations.
344. Hanlon, Robert William
1956. An analysis of the bounty system in Minnesota and its impact
on conservation education. M.S. thesis, Mankato State Teachers
Coll., Minn. 61 p.
Bounty records dating back to 1943 and a questionnaire survey of all
county auditors in Minnesota, North and South Dakota, Iowa, and Wisconsin
were the basis of this study. All questionnaires were returned. Current
literature reflects almost unanimous opposition to the use of the bounty
system as a means of predator control, but Minnesota depends exclusively
upon bounties for this purpose. By law, bounty payment is handled through
the county auditor's office. Bounties paid in 1954 totaled \$267,825.26.
During this same period, Iowa paid \$145,235.40, Wisconsin \$91,260.50, and

South Dakota \$134,638.50 in bounties. Bounties paid by species in Minnesota during 1954 were \$5,885 for 171 wolves, \$49,325 for 1,881 coyotes, \$23,155 for 1,543 bobcats, \$1,765 for 110 bear and \$144,680 for 40,422 foxes. Fraud is possible because of different payment and marking systems by the various counties which make it possible for the same animal to be bountied more than once. Bounties on gophers, woodchucks, crows, and rattlesnakes in 1954 cost \$34,009. An additional \$8,000 was paid but complete records could not be obtained for tabulation. Author concluded that bounty payment system lacks any degree of control. (Impact of bounty system on conservation education (title) is almost nonexistent, but author presents several "conversations with students." Questionnaire included. Bibliography, 18.)

KEYWORDS: Minnesota, education, predator.

- 345 Hare, C. E.

1949. The language of field sports. 276 p., illus. New York: Charles Scribners Sons.

The author attempts to establish definitively the proper names and their modern descendents of sporting terms. Included are ancient and modern hunting terms, unusual terms, group terms, some Dutch terms, pet names, phrases and origins, a table *of* terms with several meanings, and a list of authorities of terms. Most of the terms are now considered obsolete by many authors.

KEYWORDS: Dictionary, library, historical value.

- 346 Harkness, William J. K.

1948. The legislative basis for improved fish and wildlife law enforcement. 38th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 38: 128-130.

Enforcement is an integral part of fish and wildlife management. Education of the public and the legislators is needed to obtain desirable legislation for good management.

KEYWORDS: Legislation, enforcement.

347. Harper, Harold T., Chester M. Hart, and Dale E. Shaffer

1951. Effects of hunting pressure and game farm stocking on pheasant populations in the Sacramento Valley, California, 1946-1949, Calif. Fish Game 37(2): 141-176, illus.

A 4-year pheasant hunting study was made on two areas in the Sacramento Valley from 1946 to 1949. Only one area was stocked. Hunter checks and airplane counts of hunters' cars provided data. A 10-day season limited to two cocks per day and 10 per season was operated during the study. In the first 3 days of hunting, 70-80 percent of the seasonal hunting pressure was exerted and 70 percent of the kill taken. Study results indicate that the planting of game farm hens has no lasting or cumulative effect in increasing pheasant production. Returns from transplanted wild birds were greater than from farm birds when both were liberated at comparable ages. Opening areas to hunting that have previously been closed will provide more birds for the hunter than any other single management method.

KEYWORDS: Harvest statistics, management, upland game birds, California, plant and shoot.

348. _____ Robert D. Mallette, John W. Speth, Roger L. Allemand, and
Walton A. Smith
1965. A review of the licensed pheasant club program in California,
1939-1963. Dep. Fish Game, State Calif. Proj. W-47-R, 37 p. ,
illus., 47 misc. p.

The licensed pheasant club program started with 17 clubs in 1940, and by 1964, 191 were licensed to include about 169,000 acres. Hunter use has increased from 30 man-days hunted per thousand acres in 1940 to 380 man-days in 1963. Due to hunter demands for easy-to-kill birds, need of operating funds, and Commission regulations, the hunter's kill shows a higher proportion of planted birds than wild birds. Approximately 40 percent of Zone A clubs (clubs having natural pheasant reproduction) practiced habitat management or manipulated lands for pheasants. Many of the Zone B licensed areas (having no natural pheasant reproduction) are devoted entirely to wildlife as a major source of revenue. The use of these clubs has grown phenomenally compared with general pheasant tag sales which have remained level,

KEYWORDS: California, clubs, upland game birds, historical value.

349. _____ George Metcalfe, and John F. Davis
1950. Upland game cooperative hunting areas. Calif. Fish Game
36(4): 404-432, illus.

To open land closed to pheasant hunting, Senate Bill No. 677 was passed by the State Legislature in 1949. Six cooperative areas were opened that year to a maximum of 7,500 hunters and provided 41,166 man-days of hunting with a kill of 12,114 birds. Returns from 7,797 stocked birds were 47 percent. About 63 percent of the hunter days and two-thirds of the total kill was made during the first 3 days of the season. The area which charged a fee had the highest average number of hours hunted per day, the highest success, and the lowest pressure. The area most convenient to hunters with limited time had the lowest average hours hunted. Hunter success was uniformly higher and crippling loss lower when dogs were used.

KEYWORDS: Upland game birds, harvest statistics, legislation, plant and shoot.

350. Harris, Peyton Randolph
1940. The Pisgah Deer Case, United States of America, plaintiff,
against J. D. Chalk, and others, defendants. 34th Conf. Int.
Assoc. Game Fish Conserv. Comm. Proc. 34: 90-109.

The legal aspects of the Pisgah Deer Case are discussed: a suit between the United States and six officials of the State of North Carolina Division of Game and Inland Fisheries. The suit was filed by the United States when State Game and Fish Protectors confiscated deer which Federal wardens had trapped on the Pisgah Game Preserve and were in the process of transporting to points outside the State.

KEYWORDS: Management, North Carolina, big game, historical value,
Federal-State jurisdiction.

351. _____
1944. Wildlife, the public interest and the law: an approach to the
problem of public land management. 9th Conf. North Am. Wildl.
Trans. 9: 96-105.

This is a discussion of Federal versus States' jurisdiction over

wildlife resources with respect to the National Forests. The issue of local self-government is raised through an historical consideration. Congress has thrice directed the Federal Government to aid in enforcement of the State laws on Federal forest lands. The Forest Service's disregard for State game and fish laws is caused by "lust for Federal power," the "property protection theory," and State statutes which gave consent for Federal land acquisition for the purpose of preserving stream navigability. The Forest Service has no right to destroy without compensation deer which damage the forests and belong to the people of the State. Legislation is needed to destroy with respect to National Forests "...the evils of bureaucratic control...the poison ivy which is choking the tree of liberty." New York State's preservation of local self-government of forests is applauded. Several references to laws, legal statutes, and the Constitution support the author's "states rights" opinion.

KEYWORDS: Management, New York, legislation, Federal-State jurisdiction.

352. Harrison, Jim
1971. Grim reapers of the land's bounty. Sports Illus. 35(15):
38-40, 43-44, 47-48, illus.

Hunters and anglers who do not heed fish and game codes and despoil nature are the subject of indictment. Most sportsmen follow the laws, but the majority is scarcely overwhelming. City dwellers seem to be most guilty of the "cowboy consciousness"--land is endless, unspoiled, mysterious, still remaining to be overcome and won. The jacklighters, fish snappers, and law violators do not respect the spirit of the law and they would persist even if no game were left on earth. There are signs of change, such as judges becoming sterner and people becoming environmentally aware.

KEYWORDS: Antihunting, law violation.

353. Hart, Chester M.
1954. Pheasant hunting pressures in California. 34th Conf. West.
Assoc. State Game Fish **Corn.** Proc. 34: 219-226, illus.

Pheasant hunters have doubled in California since prewar years, with tag sales reaching 215,000 in 1953. Another 50-percent increase by 1960 is anticipated. Habitat averages less than 10 acres per hunter. The Department's cooperative hunting program absorbs 10 percent of the total hunting pressure. Seasonal use averages 50 man-days per 100 acres. Bird harvest varies from 50 to 85 percent.

KEYWORDS: California, harvest statistics, upland game birds, historical value.

354. _____ John F. Davis, and Wilbur F. Myers
1952. Pheasant cooperative hunting area results, 1951. Calif. Fish
Game 38(4): 597-604, illus.

Eleven cooperative hunting areas totaling 153,789 acres were operated by the Department of Fish and Game during the 1951 pheasant season. A total of 21,781 pheasants were taken on the areas in 54,701 man-days of hunting. Success was 0.40 bird bagged per hunter day. The total number of individual hunters using the areas was approximately 36,235, nearly 20 percent of the number of pheasant tag buyers. From 1949 to 1951 there have been increases of 113 percent in the total hunting acreage, 33 percent in hunter use and 62 percent in the number of pheasants bagged.

KEYWORDS: California, upland game birds, harvest statistics, plant and shoot.

355. _____ Fred L. Jones, and Dale E. Shaffer
 1951. Pheasant cooperative hunting area results, 1950. Calif. Fish Game 37(4): 395-437, illus.
- A total of 104,213 acres were opened for a 10-day season of controlled hunting with a maximum 8,770 hunters permitted at one time. A total of 47,889 man-days of hunting resulted in a kill of 17,523 birds. Half this total kill occurred during the season's first 3 days, and half the hunter days occurred during the opening week. Birds released in season gave a 70-percent hunter return, but those liberated a week prior to the season yielded a 65-percent return. Hunters with dogs experienced higher success and lower crippling.
- KEYWORDS: California, upland game birds, harvest statistics, plant and shoot.
356. Hart, M. D.
 1933. Tinkering with our game laws. 27th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 27: 130-132.
- Constantly changing game laws confuse sportsmen and cause unintentional violations. Counties should be zoned and uniformly regulated.
- KEYWORDS: Management.
357. Hatter, James
 1965. Conservative implications of fishing derbies. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 232-233.
- KEYWORDS: Canada, fishing, resource use.
358. Hatton, John H.
 1929. Wild life administration. J. For. 27(2): 254-261.
- An intelligent program of administration of wildlife is presented with two subdivisions: supervisory administration (responsibility for game protection) and resource administration (game as a recreational and productive resource). Conflicts in State and Federal jurisdiction are discussed. Game and bird refuges, areas under Federal control, national and international organizations, various phases of wildlife administration, and basic considerations of wildlife treatment and research are outlined.
- KEYWORDS: Federal-State jurisdiction, research needs, administration.
359. Haugen, Arnold O.
 1948. Bow 'n arrow hunting - good conservation. 13th Conf. North Am. Wildl. Trans. 13: 459-464.
- Bow and arrow hunting is good conservation because it provides maximum hunter recreation per animal population with only one successful archer out of 30. There is not undue crippling of animals, and distances traveled by hit deer compare favorably with rifle-shot deer not killed immediately. Managers found no unclaimed arrow-killed deer. Deer killed by archers were recovered at an average distance of 308 yards during a 4-year count. This compares with 349 yards for guns. Bows are safer than firearms in thickly settled areas. Archery hunting is more fun due to the tougher chase. Brief history of bow hunting in Michigan since 1934 is given.
- KEYWORDS: Management, archery, historical value.

360. Haw, Frank
 1965. Economic values and conservation implications of fishing derbies. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 241.
 KEYWORDS: Washington, economics.
361. _____ and Raymond M. Buckley
 1968. The ability of Washington anglers to identify some common marine fishes. Calif. Fish Game 54(1): 43-48, illus.
 Results of a survey involving the examination of fresh fish specimens by 909 Washington salmon anglers demonstrated the following: a consistent inability of anglers to identify small chinook and coho salmon (which comprised 75 percent of the test specimens) and 10 other species, an improved recognition of chinook salmon after receiving a simple clue, more difficulty in recognition of smaller coho salmon than larger ones, and infrequent use of recommended common names.
 KEYWORDS: Fishing, characteristics, Washington.
362. Hawes, Harry B.
 1934. A model State game and fish law setup. 26th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 26: 86-89.
 An act is proposed to create a model State game and fish commission, and its duties and powers are defined.
 KEYWORDS: Management, administration, legislation.
363. Hawkins, Arthur S.
 1965a. Aldo Leopold's philosophy on quality, a review. Naturalist 17(3): 6-9, illus.
 Aldo Leopold, the father of modern game management, admitted that no two people would agree on what constitutes sportsmanship or quality sport. His views on conservation have been brought together in *A Sand County Almanac*. Although an avid hunter, Leopold felt the intangible wildlife values exceeded the game bag. To him, wildlife held a definite place in American culture, and its recreational experience should foster a distinctly American tradition of self-reliance, hardihood, woodcraft, and marksmanship. "Wildlife administrators," he said, "are too busy producing something to shoot." While ignoring the cultural values, American sportsmen do not realize that "outdoor recreation is primitive, atavistic, that their value is a contrast value, and that excessive mechanization destroys contrast...." Reaping wildlife by modern mentality rather than modern machinery yields pleasure and wisdom. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. Otherwise it is wrong.
 KEYWORDS: Non-consumptive use, esthetics, literature.
364. _____
 1965b. Quality in waterfowl management. Naturalist 17(3): 28-31, illus.
 A complete statement of the Mississippi Flyway council's policy on qualitative management included the following. Management objectives include preserving a sport and a tradition. Management should encourage conditions

so wild birds can avoid being shot, while the hunter has to draw on his skill to be successful. The wild bird should be regarded as the trophy of the hunt. Heredity alone does not insure wildness; environment greatly affects the bird's actions. Management should work to preserve species diversity and abolish practices which cheapen the sport. Beyond that, the function of management is to discourage violators and to help train inexperienced hunters. A progressive approach to this problem has been initiated by the Mississippi Flyway Council.

KEYWORDS: Waterfowl, esthetics, management.

365. Hay, Keith G.
1960. An evaluation of Colorado's access problems. 25th Conf. North Am. Wildl. Nat. Resour. Trans. 25: 364-377.

Public lands blocked to free public access were inventoried in 1957-58 through six statewide and one national survey. Landowners were blocking access to 1,462,720 acres along with 522 miles of trout-stream fishing and 28 fishing lakes. Eighty-seven percent of the landowners refused to grant or sell right-of-ways to public land. A survey of other State Game Departments showed that 82 percent of the Nation's public lands were open to access. Several courses of action are outlined to open lands.

KEYWORDS: Fishing, access, Colorado.

366. Hayes, Frank A.
1964. Dig their graves Mr. Sportsman. Fla. Wildl. 17(10): 20-25, 34, illus.

White-tailed deer in Southeastern United States, once massacred, then plagued by screw worms, are now experiencing a population explosion, exceeding range capacity, and starving. Supplemental feeding by man is not the answer. Sportsmen are "the only controlling factor...to keep deer healthy and alive," but they must first abandon antiquated sentiments supporting an outdated Buck Law. Where deer are too plentiful, a doe should be taken for each buck killed by a hunter. Overhunting can be corrected by the next fawn crop but overbrowsing is permanent.

KEYWORDS: Big game, either-sex **hunt**, historical value.

367. Hayes, J.
1967. New idea--fishing schools.! Sportfishing 4(1): 48-49, illus.

The curriculum of a series of fishing schools established by the State of Pennsylvania includes casting techniques, fishing site selection, types of fish, and stream improvement. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: Education, fishing.

368. Haygood, John L.
1965. Ten years' controlled hunting on Louisiana's wildlife management areas. 19th Conf. Southeast. Assoc. Game Fish Comm. Proc. 19: 160-170, illus.

Information on topography, management history, type of seasons, harvest statistics, hunter success, and local public pressure is given for nine Louisiana deer areas where daily permits are required. Generally, no daily or seasonal limits are set on hunter numbers. Such a high hunter density

has not resulted in an increase in hunting accidents. A large number of hunters on an area usually increased hunter success, and crippling loss was low since hunters killed each other's crippled deer.

KEYWORDS: Big game, Louisiana, safety, management, harvest statistics.

369. Haymes, Lon S.

1952. Basic laws as they affect water ownership and use. 42d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 42: 44-50.

An examination of the confused situation of landowner versus public water user reveals a lack of uniformity in precedents to guide the landowner, the sportsman, or the lawyer, a lack of effort to clarify the situation through the courts, and a tremendous need for unified action. Fishing, hunting, and other water uses are determined by the navigability of streams. If the stream is navigable, the fisherman or hunter is not a trespasser. Some States have broadened their definition of "navigable" in order to open more streams to public use. Examples of court decisions are summarized. Even non-navigable or non-floatable streams need not be considered lost to public use. Some States have attempted to enact old statutes.

KEYWORDS: Management, resource use, landowner-private.

- 370 Hazel, Robert B.

1968. The patrol area concept in wildlife law enforcement. 22d Conf. Southeast. Assoc. Game Fish Comm. Proc. 22: 547-550.

The new emphasis in law enforcement must be group effort although individual effort and initiative will still be used. Application of the patrol area concept in North Carolina is described.

KEYWORDS: Enforcement, North Carolina.

- 371 Head, Murdock

1962. Why does a man hunt? Va. Wildl. 23(8): 17-18, 21.

To the nonhunter, a man who leaves the comforts of home to endure the hardships of a camp is demented. For hunters, however, the contrast is important because life in camp is often diametrically opposed to life in the workaday world. There is a reversal of the social structure: the most respected man in the hunting camp may be unknown in his community. In camp the hunter returns to the basic problems of survival and to an existence that affords a simple, democratic environment. For many hunters, a few hours alone in the forest represent periods of their most lucid and objective thinking. The hunter is also motivated by an element of anticipation, by a mixture of the gambling spirit and the athlete. The logic of those who feel hunting should be prohibited varies from an interest in public safety to protecting wildlife. Hunting safety is being aided by education. Deer hunters are doing a real service by reducing herds, and most obey game laws and do not kill for the perverse pleasure of destruction. Killing is least important, and many hunters spend more time observing wildlife habits than in shooting.

KEYWORDS: Characteristics, philosophy, non-consumptive use.

372. Heald, Weldon F.

1963. A plea from a non-hunter. 43d Conf. West. Assoc. State Game Fish Comm. Proc. 43: 57-59.

A non-hunting nature enthusiast argues against the proposal to allow public hunting in the National Parks. Other large areas are set aside for hunting; small pieces should be saved for nature enthusiasts.

KEYWORDS: Refuge, administration, antihunting.

373. Hein, Dale

1967. Sources of literature cited in wildlife research papers. J. Wildl. Manage. 31(3): 598-599.

In the Journal of Wildlife Management, Volumes 28-30 (380 articles), three-fourths of 4,175 references were to periodicals. One-third of these references appear in *Journal of Wildlife Management*, *Transactions of the North American Wildlife Conference*, and *Journal of Mammalogy*. The 100 most-cited journals accounted for 75 percent of the references to periodicals, and 327 of the total of 599 serial publications were cited only once. A partial list of serial publication, in rank order of frequency, is included. Article is valuable for making recommendations for library acquisitions. All implications of data are entirely ignored.

KEYWORDS: Literature, library.

374. Hellyel, David

1949. Is bounty system a national farce? Tex. Game Fish 7(4): 6, 28.

Informal responses from questionnaires sent to the fish and game directors of the 48 States revealed that most States are moving away from the bounty system. The bounty, in most States, is more of a political football than a serious effort to control destructive mammals and birds.

KEYWORDS: Predator, surveys.

375. Hendee, John C.

- 1969a. Appreciative versus consumptive uses of wildlife refuges: studies of who gets what and trends in use. 34th Conf. North Am. Wildl. Nat. Resour. Conf. Trans. 34: 252-264.

Recreation based on appreciation of the natural environment is contrasted with consumptive forms of recreation such as hunting and fishing. Discussion includes who would receive benefits if refuges were managed to emphasize appreciative recreation uses versus consumptive, the intangible benefits that would be distributed, and the extent to which appreciative uses of natural resources are increasing relative to hunting and fishing.

KEYWORDS: Characteristics, esthetics, non-consumptive use, fishing, administration.

376.

- 1969b. Rural-urban differences reflected in outdoor recreation participation. J. Leisure Res. 1(4): 333-341.

This paper summarizes and discusses the various theories that attempt to explain the rural-urban variable. Hunting serves as an example of the theory that certain recreation activities are inherent in the life styles and values promulgated by rural versus urban residence. Studies reveal that hunting appeals to rural residents and blue-collar workers and the author's premise is that as young adults migrate to urban places, they may become less supportive of hunting activities because a new social group introduces them to a new set of values that are more appropriate to their social status.

KEYWORDS: Preferences, characteristics.

377. _____ 1972. Management of wildlife for human benefits. 52d Conf. West. Assoc. State Game Fish Comm. Proc. 7 p. (mimeo).
- Present evaluation of hunting benefits by days-afield and game bagged is not adequate. Today's conditions call for a more explicit emphasis of wildlife management **on** human benefits. A benefits-to-people philosophy of game management is proposed. It is based on the concept that hunting satisfaction consists of many dimensions and wildlife managers should view their jobs as managing for expression of these dimensions.
- KEYWORDS: Benefits, philosophy.
378. _____ and Dale R. Potter 1971. Human behavior and wildlife management: Needed research. 36th Conf. North Am. Wildl. Nat. Resour. Trans. 36: 383-396.
- Rigorous social-wildlife research is scarce, but behavioral research must be attracted to wildlife-people problems by money and by articulate definition of challenging problems for study. Research should be directed to several broad problem areas which include: hunting satisfaction, non-consumptive use of wildlife, the hunter population, access and hunting opportunity, wildlife economics, and political-legal issues. Specifically: What do people get out of hunting besides game? What are the philosophical and ethical aspects of hunting for sport? What are the extent and conditions under which non-consumptive uses of wildlife take place? How do characteristics of hunters compare with those of other recreationists? Under what conditions will private land be available for hunting or withdrawn? What is the value of hunting and fishing in comparison with other competing land uses? How do organizational and institutional factors affect wildlife management? Wildlife management education should include more social science and require money from a central source to support research at local levels. (Literature cited, 70.)
- KEYWORDS: Administration, characteristics, non-consumptive use, economics, benefits, research needs, politics, access, philosophy.
379. Henderson, Dion 1955. Hunting in 2055. Wis. Conserv. Bull. 20(12): 14-15.
- The use of an expensive general hunting license in conjunction with a license for various game animals is predicted. Fees will pay for conservation departments and multipurpose game lands. Hunters will wait their turn to hunt on game preserves where they will pay for whatever they bag. Hunting and restocking will thus pay for themselves.
- KEYWORDS: User fee, management.
380. Henderson, Upton Bruce 1965. An economic analysis of the waterfowl resource of the Swan Lake National Refuge and the impact upon the rural community. Ph.D. diss., Univ. Mo., 175 p.
- Major areas of inquiry were: determination of income generated from waterfowl hunting, demand for waterfowl hunting, and degree to which waterfowl hunting benefits have been capitalized into land values. Expenditures by all hunters using the refuge during the 1964 waterfowl season were about \$500,000. Slightly more than \$100,000 was spent for blind fees, and

restaurant purchases and transportation comprised the next largest categories of expenditures. In addition, \$124,197 was spent locally by Federal and State agencies and personnel. The total economic impact of the 1964 waterfowl hunting season was over \$600,000. Full potential of the Swan Lake Area has not been achieved, and residential service facilities are needed. Demand curves were developed from data on resident and non-resident hunter visits and distance traveled. An economic evaluation of the waterfowl resource revealed annual net benefits in excess of \$20 million. Present value of the 120,000 Canada geese flock discounted over an infinite time at 2.5-percent interest was over \$820 million. Effort to determine capitalization of waterfowl hunting benefits into land values was not highly successful. Unverified minimum and maximum additional value to lands surrounding the refuge attributable to waterfowl hunting was estimated to be \$200 to \$500 per acre. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Economics, waterfowl, refuge.

381. Hennessy, J. J. "Joe"

1962. Time of decision for our waterfowl - quantity or quality.
Minn. Conserv. Volunteer 25(147): 3-7, illus.

The policy of the Mississippi Flyway Council is summarized as follows: the intangible values of waterfowl hunting--the esthetic, cultural, traditional, and therapeutic aspects--far outweigh the monetary values. The sport of duck hunting has degenerated greatly. Quality hunting requires appropriate surroundings, reasonable solitude, rugged exercise, suspense, excitement, and a chance to pit the hunter's skill against the innate cunning of the prey. As demand increases and supply diminishes, it is erroneously assumed that management should provide waterfowl hunting for everyone. Democratic hunter screening can be accomplished by requiring waterfowl identification tests, increasing fees, making hunting tougher, and outlawing the use of outboard motors. "Skybusting" must be controlled by either forfeiture of hunting license or limitation of the number of shells allowed per day. A final suggestion for regulating quality and increasing the pleasure per bird would be to limit the number of blinds per acreage.

KEYWORDS: Esthetics, waterfowl, benefits, management.

382. Henning, Daniel H.

1972. National Park wildlife management policy: a case study in decentralized decision-making. *Northwest Sci.* 46(2): 108-114.

During the summers of 1963 and 1964, data were gathered at the Rocky Mountain National Park from personal interviews, public documents, and correspondence. The paper deals with how decentralized decisions were made to deal with elk and mule deer populations which sometime increased beyond the carrying capacity of the winter range. From the establishment of the Park in 1915 to 1930, no negative comments were received on range conditions. However, after 1930 successively stronger comments were received on range deterioration. In 1943, shooting of surplus animals was initiated to reduce damage to the range. This reduction program failed in 1963 due to adverse public reaction, dislike by superintendents of the program, and general avoidance of unpopular or unpleasant conditions. The scientific collection and measurement of biological facts by experts do not necessarily result in the formation of theory upon which policy is based. Policy, instead, seems to result from the infusion of values into data with emphasis on the specialist in a supporting role for latent values of field wildlife personnel and park administrators.

KEYWORDS: Big game, administration, management.

383. Herrero, Stephen
1970. Human injury inflicted by grizzly bears. *Science* 170(3958):
593-598, illus.

The author studied records from four U.S. National Parks and seven Canadian parks, he interviewed and corresponded with persons involved in incidents with grizzlies, and he reviewed newspaper accounts and scientific articles. The probability of injury or death is very low: about one person per 2 million visitors is injured and about one person in 30 million visits is killed. In an 80-year period up to 1960, only 25 persons had been injured by grizzly bears, but during the 1960's when recreation visits drastically increased, injuries rose to five persons per year. These data are based upon 66 injury accounts and five deaths. Of these injuries 43 occurred while persons were camping in developed areas, and 24 others occurred while persons were hiking in back-country areas. A grizzly sow with cubs is most likely to charge if their "individual distance" has been intruded upon. Hikers who were attacked reported they had made no noise and were being very quiet. Surprise at close range was an important common element in hiking incidents. Talking or ringing bells would eliminate surprise encounters. Eighty-eight percent of the camping injuries occurred in Yellowstone Park where grizzlies have had extensive experience with garbage dumps. The bears may associate food with humans and therefore be more prone to attacking. Most bears flee from humans, some stand on their hind legs, some charge and retreat without contact, and the ones that make contact retreat very soon afterwards. "Playing dead" is suggested as a good, but not totally successful, strategy for minimizing injury.

KEYWORDS: Big game, non-consumptive use, refuge, accident.

384. Hewes, Gordon W.
1942. Economic and geographical relations of aboriginal fishing in
in northern California. *Calif. Fish Game* 28(2): 103-109, illus.

Anthropologists define "fishing" as any operation engaged in to secure aquatic products useful to man. Products include food, ornament, fertilizer, or glue. Fisheries for food usually developed adequately, and fishing geography was nearly independent of local conditions which influenced the primitive economic utility of land plants and animals. Economically significant primitive fishing techniques were all mass methods. The outstanding economic effect of certain Indian techniques arose from the stability of their localization. Techniques used in aboriginal fisheries showed endless local variations due to geographical conditions. Acculturational changes in Indian fishery are seen by the acceptance of new materials for hooks, harpoon points, and nets. Elaborate trout angling devices have not spread to the natives, however.

KEYWORDS: Historical value, fishing, economics, California, anthropology.

385. Hewston, John G., and Donald R. Franklin
1969. Recreational use patterns at Flaming Gorge Reservoir, 1963-65.
USDI Bur. Sport Fish. Wildl. Serv. Res. Publ. 70, 80 p., illus.

This study consisted of 1,461 interviews with parties who represented 8,012 people, mail questionnaires sent to 3,000 local residents, a creel census of 1,060 fishermen, traffic counts, and agency records to determine visitor-use patterns. The number of visits increased from 231,065 in 1963 to 786,103 in 1965. In 1963 the primary purpose of the visit was sightseeing,

but in 1964 and 1965 fishing was the primary purpose of the visit. Hunting ranked about fifth among 12 categories. About 78 percent of those contacted expressed a willingness to pay for use of the reservoir. Eighty-four percent of the anglers caught fish. Degree of visitor satisfaction was registered on 17 items. Scenery came nearest to being "very satisfactory." Wildlife fishing, and boat-launching sites ranked slightly unsatisfactory. Awareness of wildlife was low; visitors had not heard the birds singing and were not aware of the many small creatures all around them, and those who saw and heard wildlife could not identify them. Yet when visitors were asked what they liked best, about half stated the "natural environment" which turned out to be scenery in most cases. (Visitor place of residence, party size, accommodations used, expenditures, and suggested improvements are included along with 13 references, the interview schedule, and the mail questionnaire.)

KEYWORDS: Fishing, Utah, Wyoming, user fee, benefits, economics, preferences.

386. Hewston, John Guthrie

1966. Development of recreational use patterns at Flaming Gorge Reservoir, 1963-1965. Ph.D. diss., Utah State Univ., 204 p.

From 1963 to 1965 recreational visitors were studied by interviews, creel censuses, mailed questionnaires, highway traffic surveys, and from State and Federal agency files. During 1963 sightseeing was the primary purpose of party visits, but when fishing was allowed in the reservoir it headed the list. Party size averaged 5.5 persons, with a length of stay from half a day to almost a full day. Parties spent \$6 to \$10 per visit. Other characteristics are given. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Utah, fishing, economics, characteristics.

387. Hibben, Frank C.

1955. Hunting goes to college. *Field Stream* 60(5): 52-53, illus.

A University of New Mexico (evening) course on hunting covered the use of rifles, shotguns, safety, tracking, game habitat, dressing and preparing of kill, use of dogs, waterfowl identification, camping; and equipment. Participants enjoyed outstanding hunting success the following year.

KEYWORDS: Education, New Mexico.

388. Hill, Hawley

1958. How can the States deal more effectively with the problem of non-residents purchasing resident licenses? 38th Conf. West. Assoc. State Game Fish Comm. Proc. 38: 317-320.

Idaho's 1957 legislation requiring proof of residence (such as a driver's license) resulted in a 63-percent increase in successful prosecutions of residency law violators, and it increased revenue by inducing nonresidents to purchase their proper class of license. To decrease violations, the State could employ more law officers, gain cooperation of motor vehicle licensing agencies, utility companies, and companies with directories such as telephone companies, and maintain records of past violators because they often return. Intrastate cooperation could include a central information filing system of all license buyers and potential violators, adopting a common definition of "residence," standardizing forms and licenses, and prohibiting the transportation of fully purchased licenses across State lines.

KEYWORDS: Economics, legislation, resident vs. nonresident.

1965. Sport hunting laws and regulations - an infringement on the constitutional right to bear arms? 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 253-265.

The article criticizes stricter gun control laws since they would inhibit citizens who use firearms for hunting or hobby and cause a decline in sports hunting license revenues. The constitutional guarantee of the right to bear arms is the suggested basis for stopping gun control legislation.

KEYWORDS: Management, legislation.

- 390 Hill, R. G.
1938. Wildlife extension activities in Michigan. J. Wildl. Manage. 2(4): 235-238.

Objectives, procedures, and other information on extension problems and programs are outlined for three groups: sportsmen, farmers, and youth. Needed are the development of "aids to procedure" such as bulletins, movies, maps, newspaper articles, radio scripts, and demonstration areas.

KEYWORDS: Education, landowner-private, administration, Michigan.

391. Hill, Ralph R.
1950. Forest wildlife management in the Rocky Mountain region. J. For. 48(6): 419-422.

Forest Service, National Park Service, and Bureau of Land Management multiple use practices are reviewed. Fifty years of Forest Service operation are termed successful, but watershed management and grazing problems indicate that the region is particularly sensitive and requires management that diverges least from the natural. A discussion directed toward the future cites wildlife as a luxury, conservation as a matter of life or death, and the ability to distinguish between sustained yield and exploitation and to recognize that human problems are inseparable from land, plant, and wildlife problems.

KEYWORDS: Management, historical value, profession, conservation, resource use.

392. _____ and Erwin L. Boeker
1955. Hunting seasons and forest fires in Colorado. J. For. 53(10): 707-710, illus.

During 1943 to 1953, hunters were responsible for 303 forest fires (20 percent of all man-caused fires) on Colorado's National Forests. This averages one fire for each 2,500 hunters. Fires burned 1,825 acres and originated equally from smoking and camp or warming fires. Nonresidents comprise 18 percent of the deer hunters, and in 1952, four out of five convictions for failure to extinguish campfires involved nonresidents. Based upon fire danger ratings over the past 10 years, a hunting season opening 5 to 10 days later than usual would reduce the probabilities of large fires. The loss of revenue to the Colorado Game and Fish Department from the drop in non-resident deer and elk license sales due to postponement of season was \$172,000 in 1952-53. Hotels, cabin camps, and outfitters also suffered financially.

KEYWORDS: Management, Colorado, economics, fire, resident vs. nonresident.

393. Hill, Russell G.
 1940. Some observations on farm game management cooperatives in Michigan. *J. Wildl. Manage.* 4(4): 383-391, illus.
- Michigan's cooperatives increased from one in 1936 to 110 in 1939. In 1936 the Department of Conservation supplied assistance at a cost of 1 cent per acre for 500,000 acres. Each cooperative adopts its own rules and regulations. Cooperatives reduce trespass, advance farmer education, aid game management, and stimulate social events. State participation has not increased paid hunting. Unfortunately, some farmers cooperate to control hunting trespass but give little attention to game production.
- KEYWORDS: Michigan, management, landowner-private, economics.
394. Hilliard, E. H., Jr.
 1962. Hunting and fishing in National Park areas. 52d Conf. Int. Assoc. Game Fish Conserv. Corn. Proc. 52: 15-18.
- Maintenance of an unimpaired Park ecology should not be compromised. Cropping of surplus wildlife should take place outside a Park. If surpluses must be harvested in a Park, then public deputies should be solicited only if they complete required training and work as part of a ranger-controlled team.
- KEYWORDS: Resource. use, big game, management, administration.
395. Hjersman, Henry A.
 1951. The 1948 surveys of California's hunting take and their significance. *Calif. Fish Game* 37(1): 77-95.
- Hunting success for the 1948 season in California was reported by a personal interview and concurrent post-card game take survey which indicated good correlation in the case of pheasants, but a ~~2½-times~~ exaggeration of take for two lesser game species. Although useful in determining trends of game, post-card surveys do not disclose the actual take per species. Correlation of post-card and interview methods of securing game species kill by county is poor. Decreased sample size results in increased error.
- KEYWORDS: Research methods, harvest statistics, California.
396. Hochbaum, H. Albert
 1947. The effect *of* concentrated hunting pressure on waterfowl breeding stock. 12th Conf. North Am. Wildl. Trans. 12: 53-64.
- A study of marshes in Canada's Lake Manitoba basin revealed a pronounced scarcity of breeding ducks. Excessive hunting pressure reduced duck populations that carried on living and breeding traditions affecting portions of the central flyway. Radical change in waterfowl legislation is needed to stop this "burning out process" and protect unit area and unit populations equally until a breeding population is established and controlled shooting applied.
- KEYWORDS: Legislation, waterfowl, Canada.
397. ———
 1948. Harvesting the waterfowl crop. 13th Conf. North Am. Wildl. Trans. 13: 481-492.
- Author classifies the history of American waterfowling into three periods: meat hunting, waterfowling for sport, and high-pressure duck

hunting. The present period, high-pressure duck hunting, is fully evaluated. Waterfowling is presented as an art wherein the dead duck is important only if won by the ethics and rules of the game. Hunter pressure and commercialism are cited as reasons for a decline in sportsmanship. The management of man is cited as the most pressing problem in waterfowl conservation. Other aspects of waterfowling examined include: quality and quantity of the harvest, kill composition, harvest time and locality, and public attitude. A "we want our share of the flight" attitude by regions and States where ducks are not raised must be accompanied by willingness to share more responsibility for research and management.

KEYWORDS: Waterfowl, harvest statistics, historical value, management.

398. Hogarth, George R.

1934. Measuring what the sportsman should get for his license money and what he is actually getting. 26th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 26: 69-78.

Noted is the lack of tangible returns to hunters from expenditures for law enforcement, artificial propagation, State game refuges, and forestry.

KEYWORDS: Economics, administration, user fee, conservation.

399. Hogdon, Kenneth W.

1966. Wildlife and hunting on commercial forests in Maine. 31st Conf. North Am. Wildl. Nat. Resour. Trans. 31: 280-288, illus.

The more than \$24 million spent in Maine illustrates the need for continuing and improving game habitat. Approximately 80 percent of Maine is forested. Land ownership patterns and climactic zones are discussed. Tabular data on deeryards which have been accepted by timber companies for management are included. Company attitude and sportsman response are cited as excellent.

KEYWORDS: Management, landowner-private, Maine, big game.

400. Hogsett, O. L.

1961. Yellow vs. red. N.D. Outdoors 24(5): 12-13, 15, illus.

A field color study in Illinois concluded that in bright sunlight yellow and red are seen equally well; but when light conditions are poor, yellow is recognizable almost twice as far.

KEYWORDS: Illinois, safety.

401. Holland, R. P.

1922. The public shooting ground--game refuge bill. 14th Conf. Int. Assoc. Game Fish Conserv. Corn. Proc. 14: 63-67.

Discussed are the status of the bill and why it has not been passed.

KEYWORDS: Legislation, refuge.

402. Holland, Ray P.

1945. Thoughts of a duck hunter. 10th Conf. North Am. Wildl. Trans. 10: 35-38.

Paper criticizes the rejection of an advisory board for Federal administrators of the Migratory Bird Treaty and blames the Federal government for

cluttering the law with minor regulations that cannot be obeyed or enforced, Honest duck hunters become violators of the criminal code. To preserve duck "wildness," hunters should feed ducks. The prohibition of live decoys is criticized.

KEYWORDS: Waterfowl, management, philosophy.

403. Holm, Earl R.
1958. What about shooting preserves? N.Y. State Conserv. 13(3): 2-4, illus.

Popular article on New York's shooting preserves: their origin, function, and future. The sections on function and future are lacking detail, but there is a good history of New York preserves and how hunting evolved.

KEYWORDS: New York, historical value, plant and shoot.

404. Holmes, John M.
1946. Meeting the demands of the future angler. 11th Conf. North Am. Wildl. Trans. 11: 473-477.

A representative of Associated Fishing Tackle Manufacturers discusses problems to satisfy postwar demand for fishing equipment by the more than 15 million prewar fishermen. Discussion covers product delivery, supply and materials, procurement, quality and innovations, and projected costs.

KEYWORDS: Fishing, economics, historical value, equipment.

405. Hoover, Herbert
1964. The constructive joy of fishing. Nat. Wildl. 2(4): 36-37.

This is an excerpt taken from President Hoover's book, *Fishing for Fun and to Wash your Soul*.

KEYWORDS: Fishing, philosophy, benefits.

406. Hopkins, A. S.
1940. New York State's public fishing program. J. For. 38(6): 464-467.

An explanation of the policies and progress of the State's program of acquisition and improvement of public fishing areas since 1935 included the following information: half of the 1,000 miles of trout streams planned for acquisition have been purchased, improvements for control of environmental conditions have been constructed by the Civilian Conservation Corps and by State-employed labor, and program cost has averaged less than \$500 per mile.

KEYWORDS: Fishing, administration, economics, New York.

407. Hosley, N. W.
1937. Some interrelations of wildlife management and forest management. J. For. 35(7): 674-678.

It is suggested that forestry plays an important part in the approach to wildlife problems from the standpoint of maximum land use. Fundamental information gained by biological surveys is cited as more valuable than wholesale stocking in terms of long range recreation.

KEYWORDS: Management.

408. _____ W. W. Chase, S. A. Graham, R. T. King, E. B. Moore, H. L. Shantz,
and W. P. Taylor
1944. What can forest wildlife contribute to the war program? J. For.
42(5): 361-363.

Report of game management committee of Society of American Foresters reveals that wildlife can contribute significantly to wartime shortages of meat, skins, fats, and bird down. Recreational value of wildlife contributes to morale of workers. In 1942, meat from big and small game totaled over 1 million pounds, was worth about \$42 million, and could supply a million people for a year. Only one-fourth or 160,000 of the total deerskins reached tanneries. Skins are valued for merchant marine and arctic clothing. During the trapping season over 94 tons of fat were saved from fur bearers in Pennsylvania. With better prices hundreds of tons would be available. Bird down is drastically needed for sleeping bags and coats. Streams, lakes, and ponds on National Forests can produce about 22 million pounds of fish per year. Despite restricted wartime travel and shortages of ammunition and equipment, license sales have decreased only slightly. Over 2.6 million sportsmen put in 6.4 million days of use. Legislation and educational campaigns consistent with conservation are needed to improve wildlife's contribution to war efforts.

KEYWORDS: Economics, benefits, harvest statistics, legislation, historical value.

409. Houck, Warren Jacob, Jr.
1949. A study of conservation education on the wildlife refuges of the United States, a report and recommendations. Ph.D. diss., Cornell Univ., 418 p., illus.

Questionnaire sent to over 100 wildlife refuges, sanctuaries, and preserves in 35 States and personal visit to 34 national refuges are basis for description of characteristics of wildlife areas accompanied by maps and photos. Wildlife education programs are recommended. Five criteria are presented for establishing wildlife conservation and education programs. An excellent history of wildlife refuges is traced to time of Christ, with details on refuge development in United States. Conclusions based mostly on personal observation and judgment. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Refuge, surveys, historical value, education.

410. Howard, Walter E., and William M. Longhurst
1956. The farmer-sportsman problem and a solution. 21st Conf. North Am. Wildl. Trans. 21: 323-330.

Poor access management makes wildlife unavailable to the sportsman. The potential value of the hunting resource exceeds that of many other land and water uses, or at least will pay land taxes. This profit motive should be used to encourage landowners to develop fish and game as an agricultural crop. Training in agronomy, husbandry, and habitat management will be necessary for the landowner who is to design stringent hunting stipulations and properly maintain the hunting resource. Hunting quality, proximity to human population, cabins, duck blinds, and boats are all factors contributing to the value of the hunting resource on private land.

KEYWORDS: Landowner-private, user fee.

411. Howell, Henry H., and Harland R. Lutz
1961. How many out-of-state fishermen purchase more than one license in Kentucky, and where and when do they fish? 15th Conf. Southeast. Assoc. Game Fish **Corn.** Proc. 15: 367-379, illus.

Since the distribution of Federal Dingell-Johnson funds to the States is determined in part by the number of out-of-state licensees fishing in a State, Kentucky checked its license sales to determine the number of duplicate 10-day non-resident fishing license purchases. The final count revealed 1,824 duplicates, 188 triplicates, 27 quadruplicates, 2 quintuplicates, and 1 sextuplicate, or a total of 4,336 licenses for 2,042 persons. These purchases were made primarily in the 17 counties which surround the State's five largest manmade lakes. Purchasers often traveled great distances to fish in Kentucky. Also determined were age, sex, and where and when the purchaser fished.

KEYWORDS: Fishing, research methods, Kentucky, characteristics.

412. Hubbard, Douglass H.
1942. The development of the rifle and its relation to wild game in North America. M.S. thesis, Texas A&M Univ., 131 p.

A history of the American rifle includes the influence of military rifles, the influence of the westward migration of people, and the rifle's relation to big game destruction. Also included are the attitudes of State game commissioners toward regulation and control of firearms. Of the 37 States with open big game seasons, 14 have regulations restricting firearms and projectiles which may be used to hunt animals.

KEYWORDS: Historical value, legislation.

413. Hudoba, Michael
1954. What's wrong with public relations in the western States? 34th Conf. West. Assoc. State Game Fish **Corn.** Proc. 34: 91-96.

Rambling discussion on public relations criticizes the lack of public understanding of policies, a lack of communication, authority, and funds, and a failure to take a strong stand on basic resources affecting wildlife such as water pollution and erosion.

KEYWORDS: Administration, public relations.

414. Humphreys, Robert H.
1953. Early hunters in Texas. *Tex. Game Fish* 11(10): 16-19, illus.

KEYWORDS: Texas, historical value, tradition, big game.

415. Hunt, John D.
1971. Utah's economy and the non-resident deer hunter. *Utah Sci.* 32(3): 91-92.

During 1970, a diary questionnaire was given to 450 hunter parties but returned by only 72. It indicated that non-resident hunters contribute relatively little to the State's economy. Nonresidents contributed substantially to game management with a \$50 non-resident license fee and to the economies of certain communities. Hunter parties spent an average of 4.8 nights in Utah and spent less than \$4 per day per person.

KEYWORDS: Utah, resident vs. nonresident, economics.

- 416 Hunt, Richard A., J. G. Bell, and L. R. Jahn
1962. Managed goose hunting at Horicon Marsh. 27th Conf. North Am. Wildl. Nat. Resour. Trans. 27: 91-106, illus.

The development of goose hunting opportunities and goose harvest regulation in the vicinity of the Horicon National Refuge from 1949 to 1961 is traced. Peak Canada goose populations increased from 12,000 in 1949 to 100,000 in 1961. Hunters averaged 6.5 trips per year, 2 hours per trip, 0.08 goose per trip, and fired 27 shots per goose bagged. Regulations to increase hunting opportunity, to improve hunting conditions, and to increase but not exceed the goose harvest are listed.

KEYWORDS: Management, refuge, harvest statistics, Wisconsin, waterfowl.

417. Hunter, G. N.
1949. "Uncontrolled" big game hunting. 39th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 39: 77-83.

Paper presents a brief discussion of the management and psychology of either-sex hunts as they relate to the sportsman.

KEYWORDS: Either-sex hunt, big game, Colorado, harvest statistics, benefits.

418. Hunter, Gilbert N.
1949. The utility of personal interviews in obtaining information on game and fish resources. 14th Conf. North Am. Wildl. Trans. 14: 239-252, illus.

A summary of the 1946 Colorado survey (the first instance of statewide application of the interview technique) includes scope, requirements, method, cost, and accuracy. The random interview method yielded sufficiently accurate information for administrative use. Survey findings are tabulated, and data on the economics of hunting and fishing, records of small game kill and wounding losses, sportsmen's preferences, and landowner problems were obtained. This is early information on survey techniques for wildlife-people research.

KEYWORDS: Administration, research methods, harvest statistics, Colorado.

419. ———
1957. The techniques used in Colorado to obtain hunter distribution. 22d Conf. North Am. Wildl. Trans. 22: 584-593, illus.

Proper hunter distribution can be obtained by effective administration, adequate Game and Fish Commission authority, and regulations of opening dates, season length, and season types. Hunters are commonly distributed by liberal bag limits, area size, TV and radio programs, news and magazine articles, and weather and range conditions.

KEYWORDS: Crowding, Colorado, management.

420. ———
1959. Management values of Colorado's elk validation system. 39th Conf. West. Assoc. State Game Fish Comm. Proc. 39: 209-212.

Paper suggests that the proper management of elk can best be achieved by the elk validation system, whereby the hunter obtains a special permit (in addition to the regular antlered elk license) which entitles him to take an elk of either sex.

KEYWORDS: Colorado, big game, management.

421. Hunter, W. A.
1953. Landowner-sportsman relations. 33d Conf. West. Assoc. State Game Fish Comm. Proc. 33: 265-269.

Originating with organized sportsmen, Washington State's initial farmer-sportsman program failed without Game Department participation. Now under Game Department administration, field representatives solicit agreements from landowners to switch from "No Trespassing" to "Hunting by Permission" or "Hunting without Permission." Results for 1950 showed 924 farmer participants or 95 percent of those contacted and 490,000 additional acres opened for hunting. In 1951, 1,324 participated, with 758,619 acres opened. A 5-year program evaluation suggests: Game Department administration of all farmer-sportsman programs; access to land should be considered a privilege, not a right, with the landowner benefiting least; public opinion is critical to success; and methods to maintain high interest and enthusiasm are necessary.

KEYWORDS: Fishing, farmer-sportsman relations, Washington, management.

422. Hutchins, H. Clifton, and Edgar W. Trecker, Jr.
1961. The State park visitor. Wis. Conserv. Dep. Tech. Bull. No. 2, 82 p., illus.

In 1958, 20,262 motorists in Wisconsin were interviewed in State parks and forests. More than one-third came principally for sightseeing; 19 percent for picnicking; 17 percent for camping; and 14 percent for swimming. Boating, nature study, fishing, and resort use attracted relatively small numbers. The average income of State park visitors was \$5,551. The average reported income of northern forest visitors was nearly \$1,000 higher (\$6,516) than that of State park visitors. The average expenditure was \$16.38. Four out of five visitors came to the parks for 1 day only; 4 percent stayed a week or longer.

KEYWORDS: Fishing, Wisconsin, non-consumptive use, economics, characteristics.

423. Hutter, Irvin Russell
1960. Land use trends and their impact upon wildlife and hunting trends in Rock County, Wisconsin. M.S. thesis, Univ. Mich., 89 p.

Restricted to University of Michigan campus use.

KEYWORDS: Resource use, Wisconsin.

I

424. Irving, Frank Dunham

1960. A study of the relationship between program and organization in the administration of forest and wildlife resources by the State of Minnesota. Ph.D. diss., Univ. Minn., 348 p.

Examines program and organization relationships in the Division of Forestry and the Division of Game and Fish of the State's Department of Conservation. The purposes, methods, and results obtained are explained in the descriptions of the programs. Statutory authority to determine the structure of department divisions is assigned to the Commissioner of Conservation, but much of this power is delegated to division directors. In the assignment of tasks to positions, work is usually concentrated to develop special skills, and the capacity of the individual is recognized as a limiting factor. Structure decisions are often influenced by future expectations of growth, career opportunities, job security, station location, employee associations, and a desire to avoid conflict and competition with other units of government. Four technical aspects of forestry and wildlife operations influence work division: location, timing, techniques, and facilities. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Administration, Minnesota.

425. Isakovic, Ivan

1970. Game management in Yugoslavia. J. Wildl. Manage. 34(4): 800-812, illus.

Wild game is a common social possession and hunting estates are established on the basis of natural habitat units regardless of land ownership. Amateur sports organizations manage 90 percent of the habitat. To hunt, sportsmen must belong to a hunting organization, pass examinations, and pay fees established for each species. Membership fees range from \$32 to \$64 per year depending upon the organization and the type of trophy desired. Popular game species include red deer, roe deer, chamois, brown bear, and hare. Many upland birds are produced by artificial rearing programs.

KEYWORDS: Foreign country-general, management, landowner-public, license fee, clubs, landowner-private.

J

426. Jackson, Bud
 1952. Conservation's missing link - the wildlife journalist. 17th Conf. North Am. Wildl. Trans. 17: 510-518.
 KEYWORDS: Public relations, education, communications.
427. Jackson, Charles E.
 1940. The relationship of commercial and sport fishermen. 5th Conf. North Am. Wildl. Trans. 5: 46-54.
 Charged with favoritism, the Bureau of Fisheries replies that it is not commercial fish minded, nor game fish minded, but fish conservation minded. Although the Bureau annually produces 7 billion of commercial species and only 1 billion of game species, the cost of producing commercial fishes is only \$21 per million while the cost of game species production averages \$6,146 per million. About 80 percent of the Bureau's fish culture appropriation is expended for the production of game species. Sport fishermen's strength in influencing public opinion outweighs that of commercial fishermen who have not increased in total number (130,000) from 1933-38, while licensed anglers increased from 4,858,059 to 7,436,177 during the same years. A well regulated commercial fishery cooperating with anglers is the only solution. The combined influence of both groups of fishermen is essential for conservation but is not realized because commercial fishermen are not organized.
 KEYWORDS: Fishing, economics, resource use.
428. _____
 1944. Cooperation between game and commercial fishery interests. 9th Conf. North Am. Wildl. Trans. 9: 224-229.
 It is estimated that there are 15 million anglers and 130,000 commercial fishermen in the country. Fighting between these groups results in neglect of the fishing resource. Examples are cited of arguments and of cooperation between commercial and sport fishermen. It is suggested that magazine stories on conservation in both fields could help to unite the two groups.
 KEYWORDS: Fishing, resource use.
429. James, George A., Harold K. Cordell., Frank B. Barick, and Robert L. Downing
 1969a. Small-game hunting on western North Carolina wildlife management areas. Part I. Characteristics of hunters. Wildl. N.C. 33(10): 8-10, illus.
 Information about small game hunters was collected by interview of 553 hunters from five wildlife management checking stations during 1964 and 1965. The average small game hunter is male, married, a resident of North Carolina, living in a rural area within 50 miles of the wildlife management area in which he hunts, about 40 years old, a high school graduate, and earning about \$5,000 a year as a blue-collar worker. He is an enthusiastic hunter, walking about 3 miles on each hunting trip. He hunts about 2.5 times each season on wildlife management areas and about 10.5 times per season off these areas. He uses access, but prefers to hunt away from it, penetrating about 1,100 feet into the forest. More early-season than late-season hunters were single, rural residents, and they lived closer to the

management area in which they hunted. They were a little older, had slightly less formal education, and had lower incomes than late-season hunters.

KEYWORDS: North Carolina, access, small game, characteristics.

430. _____ Harold K. Cordell, Frank B. Barick, and Robert L. Downing
1969b. Small-game hunting on western North Carolina wildlife management areas. Part II. Importance and use of forest roads and trails. Wildl. N. C. 33(11): 10-12, illus.

Interviews with 553 small game hunters (15 percent of the hunters who used the areas) yielded the following information: most small game hunting was closely tied to access. The excellent network of well-spaced roads and trails permitted ready access into most sections of each management area by vehicle and by foot. Most hunters indicated by word and action that access was important. Although most of them did not hunt primarily along developed access, they used this access to gain entry into the forest, where they covered considerable cross-country distance. Hunting pressure was well dispersed on each of the five study areas.

KEYWORDS: Crowding, North Carolina, access, small game, harvest statistics.

431. _____ Frank M. Johnson, and Frank B. Barick
1964a. A key to better hunting--forest roads and trails. Wildl. N. C., 2 p., illus.

Access as a tool can produce uniform deer kill and reduce hunter hazard by distributing hunter use. Over 4,100 deer kill locations were plotted on 13 management areas in western North Carolina during four hunting seasons (1959-62). Approximately 40 percent of all areas checked were within 300 feet, and 65 percent within 600 feet, of the nearest road or trail. Hunting pressure diminished rapidly beyond 600 feet, and no deer were killed beyond 1,800 feet in the Piedmont area. In contrast, mountain hunters killed 30 percent of their deer 601 to 1,200 feet from a trail. Roads and trails served about equally in obtaining uniform kill.

KEYWORDS: Crowding, big game, North Carolina, access.

432. _____ Frank M. Johnson, and Frank B. Barick
1964b. Relations between hunter access and deer kill in North Carolina. 29th Conf. North Am. Wildl. Nat. Resour. Trans. 29: 454-463, illus.

A cooperative study plotted deer kill locations on 13 wildlife management areas in western North Carolina during four hunting seasons, 1959 to 1962, and on the Uwharrie Wildlife Management Area during 1960-62. Successful hunters assisted in plotting kill locations on maps, which yielded 502 locations from the Uwharrie and 3,663 from western North Carolina. Approximately 40 percent of each wildlife management area was within 300 feet of some road or trail, and 63 percent was within 600 feet. Less than 20 percent of the total forest was beyond one-half mile from either road or trail. Successful hunters in western North Carolina used all portions of the forest and were often rural residents. Hunters in the Uwharrie stayed much closer to access, did not generally penetrate remote sections, and were generally city dwellers. The western areas have uniform kill distribution and do not need the additional roads or trails which may be desirable for the Uwharrie region. Roads and trails serve about equally in distributing successful hunting pressure. Good trails are less costly and more desirable esthetically than roads.

KEYWORDS: North Carolina, access, big game.

433. _____ Nelson W. Taylor, and Melvin L. Hopkins
1971. Estimating recreational use of unique trout stream in the coastal plains of South Carolina. USDA For. Serv. Res. Note SE-159, 7 p., illus. Southeast. For. Exp. Stn., Asheville, N. C.

A questionnaire was attached to vehicles belonging to fishermen who were using a rainbow trout stocked stream. Twenty sampling days were selected within an 135-day use period. Seventy-seven percent of the groups receiving the questionnaire completed it. This amounted to 66 completed questionnaires. Linear regression was used to estimate use and its relationship with the traffic-flow pattern. The latter was a weak relationship. Fisherman use was estimated at 1,025 with confidence interval of ± 24.9 percent. Mean size of fishing groups was 2.3 persons. Nineteen percent caught their limit and 70 percent caught at least one fish. The cost of trout stocking was \$1,073.

KEYWORDS: North Carolina, fishing, economics, management, harvest statistics.

434. Jamsen, G. C.
1967. Sex and age structure of licensed hunters, trappers and fishermen in Michigan. Mich. Dep. Conserv. Res. Dev. Rep. No. 125, 14 p.

Utilizing data from fishing and small game hunting license purchases, this report lists the age and sex distribution of resident and non-resident small game hunters, firearm deer hunters, bow and arrow deer hunters, trappers, bear hunters, and fishermen. Data are presented for the years from 1962 to 1966 and in some cases go back to 1949.

KEYWORDS: Michigan, fishing, small game, trapping, characteristics, big game, resident vs. nonresident.

435. Janzen, Daniel H.
1961. Report on the 1960 National Survey of Fishing and Hunting. 51st Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 51: 24-30.

Highlights of the survey are reviewed.

Keywords: Surveys, fishing.

436. Jarman, Ron, Charles Bennett, Charles Collins, and Bradford E. Brown
1967. Angling success and recreational use on twelve state-owned lakes in Oklahoma. 21st Southeast. Assoc. Game Fish Comm. Proc. 21: 484-495, illus.

Twelve State-owned lakes, unmanned and ranging in size from 26 to 180 surface acres, were surveyed in Oklahoma in 1965 to obtain data on sport fishing and recreational use. Average harvest in pounds per acre ranged from 22 to 107, with fishing pressure ranging from 138 to 622 hours per acre. Most of the fishing effort was expended from April through October. Other recreational use, mainly sight-seeing, camping, and picnicking, rivaled fishing in number of participants on lakes.

KEYWORDS: Oklahoma, fishing, characteristics, harvest statistics, non-consumptive use.

437. Johnson, A.
1967. Hunting, fishing and private enterprise. Idaho Wildl. Rev. 19(6): 3-7, illus.

Idaho's public land for recreational purposes can be attributed to private enterprise. Plentiful fishing and hunting opportunities through landowners' generosity render shooting preserves and fee hunting necessary. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: Landowner-private, user fee, refuge, Idaho.

438. Johnson, Arlie

1964. The role of private enterprise in providing fishing and hunting recreation in Idaho. 44th Conf. West. Assoc. State Game Fish Comm. Proc. 44: 96-102.

Industries, private organizations and associations, power companies, ranchers, and farmers in Idaho have provided continued and expanded fishing and hunting opportunities. Idaho must rely heavily upon the operations of outfitters and guides to obtain even the minimum desired harvest of some big game herds. There is ample space and wildlife stock capable of withstanding an even higher level of fishing and hunting recreation use. Private enterprise supporting recreation by providing opportunity is not expected to ever take a leading role such as through the establishment of shooting preserves.

KEYWORDS: Fishing, economics, Idaho, landowner-private, guide.

439. Johnson, Fred W.

1943. Hunter distribution - studies and methods. 8th Conf. North Am. Wildl. Trans. 8: 392-407, illus.

The early season peak of hunting effort is the central problem in securing better seasonal hunter distribution. Important related factors include hunter psychology, accessibility to hunters, distribution or occurrence of game, topography, special seasons, and licenses. Hunter distribution studies on southwestern National Forests show a high percentage of the game is killed within 1 mile of an automobile road. Reduction of hunting effort and total kill can be secured through short limited hunts or by opening the season later than usual. A reduction of the heavy harvesting of immature bucks results in bigger and better deer. When both sexes are taken, increased hunter effort is paralleled by an increase in hunter success.

KEYWORDS: Management, either-sex hunt, big game, harvest statistics, research methods, crowding.

440. _____ and D. I. Rasmussen

1946. Recreational considerations of western big game hunt management. J. For. 44(11): 902-906.

The primary objective of big game management is recreational in character and purpose. Administration requires that hunters be permitted a degree of isolation compatible with good sport and herd management, that hunting be distributed seasonally and spatially, that seasons and bag limits provide the greatest sport possible, and that hunting regulations permit efficient utilization of increases in herd size. Quality recreation decreases with overcrowding on easy access areas and by underhunting on the inaccessible areas. Five methods proposed for improving big game hunting are: hunting on the basis of herd area rather than on political subdivisions, distribution of hunting throughout the season and over the game ranges, increase of adult survival and rate of herd replacement, development of new herds, and improvement of habitat.

KEYWORDS: Big game, non-consumptive use, management.

441. Johnson, Huey D.
 1966. A study of organized efforts to improve landuser-sportsmen relations for the purpose of maintaining public upland game hunting. M.S. thesis, Utah State Univ., 79 p.
- A mail questionnaire was sent to 14 State game departments which had active landowner-hunter cooperative programs. The objective was to ascertain the elements of a successful program and to make recommendations for other States. A visit and personal interview were made to eight of the States to review programs as they actually existed. Approaches to landowner-sportsman relations included the use of shooting preserves, cooperative leasing, tax relief, educational programs, trespass control, and financial payment for damage. (Included are 108 references and questionnaire.)
- KEYWORDS: Surveys, upland game birds, landowner-public, farmer-sportsman relations, plant and shoot, access, education, landowner-private.
442. Johnson, J. L.
 1967. Archery affects English history, TAM Archery World 16(12) : 52-55, illus.
- The history and folklore of the bow and arrow in England are discussed. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)
- KEYWORDS: Archery, historical value, England.
443. Johnson, Sam L.
 1954. Scientists in the Fish and Wildlife Service - a case study in the recruitment and retention of federal scientific personnel. M.S. thesis, N.Y. Univ., 149 p.
- This organizational study includes a history of the Fish and Wildlife Service, recruitment of personnel including supply and demand, retention of personnel, training, deterrents to recruiting and retaining the best qualified personnel, advantages of Federal employment, the history and significance of American wildlife, and biologists in the field of wildlife conservation.
- KEYWORDS: Profession, education, historical value, management.
444. Jones, Walter B.
 1957. Views of sportsmen on game and fish laws. 11th Conf. Southeast. Assoc. Game Fish. Comm. Proc. 11: 197-201.
- Hunting has declined as a sport because of habitat loss and senseless violations of necessary game regulations, according to one Alabama sportsman.
- KEYWORDS: Management, Alabama.
445. Joselyn, G. Blair
 1965. Wildlife management on military installations--a critique of Army policy. J. Wildl. Manage. 29(1): 215-224.
- The Department of Defense controls increasingly larger segments of U.S. land (28.7 million acres in 1963). Civilian conservation agencies, backed by Federal legislation and Defense Department policy statements, have urged natural resource management. Long-range wildlife resource planning by the Air Force and the Navy has not been paralleled by the Army's land management orientation which largely ignores recreational values. Army

installations at Fort Riley, Kansas, have developed a program demonstrating hunting and fishing popularity, but recreational value of fish and game for military personnel has been neglected.

KEYWORDS: Non-consumptive use, management, fishing, landowner-public.

K

446. Kathrein, Joseph W.
1953. An intensive creel census on Clearwater Lake, Missouri, during its first four years of impoundment, 1949-1952. 18th Conf. North Am. Wildl. Trans. 18: 282-295, illus.

A total of 11,387 creel records were obtained during the census. Average catch per hour declined from 0.65 fish in 1949 to 0.34 in 1952. Relative abundance of different species caught changed each year. Fisherman counts showed an average of 30 fishermen per day in 1949, 41 in 1950, 42 in 1951, and 32 in 1952. Fishing intensity was greatest in the summer except during 1952 when it was greatest in the spring. An estimated 95,175 days of effort were expended and total catch was estimated at 47,125 fish in 1949, 51,775 in 1950, 96,625 in 1951, and 45,450 in 1952. Fish were taken at the rate of 6.8 pounds per acre in 1949, 10.4 in 1950, 31.3 in 1951, and 15.2 in 1952. In general the average lengths for all species of fish in the creel increased during the 4 years.

KEYWORDS: Harvest statistics, fishing, Missouri.
447. Keating, James
1965. Economic values and conservation implications of fishing derbies. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 238-240.

Sport fishing should not be done to promote the economy but, rather, for its sport. Derby participants place a high value on the prize and a low value on sporting aspects. Local promotional groups often plant hatchery fish in unsuitable waters.

KEYWORDS: Fishing, economics, Idaho.
448. Keener, John M.
1956. A new deal for deer and hunter. Wis. Conserv. Bull. 21(12): 3-9, illus.

Wisconsin's deer harvest could be permanently increased by a program of range improvement and controlled hunting. A committee appointed to study deer seasons and harvest methods concluded that harvest would increase by establishing seasons for designated areas rather than on a statewide basis and by establishing an integrated deer habitat program. The actual method of harvest is designed to entice hunters into areas where the largest surplus of deer exists.

KEYWORDS: Big game, Wisconsin, management.
449. Keim, Charles J.
1965. A sportsman looks at State information efforts and responsibilities. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 310-312.

Sportsmen have a right to expect the State, the legislators, and the media to cooperate in favor of wise maximum utilization of the outdoors.

KEYWORDS: Administration, public relations.
450. Kelker, George Hills
1943. The state-sportsman-landowner triangle. J. Wildl. Manage. 7(1): 7-10.

The weaknesses of the State-hunter-landowner triangular system include: failure of the State to provide sufficient hunting areas and game or to fully recognize the landowners' position, disproportionate take of game by hunters, lack of safeguards against species extermination, failure to properly compensate the farmer, and lack of attention to the requirements of game species. Listed are 13 ways in which the State should lead in game improvement and farmer-sportsman relations.

KEYWORDS: Management, farmer-sportsman relations.

451.

1964. Appraisal of ideas advanced by Aldo Leopold thirty years ago. J. Wildl. Manage. 28(1): 180-185.

The evidence of 30 years' use of game management suggested by Aldo Leopold shows that many ideas have been accepted and are still prominent in the wildlife profession. These include game management, concepts of species cycling, restocking interspersed and dispersion of habitat features, and census taking, to name a few. Philosophy of the new profession is also presented.

KEYWORDS: Literature, management, historical value, philosophy.

452. Kelley, Charles D.

1960. Public relations--its value as a tool of enforcement. 14th Conf. Southeast. Assoc. Game Fish Comm. Proc. 14: 269-271.

Five objectives for a good public relations program include: employees must have proper understanding of the directives and policies under which they work, enforcement officers should be encouraged to suggest improvements in laws, employees should be encouraged to take disagreements to the boss not the public, public fighting between State and Federal agencies should stop, and violators should be arrested only in light of conclusive evidence.

KEYWORDS: Enforcement, public relations.

453. Kelley, Claude D.

1954. What our courts must learn: game laws are no joke. Fla. Wildl. 7(9): 12-15, 38, illus.

Examples show how various State courts sentence game law violators. For example, suspended sentences and reprimands are regularly handed down in cases which should be treated as serious offenses. In North Carolina game violations carry minimum fines of \$25 to \$50, but the average in 1953 was less than \$9.

KEYWORDS: Enforcement, education, law violation.

454.

1957. Politics in State game and fish agencies. 11th Conf. Southeast. Assoc. Game Fish Comm. Proc. 11: 11-17.

Data obtained by questionnaire from 47 States on the problem of partisan political abuses and controls show an increasing freedom from political abuses and an honest recognition of yet-existent shortcomings. For instance, 43 States said their wardens do not change with a change in partisan control of State government, and 37 States said their game commissions have all or part of the regulation-making authority.

KEYWORDS: Politics, administration, surveys.

455. Kelley, John William'
 1968. An analysis and evaluation of New York State's fish and wildlife management act. Ph.D. diss., Cornell Univ. , 346 p.
 An analysis and evaluation are made of the organization, functioning, and accomplishments of the first 10 years of New York State's Fish and Wildlife Management Act. Tested were 51 hypotheses concerning program operation and functioning. A review was included of published and unpublished policy memoranda, special reports, and the minutes of 431 Regional and State Board meetings. Former and current board members (441) were contacted by questionnaire with 63-percent return. Conservation Department personnel (75) and cooperating landowners (112) were interviewed. After 10 years of operation, 44 public hunting or fishing areas have been established on 276,411 acres of private land. Eighteen specific recommendations for improvement are offered, (Condensed from *Dissertation Abstracts*.)
 KEYWORDS: New York, administration, legislation.
456. Kennedy, James Joseph
 1971. A consumer analysis approach to recreational decisions: deer hunters as a case study. Ph.D. diss., Va. Polytech. Inst. State Univ., 194 p.
 A general conceptual model of recreational behavior is proposed and the feasibility is examined of applying such a model to a recreational activity like deer hunting. The study is based upon 373 questionnaire responses (82-percent return) of resident deer hunters using the Pocomoke State Forest, Maryland, during the 1969 season. Most of the respondents had less than 5 years' deer hunting experience. Although hunter success was 2.7 percent, only 14 percent stated they had a poor or very poor time. Hunters stated that other hunters in the area help move deer but cause crowding, competition, and a safety hazard. The findings suggest that the general model is an appropriate and useful framework for the analysis of deer hunter behavior. It appears that with detailed research most of the model's major components could be quantified to explain how deer hunters behave. (Condensed from *Dissertation Abstracts*.)
 KEYWORDS: Big game, Maryland, characteristics, research methods, non-consumptive use.
457. Kenney, Raymond J.
 1932. Combination licenses vs. separate licenses. 24th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 24: 46-49.
 Paper advocates the return to separate licenses and abandonment of the combination license system.
 KEYWORDS: Massachusetts, license fee, management.'
458. Kern, E. E., and L. S. Driscoll
 1966. Marketing of outdoor recreational services in rural areas. J. Soil Water Conserv. 21(4): 141-143, illus.
 Increasing acreage is being converted from farmland to recreation use. The feasibility and profitability of such enterprises has been questioned. A study of 55 private, outdoor recreational facilities in Alabama was made to determine their degree of success and reasons for it. The results indicate only nine of 55 operators had had any previous experience in marketing outdoor recreation services. Of 55 operators about 33 percent

failed to realize positive returns to family labor and management, and 60 percent made less than \$500 annually. Average investment per establishment ranged from \$11,000 to \$70,000. Lack of patronage was a major problem for all operators. Study and extensive planning for those interested in the marketing of rural outdoor recreation services are necessary. Requirements include a favorable location, quality services, managerial competence, pleasing personality, and marketing techniques.

KEYWORDS: Landowner-private, economics, Alabama.

459. Khalili, Abdolamir

1969. Optimal economic management of wildlife, over time, with special reference to Canadian geese of the Swan Lake Wildlife Refuge. Ph.D. diss. Univ. Mo., 189 p.

Study provided an operational decision model which can be used to determine the harvest levels, over time, that maximize the present value of expected net social benefit associated with any species of wildlife over a planning horizon. Using demand for Canadian geese at the Swan Lake Wildlife Refuge, hunter visits, average cost per visit, geese population, and harvest levels, a stochastic programming model is presented. **Following** optimal policy, a long run equilibrium population of 45,000 and harvest of 15,000 are determined. Results imply that there is an economic justification for an increase in the annual harvest rate of Canadian geese. Evaluation of prospective investments in the wildlife resource requires an estimation of demand over time. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Waterfowl, economics, management.

460. Kilgore, Bruce Moody

1954. A comparison of editorial aspects of State fish and game and conservation department magazines. M.A. thesis, Univ. Okla. 140 p.

Study compares three or four issues from 40 game department magazines or bulletins from 37 States. Of the 40 publications, 23 are free of charge, while 17 charge from \$0.40 to \$3. Content classification indicated that editorial text averaged 70 percent (over half of the editorials related to management, harvest, and biological aspects of wildlife) with illustrations comprising nearly all the rest (29 percent) of the entire content. Using Flesch's formula for "readability" and "human interest" the *Alabama Conservation*, *Florida Wildlife*, and *Missouri Conservationist* top the list of 40. For "readability" 23 State publications rated "fairly difficult" to read while only one classed as "very easy." For "human interest," one publication rated "very interesting," 16 rated "interesting," 18 rated "mildly interesting," and 10 rated "dull." Only eight State publications received ratings "standard and better" for readability and "interesting or better" for human interest.

KEYWORDS: Literature, surveys.

461. Kimball, Thomas L.

1955. The application of controlled hunting to the take of big game. 45th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 45: 95-102.

Paper discusses factors involved in obtaining a proper game harvest: time, type, and length of season, bag limits, areas and range conditions that affect hunter distribution, weather, and publicity.

KEYWORDS: Colorado, management, harvest statistics.

462.

1957. Pros and cons of nonresident fees. 47th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 47: 63-67.

State game and fish departments should be concerned about non-resident fees because they are important to game harvest and to financing management. Arguments favoring low non-resident fees are: (1) wildlife on Federal lands is owned by all people in the United States, (2) high fees tend to retard private economic activity and thus reduce tax revenue, and (3) non-resident hunters hunt more in the back country and thus harvest animals where residents seldom go. Arguments for high non-resident fees include: (1) wildlife belongs to people of the State, and they should get maximum returns for it, (2) competition between resident and non-resident hunters is reduced, and (3) if decreased fee stimulate; more (visitor) economic activity, more also goes to game department. Most conflicts can be resolved by legislative measures except for antagonism between resident and non-resident hunters. Analysis of Colorado license revenue showed a 61.6-percent decrease in revenue after deer fees were reduced from \$40 to \$7.50 (resident fee) in order to get increased hunting for an adequate harvest of surplus deer.

KEYWORDS: Resident vs. nonresident, economics, user fee, Colorado, fishing.

463.

1958. Keeping hunting and fishing privileges on and recreational access to the public lands in the east and the west. 48th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 48: 76-82.

The primary access problem is to public beaches, lakes, and streams surrounded by private lands, rather than to public lands for hunting. No major access problems were reported by 20 States, but 17 States have been denied the right of eminent domain (to acquire access to public lands).

KEYWORDS: Access, fishing, non-consumptive use, landowner-public.

464.

1961. A place to hunt and fish. 41st Conf. West. Assoc. State Game Fish Comm. Proc. 41: 4-8.

Aggressive and positive attitudes must be developed in governmental agencies and among outdoor enthusiasts if the American hunting and fishing heritage is to be preserved. The picture is bleak for fulfilling the desires of the general public, because productive land is rapidly shrinking and access is frequently denied to public land. Wildlife management authority should remain with the State, not the Secretary of the Interior, for any new areas considered for park purposes.

KEYWORDS: Fishing, resource use, Federal-State jurisdiction.

465.

1962. Where organized sportsmen fit into the over-all conservation picture. 16th Conf. Southeast. Assoc. Game Fish Comm. Proc. 16: 499-505.

Highlighted are contributions to conservation made by sportsmen's groups such as the Boone and Crockett Club, the American Wildfowlers, Ducks Unlimited, the American Game Association, and the National Wildlife Federation.

KEYWORDS: Conservation, clubs.

466. _____ 1963a. For public recreation: Private development of hunting and fishing. J. Soil Water Conserv. 18(1): 49-53, illus.
- Private land in the United States produces 80 percent of game taken by hunting and contains 85 percent of the wildlife habitat that is economically feasible to improve. Increasing population and decreasing work time means increasing recreation pressure. The continuation of public hunting and fishing will depend largely on the private landowner and whether or not he can be convinced that wildlife and hunting on his lands are beneficial to him and the general public. Increased aid, both technical and monetary, is needed from governmental agencies and the general public in order to convince the private landowner.
- KEYWORDS: Farmer-sportsman relations, resource use, landowner-public, landowner-private.
467. _____ 1963b. What is the National Wildlife Federation? Nat. Wildl. 1(6): 30-31, illus.
- Questions and answers are presented covering the federation's goals, policies, membership, size, and budget considerations.
- KEYWORDS: Clubs.
468. _____ 1965. Farm harvest for hunters. Mich. Conserv. 35(5): 2-7, illus.
- Article discusses the "cropland adjustment" section of the 1965 Food and Agriculture Act which, if passed, would provide for the Secretary of Agriculture to make payments to farmers who retire lands from active agriculture and turn them to recreational uses.
- KEYWORDS: Economics, legislation.
469. King, Byron B.
1961. Use of public lands for hunting. 41st Conf. West. Assoc. State Game Fish Corn. Proc. 41: 46-51.
- Army regulations concerning management and harvesting of fish and game resources on military reservations stipulate that hunting will be in accordance with the fish and game laws of the State. The military commander will control and maintain security, good community relations, and encourage recreation for military personnel. A brief history of the development of the big game hunting program at White Sands Missile Base is followed by a discussion of the relationship between State game conservationists and military personnel.
- KEYWORDS: Management, New Mexico, landowner-public.
470. King, Frank H.
1948. The management of man. Wis. Conserv. Bull. 13(9): 9-11.
- Rambling article identifies weaknesses still evident in wildlife management. Wildlife research results are not used; more public appreciation of research is needed; technical findings should be popularized; sportsmen and administrators see research results as impractical; and the public does not understand management programs, so will not accept them. Education

of landowners and managers is also needed. Sportsmen think wildlife management is production of something to shoot. Although the American idea of free wildlife and public hunting should be perpetuated, quality rather than quantity should be improved. The author stresses the importance of human factors of wildlife management and feels we must educate to legislate, with constant publications getting the "right" information to large numbers of people.

KEYWORDS: Public relations, profession, management.

471. King, Willis

1942. Trout management studies at Great Smoky Mountains National Park. *J. Wildl. Manage.* 6(2): 147-161, illus.

Creel census studies conducted on three streams in 1938, four in 1939, and five in 1940 reveal that legal trout catch per mile of open water varied from 146 to 1,167. Average catch of legal-sized trout per hour varied from 0.52 to 1.32. It is suggested that the rainbow size limit be lowered from 8 to 7 inches.

KEYWORDS: Fishing, Tennessee, management, harvest statistics.

472. Kirkpatrick, Thomas O.

1965. The economic and social values of hunting and fishing in New Mexico. *Univ. of N.M., Bur. Bus. Res.*, 94 p., illus.

During May and June 1964, approximately 7,500 questionnaires were mailed to a random sample of resident and non-resident license holders. About 53-percent response was received. General findings were as follows. (1) The factors most influencing the volume of sales of licenses are climatological influences, existence of hunting and fishing facilities, license fees, expectations of sportsmen, and communications between and among sportsmen and State agencies. (2) A large increase in the number of licenses sold is expected to occur between 1964 and 1975 (from 250,000 in 1964 to an estimated 468,000 in 1975). (3) Eighty-one thousand children under 14 fished in New Mexico during 1964 and of this, 60,000 were children of resident fishing license holders. (4) In 1963, resident and non-resident license holders spent, excepting license fees, an estimated \$53.4 million (nonresidents spent \$9.7 million). (5) During 1963, an estimated 45,000 residents went to other States to hunt and fish and spent about \$6.9 million there. The reason most often given was that more fish and game could be obtained elsewhere. (6) The most fished county was Taos with 14.8 percent of all fishermen and second was San Miguel with 14.5 percent. Rio Arriba County ranked first with resident big game hunters and Colfax ranked first with nonresidents. Eddy County is first with resident bird hunters and Dona Ana is first with nonresidents. (7) In 1963, license holders spent approximately 3 million man-days hunting and fishing. (8) Of persons not renewing licenses, 3.1 percent of the holders of resident fishing licenses and 1.9 percent of the holders of non-resident fishing licenses gave as their reason a stronger interest in other forms of recreation. (9) Only 2 percent of all sportsmen fish or hunt alone while 90 percent are accompanied by one to four companions. Much information was also obtained regarding the socioeconomic characteristics of hunters and fishermen, the hunting and fishing unit, and behavior patterns (e.g., when persons hunt and fish, how many years they have hunted and fished). More facilities are needed.

KEYWORDS: Fishing, economics, benefits, preferences, New Mexico, resident vs. nonresident.

473. Klemm, Cyrille de

1972. The conservation of migratory animals through international law. *Nat. Resour. J.* 12(2): 271-277.

Migratory birds and anadromous fish can be considered the objects of successive ownership on the part of political subdivisions along their migration route. Joint ownership of exploited animal populations should have as its primary objective the establishment of management practices designed to secure the maximum sustainable yield. Early treaties between the United States and Canada do not provide for reserves or habitat preservation. In a 1936 treaty between the United States and Mexico, reserves are provided for, but there is no provision for joint commissions of advisement and enforcement.

KEYWORDS: Administration, legislation, refuge, conservation, historical value, Canada, Mexico.

474. Klessig, Lowell L.

1970. Hunting in Wisconsin: initiation, desertion, activity patterns, and attitudes as influenced by social class and residence. M.S. thesis, Univ. Wis., 152 p.

Data are given from: (1) Wisconsin Survey Research Laboratory's annual statewide interviews with a random sample of 574 adults including several questions about hunting among the 192 items on the interview schedule; (2) mailed questionnaires from 69 percent (1,015) of 1,472 resident hunters to whom it was sent. Initiation to and desertion from hunting are better indicated by rural-urban residence than by social class. Rural youth are highly associated with hunting because of accessibility to hunting areas. Social and psychological reasons accounted for two-thirds of the desertions. Only 30 percent of the hunters considered "bagging game" their most important motivation, implying the importance of appreciative rather than consumptive motives to hunter satisfaction. Six different types of hunting were defined: big game hunters (84 percent), upland bird hunters (58 percent), small mammal hunters (57 percent), waterfowl hunters (25 percent), big game archery hunters (21 percent), and predator hunters (18 percent). Big game hunters tend to be more from rural areas, are less educated, and travel farther than other hunters. Highly educated hunters are overrepresented in all types of hunting except big game hunting; they hunt a greater variety of game, spend more days and hours hunting, tend to travel more, and have more success. Rural hunters are overrepresented among big game hunters and predator hunters, and urban hunters tend to hunt birds. Public hunting grounds are the most popular hunting property, especially among the lower class and urban hunters who have difficulty obtaining access to private property. Leased or private club lands are not all popular. Only 12 percent usually hunt alone, and they tend to be from rural areas. Twenty-two percent of hunters belong to a conservation or sportsman's club. Intensive management was desired by educated hunters. Questions on ecological principles showed that 42 percent of the hunters did not believe deer should be harvested, 82 percent believed foxes should be controlled, and 70 percent favored bounties. The overwhelming majority support the right of land-owners to prohibit hunting and one-third are willing to pay for hunting privileges. (References, 95. Thesis includes data and discussion on gun control legislation, violence on TV, and 24-page (including 16 references) appendix on a study "The Duck Hunter and Species Management.")

KEYWORDS: Wisconsin, preferences, characteristics.

475. Knapp, Jerome J.
1965. The urban sprawl and the hunter. *Rod Gun Can.* 66(12): 12-13, illus.
- The decrease of available hunting land and the increase of hunters are being relieved by Provincial governments, private enterprise, and gun clubs. Hunters must exert influence to harmonize their sport with urbanization.
- KEYWORDS:** Canada, resource use.
476. Knott, Norman P.
1963. Free hunting versus fee hunting. *43d Conf. West. Assoc. State Game Fish Comm. Proc.* 43: 92-97.
- Article discusses attitudes about hunting on private land, human management problems of access, landowner relations with sportsmen, and the necessity of user fees.
- KEYWORDS:** Farmer-sportsman relations, user fee, landowner-private.
477. Koch, Elers
1941. Big game in Montana from early historical records. *J. Wildl. Manage.* 5(4): 357-370.
- Article documents records of early explorers, trappers, and military personnel which yield information on game conditions throughout Montana beginning with the Lewis and Clark Expedition in 1804. The theory is rejected that the mountains were thinly populated with game until the white men came and drove elk and buffalo into the mountains through persistent hunting.
- KEYWORDS:** Historical value, Montana, literature.
478. Kohlsaatt, H. H.
1924. The greatest game market in the world. *Sat. Evening Post* 196(43): 72.
- Historical account of Chicago's game market prices and a dinner menu card are reported.
- KEYWORDS:** Economics, historical value, commercial hunting.
479. Kouba, Leonard J.
1972. Controlled shooting preserves: integrating recreation and sound land management. *J. Soil Water Conserv.* 27(4): 156-159, illus.
- Commercial and public shooting preserves have emerged in the United States in response to increasing hunting demand. In 1970, 2,525 shooting preserves were operating. Basic legislation governing preserve shooting is similar in most States. Requirements include the release of pen-reared game, fixing a percentage of each species that may be shot, payment of a license fee, adequate posting and fencing of boundaries, and fixing duration of the shooting season. A preserve is usually established by an individual or group of sportsmen. Data are presented on the number of preserves in the various States from 1954 to 1970.
- KEYWORDS:** Plant and shoot, management.

480. Kozicky, Edward
 1960. Does the department have a responsibility to provide access to private lands? S.D. Conserv. Dig. 27(4): 22-25, 34, illus.
 Game departments cannot assure guest privileges for sportsmen on private land. This privilege is granted through personal hunter contact. An educational program for sportsmen and landowners is paramount in any game management program.
 KEYWORDS: Farmer-sportsman relations, access, education, public relations.
481. Kozicky, Edward L.
 1964. Private enterprise in outdoor recreation. J. Soil Water Conserv. 19(1): 57-60, illus.
 Projection of increased leisure time for the future implies increased need for recreational facilities. The present public lands are inadequate; thus private enterprise found it necessary for providing future recreation facilities. Greater cooperation between public agencies, private enterprise, and the general public is needed for the study, establishment, acceptance, and continuation of quality private enterprise recreation. Game shooting preserves are used as examples.
 KEYWORDS: Legislation, landowner-private, plant and shoot.
482. _____ and John Madson
 1966. Shooting preserve management--the Nilo system, 312 p., illus. East Alton, Ill.: Conserv. Dep., Winchester West. Div., Olin Corp.
 A private plant and shoot preserve is presented as a model. The text covers in detail a history of shooting preserves, types of preserves, management of hunters, habitat and four species of game birds, hunting dogs, economics of private preserve enterprises, promotion and public relations, hunting safety, and other management considerations.
 KEYWORDS: Plant and shoot, management, safety, historical value, economics, commercial hunting, user fee, upland game birds, waterfowl.
483. Kranz, Marvin Wolf
 1961. Pioneering in conservation: a history of the conservation movement in New York State, 1865-1903. Ph.D. diss., Syracuse Univ., 634 p.
 New York has done more than any other State to preserve wilderness. It was the first State to set aside forest acreage and among the earliest to begin the replenishment of fishery resources. The acquisition of Niagara Falls in 1885 was a first step in park system expansion. The game restoration program restored deer in all parts of the State by 1920, but more influential was the forest conservation movement. State legislation in 1885 enacted forest statutes which created the State preserve, the appointment of a forest commission, and the adoption of fire prevention measures. Wilderness lovers saw that the timber on State-owned Adirondack and Catskill lands was made inviolate. Professional foresters generally oppose the preserve concept and have contended that supervised lumbering would be more beneficial. Agitation over the forest preserve policy has dominated the conservation picture in New York and has overshadowed important developments in forest plantations, industrial forestry, and the enlargement of recreational facilities. (Condensed from *Dissertation Abstracts*.)
 KEYWORDS: New York, conservation, legislation, refuge, historical value.

484. Krause, Gary F., Frank W. Sampson, and J. Martin Orr
1969. Biased coyote harvest estimates: a paradox. *J. Wildl. Manage.* 33(2): 444-446.

The reported coyote hunting effort and kill in Missouri is biased because much coyote kill is incidental to other hunting. Some hunters report hunting coyotes only if they kill one. Unsuccessful hunters are underestimated. Consequently the statewide harvest appears highly biased compared with county bounty-census data.

KEYWORDS: Research needs, predator, Missouri.

485. Kruger, Theodore
1929. Are we drifting into European systems of game management? *J. For.* 27(3): 262-263.

Private land and State forest hunting systems in Prussia are briefly summarized and contrasted with the American system.

KEYWORDS: Germany, management, landowner-private.

486. Krukewitt, Charles W.
1966. A system for charging entrance fees at Crab Orchard National Wildlife Refuge in accordance with the Land and Water Conservation Fund Act of 1965. M.S. thesis, South Ill. Univ., 80 p.

Objective was to determine an efficient system for collecting fees to realize maximum revenue, good public relations, optimum recreation, and to predict effects of fee on management. Details are presented on Land and Water Conservation Fund Act of 1965, history since its inception, advantages and disadvantages, and its application to proposed fees at Crab Orchard. An interview survey on the 44,000-acre refuge which catered to almost 2 million boaters, campers, hunters, fishermen, swimmers, picnickers, and sightseers during 1966 shows that swimming was the major use. Over half the users spent more than \$10 and about one-quarter spent more than \$20 during each visit to the refuge. A decrease in recreation use is predicted as result of entrance fees. (Hunting, a major refuge use, was not reflected in figures.)

KEYWORDS: Fishing, public relations, refuge, user fee, historical value.

487. Krutch, Joseph Wood, and Harold E. Anthony.
1957. The sportsman or the predator? Part I. "A damnable pleasure." Part II. "But it's instinctive!" *Sat. Rev. Lit.* 40: 8-10, 39, 40.

A debate is presented between opponent and proponent of hunting which articulates premises underlying opposition to and defense of hunting on a moral-philosophical level. Krutch views wanton killing for sport as a damnable evil, describes the sportsman's motive, chides the idea of sporting chance or killing according to gentlemanly rules, and concludes that hunters have no vivid sense of killing: "Birds are simply livelier, less predictable clay pigeons." Anthony endorses much of Krutch's thesis but sees wanton killing as reprehensible to the principles of American sportsmen. He describes qualification for a true sportsman and asserts that man is a predator, biologically and historically. A sportsman shoots because it enriches life for him, not for the benefit of deer. "Sportsman" is not a synonym for "hunter." Sportsman values gained in hunting are not necessarily the kill, but rather courage, hardihood, self-confidence, and a sense of fair play as exemplified in switching from guns to camera.

KEYWORDS: Philosophy, antihunting.

488. Kuluvar, H. Lee

1954. Man or deer? Field Stream 59(6): 43-45, 98, illus.

Using a device developed by the Army and Navy in World War II to train men to spot planes and ships, the author has developed a similar training program for hunters. His tachistoscope illustrates how easy it is to mistake a man for a deer and provides visual training for hunters before they enter the woods.

KEYWORDS: Safety, education.

L

489. Lacaille, Harold C., Jr.
1968. New Hampshire hunter preference survey 1964. N. H. Fish Game Dep. Tech. Circ. No. 22a, 18 p., illus.

A return of 70 percent was obtained after two questionnaire mailings to 3,183 hunters. Resident and non-resident hunter numbers are increasing and their game preferences in descending order were big game, game birds, small game, and non-game animals. Data are given on the number of hunters seeking various game species and hunter income and expenditures.

KEYWORDS: New Hampshire, preferences, resident vs. nonresident, fishing, upland game birds, waterfowl, small game, big game.
490. Lambou, Victor W.
1961. Determination of fishing pressure from fishermen or party counts with a discussion of sampling problems. 15th Conf. Southeast. Assoc. Game Fish Comm. Proc. 15: 380-401, illus.

The fisherman count method of determining fishing pressure is described, and some sampling problems are discussed, including distribution, bias, and variance of a product. Mathematical formulas and graphs are predominant.

KEYWORDS: Crowding, research methods, fishing.
491. Langlois, T. H.
1944. The role of legal restrictions in fish management. 9th Conf. North Am. Wildl. Trans. 9: 197-202.

Fishing laws directed by an interest in people rather than in fishes spring from three basic concepts of human nature: the spirit of individual willingness to do without something that is available and wanted, the wish of some people to control the behavior of others who are less willing to do without the same thing, and the cultural concept of protecting the females and young. Any hope for improving fishing lies in the ability to help the environment meet the needs of the fishes. Laws which regulate fishing and cost much to enforce aim to secure financial support for administration. Laws which affect fish welfare are also summarized. Repealing legislative restrictions and discontinuing the enforcement program would permit the use of more funds for the more positive procedure of habitat improvement.

KEYWORDS: Fishing, management, legislation.
492. Lanier, James W., III
1951. The attitudes of landowners in Alachua County, Florida, concerning sportsmen and cooperative hunting plans. M.S. thesis, Univ. Fla., 61 p.

Landowners included in the study demonstrated a favorable attitude towards sportsmen. It was hypothesized that this relationship could be improved by a greater consideration of landowners' rights by sportsmen. Seventy-three percent of the total farmland area has been posted by landowners in this county, mainly to protect livestock. A favorable attitude exists concerning cooperative hunting plans on the part of both white and colored landowners. Although few landowners have heard about these plans, there is indication that such plans could operate satisfactorily in Alachua County. (Thesis restricted to University of Florida use.)

KEYWORDS: Farmer-sportsman relations, Florida, landowner-private, preferences.

493. Larson, Joseph S.

1959. Straight answers about posted land. 24th Conf. North Am. Wildl. Trans. 24: 480-487, illus.

During 1956 a mail questionnaire survey of 1,165 Massachusetts land-owners was made to determine the amount of land posted against hunting and the main reasons for the posting. A minimum of 41 percent of Massachusetts land is closed to sportsmen, although 59 percent of the landowners who post their land permit hunting and fishing. The two main reasons listed for posting were destruction of property and discharge of firearms close to buildings.

KEYWORDS: Access, landowner-private, Massachusetts.

494. Latham, Roger M.

1949. The sportsman--bottleneck to better hunting and fishing. Wis. Conserv. Bull. 14(12): 3-7, illus.

Considerable pressure is exerted upon State conservation departments by sportsmen's clubs, resulting in change from scientific to non-scientific game and fish management. Hunters and fishermen who are not trained in wildlife fields are unqualified to criticize or suggest. Many of the most severe critics of conservation department work and policies are the most flagrant violators of the game and fish laws. In Pennsylvania hunters still fight every declared doe season and the pressure of their legal action has caused the suspension of several proposed doe seasons. In the East, sportsmen are still forcing the game departments to import cottontail rabbits from Missouri for release, although research has shown that the survival is low and that the native stock is more than adequate. These two examples illustrate the distrust that hunters and fishermen have for the wildlife profession. Organized groups of sportsmen can fight against anticonservation legislation, pollution, the exploitation of wildlife, and other endangering influences. They should fight for restoration of habitat, free public hunting, etc.

KEYWORDS: Education, profession, fishing, either-sex hunt, clubs.

495. _____ and Devereux Butcher

1963. Why I hunt. Why I do not hunt. Nat. Wildl. 1(5): 14-15, illus.

Two opinions about hunting are contrasted: hunting is a wholesome form of outdoor recreation, and it is morally wrong to kill wildlife for "sport."

KEYWORDS: Philosophy, antihunting.

496. Lauckhart, J. Burton

1970. Falconry management in Washington. 50th Conf. West. Assoc. State Game Fish Comm. Proc. 50: 1-4.

Falconers in Washington are expected to exceed 300 in 1970 and they are allowed to take one wild hawk per year. In 1969 falconers reported taking 97 hawks. A system of registration for all legally held peregrine and prairie falcons is needed to help apprehend those who take birds illegally.

KEYWORDS: Falconry, Washington, management.

497. Lay, Daniel W.

1946. Controlled antelope hunts and some problems of administering public hunting. 11th Conf. North Am. Wildl. Trans. 11: 274-279.

A discussion is given of regulated antelope hunts in 1944 and 1945. Hunt planning, supervision, fees, public response, and criticisms are included. Antelope hunting cannot be provided for everyone, but high standards and a high degree of success should be maintained for those who do hold licenses.

KEYWORDS: Texas, big game, management.

498. Laycock, George

1961. Bums in the bulrushes. Sports Illus. 15(17): 64-66, illus.

A spying biologist found that duck hunters who claimed to be good sports were often liars and cheats. For 24 days he observed one of the 28 duck blinds on an Ohio marsh. Hunters were assigned to the blind by lottery and each day a new pair occupied the blind. The biologist took notes on hunter activities which he later compared with checking station information provided by the same hunters. The biologist counted a total of 839 shots fired from one blind, but the hunters reported only 449 shots. In 24 days the blind's occupants bagged 53 birds. Thirty-one of these were shot on the water by 12 of the hunter teams, but only five teams admitted to shooting any bird on the water. Fourteen teams reported crippling 27 ducks, but the biologist counted 67 crippled birds. Biologists customarily set crippling loss at 30 percent of the bag, but in this case crippling **loss** was 126 percent. Hunters seem to be biased in reporting, not from fear of punishment, since half of the hunters from the one blind did not break any law, but because of pride. Sky-busting and shooting sitting ducks are not acceptable sporting techniques. It is suggested that other States plant spies in their marshes to determine bias in hunter reporting.

KEYWORDS: Waterfowl, management, enforcement, research methods, law violation.

499. Lazan, Gil

1969. The thrill killers. Am. For. 75(5): 6, 7, 36, illus.

Snowmobile trails built by clubs on Forest Service land in northern Minnesota provided access to food for hundreds of deer during a record snow-fall winter. During 3 weeks, 45 deer were run down and shot by "renegade snowmobilers." After the Forest Service threatened to close trails if killings continued, outraged sportsmen and snowmobilers across the Nation formed a \$1,000 cash reward for information leading to the arrest and conviction of snowmobilers wantonly and maliciously destroying game anywhere in the United States.

KEYWORDS: Enforcement, big game, Minnesota, law violation.

500. Leedy, Daniel L.

1949. Hunting statistics in the United States, 1936 vs. 1946. 14th Conf. North Am. Wildl. Trans. 14: 410-423.

Statistics were compiled largely through questionnaires submitted by 39 State game departments, supplemented by published reports and personal interviews. Comparisons were made of the game status, game kill, and number of hunters and licenses issued for 1936 and 1946. Statistics are still inadequate and annual nationwide compilations of data on small game are needed. In the fiscal year 1947, 76 percent more licenses were sold, yielding a 151-percent increase in revenue over the 1936 license sales. A higher percentage of the total number of hunters have purchased licenses

in recent years. Three-fourths of the total amount spent in harvesting the game crop went for small game hunting. The comparative kill of 24 game species in 1936 and 1946 is listed and supplementary data on waterfowl and furbearers are included. The abundance and distribution of game influence not only the amount of hunting but also the hunter's preference of game species,

KEYWORDS: User fee, economics, harvest statistics, surveys.

501. Leffler, Ross L.

1941. The hunting accident problem: what shall we do about it? 35th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 35: 122-133.

Firearms and ammunition manufacturers should campaign to overcome public opposition to hunting, and civic organizations should initiate fire-arm safety programs.

KEYWORDS: Pennsylvania, safety, education.

- 502.

1958. Public hunting on Federal refuges--a positive policy. 48th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 48: 143-146.

Acquisition of key wetlands is basic to preservation of waterfowl populations.

KEYWORDS: Administration, waterfowl, refuge.

503. Legler, Eugene, Jr.

1967. Sampling to determine unreported deer kill in Tennessee, 1964-1966. 21st Conf. Southeast. Assoc. Game Fish Comm. Proc. 21: 69-73.

A method is described by which the unreported open deer kill in Tennessee has been estimated. A comparison of results from interviews of nonrespondents, and use of the computer extrapolation method failed to reveal important or consistent differences between the two methods.

KEYWORDS: Harvest statistics, Tennessee, big game, research methods.

504. Leipheimer, E. G., Jr.

1965. Wildlife management and the recreation program in the state of Montana. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 50-54.

Montana's statewide outdoor recreation plan is discussed and, in particular, the administration of a regulated hunt to reduce the elk herd.

KEYWORDS: Montana, management, big game, non-consumptive use.

505. Lennon, Robert E., and Phillip S. Parker

1961. The fishing-for-fun program on trout streams in Great Smoky Mountains National Park. Soc. Am. For. Proc., p. 106-112, illus.

Sport fishing for wild trout can be preserved, improved in quality, and made available to increasing numbers of anglers by prohibiting the kill of trout under the Hazzard Plan of catch and release. Proportionately more tourists fished the fishing-for-fun streams than other Park streams, and they consistently enjoyed a greater measure of success.

KEYWORDS: Fishing, non-consumptive use, North Carolina.

506. Leonard, Justin W.

1949. Research man vs. administrator--the research man's viewpoint. *J. Wildl. Manage.* 13(3): 237-244.

In the research man's eyes, the greatest sins the administrator can commit include: directing investigators to find facts to support a personal hunch, suppressing research findings that run counter to established policy, demanding that conclusions be released before the data have been sufficiently rechecked, diverting significant portions of research budgets to programs of routine management character, awarding policy-forming positions to businesslike but unqualified laymen, publishing reports under the name of the department or agency chief or not giving the researcher ready access to publish his findings, and failing to hold competent research men in the conservation field who are attracted to less productive but more gainful jobs.

KEYWORDS: Administration, research needs, profession.

- 507.

1965. Moral, ethical and fiscal aspects of wildlife management. 30th Conf. North. *Am. Wildl. Nat. Resour. Trans.* 30: 422-425.

Hunting and fishing are socially acceptable pursuits, threatened less by moral misgivings than by lack of space. Maintenance of the resource is an economic matter. Examples of cooperation among sportsmen, recreationists, and wildlife managers are cited; but the fact that non-consumptive uses of space and facilities are growing proportionately faster than hunting and fishing poses new problems for the manager. **All** outdoor users must accept the responsibility to maintain ecological integrity and quality while the wildlife manager embraces enough of the varieties and orientations of outdoor resource users for him to communicate effectively with both users and the new breed of decisionmakers.

KEYWORDS: Fishing, philosophy, economics, non-consumptive use, resource use.

508. Leopold, A. Starker, Clarence Cottam, Ian McT. Cowan, Ira N. Gabrielson, and Thomas L. Kimball

1968. The national wildlife refuge system. 33d **Conf.** North *Am. Wildl. Nat. Resour. Trans.* 33: 30-54.

Article appraises the significance of the national refuges in migratory bird conservation and comments on management practices. In managing refuge units for their primary objectives the broadest spectrum of wildlife values must be purposefully guarded and restored. A broad philosophical perspective on all aspects of wildlife is presented.

KEYWORDS: Conservation, management, refuge, philosophy, waterfowl.

509. Leopold, Aldo

1918. Forestry and game conservation. *J. For.* 16(4): 404-411.

The game resources of the National Forests are as depleted as they were 10 years ago when the National Forests were established. Dual authority, local opposition, and failure to employ the principle of highest use are three reasons for lack of an aggressive game policy. That foresters can meet the needs of the game problem by simply applying the forest principles with which they are familiar is argued by an analogy between the sciences of game management and forestry. Comparison is also made between forestry and game management in selection of species.

KEYWORDS: Administration, historical value, management.

510.

1919. The National Forests: the last free hunting grounds of the Nation. J. For. 17(2): 150-153.

Demand for hunting on the National Forests will increase not only with increases in population and transportation, but with the rising price of hunting as exemplified by commercialization of hunting privileges called "game farming." Some lessons in National Forest game policy are contained in this forecast: the Nation's last free hunting ground must be developed and perpetuated; the Forest Service must retain its policy of keeping out exclusive privilege; a non-resident license surtax is not only justice, but common sense; the National Forest hunter will constitute an increasing forest hazard; where game interferes with livestock, hunting demand must be considered when applying the principle of highest use; lastly, it will be good business for the Forest Service to develop species on which it has a practical monopoly.

KEYWORDS: User fee, economics, historical value.

511.

1926. The way of the waterfowl. Am. For. 32(389): 287-291, illus.

Article describes how the Anthony Bill will help ducks and duck hunting. It is an example of New Mexico's refuge system in actual operation.

KEYWORDS: New Mexico, waterfowl, refuge, legislation.

512.

1929. Report of the committee on American wild life policy. 16th Conf. Am. Game Trans. 16: 196-210.

This report calls for increasing game populations for recreational use. Since control of hunters is legislatively well developed, the present problem is to get environmental controls for game. It is concluded that the following defects are common to the whole game program: The program is too small and does not meet the needs of the existing human population; its leadership does not understand that the public can best get farm game by making it profitable for the farmer to provide for game; and many game management practices are faulty. The program needs trained leaders, workers, and researchers; it needs better public education and organization of its State conservation departments; and finally, Federal and State financing is needed. (Reissued; see Wildlife Management Institute 1971b.)

KEYWORDS: Management, conservation, administration, profession, farmer-sportsman relations.

513.

- 1930a. The American game policy in a nutshell. 17th Conf. Am. Game Trans. 17: 281-283.

Stressing the need for a game policy, Leopold points out that the only new thing in the proposed game policy is that "we quit arguing over abstract ideas, and instead go out and try them." The ideas which served to maintain the virgin game supply seem to have reached the limit of effectiveness. The proposed game policy is an admission that things are not as they should be according to Leopold, and that sportsmen are not the only group concerned with game conservation. The landowners and protectionists are also very concerned. Leopold points out that wildlife proponents are on the defensive,

but their critics are no more reasonable even if they do have the public ear. (Reissued; see Wildlife Management Institute 1971b.)

KEYWORDS: Administration, resource use.

514.

- 1930b. Report to the American Game Conference on an American game policy. 17th Conf. Am. Game Trans. 17: 284-309.

Game management programs cannot command the good will or funds necessary for success without harmonious cooperation between sportsmen and other conservationists. Sportsmen must recognize conservation as one integral whole, of which game restoration is only part. The wild game crop is the result of the breeding habits of the species, the environment in which it lives, and the environment is the only area open for modification for eventual betterment of populations. Species can be classified into four classes: farm game, forest and range game, wilderness game, and migratory game. Management plans of several States are presented. (Reissued; see Wildlife Management Institute 1971b.)

KEYWORDS: Big game, management, conservation, administration, small game, waterfowl, upland game birds,

515.

- 1933a. ~~Game~~ management, 481 p., illus. New York: Chas. Scribner's Sons.

Leopold defines game management as "the art of making land produce sustained annual crops of wild game for recreational use." The vision of the professional forester is employed in tracing the developments of game management. Parts I and II include the history of ideas in game management, game biology and habitat management. Part III is devoted to "Game Economics and Aesthetics," "Game Policy and Administration," and "Game as a Profession." (Condensed from book review by C. E. Rachford in *Journal of Forestry* 31(6): 700-701.)

KEYWORDS: Management, profession, historical value, economics, administration.

516.

- 1933b. The conservation ethic. J. For. 31(6): 634-643.

The gradual extension of ethical criteria to economic relationships is an historical fact. Economic criteria did not suffice to adjust men to society; they do not now suffice to adjust society to its environment. If our present evolutionary impetus is an upward one, it is ecologically probable that ethics will eventually be extended to land. The present conservation movement may constitute the beginnings of such an extension. This may radically modify what now appears as insuperable economic obstacles to better land use.

KEYWORDS: Philosophy, economics, historical value, resource use, conservation.

517.

- 1936a. Deer and Dauerwald in Germany. Part I. History. J. For. 34(4): 366-375, illus.

In Germany a plain case of mutual interference between game and forestry flatly contradicts the uncritical American assumption that the practice of forestry always promotes the welfare of wildlife. Article follows for nine centuries the slow but inexorable growth of a system of silviculture

incompatible with natural and healthy game and of a system of game management incompatible with a natural and healthy silviculture.

KEYWORDS: Big game, Germany, historical value, management.

518.

- 1936b. Deer and Dauerwald in Germany. Part II. Ecology and policy. J. For. 34(5): 460-466.

Specific amendments of American practices that are indicated by German experience are: that a generous proportion of each forest be devoted entirely to floral and faunal conservation; that there are few American deer ranges where the total removal of deer predators seems justifiable or necessary; that there be respect for natural mixtures of large pine blocks; that concerted effort be given to the problem of dual jurisdictions over game; and that there be a generous policy in building carrying capacity while deemphasizing the building of animal herds.

KEYWORDS: Fishing, big game, Germany, management, non-consumptive use.

519.

1937. The research program. 2d Conf. North Am. Wildl. Trans. 2: 104-107.

Research in the New Deal era was too small, appropriations were misdirected, programs were lopsided, and farm game was stressed while waterfowl, rare species, fish, songbirds, and wildflowers were neglected. Research methods were changing; it is clear that observational studies seldom yield enough information to guide policy. Professional education was inflated; it was turning out mediocre training without a research or ecological base. Vocational and non-professional education were also neglected.

KEYWORDS: Education, administration, historical value, research methods.

520.

- 1939a. Academic and professional training in wildlife work. J. Wildl. Manage. 3(2): 156-161.

The committee on professional standards of the Wildlife Society defines what constitutes adequate training for the profession. The student (what he is, what he knows, what he can do, and how he thinks) is considered both at the time of selecting an undergraduate major and at the completion of his professional training. Equipment and requirements in professional schools are discussed.

KEYWORDS: Education, profession, historical value.

521.

- 1939b. The farmer as a conservationist. Am. For. 45(6): 295-299, 316, 323, illus.

The pattern of the rural landscape should have a wholeness that guarantees paid conservation dividends. Land must be devoted to woods, marsh, pond, or just scenery to meet economic or semieconomic needs and to make the picture complete.

KEYWORDS: Landowner-private, conservation, esthetics.

522.

- 1940a. History of the Riley Game Cooperative, 1931-1939. J. Wildl. Manage. 4(3): 291-302, illus.

The Riley Game Cooperative is a farmer-sportsman shooting preserve where farmers furnish land, townspeople furnish cash, and both contribute labor and share in the shooting. The Cooperative provides area for University wildlife study. Seasonal kill on 1,700 acres is 75 pheasants. Leg banding shows that wild birds comprise most of the kill, even though the restocking program comprises the bulk of the cost of providing pheasants. Cost per bagged bird is \$1.40.

KEYWORDS: Management, refuge, landowner-private, upland game birds.

523.

1940b. The state of the profession. J. Wildl. Manage. 4(3): 343-346.

This "state of the art" address was given by the president of the Wildlife Society with many insights still relevant today. The Wildlife Society may be helping to write a new definition of science by extending it beyond the creation and exercise of power to include the creation and exercise of wonder. The good life does not flow automatically from the good invention. The profession's job is one of mediating the increasing kit of scientific tools and their increasingly reckless application to shrinking biotas. Weak points in the profession are: the low proportion of private employment, lack of respect for private property by the public, too much superficial research aimed at quick returns, not enough non-economic research, too little attention by researchers to the history of wildlife, and lack of organized extension services.

KEYWORDS: Profession, historical value, research needs, philosophy.

524.

1943. Wildlife in American culture. J. Wildl. Manage. 7(1): 1-6.

The culture of primitive people is often based on wildlife: Even civilized culture retains part of its primitive character. There is immeasurable value in any experiences which remind us of our distinctive natural origins and evolution and of our dependence on the soil-plant-animal-man food chain. Man needs to realize the extension of his system of ethics from the man-man relation to the man-earth relation. **Excessive** use of gadgets and "where-to-go" services are examples of mechanization that offers no cultural substitute for the values they destroy. Wildlife pleasure is better reaped by modern mentality than by modern machinery.

KEYWORDS: Historical value, philosophy, conservation, benefits, non-consumptive use, tradition.

525

1947. The ecological conscience. Garden Club Am. Bull. 11(4): 45-53.

The practice of conservation must spring from a conviction of what is ethically right, as well as what is economically expedient.

KEYWORDS: Philosophy, conservation.

526

1948. Why and how research? 13th Conf. North Am. Wildl. Trans. 13: 44-48.

Much confusion about wildlife research arises from a false premise about its purpose, which should be: to develop and expand an understanding of the biotic drama. ~~Game~~ researchers must start over and dig deeper. It

is futile to attempt practical research in advance of fundamental research because premature practicality ends in a blind alley.

KEYWORDS: Research needs, profession.

527. Lewis, Harrison F.

1930. The cash value of the wild life of Canada. 22d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 22: 79-82.

A summary is made of the dollar value of such items as fur, game fish, mammals, birds, sporting goods products, fishing tackle and equipment, sports clothing, nature photography, natural history magazines, transportation, accommodations, guides, liquor; recreational equipment, gas, and clubs.

KEYWORDS: Economics, Canada, fishing, benefits.

528. _____

1950. Wildlife values. Am. For. 56(4): 20-21, 33-34, illus.

Subject is how the economic or esthetic evaluation of wildlife affects its management. Wildlife often has conflicting values--positive values to some but negative values to others.

KEYWORDS: Management, esthetics, economics, non-consumptive use, benefits.

529. _____

1951. Wildlife in today's economy: aesthetic and recreational values of wildlife. 16th Conf. North Am. Wildl. Trans. 16: 13-16.

The meaning and success of life are dependent on a conscious or unconscious scale of values. Economic values are the kind by means of which people make a living. Esthetic and recreational values, primarily concerned with living a life, take no second place to economic values. Esthetic values relate to beauty and the capacity to enjoy it, while recreational values stress personal activity and participation. Recreational pursuits take the individual directly to the wildlife environment where public controls must be supplemented by intelligent self-restraint. Hunters, anglers, and photographers may be subdivided into many groups; yet all the values obtained may be reduced to two principal categories: personal pleasure and heightened ability to see environment with understanding.

KEYWORDS: Esthetics, economics, philosophy, non-consumptive use, benefits.

530. _____

1952. The role of certain treaties in wildlife management. 42d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 42: 143-149.

Paper covers management aspects of Canadian treaties with Canadian Indians, U.S. treaties with U.S. Indians, the U.S.-Canada migratory bird treaty, and the U.S.-Mexico convention for the protection of migratory birds and game mammals.

KEYWORDS: Canada, legislation, waterfowl, native claims.

531. _____

1966. Why's and wherefore's of the migratory bird regulations. Rod Gun Can. 67(6): 13-14, illus.

Article gives objectives and explanatory comments on the regulation of Indian and Eskimo rights, shooting restrictions, and the importance of research

KEYWORDS: Management, Canada, research needs, waterfowl, native claims.

532. Lewis, John Hammond

1948. Extension education in the wildlife conservation field. M.S. thesis, Oreg. State Coll., 106 p., illus.

National survey of State agricultural extension service and fish and game departments included 186 questionnaires and 238 letters (96-percent response) to assess wildlife extension education to develop program for Oregon. Findings show 90 percent of the State wildlife agencies average 4.3 percent of the operating budget on public education, seven states spend no money, and four States sent no report. Thirty States publish a game agency periodical reaching about one in 75 U.S. families. Programs of all States are evaluated; only 20 percent rated adequate in public conservation programs. Extension program for Oregon is proposed. (References, 34.)

KEYWORDS: Education, Oregon, surveys.

533. Lewis, Orville W.

1959. Are fish and game regulations too complicated. 39th Conf. West. Assoc. State Game Fish Comm. Proc. 39: 417-419.

Regulations are complicated, often unnecessarily, because wildlife administration is biologically difficult and influenced by public opinion.

KEYWORDS: Management, administration, Montana.

534. Ley, Ronald

1967. Why anglers really angle, Field Stream 71(10): 63, 109-110, illus.

Why do fishermen really fish? It is not because of hunger, except in the uncivilized wilderness. Sports fishermen are less interested in the fish for eating than in its pursuit. Fishing provides the rationale for escape from the press of people, business, and cares of the world and brings the fisherman close to nature in the outdoors. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: Preferences, fishing, benefits.

535. Liguori, Victor Armand

1968. Stability and change in the social structure of Atlantic Coast commercial fisheries. Ph.D. diss., Princeton Univ., 382 p.

A comparative analysis was made of stability and change in the social structure of three contiguous fishing ports in one county in southern New Jersey. An historical and crosscultural perspective serves as a focal point for a more generalized analysis of order, ethnic composition, and change in the structure of a commercial fisheries society. Several generalizations are offered. The step from microscopic considerations to macroscopic analyses of organizational structure brings the reader to reflect on some important aspects of the viability of social systems. In recent years, many of the tensions intrinsic to the fishing industry have so significantly exceeded their boundaries that the very survival of commercial fishing in the United States has come into serious doubt. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: New Jersey, fishing, historical value.

536. Lime, David W.
1971. Factors influencing campground use in the Superior National Forest of Minnesota. USDA For. Serv. Res. Pap. NC-60, 18 p., illus. North Cent. For. & Range Exp. Stn., St. Paul, Minn.

To identify factors which influenced the distribution of visitors among auto campgrounds of the Superior National Forest, 248 campers were interviewed. Fishing was the element of the natural environment which campers reported most often as the reason why they chose this campground rather than some other campground in the National Forest.

KEYWORDS: Fishing, Minnesota, preferences, landowner-public.

537. _____ and Charles T. Cushwa
1969. Wildlife esthetics and auto campers in the Superior National Forest. USDA For. Serv. Res. Pap. NC-32, 8 p., illus. North Central For. & Range Exp. Stn., St. Paul, Minn.

Interviews with 248 auto campers in 31 campgrounds determined why people come to the National Forest, where they come from, how many observed wildlife, and whether seeing wildlife adds to or detracts from their experience and why. Study revealed 49 different reasons for visiting the National Forest. Fishing and wilderness headed the list, but wildlife was not a prime motivating factor even though 90 percent of those questioned had seen wildlife. Most regarded seeing wildlife as a supplementary attraction because they "enjoyed watching them," it was "educational for the youngsters," and added to the "close to nature" feeling. Authors suggest that wildlife and conservation education in the public schools along with land managers' participation on the ground "would substantially increase the esthetic importance of the wildlife resource to the recreationists." (References cited, 8.)

KEYWORDS: Non-consumptive use, esthetics, education, conservation, preferences.

538. Lincoln, Alexander, Jr.
1964. An endless conflict: the hunter and the landowner. Am. For. 70(8): 40.

Article reviews landowner and hunter rights and suggests that appropriate payments be made to the landowners.

KEYWORDS: Farmer-sportsman relations, management, New Hampshire.

539. Lincoln, Frederick C.
1944. Duck hunting vs. duck shooting, Am. For. 50(10): 481-483, 504-506, illus.

Article criticizes the practice of unsportsmanlike duck "shooting" and traces its development to a decrease in habitat and an increase in waterfowl hunters.

KEYWORDS: Waterfowl, refuge, philosophy.

540. Linduska, J.P.
1964. Game never had it so good. Wis. Conserv. Bull. 29(3): 26.

Without habitat which hunters are providing, many species could be "protected" to vanishing levels by the indifference that comes to the nonhunted.

KEYWORDS: Conservation.

541. Lipscomb, Louis W.
1943. Procurement of ammunition for other than military purposes. 8th Conf. North Am. Wildl. Trans. 8: 73-77.

Paper discusses the supply and distribution of ammunition available for various types of hunting guns.
KEYWORDS: Equipment, historical value.
542. Lister, C. B.
1941. Hunting accidents--what shall we do about them? 35th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 35: 115-122.

Hunting accident prevention includes showing the public that shooting is a safe sport, improving accident statistics, and an intelligent education campaign based on research.
KEYWORDS: Safety, education, public relations.
543. _____
1945. Hunting accidents. 10th Conf. North Am. Wildl. Trans. 10: 62-65.

The seriousness of the hunting accident problem cannot be determined until there is a uniform system for collecting, compiling, and disseminating data. A suggested uniform report for hunting accidents would obtain the facts that are necessary to protect the hunter from antigun and antihunting laws.
KEYWORDS: Safety, management, historical value, antihunting.
544. Lively, Charles E.
1953, The social side of conservation - some reflections on the conservation movement. 18th Conf. North Am. Wildl. Trans. 18: 36-43,

The conservation movement has failed to become popular because its concept has never been adequately understood by the masses, especially by those who should be most concerned. People have been insufficiently motivated to do anything very effective about the situation. Groups and clubs must be involved emotionally and intellectually in the process of sound resource management.
KEYWORDS: Conservation, education, clubs.
545. Lobdell, Charles Henry
1967. Socio-economic characteristics of Maine sportsmen. M.S. thesis, Univ. Maine, 95 p.

Mail questionnaires concerning personal characteristics sent to 1,500 (0.5 percent) licensed sportsmen (also sent to hunters in five New England States) and a separate questionnaire concerning sport preferences to 1,000 Maine sportsmen yielded 85.1-percent and 84.7-percent returns, respectively, after three followup letters. Maine sportsmen were typically male, 20 to 60 years old, married, only high school graduates, and rural-raised. They had hunted and fished before age 16 and had incomes over \$5,000 per year. Their age, income, residence during youth, childhood experience, sporting club affiliation, occupation, and education were significantly related to preference for sporting alternatives. Late respondents had lower occupation levels, less education, and hunted and fished less than early respondents. Nonresidents reported more education, higher occupational levels, and higher

incomes. More trips for big game were made by hunters who had at least one of the following characteristics: a resident of Maine, under 30 years old, rural-raised, or no education beyond high school. Small game was hunted most frequently by hunters who had either hunted prior to 16 years of age, belonged to a sporting club, had a vacation in 1965, or had graduated from college. Non-resident hunters participated more frequently in small game hunting than resident small game hunters. Those fishermen who fished for salmon and trout most frequently were either Maine residents, had fished prior to 16 years of age, or had only high school education. (Literature cited, 27.)

KEYWORDS: Fishing, Maine, characteristics.

546. Locke, S. B.
1938. The role of anglers, organizations, bait dealers, land owners, government and commercial fishermen in a program of fish management, 3d Conf. North Am. Wildl. Trans. 3: 305-306.

Brief paragraphs summarize the responsibilities of each group mentioned in the title. Generally, successful management needs public support, and such support depends largely on an understanding of the primary principles and objectives of the management. There is also personal satisfaction and enhanced enjoyment of the sport when individuals know what is being done and why.

KEYWORDS: Management, education, fishing.

547. Long, James F., Jr.
1968. Recreational development of Alabama public fishing lakes. M.S. thesis, Auburn Univ., 99 p., illus.

Study is an interview of 19 area managers and 191 users at 19 lakes managed by the Alabama Department of Conservation. Lake users were 88-percent male, averaged 47 years old, with 26 years of fishing experience, 59 percent traveled an average distance of 18 miles to reach the lake, and 81 percent said they spent 5 hours or more per trip. Seventy-two percent of users felt the fishing was average or better, but 60 percent said "existing facilities and services were not adequate." Lake managers were asked to rank their area as "adequate, inadequate," or "needed, not needed" for 19 activities. Managers typically termed concessions as inadequate but fishing as adequate. None thought water skiing, recreational boating, or golf was needed, 95 percent said hunting, horseback riding, cabins, and vista points were "not needed." Given for each of the 19 lakes are: history of acquisition, financing, and development, location, size, attendance patterns, and average catch (in pounds) per lake surface acre. Management alternatives discussed. (Interview questionnaire and 10 references included.)

KEYWORDS: Fishing, Alabama, management, preferences.

548. Lovegrove, R. E., and D. D. Rohdy
1968. Estimated expenditures, by location, attributable to the 1967-68 special goose permit season in North Central Colorado. Colo. State Univ. Dep. Econ. NRE-2, 8 p.

A questionnaire was mailed to 10 percent, or 300, of the holders of special goose permits. Expenditure by the 168 respondents was about \$145 each. Expenditures are broken into 17 categories. Forty-five percent of the hunters indicated willingness to pay \$1 for a special goose permit.

The most common complaint was shortage of places to hunt. Over 26 percent of the sample failed to use their permits, which indicates that a nominal charge for the permit was justified. The economic contribution of the special goose season to local business in three Colorado counties is discussed.

KEYWORDS: Economics, Colorado, waterfowl, license fee.

549. Low, Jessop B.
1951. The role of checking stations in student training and wildlife research, 31st Conf. West. Assoc. State Game Fish Comm. 31: 142-144.

Students further their training at checking stations, and they help secure animal data. A brief history of Utah checking stations is given.

KEYWORDS: Utah, research methods, education.

550. Lucas, Robert C.
1965. The importance of fishing as an attraction and activity in the Quetico-Superior area. USDA For. Serv. Res. Note LS-61, 3 p.

Motorized canoeists and boat campers, more than any other group, gave fishing as their reason for visiting the area. Complaints about fishing outnumbered disappointments over facilities, cleanliness, and crowding. Auto campers were the least approving of fish management programs. Compared with several other types of visitors, fewer resort guests chose the area because of fishing, but they fished more and were least satisfied.

KEYWORDS: Fishing, Minnesota, preferences, Great Lakes, Canada.

551. Lumsden, H. G.
1957. The problem of changing beliefs and attitudes. J. Wildl. Manage. 21(4): 463-465.

A group discussion is more effective in attitude change than written information campaigns, lectures, or individual instruction. Social support of progressive groups can be used to make converts.

KEYWORDS: Public relations, preferences.

552. Lundy, Herbert
1971. Can the sport of hunting be defended? Izaak Walton League Outdoor Am. 36(7): 5, illus.

Man is a hunter and he will always be a hunter. Hunting means the pursuit of game, the pitting of man's intellect and experience against the instincts of the quarry. It also means decent respect for the hunted. Hunters don't need any defense or apology for their sport. It is the total experience of hunting, not just pulling the trigger, that counts. Hunting is incompatible with mass recreation.

KEYWORDS: Antihunting, benefits.

M

553. McAllister, M. Hall
1930. The early history of duck clubs in California. Calif. Fish Game 16(4): 281-285, illus.

Organized duck clubs commenced when the Southern Pacific Railroad was built across the Suisun Marsh in 1878. This brought ducks and geese within a few hours of San Francisco and Oakland. Several early clubs, their organization, and sites are mentioned.

KEYWORDS: Historical value, waterfowl, clubs, California.
554. MacArthur, Arthur R.
1959. Wisconsin's licensed shooting preserves and fee-shooting game farms. Wis. Conserv. Bull. 24(8): 10-13, illus.

Given adequate incentive, landowners will provide hunting. Wisconsin's pioneer shooting preserve and game farm laws need revision.

KEYWORDS: Wisconsin, refuge, landowner-private, historical value, management.
555. McCabe, Robert A.
1954. Training for wildlife management. J. Wildl. Manage. 18(2): 145-149.

American wildlife management became a functioning entity after its metamorphosis from an art into a science. The three fundamental activities essential to training are: that man, animals, and plants have their roots in the soil; patterns in the ecosystem must be preserved; and conservation includes the wise use of our resources. Training for wildlife management is discussed at three academic levels: Bachelor, Master, and Ph.D. degrees.

KEYWORDS: Profession, education, management.
556. ———
1967. Contributions of laymen to North American wildlife research. 8th Congr. Int. Union Game Biol. Trans., Helsinki 8: 202-224, illus. (Reprinted from *Finnish Game Research* 30.)

Nonprofessionals often aid in the compilation of wildlife information. Professionals should seek such information through utilization of: historical reports, kill diary and kill reports, amateur bird banding information, Audubon bird counts, damage reports, interviews and questionnaires, crop reporting services, check stations, direct observation data, trophy specimen reports, animal accident reports, pesticide die-off reports, radar picture interpretation, rural mail-carrier tallies, information from prison labor, work camps, youth groups, and sportsmen's conferences. By utilizing data from nonprofessionals, the professional wildlife specialist can make his work less complicated. (References, 139.)

KEYWORDS: Profession, research methods.
557. McCartney, R. B.
1964. Field management of public dove hunting in the United States. 18th Conf. Southeast. Assoc. Game Fish Comm. Proc. 18: 185-187, illus.

Questionnaire was mailed to all States which had open season on mourning doves during 1963. The abundance of doves and the availability of hunting

areas varied widely throughout the United States. A table shows public dove hunting field management by State and land ownership classification. Techniques of dove field management vary and are still in the experimental stage. Dove hunting has steadily increased in popularity in States with an open season, which will result in more intensive management on both public and private lands. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: Upland game birds, management, surveys.

558. McClelland, John

1957. How do we fit nonresidents into our fish and game harvest program. 37th Conf. West. Assoc. State Fish Game Comm. Proc. 37: 81-83.

Non-resident sportsmen are encouraged in Colorado (1) to assure adequate wildlife harvests and (2) because they greatly contribute to license revenues.

KEYWORDS: Economics, resident vs. nonresident, Colorado.

559. McCond, Ken

1967. Are hunting seasons getting safer? Mich. Conserv. 36(6): 19-21, illus.

Hunting accidents are discussed; examples are given. A table gives hunting deaths and injuries in Michigan from 1948 to 1966. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: Safety, Michigan.

560. McConnell, Chester A.

1966. A survey of private commercial shooting preserves in Tennessee. 20th Conf. Southeast. Assoc. Game Fish Comm. Proc. 20: 161-180, illus.

Complete survey of Tennessee's shooting preserves includes a discussion of history, operational methods, upland game bird status, financial and management problems, big game preserves, and solutions to shooting preserve problems.

KEYWORDS: Tennessee, refuge, administration, economics, management.

561. McCormick, J. B.

1969. Trends in wildlife law enforcement: program management, a "systems" concept. 59th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 59: 77-81.

Program management is becoming evident as a management objective. Definite, detailed plans direct the organization's disciplines toward common objectives. Presented are the advantages of the "systems approach" of program management, the necessity of defining objectives of each function within the organization, and methods for evaluating the level of attainment reached at all levels of management. Particular emphasis is on problems associated with evaluation of law enforcement efforts.

KEYWORDS: Administration, enforcement.

562. McCracken, Harold
1924. The game situation in Alaska. *Am. For.* 30(366): 323-328, 362, illus.
- Depletion of game by the Alaskan natives, market hunters, and workmen in canneries and construction camps illustrates the need for an Alaska Game Act to effectively regulate game conditions.
- KEYWORDS: Alaska, legislation, historical value.
563. McCurdy, Dwight R., and Herbert Echelberger
1968. The hunting lease in Illinois. *J. For.* 66(2): 124-127, illus.
- Three main factors affecting hunting leasing arrangements are: (1) activity for which the land is leased--for example, shooting preserves use more land than duck and goose hunting areas; (2) amount of investment in facilities--the more invested in the area, the longer and more complete the lease; and (3) whether or not the lease is a written agreement. This safeguards the hunter and landowner. Lease provisions are discussed.
- KEYWORDS: Illinois, economics, lease.
564. _____ and Phillip K. Jenkins
1969. Duck hunters at the Oakwood Bottoms Greentree Reservoir, Shawnee National Forest, Illinois. *South. Ill. Univ. Dep. For. Publ. No. 4*, 20 p., illus.
- Questionnaires were returned by 104 hunter-groups who hunted the seasonally flooded "green tree" reservoir. Duck hunters were generally young adults having less than 5 years of experience. They hunted in groups of two or three, traveled less than 25 miles from home, and stayed no more than 3 hours. Hunter opinion showed that the reservoir is a good-to-excellent place to hunt due to freedom of movement and little need for experience or equipment. "High shooting" was the main complaint. Hunters approved of shorter seasons and to a lesser extent a one-mallard limit as a means of adapting to lower duck populations. The Greentree reservoirs provide increased hunting particularly for novices. The distance hunters will travel to these reservoirs is short; 90 percent of the respondents lived within 50 miles.
- KEYWORDS: Illinois, waterfowl, preferences, characteristics.
565. McDaniel, Jimmie
1965. Evaluation of utilization, harvest, and hunting pressure on privately owned hunting areas. 19th Conf. Southeast. Assoc. Game Fish Comm. Proc. 19: 60-68, illus.
- Recommendations are given for economical operation, crop planting, blind construction, and area size for the management of private hunting areas.
- KEYWORDS: Florida, economics, management, waterfowl, landowner-private, harvest statistics.
566. MacDonald, Duncan, and Everett G. Dillman
1968. Techniques for estimating non-statistical bias in big game harvest surveys. *J. Wildl. Manage.* 32(1): 119-129, illus.
- Two sources of bias in mail questionnaire surveys are response bias and nonresponse bias. Response bias was tested in a 3-year survey of

deer hunters whose performance was known. Net error in estimating total deer harvest was 7.6 percent, with 9.1 percent of the unsuccessful hunters reporting a kill and 4.5 percent of the successful hunters reporting no kill. Followup mailings and personal contact tested nonresponse bias for 1 year, revealing a significant bias toward overestimation in the resident big game license category. Results suggest that the mail questionnaire method provides reasonable estimates of total harvest.

KEYWORDS: Harvest statistics, research methods, big game.

567. McDonald, John

1957. Part IV: The lady and the trout: Dame Juliana's legacy.
Sports Illus. 6(22): 66-75, illus.

A survey of the vast field of angling literature since Dame Juliana Berners, which shows how her "Treatise" has influenced the sport of fishing for 500 years and left its imprint on everything that has been written by later authorities. (See also Duggan 1957a, 1957b, McDonald and Webster 1957.)

KEYWORDS: Fishing, literature, historical value, England.

568. _____ and Dwight A. Webster

1957. Part III: The lady and the trout: the tying of the flies.
Sports Illus. 6(21): 52-58, 63-68, illus.

An analysis of the first set of artificial trout flies bequeathed to history by Dame Juliana Berners, a 15th century nun. Indicates how they were tied and shows some in full color illustrations. (Also see Duggan 1957a, 1957b, McDonald 1957.)

KEYWORDS: Fishing, historical value, England, literature.

569. Mac Duffie, Joyce S.

1963. Hunter safety with a new look. 43d Conf. West. Assoc. State
Game Fish Corn. Proc. 43: 317-322.

Paper describes Montana's success story with hunting safety classes, including methods which attracted all firearms users, regardless of age or sex.

KEYWORDS: Safety, Montana, education, communications.

570. McDuffie, Ronald C.

1943. Attitude of Palouse farmers towards farm game. J. Wildl.
Manage. 7(3): 343.

Visits to 138 landowners and tenants in 1940 on southeastern Washington wheat farms yielded only three farmers interested in feeding game birds on their land. Most farmers were unconcerned about game unless it interfered with farm operations.

KEYWORDS: Landowner-private, preferences, Washington.

571. McFadden, James T.

1969. Trends in freshwater sport fisheries of North America. Am.
Fish. Soc. Trans. 98(1): 136-150, illus.

Increasing population will place increasing demands on freshwater fisheries. It is useful to consider sport fishing value as a function of

fishing effort rather than exploitation rate. In addition, purely esthetic considerations are important and this value is roughly parabolic relative to fishing effort. This theoretical paper considers fishing yield, value, and cost in a model. At any level of fishing effort, the value accruing from the catch is added to the esthetic value of the fishing experience. Sport fishery management lacks a defined objective, but two extremes are considered. Under a very businesslike view, with society considered a monopolistic power of sport fishing, the number of fishermen would have to be limited in order to maximize value. In contrast, participation would be restricted so fishing effort could continue to increase as population grows provided that value, sufficient to cover costs, can be extracted from the fishing experience. Maximization of profit is an inappropriate objective because too low a level of participation is entailed. At the level of maximum participation too small an aggregate value is realized from the resource. Because the value of any particular fishery varies greatly with individuals, socially successful management will consist of reducing the variance about the value curve by providing a wide variety of recreational fisheries, each managed for a narrow range of values.

KEYWORDS: Fishing, resource use, economics, benefits, crowding.

572. Machan, Wayne J., and Robert D. Feldt

1972. Hunting results on cropland adjustment land in northwestern Indiana. *J. Wildl. Program Manage.* 36(1): 192-195.

Hunting success on five areas under the Cropland Adjustment Program (CAP) was compared with the success of three nonparticipating areas. Data show a 25-percent lower kill per hunter on CAP land but four times greater game kill. The variation is explained by heavy hunting pressure as a result of increased public access, Agency cost per hunter effort tended to decrease over successive years.

KEYWORDS: Upland game birds, Indiana, access, legislation, crowding.

573. McHugh, John E., Jr.

1956. The construction and validation of a written knowledge test for students of a basic rifle marksmanship and hunting course. M.S. thesis, Pa. State Univ. 231 p.

The construction and validation of the test for nomenclature, safety, sighting, aiming, and firing positions was carried out on Pennsylvania State University freshmen and sophomores who registered for a course in marksmanship and hunting safety. An initial test of 113 multiple choice, situation, identification, and matching questions were administered to 176 students who had had no formal instruction in subject being tested. Five judges or experts in marksmanship and hunting safety analyzed test results using item selection analysis, index of discrimination, and difficulty rating. Of the 113 original questions, 96 were judged acceptable, and a second test containing these questions was given to 180 different students who *had* completed the knowledge phase of the course. Item analysis and difficulty ratings of this second test eliminated another 28 questions. Author concludes that the 68 items "seemed to be a valid and reliable measure" of basic marksmanship and hunting safety for the college level course. (Presented are materials for an instructor such as a statement of course objectives, a detailed course outline consisting of 24 lessons 50 minutes long, basic knowledge test, bibliography of source material, and the hunter safety test along with sample answer sheets. Treatment of marksmanship and safety testing is comprehensive. References, 18.)

KEYWORDS: Safety, education.

574. McIlroy, Carl W.
 1972. Effects of hunting on black bears in Prince William Sound.
 J. Wildl. Manage. 36(3): 828-837, illus.
- Recently, hunting of black bears has extended from Valdez, Alaska, into previously un hunted regions in Prince William Sound. The success of hunters without guides has declined markedly since 1966, with greater numbers of hunters going on guided hunts and relatively more bears being killed at greater distances from Valdez. The sample of bears was biased towards older male bears. There appears to be a density level of black bears below which further hunting with the techniques employed is unproductive.
- KEYWORDS: Big game, harvest statistics, Alaska.
575. McIntosh, Kenneth Dale
 1966. Privately-owned hunting lands in West Virginia: supply, quality and access arrangements. Ph.D. diss., Univ. Wis., 324 p.
- Three important supply factors which affect the marketing of hunting rights in West Virginia are poor habitat lands, large areas of open, free hunting, and the fact that landowners (70 percent of those interviewed) oppose hunting fees. A landowner questionnaire survey also indicated that 94 percent of those interviewed allowed free hunting with permission. Because abandonment of farmlands and habitat loss continues, because the acreage of State-owned or -leased hunting lands is also increasing, and because landowners value open and free hunting, there does not appear to be much opportunity in the near future for increased income to private landowners from the marketing of hunting rights. (Condensed from *Dissertation Abstracts*.)
- KEYWORDS: Landowner-private, user fee, West Virginia, access.
576. McKean, John W.
 1967. Deer hunter preferences. 47th Conf. West. Assoc. State Game Fish Comm. Proc. 47: 221-227.
- A single questionnaire mailed to 4,066 Oregon deer hunters yielded a 66-percent return. There was an 18-percent turnover or recruitment of hunters in 1966. Although deer hunting was allowed from September 10 through December, 89.5 percent of the deer hunting occurred between the 1st and 13th of October. Seventy-three percent were weekend hunters. Those using vacation time for hunting averaged 7.5 days and 68-percent success. The average for all hunters was 5.6 days of hunting and 55-percent success. Approximately 50 percent of the deer hunting was in 1-day trips. Of those greater than 1 day, 22 percent stayed in trailers or campers, 17 percent in tents, 7 percent in motels, and 4 percent camped without shelter. Only 13 percent used developed campgrounds and only 1.2 percent paid a hunting access fee. Application of these data to management is made.
- KEYWORDS: Management, Oregon, big game, preferences.
577. McKee, Brumell
 1967. The violator. Mich. Conserv. 36(2): 2-6, illus.
- Michigan sets the yearly illegal deer **kill** at 50,000, or about half of what is killed legally. Increasing public concern and more stringent sentences for violators are cited.
- KEYWORDS: Enforcement, law violation, Michigan.

578. McKeon, Warren H., William F. Hollister, and Michael Rodak
1966. Public hunting as a game management tool in southeastern New York. 31st Conf. North *Am. Wildl. Trans.* 31: 307-323, illus.
- This is a brief history of controlled public hunting in Putnam County since 1939, with particular emphasis on the first controlled hunting area established in 1959. Discussion of organization and hunt procedure includes a "cooperative agreement" for landowners and a list of permittee regulations. The high records of hunter success and hunter information continue to be reliable. The area provides hunting without obligation other than law-abiding and courteous behavior. Game take is secondary to hunting opportunity; and although hunters take only one piece of game per 4.3 hunters, their satisfaction indicates the important recreational value of the area.
- KEYWORDS: Management, historical value, New York.
579. McLaurin, Edmund
1951. Boys.. .gals.. .and guns. *Fla. Wildl.* 5(5): 4-5, 26-29, 32, illus.
- Article describes Florida's gun safety education program.
- KEYWORDS: Safety, New York, Florida, education.
580. ———
1959. Safe--or sorry? *Fla. Wildl.* 13(4): 24-27, 41, illus.
- Article discusses hunting accidents and promotes hunter safety education.
- KEYWORDS: Accident, safety, Florida, education.
581. ———
1964. Shooting preserves. *Fla. Wildl.* 17(9): 12-15, 28, illus.
- This is a popular article telling about private shooting preserves in Florida. Discussed are preserve characteristics, objections to planted birds, and special programs to attract hunters. Hunting birds with bow and arrow is an example of a special program. Fifteen preserves are listed by name and address.
- KEYWORDS: Florida, plant and shoot, archery.
582. McLean, J. H.
1954. Welcome mat for sportsmen. *Wis. Conserv. Bull.* 19(7): 30-31, illus.
- No fees are required to fish on 15,000 acres in **11** lakes created by river developments of the Wisconsin-Michigan Power Company.
- KEYWORDS: Wisconsin, Michigan, fishing, resource use, user fee.
583. McLean, Jay
1958. School for sportsmen. *Field Stream* 63(3): 60-62, 114, illus.
- Forest Lake School, a 2,000-acre preserve 4 hours drive from New York, provides training in bow hunting, bird shooting, fishing, fly tying, camping, cooking, canoeing, photography, snowshoeing, tracking, and outdoorsmanship.
- KEYWORDS: Fishing, education, New York.
584. McLeod, Kenneth, Jr.
1926. Deer in their relation to man and forest. M.S. thesis, Univ. Calif., 87 p.

To identify policies and economic principles applicable to deer management, the author recorded personal observations while traveling several thousand miles from southern California to British Columbia. Economic values of deer include use as domestic food supply, esthetics, and hunting recreation. "Mental stimulation" (movies, magazine reading) is equated to stimulation gained from wildlife as esthetics. Accordingly, deer are worth about \$15.95 per head as "creators of aesthetic values" based upon cost of similar stimulation such as movies and magazines. Similarly, hunting values are compared to commercial recreation offering physical stimulation. The hunting value is slightly in excess of esthetic value. Deer management problems are discussed for Federal, State, community, and private ownerships. The analysis is based upon many unfounded assumptions and opinions. Method of placing dollar value on esthetic wildlife recreation opportunities has merit.

KEYWORDS: Economics, management, big game, benefits.

585. McMillan, Covington

1936. The history of angling and the technique of casting. M.A. thesis, George Peabody Coll. Teach., 205 p., illus.

Angling, highly developed during prehistoric times, was a popular sport among the nobles of ancient times and was recommended to the clergy during the Middle Ages. Angling techniques and fishing equipment of the Middle Ages were same as those of ancient times. Modern angling is characterized by large numbers of anglers, technical and scientific nature of literature, fish preservation laws, fish management, the rise of fishing clubs, and the use of the reel. Modern fly and bait casting techniques, equipment, and tournaments are discussed. Casting, requiring skills similar to angling, is less expensive. (Rich in historical perspective; includes detailed diagrams of casting techniques. References cited, 52.)

KEYWORDS: Fishing, historical value.

586. MacNamara, L. G.

1961. Shooting preserves in New Jersey. North Am. Game Breeders Assoc. Conv., 1961, 8 p., illus.

New Jersey started its commercial shooting in the 1930's under the semiwild shooting preserve law. In 1948, 68 preserves were operating and, by 1960, 143 preserves controlled 30,423 acres of land. Most were operated by sportsmen's clubs. The semiwild shooting preserves have progressed substantially because most are not operated for a profit. Preserves face the same problems as agricultural businesses.

KEYWORDS: Clubs, economics, New Jersey, upland game birds.

587. _____ Aldo Leopold, Frank B. O'Connell, John D. Chalk, and Logan J. Bennett

1936. Farmer-sportsman cooperatives. 1st Conf. North Am. Wildl. Trans. 1: 275-296, illus.

Paper gives series of speeches concerning problems of hunting on private land. In New Jersey the sources of hunting land accessible to the licensed hunter are farmer-sportsman cooperatives, sportsman club lands, public shooting grounds, and general open lands. For the North Central region, 18 types of farmer-sportsman areas which have been tried are summarized, and the change in objectives from 1931 to 1936 is examined.

Nebraska stresses the farmer's role in raising game for cooperatives. North Carolina's program centers on education, and Iowa, a State that finds 95 percent of its land devoted to agriculture, criticizes its farmer-sportsman plan and discusses revisions.

KEYWORDS: Farmer-sportsman relations, management, New Jersey, Nebraska, North Carolina, Iowa, historical value.

588. McNeil, Richard Jerome

1963. Population dynamics and economic impact of deer in southern Michigan. Ph.D. diss., Univ. Mich., 191 p.

Deer in Michigan's 34 southern counties disappeared in the 1800's and reestablished themselves in the 1920's. They cause automobile accidents and considerable farm damage. Value of damage includes \$340,000 to crops, \$300,000 to vehicles, and \$70,000 hunter-caused damage. However, total benefits exceed total costs. Regulation of deer numbers will ultimately depend upon net benefits to society rather than food or similar environmental factors. Ideally, costs should not be incurred by those individuals who do not receive benefits. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Big game, Michigan, economics.

589. Maddock, Stephen J., George A. Gehrken, and W. Alan Guthrie

1965. Rural male residents' participation in outdoor recreation. USDA For. Serv. Res. Note SE-49, 2 p., Southeast. For. Exp. Stn., Asheville, N.C.

In a study of 200 Brunswick County, Virginia, residents, 88 percent were male. Eight activities--picnicking, hunting, fishing, hiking, swimming, boating and canoeing, camping, and nature or bird walks--are summarized as to days of activity per male participant. Hunting and fishing accounted for 78 percent of the total outdoor recreation activity. Over a year's period, 76 percent of the male residents engaged in some form of outdoor recreation for 10 or more days.

KEYWORDS: Virginia, preferences, non-consumptive use, resource use.

590. Madson, John and Ed Kozicky

1964. The hunting ethic. Rod Gun. 66(3): 12, 24.

The hunting ethic is a mature, thought-out approach to the instincts, emotions, and backgrounds that make a man want to hunt. Hunting is a love for nature resulting from the peace; it is a deep and mystic respect for animals. As a person's regard for wildlife grows, it becomes a sportsmanship fed by experiences, sympathy for wildlife, game laws, and the sportsman code under which game is hunted. Some hunters never learn, and they become game hogs. However, the real hunter's personal ethic constrains him to kill mercifully and only when it won't endanger the game supply. The one word that sums up the hunting ethic is respect--respect for your hunting companions, for land, for wildlife, and for yourself.

KEYWORDS: Esthetics, philosophy.

591. Madson, John

1953. That old black magic of hunting. Tex. Game Fish 11(9): 16-17, 28, illus.

Hunting superstitions are collected from Ireland, England, Germany, Persia, Belgium, and the United States. Examples are: Shooting performance

improves if you rub the gun stock on your left leg three times. If you are after 'possum, don't leave home until you have greased your dog's left front foot with bacon fat.

KEYWORDS: Folklore, historical value, foreign country-general.

592.

1967. The hunters. Nev. Outdoors Wildl. Rev. 1(4): 13-15, 22, 24, 26, illus.

A wave of antihunting sentiment is building behind the antigun legislation. Few nonhunters realize the need hunters have for elemental competition and the ancient, basic test of manhood which the sport provides. The hunter doesn't feel tenderness and love for animals but respect and pride. He kills them within a rigid ethical framework, out of a basic need to participate in wilderness in a traditional role. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three by Bureau of Outdoor Recreation.)

KEYWORDS: Legislation, tradition, antihunting, benefits.

593.

1970. British look at U.S. hunting. Izaak Walton Mag., Mar., p. 11.

A britisher observes that the American "free hunting" ideal is becoming unworkable in the 20th century.

KEYWORDS: England, administration, license fee.

594.

and Ed Kozicky

1971. Game, gunners and biology--the scientific approach to wildlife management. 48 p., illus. East Alton, Ill.: Conserv. Dep., Winchester West. Div., Olin. Corp.

Article gives an excellent history of wildlife management in the United States covering wildlife depletion, legislation, protection, conservation, education, research, financing, and benefits. A major point is that wildlife biology research and education has accounted for progress in the field to date.

KEYWORDS: Historical value, conservation, legislation, management, farmer-sportsman relations, economics.

595.

Ed Kozicky, and Ozz Warbach

1972. A law for wildlife, model legislation for State nongame wildlife conservation program. 20 p., illus. East Alton, Ill.: Conserv. Dep., Winchester West. Div., Olin Corp.

Because non-game species are not hunted they are left out of hunter-sponsored conservation programs of positive management. While many species are totally protected from shooting they are not protected from technology of intensive farming, bulldozers, or draglines. Although most Americans will never hunt, the chance to enjoy wildlife is a birthright and valuable because wildlife is an indicator of environmental conditions in general. Over half the publication is a model law for States to follow in developing non-game species programs. This was originally developed by the International Association of Game, Fish, and Conservation Commissioners and the Wildlife Society. Four approaches to founding the management of non-game and endangered species are given.

KEYWORDS: Non-consumptive use, legislation.

596. Maghakian, John
1969. Ocean fishing for Los Angeles youth. *Parks Rec.* 4(7): 32, illus.
Disadvantaged youngsters in Los Angeles participated in a summer fishing program at a cost to the city of \$19,000 in 1968.
KEYWORDS: Fishing, non-consumptive use, California, urban wildlife.
597. Mahoney, John
1960. An economic evaluation of California's sport fisheries. *Calif. Fish Game* 46(2): 199-209.
A statewide economic evaluation of sport fishing in California was made in 1956 by means of a questionnaire mailed to license buyers. In 1955 each salt-water angler spent an average of \$141.54 and \$12.51 daily. This amounts to \$92,200,000 for the economy. The total includes \$1,500,000 expended by purchasers of 3-day special licenses, who spend an average of \$36.15 for their 3 days of angling. Fresh-water anglers spent an average of \$217.89 annually and \$14.27 daily, with an estimated total of \$226,884,935 for the year.
KEYWORDS: Fishing, economics, California.
598. Mahoney, Justin T.
1952. The posting law. *N.Y. State Conserv.* 7(1): 22-23.
Article has question-answer discussion on aspects of the posting law: how to post, the effect of posting, fines for violation, and legal aspects.
KEYWORDS: New York, legislation, access.
599. Malaher, G. W.
1967. Improper use of snow vehicles for hunting. *32d Conf. North Am. Wildl. Trans.* 32: 429-433.
Snow vehicles can legitimately be used for transportation to a hunting area and for retrieving big game. Hunters, however, do not restrict themselves to these uses, and abuses such as combined machine hunting, often in conjunction with aircraft, have resulted in harassment of big game and complaints from hunters on foot. Various restrictions, licenses, and educational measures are suggested.
KEYWORDS: Management, law violation, equipment.
600. Maliepaard, Hugo S.
1962. Development of a moose harvest plan for the commercial forest zone, Saskatchewan. M.S. thesis, Mont. State Univ., 130 p.
Mail questionnaire sample of 1,250 Saskatchewan moose hunters yielded 61.7-percent return. Moose hunting by boat was less time consuming and yielded greater success than hunting on foot or by car. The use of a guide increased the probability of success. American hunters were more successful than Saskatchewan hunters due to greater use of boats and guides. Moose were most often killed during 8-10 a.m. and 4-7 p.m. for the 1959-61 hunting seasons. Kill decreased as season advanced, but the percent success increased. Gun calibre had little or no influence on success or failure of moose hunting. Management implications are discussed and suggestions given.
KEYWORDS: Big game, harvest statistics, Canada, management, guide.

601. Mann, Roberts
1954. Aldo Leopold priest and prophet. *Am. For.* 60(8): 23, 42-43.
The essay appraises the life and land ethic of Aldo Leopold.
KEYWORDS: Conservation, historical value, biography, philosophy.
602. Manning, Glenn Herbert
1968. Demand relationships for outdoor recreation in Iowa. Ph.D. diss., Iowa State Univ., 136 p.
Data from a 1966 statewide recreation survey for Iowa were used to develop a reliable method for estimating future consumption of outdoor recreation. Results show a sharp increase in the following activities by 1980: golf, bird watching, and attending outdoor concerts or plays, Decreases are predicted for bicycling, horseback riding, baseball, hunting, and fishing. Sharpest increase in need will occur in activity-oriented areas, followed by intermediate and resource-based areas. (Condensed from *Dissertation Abstracts*.)
KEYWORDS: Iowa, preferences, non-consumptive use, fishing.
603. Mantle, C. J.
1955. A commissioner's viewpoint of research in establishing annual hunting and fishing regulations. 45th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 45: 72-77.
Author suggests that research is valuable but commissioners should be aware of objectionable as well as the favorable aspects of a study. Dangers can result if technical reports are not reviewed before presentation to the public. Advice and examples are given for those responsible for implementing research findings.
KEYWORDS: Arizona, research needs, management.
604. March, James R., and Richard A. Hunt
1968. A survey of open waterfowl hunting in Wisconsin in 1967. Bur. Res. State Wis. Dep. Nat. Resour. Rep. No. 35, 12 p., illus.
Of 3,117 hunting permits issued during an experimental waterfowl season, 502 were issued with a diary or report card. After a followup letter, 218 diaries (43 percent) were returned. Hunter participation was lower than anticipated; only 13 percent of the respondents reported one or more open water hunting trips. Hunter party size was 2.4 persons on the Mississippi area but only 1.8 on the Lake Winnebago area. Hunters who used more than two decoys had better success (2.3 ducks per trip) than hunters with two or less decoys (0.6 duck per trip). Results indicate that open water shooting is a specialized sport that attracts highly equipped hunters.
KEYWORDS: Waterfowl, Wisconsin, harvest statistics.
605. Marks, Stuart Alexander
1968. The role of classification and belief in Bisa use of mammalian resources. Ph.D. diss., Mich. State Univ., 166 p.
Study attempts to delineate and define a Central African Society's perception of wild mammals and to show how social and belief systems operate to influence the selection and utilization of resources. Data

were gathered in 14 months of field work among the valley Bisa of Zambia. Wild game is the predominant source of meat for the Bisa. They classify mammals and birds by size, sex, color, dangerous mammals, and those formerly used as tribute to chiefs. The distribution of and prohibitions on the consumption of certain meats are discussed. The sightings of certain mammals and birds are considered omens; and in the past, male or female animals were used for divinatory purposes. Status and role of hunters was determined through their knowledge of medicines commensurate with proven skills and killing of important mammals. A hunter's ritual entry into manhood is described and its symbols interpreted, along with his accompanying duties, privileges, knowledge of tradition, and responsibilities to his kin. The use of symbols portrays a segment of Bisa beliefs and values which channel the society's perception and use of its environmental products. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Zambia, resource use, tradition.

606. Marsh, John

1970. Bears and the public in our National Parks. Can. Audubon 32(2): 43-45, illus.

Interviews with 100 people were made in Banff and Glacier National Parks in Canada. Only 50 percent were Canadian residents; 84 percent had seen bears in the wild; 20 percent said bears discouraged them from hiking; only 10 percent were discouraged from camping; 2 percent wanted all bears eliminated from the parks; 19 percent thought grizzlies should be eradicated; 1 percent were uncertain about removal of all bears; 17 percent were uncertain about removal of grizzlies; and 10 percent believed bears should always be left alone regardless of their actions. Some people suggested allowing park visitors to carry firearms, but 80 percent of those interviewed objected to this. Further understanding of bear behavior is necessary to avoid further human injury and ultimate elimination of bears.

KEYWORDS: Canada, big game, safety, preferences.

607. Marsh, John S.

1972. Bears and man in Glacier National Park, British Columbia, 1880-1980. 2d Conf. Int. Union Conserv. Nature Nat. Resour. Morges, Switzerland, 23: 289-296.

The chronology of bear-man relationships started from construction of the Canadian Pacific Railway. Bears were regarded with a mixture of fear and sportsmanship during the first 30 years of tourism. Railroad interests promoted hunting until 1904; however, not until 1919 did the Federal Government gain control of wildlife in the parks. Hunting and poaching continued until 1930. During the 1920's residents complained about bears, and bear-man interactions increased due to artificial feeding (garbage) of bears. Current visitor attitudes were obtained from an interview of 114 park visitors. Results indicated that the fear and ignorance expressed by park visitors and residents at the turn of the century have declined; the aggressive sporting interest in bears has given way to a more passive, observational, and photographic enthusiasm. Recommendations for future survival of the bears include: further research, improved garbage disposal, improved design of facilities, creation of a bear refuge area, improved management techniques, education, and enforcement of laws.

KEYWORDS: Big game, historical value, Canada, non-consumptive use, safety, preferences.

- 608 Martin, Elwood M.

1966. Characteristics of waterfowl hunters; a study of activity categories. USDI Bur. Sport Fish. Wildl. Serv. Admin. Rep. No. 100, 12 p., illus.

Hunting activities of duck stamp buyers were examined for a 2-year period. Results indicate that 60 percent of those who purchased a duck stamp bagged at least one duck, 5 percent shot only waterfowl other than ducks, 15 percent hunted unsuccessfully, 20 percent did not hunt, and 37 percent of the successful duck hunters bagged 75 percent of the ducks taken each season.

KEYWORDS: Waterfowl, characteristics, surveys.

609. Martin, Lewis E.

1958. Shooting preserves and their place in wildlife management. 48th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 48: 88-92.

The development of an expanded shooting preserve program will not compete with public hunting, but it will fill the vacuum created by diminishing public hunting opportunities. Included are laws suitable for managing a preserve.

KEYWORDS: Management, refuge.

610. Martin, William E.

1963. Factors related to big game hunting accidents in Colorado. M.S. thesis, Colo. State Univ., 94 p., illus.

Mailed questionnaires, to 950 randomly chosen big game hunters from 1958 to 1961 seasons to determine conditions during unintentional and intentional firearm discharge, yielded 56-percent return. Hunters (155) experiencing potential accidents were sent a second questionnaire for more detail, and 78 hunters (6.6 percent of the original sample) returned the questionnaire. Results indicated over half the accidents were unintentional and self-inflicted, and 40 percent occurred when victim was not hunting. Of the intentional firearm discharges, 62 percent of the victims were mistaken for game. Students and semiskilled laborers were over-represented in accidents, and number of years a person has hunted was not a clear index of hunting safety. (Good literature review. A possible compounded non-response bias may exist in data.)

KEYWORDS: Accident, Colorado.

611. Martinson, R. K., and D. E. Whitsell

1964. Biases in a mail questionnaire survey of upland game hunters. 29th Conf. North Am. Wildl. Trans. 29: 287-294.

Field records were kept for Spring Valley Wildlife Area (Ohio) hunters during the 1961 and 1962 seasons. The same hunters later received questionnaires. Hunting trip and game kill estimates derived from the questionnaire data were higher than the known totals for those items. Errors are attributed to response and non-response bias. Hunters reported killing more game and making more hunting trips than they actually did. Nonrespondents were less persistent in their hunting effort and killed less game than they reported in the questionnaire.

KEYWORDS: Research methods, upland game birds, harvest statistics, Ohio, small game.

612. Martz, Gerald F.
1966. To shoot or not to shoot? Wis. Conserv. Bull. 31(5): 16-17, illus.
- "Species management" through regulations requiring hunters to identify waterfowl species before shooting is proving successful for wood ducks in Wisconsin. Such regulations may lead to increased illegal kill. One illegal duck kill per 13 legal kills was observed, and other studies show a 16-percent illegal hen pheasant kill each year. Hunters have advocated closed seasons on birds in short supply, but officials believe this to be unrealistic due to reductions in license fee revenues.
- KEYWORDS: Preferences, harvest statistics, management.
613. Mathews, Stephen B., and Gardner S. Brown
1970. Economic evaluation of the 1967 sport salmon fisheries of Washington. Wash. Dep. Fish. Tech. Rep. No. 2, 19 p., illus.
- An economic evaluation was obtained by mail questionnaires to 5,000 randomly chosen 1967 salmon license holders. Responses from 2,146 who actually fished showed an estimated gross annual fishing expenditure by all anglers of \$20 million. Non-resident salmon anglers accounted for \$4.5 million, and the amount anglers would be willing to pay in order to continue fishing was \$65 million. Net values per fishing trip and catch per trip were also obtained. A figure of \$28 per fishing day is recommended as an absolute minimum for evaluating salmon fisheries threatened by water-based industries. Federal agencies commonly place the value at only \$6 per day, although the direct cost of catching a salmon is about \$20.
- KEYWORDS: Fishing, economics, Washington, benefits.
614. Matson, Arthur James
1964. Improving productivity of South Dakota land resources for upland game birds and waterfowl through adjustments in institutions. Ph.D. diss., Iowa State Univ., 350 p.
- Study considers the allocation of recreational resources for the purpose of State economic development. Analysis is made of demand and supply which influence investments in game birds. Special attention is accorded the institutions affecting the production and hunting of upland game birds and waterfowl. Findings demonstrate an imbalance in investment between classes of game birds. Multiple regression analysis suggests that development of the State's pheasant resource can result in increased incomes to the people of the State. Higher incomes to the State from improved productivity of resources for upland game birds may serve to reduce competition for participation in hunting between residents and nonresidents. Management of a resource base for migratory waterfowl is reviewed by examination of State prerogatives to remove uncertainties in jurisdiction over lakes. The allocation of resources to give maximum economic returns is held to be consistent with the value typically associated with outdoor recreation, given flexibility in institutions. (Condensed from *Dissertation Abstracts*.)
- KEYWORDS: Waterfowl, economics, South Dakota, upland game birds, management.
615. Mattfeld, George Francis
1964. Kinds of land used by deer hunters in Michigan with methodology and analysis of data collection. M.S. thesis, Univ. Mich.
- Restricted to University of Michigan campus use.
- KEYWORDS: Preferences, resource use, research methods, Michigan, big game.

616. Merwin, Jack
 1972. They're stealing your game. *Outdoor Life* 150(4): 79-81, 142, 146, illus.
- The illegal killing of wild game is a growing threat. Violators fall into these four categories: the professional who sells meat, the vandal poacher who shoots and leaves a deer, the man who harvests meat for his own year-round use, and the hunter-poacher who deliberately shoots an illegal animal during legal hunting seasons. Professional poachers account for less animal destruction than do vandal-poachers or illegal meat hunters. Research in Idaho and Maine indicates that only about 1 percent of the total violations that occur are detected in the field. Several States estimate losing half as many big game animals to poachers as to legal hunters. Most conservation officers feel harsher penalties should be imposed. South Dakota has passed two such laws, one authorizing the game department to sue convicted violators to recover damages and one which requires judges to revoke the convicted violator's license for a year. Little poaching is done for needed food,
- KEYWORDS: Enforcement, law violation, big game.
617. Metcalf, George, and Harold Harper
 1950. Cooperative hunting areas in California. 30th Conf. West. Assoc. State Game Fish Comm. Proc. 30: 95-96.
- Data from a 1949 study of six regulated hunting areas in California include the following: a total of 41,166 hunter days were spent and 13,452 cock pheasants were bagged (70 percent of these cocks were wild). Hunters took 47 percent of the liberated game farm pheasants. Controlled hunting was favored by 95 percent of the hunters.
- KEYWORDS: Harvest statistics, California, upland game birds, preferences, management, plant and shoot.
618. Meyersohn, Rolf
 1969. The sociology of leisure in the United States: introduction and bibliography, 1945-1965. *J. Leisure Res.* 1(1): 53-68.
- Part I reviews various kinds of research on American use of leisure time with an evaluation of the strengths and weaknesses of each. Many research efforts have examined only the surface manifestations of leisure and have failed to delve into fundamental questions. Part II is a bibliography including titles under bibliographies on leisure, general works, theoretical discussions, economic studies, socioprofessional status, working class, children, adults, family, the aged, urban and suburban leisure, voluntary organizations, mass entertainment, and outdoor recreation including travel.
- KEYWORDS: Non-consumptive use, research methods, surveys, bibliography.
619. Michael, Haskell T.
 1958. Extra profits from wildlife. *Soil Conserv.* 23(9): 190-192, illus.
- Farmers and ranchers on the Texas Gulf Coast obtain a substantial income from hunting and fishing rights on their ricefields and ranges. Some farmers reported as high as \$25 per acre income. One 16,693-acre ranch experienced 5,000 hunters in 1 year at an admission fee of \$5 per day for duck and goose hunting privileges.
- KEYWORDS: Texas, farmer-sportsman relations, economics, waterfowl, benefits.

620. Mikula, Edward J., Gerald F. Martz, and Carl L. Bennett, Jr.
1972. Field evaluation of three types of waterfowl hunting regulations.
J. Wildl. Manage. 36(2): 441-459.

A Michigan experiment compared the merits of three duck hunting regulations: a point system, a simple two-bird limit, and a species-oriented regulation. Bag checks and observations of hunters were used to evaluate the systems. Results indicate 33 percent of the hunter parties violated the species-oriented regulations, 16 percent violated the point system, and 18 percent violated the two-bird limit. Overshooting the legal limit was the predominant violation in all systems. Opinions of 2,727 hunters indicated that 69 percent preferred the point system, 20 percent the species-oriented regulations, and 11 percent the two-bird limit. The point system came closest to achieving a desirable end because it provided hunting opportunity, maximum hunter satisfaction, and acceptable hunter behavior.

KEYWORDS: Management, waterfowl, legislation, preferences, Michigan.

621. Miles, Lee
1930. The need of a Federal shooting license for migratory birds.
22d Conf. Int. Assoc. Game Fish Conserv. Corn. Proc. 22: 106-109.

A Federal shooting license would equalize the rights of Canadian and American citizens and provide funds for the Bureau of Biological Survey.

KEYWORDS: Waterfowl, legislation, Canada, license fee.

622. Miller, Beverly Gene
1967. User opinions of the land and water conservation entrance fees at Crab Orchard National Wildlife Refuge. M.S. thesis, South. Ill. Univ., 62 p.

A sample totaling 841 users was interviewed at recreation areas within the Crab Orchard Refuge between May and September 1966 to determine opinions and knowledge regarding the Land and Water Conservation Entrance Fees and to determine if they were related to user characteristics. Users were generally middle-aged professional people from urban communities. They participated as a family and stayed no more than 6 hours. Primary activities were swimming and picnicking, and speedboating and water skiing were secondary. Nearly all were local residents who had visited the area previously and were dissatisfied with bathhouse and restroom facilities. Most visitors were in favor of an entrance fee. No consideration was given to opinions of recreationists attracted by wildlife, especially hunting.

KEYWORDS: User fee, refuge, legislation, preferences.

623. Miller, Herbert J.
1950. Managed hunting on a public marsh. 15th Conf. North Am. Wildl. Trans. 15: 505-511.

The Pte. Mouillee plan is an efficient and workable procedure for managing a heavily hunted public marsh. For five seasons annual average hunting pressure was 3.1 hunts per acre on the controlled hunting unit where maximum pressure permitted was 300 hunters on 1,700 acres. Estimated total public use of the entire area, hunting plus other recreations, averaged 20,000 man-days annually. The average annual harvest of the controlled unit was 15.7 units of game per 100 gun-hours. Gun accidents were at a minimum and reasonable hunting opportunities were provided for a large number of wildfowlers. The purchase of high value marsh property seems justified if carefully managed.

KEYWORDS: Management, waterfowl, harvest statistics, Michigan.

624. Miller, Townsend
 1957. The impact of hunting and fishing in Texas. Tex. Game Fish 15(1): 10-11, illus.
 Highlights are given of a 1955 U.S. Fish and Wildlife Service fish and game survey in Texas. Compares Texas hunting and fishing with the national average.
 KEYWORDS: Economics, Texas, characteristics.
625. Mississippi Flyway Council
 1962. Quest for quality. Wis. Conserv. Bull. 27(5): 12-13, illus.
 The Mississippi Flyway Council defines quality waterfowling. The council maintains that small bags of game taken under sporting conditions provide more enjoyment to the sportsman than full bag limits taken under unsporting conditions, and that limiting gun pressure is the best way to perpetuate hunting quality. American waterfowl hunting tradition rests on the idea of a contest between a wary bird and a skillful hunter in an appropriate setting, that the sportsman exhibit his skill in various ways, that an elemental marshland be undefiled by unnatural objects, and that sky-busting and symptoms of poor sportsmanship be discouraged. The council recommended that public duck blinds be spaced at a minimum of 200 yards apart and that boats be closely regulated. Rather than "more birds per hunter," the slogan for the future should be "more pleasure per bird."
 KEYWORDS: Esthetics, waterfowl, management.
626. Moe, Homer E., and Kenneth L. Corbett
 1965. I don't want to get involved. Wis. Conserv. Bull. 30(5): 20-21, illus.
 The public need not fear "involvement" in court and can help convict game law violators simply by providing the warden with facts.
 KEYWORDS: Enforcement, law violation.
627. Mohler, Levi L., Paul D. Dalke, and Wesley M. Shaw
 1958. Elk and elk hunting in Idaho. 23d Conf. North Am. Wildl. Trans. 23: 491-501.
 Records from 64,724 bagged elk show that females made up 50 percent of the kill in either-sex hunts. Hunter success averaged nearly 30 percent but exceeded 50 percent in a few areas. During each of the last 3 years, elk tag sales have exceeded 50,000 and kill has been in excess of 12,000. Adequate harvesting in remote areas is facilitated by general hunts to encourage hunter participation.
 KEYWORDS: Idaho, either-sex hunt, harvest statistics, big game.
628. Moncrief, Lewis Whitfield
 1970a. An analysis of hunter attitudes toward the State of Michigan's antlerless deer hunting policy. Ph.D. diss., Mich. State Univ. 258 p.
 Results from 398 randomly selected hunters from three regions of Michigan indicate differences in attitude toward policy. The highest socioeconomic status group is the most supportive, while the lowest socioeconomic status group was least supportive. Individual attitudes were definitely linked to attitudes of relatives and hunting companions: neighbors,

fellow-workers, and social acquaintances were not very influential in attitude formation. Several concepts were tested as to their influence on hunter attitudes. These included: alienation, status symbolism of hunting success, importance of hunting success to the hunter, peer group interest in hunting, and the influence of the mass media. The greatest influence came from primary social group influences and not from secondary influences or the mass media. Hunters' knowledge of biological and ecological information was not a good predictor of support of or opposition to policy. (See Moncrief 1970b. Condensed from *Dissertation Abstracts*.)

KEYWORDS: Administration, Michigan, preferences, either-sex hunt.

629.

- 1970b. An analysis of hunter attitudes toward the State of Michigan's antlerless deer hunting policy. Mich. Dep. Nat. Resour. Res. Dev. Rep. No. 209, 7 p.

Interviews with 398 hunters from three Michigan counties indicate there were differences in the degree of support of and opposition to the policy of antlerless deer hunting as the major device for deer population control. Individual attitudes were influenced most by primary social groups such as relatives and hunting companions and not by the mass media or secondary social groups. High socioeconomic status groups tended to support the policy regardless of their area of residence. Opposition was located regionally. Although management knew that deer herds were decreasing, about one-fourth of the hunters believed that the deer herds were increasing. Recommendations include extend public contact in order to avoid misinformation and to encourage support, involve hunters in certain management activities, inform employees of reason behind official position of the Department of Natural Resources, establish contact with important leaders of the State, and work more closely with legislatures which nominally oppose game policies.

KEYWORDS: Michigan, big game, management, preferences, administration.

630. Monroe, Warren L.

1968. The legislator and the sportsman. 48th Conf. West. Assoc. State Game Fish Comm. Proc. 48: 142-151.

Paper presents a general procedure for seeking legislation. Organized sportsmen who want their legislative program backed by a majority of the legislature need full support from their State commission and the united and aggressive support of their own members.

KEYWORDS: Nevada, legislation, clubs.

631. Moody, Raymond D.

1959. Public recreation on private lands in the southeast.. 13th Conf. Southeast. Assoc. Game Fish Corn. Proc. 13: 50-54.

Results of a nationwide survey of recreational facilities on 46 million acres of forest industry lands owned by 455 companies include the following: number providing facilities, number of acres open, number operating public parks, number reporting troubles with recreationists, and number allowing hunting and fishing.

KEYWORDS: Resource use, landowner-private, fishing, surveys.

632. More, Thomas Alastair
1970. Motivational attitudes of licensed Massachusetts hunters.
M.S. thesis, Univ. Mass., 50 p., illus.

A mail questionnaire was sent to 618 Massachusetts hunters, and three mailings produced a 69.7-percent return. A sample of nonrespondents was contacted by telephone. Using factor analysis on 52 attitude questions, seven mathematically independent factors appeared. The Likert Scale type questions were answered on a scale ranging from strongly disagree to uncertain to strongly agree. Hunters showed positive attitudes toward the "aesthetics," "communality," and "challenge" factors while they were negative toward a "familiarity" factor. "Pioneering" and "kill" factors were identified by factor analysis, but these were not considered important by hunters. Expected "spartanism" and "escapism" factors did not show up mathematically in the analysis.

KEYWORDS: Benefits, Massachusetts, characteristics.

633. Moreland, Raleigh
1962. Are present-day game management regulations and controls necessary? 42d Conf. West. Assoc. State Game Fish Comm.
Proc. 42: 264-266.

Management and biological factors necessary for the proper harvest of game show that it is impossible to establish seasons which are not encumbered by complex regulations and controls.

KEYWORDS: Management, legislation.

634. Morris, Steven
1962. They're killing off the eagle. Am. For. 68(8): 5, 51, illus.

Unprotected by law, disgraced by myths, the golden eagle is hunted ruthlessly.

KEYWORDS: Predator.

635. Morse, William B.
1968. Wildlife law enforcement 1968. 48th Conf. West. Assoc. State Fish Game Comm. Proc. 48: 683-685.

A compilation of wildlife law enforcement data includes records of arrests, convictions, fines, basic demographic and job characteristics of conservation officers, and percent of time spent in law enforcement, game management, safety, education, public relations, and other jobs. Data are tabulated for every State in the Union. It is recommended that the study be repeated in 1973 to establish trend information, that national standards should be set for law enforcement records, that each State continually evaluate and improve its enforcement program, and that universities conduct enforcement research.

KEYWORDS: Enforcement, surveys.

636. Mosby, Henry S.
1950. Cooperative wildlife management on the Virginia State Forests.
J. For. 48(10): 700-702.

Agreement between two independent public agencies on general policy for wildlife management on publicly owned forest areas is often the first and most difficult administrative problem in securing intelligent wildlife

management. The Virginia plan of cooperative wildlife management proves such cooperation is possible. The law of diminishing returns, normally a satisfactory harvest limit, is disrupted by relentless pursuit for trophy animals. Wildlife harvest is facilitated by supervising hunting. Data on hunter use of these forests for the period 1940-45 indicate an average of about 130 hunters per wild turkey killed and one bagged turkey per 800 acres. Cost to the program is \$0.45 per hunter-hour.

KEYWORDS: Management, Virginia, upland game birds.

637. Moss, A. E.

1942. Income possibilities from a small artificial pond in eastern Connecticut. *J. Wildl. Manage.* 6(2): 141-146.

A dam erection in 1922 changed a bog into a flood pond where animals, fish, and vegetation could be observed. Values of muskrats, mallards, frogs, fish, plants, and recreation are discussed. An estimated \$10 per acre represents the minimum obtainable income of a pond for the crops mentioned.

KEYWORDS: Economics, Connecticut, management, benefits.

638. Moss, William T., and Stephen C. Lamphear

1970. Substitutability of recreational activities in meeting stated needs and drives of the visitor. *Environ. Educ.* 1(4): 129-131.

Article explores the interrelationships between personality, motives, and recreation activities. Findings show many males list hunting and fishing whenever they are questioned about hobbies or leisure activities, campers and hunters are more traditional than nonparticipants in these activities, hunting and fishing might well substitute for one another, hunting and fishing were negatively correlated with a need to "give in," and hunting was positively correlated with dominance.

KEYWORDS: Non-consumptive use, fishing, preferences, benefits.

639. ——— Lois Shackelford, and G. L. Stokes

1969. Recreation and personality. *J. For.* 67(3): 182-184.

Two studies involving 437 University of Georgia undergraduates show recreational activities as behavioral expressions of basic personality and suggest the feasibility of further, more refined research. Analysis of variance was used to test relationships between standard questionnaire personality tests to measure "traditionalism," "dogmatism," and "rigidity" and five categories of recreation: camping, hunting, fishing, other forest related activities, and non-forest related activities. An intelligence test on group showed a negative correlation and traditionalism. Hunters were more traditional and dogmatic than nonhunters. Dove hunters and fishermen who use live bait were less rigid than nonparticipants in these activities. (References, 6. For more thorough treatment of these data, see Master's thesis of Stokes 1966.)

KEYWORDS: Fishing, research methods, characteristics, preferences.

640. Motl, Laurence F.

1963. Conservation behind the iron curtain: *Wis. Conserv. Bull.* 28(1): 24-26, illus.

Russia's conservation problems are primarily concerned with the provision of bare necessities such as water, paper, salt, and food for man. There is no general hunting or fishing, little tourism, and no comparable State or National Parks.

KEYWORDS: Russia, conservation, fishing.

641. Mullen, Patrick Borden
1968. The function of folk belief among Texas coastal fishermen, Ph.D. diss., Univ. Tex., 198 p.
- Two basic kinds of traditional folk belief, magic and pragmatic, reveal many insights into the society, culture, and individual personalities of Texas coastal fishermen. Magic beliefs (supernatural and nonrational in concept) and pragmatic beliefs (based on empirical observations of nature) have important instrumental, psychological, and sociological functions. An instrumental function is served when a belief seems to work by bringing about a direct result. A psychological need is fulfilled when beliefs relieve the anxiety associated with a fisherman's uncertain and hazardous existence. Sociological purposes are achieved by beliefs which reflect or implant society's values. As a result of the encroachment of science and technology, skepticism and rationalization surround the beliefs, and "dissonance" has arisen between the fisherman and modern society. (Condensed from *Dissertation Abstracts*.)
- KEYWORDS: Fishing, folklore, Texas.
642. Murie, Olaus J.
1947. The firing line. Am. For. 53(9): 392-394, 422, illus.
- Article describes several examples of mass killing of big game resulting from problems of mismanagement, overpopulation of game, and the concept of sportsmanship.
- KEYWORDS: Historical value, big game, management.
643. ———
1954. Ethics in wildlife management. J. Wildl. Manage. 18(3): 289-293.
- Wildlife management has the responsibility to move beyond the maintenance of sport hunting. Examples of poor hunter attitudes support this. Quotations from Aldous Huxley, Aldo Leopold, and Robert Patterson support new goals for wildlife management. Two approaches reflecting wildlife ethics are: (1) "nature has a right to exist" for its own sake, and (2) university training should stress the philosophical as well as the technical aspects of wildlife management.
- KEYWORDS: Philosophy, management, profession.
644. Murphy, Dean A.
1965. Effects of various opening days on deer harvest and hunting pressure. 19th Conf. Southeast. Assoc. Game Fish Comm. Proc. 19: 141-146, illus.
- A weekend opening can concentrate hunting pressure when needed but may detrimentally reduce the deer herd. A Friday opening results in two consecutive opening days, and an increase in hunting pressure. Opening the season on Monday will spread hunter pressure over a longer period of time.
- KEYWORDS: Management, crowding.
645. Murphy, Robert Cushman
1956. John James Audubon (1785-1851): an evaluation of the man and his work. N.Y. Hist. Soc. Q. 40(4): 315-350, illus.
- This biographical work reports on the famous naturalist whose portfolio, *The Birds of America*, in 1827 brought him public acclaim. Included are:

a general description of his life; his single-minded ambition to study birds; a discussion of his ornithological and natural history studies of alligators, snakes, and birds; the development of his artistic talents; his concept of nature; his change from an avid hunter to that of a man conscious of man's blighting effect on the pristine world; and his role as a natural, gifted philosopher.

KEYWORDS: Historical value, biography, non-consumptive use.

646. Murray, T. B.

1948. Problems involved in securing proper hunter distribution.
28th Conf. West. Assoc. State Game Fish Corn. Proc. 28: 69-70.

The following hunter distribution factors are discussed: terrain, roads, trails, weather, time of hunt, season length, packers, guides, outfitters, regulation by game sex, and publicity.

KEYWORDS: Crowding, management, access, guide.

N

647. Nagel, W. O.
 1948. Never had it so good! Wis. Conserv.'Bull. 13(9): 12-14, illus.
 The idea of super sport, or the return to the fabled "good old days," indicates a lack of perspective which blocks sensible wildlife management. Although there is less game of some species, there is much more of others, and all game is more readily available. Today, recreational sport is the only justifiable basis for hunting and fishing.
 KEYWORDS: Fishing, non-consumptive use, folklore.
648. National Shooting Sports Foundation, Inc.
 1960. How to start a gun club. 24 p., illus. Sporting Arms Manuf. Inst., New York.
 The booklet provides a record of the typical questions and problems which confront sportsmen seeking more and better shooting sport through gun clubs. It gives reliable answers and solutions to the following problems: organization, cost of land acquisition, insurance, publicity, membership, facilities, shooting games, management, clubhouse layouts, and gun club constitution and bylaws.
 KEYWORDS: Clubs.
649. ———
 1971a. The hunter and conservation, 23 p., illus. Nat. Shooting Sports Found., Riverside, Conn.
 Booklet outlines how hunters can favorably influence conservation through sportsmen's organizations, conservation of endangered species, financial support, education about wildlife populations, and introduced species.
 KEYWORDS: Conservation, economics, clubs, historical value.
650. ———
 1971b. A compilation of the Federal Gun Control Act of 1968. 60 p., illus. Nat. Shooting Sports Found., Riverside, Conn.
 Included are amendments to the Act, the rules and regulations promulgated by the U.S. Department of the Treasury for the administration of the Act, industry circulars, questions and answers about the operation of the Act, and other pertinent material.
 KEYWORDS: Legislation, equipment.
651. National Wildlife Federation
 1971. Hunters and conservationists share goals. Nat. Wildl. 9(6): 18-19.
 Presented are official policy statements on hunting by the following conservation organizations: The National Audubon Society, The Wilderness Society, The Wildlife Society, The Izaak Walton League of America, The American Forestry Association, The Sierra Club, and The National Wildlife Federation. All of them approve of sport hunting regulated by scientific game management practices.
 KEYWORDS: Conservation, administration, clubs.

652. National Wildlife Staff
1965. Guns, laws, rights, and you. Nat. Wildl. 3(3): 4-7, illus.
Arguments are presented for and against guns and gun laws. Statistics are included on gun ownership, deaths from guns, and crime rates. Conclusion is that laws should be aimed at illegal firearms use and not at the guns themselves.
KEYWORDS: Legislation, accident, equipment.
653. Naylor, A. E.
1963. A report of progress on hunting and fishing access on military lands. 43d Conf. West. Assoc. State Game Fish Corn. Proc. 43: 98-101.
Paper explores action taken, problems encountered, and accomplishments experienced by the California Department of Fish and Game while implementing Federal laws and directives relative to military installations. In general the military agencies have shown a willingness to provide and sustain fish and wildlife.
KEYWORDS: California, access, fishing, landowner-private, military.
654. Nelson, Jan Alan
1964. A critical edition of the *Livro De Citraria*. Ph.D. diss. Univ. N.C., 220 p.
Falconry literature and medieval falconry are included. (Condensed from *Dissertation Abstracts*.)
KEYWORDS: Falconry, Portugal, historical value.
655. Nelson, Noland F.
1959. History of waterfowl hunting in Utah. 39th Conf. West. Assoc. State Game Fish Comm. Proc. 39: 233-236, illus.
Paper reviews laws, wetland acquisitions, waterfowl kill, and basic waterfowl hunting regulations in Utah from 1876 to 1958.
KEYWORDS: Historical value, Utah, waterfowl.
656. Neubrech, Walter
1961. Effects of unrestricted Indian hunting and fishing to State wildlife programs. 41st Conf. West. Assoc. State Game Fish Corn. Proc. 41: 250-254.
Paper reviews court cases concerning Indian hunting and fishing privileges. Confusion and lack of authority exemplify the need for Federal legislation.
KEYWORDS: Legislation, Federal-State jurisdiction, fishing, native claims, law violation.
657. Nobe, Kenneth C., and Alphonse H. Gilbert
1970. A survey of sportsmen expenditures for hunting and fishing in Colorado, 1968. Colo. Div. Game Fish Parks Tech. Publ. No. GFP-R-T-24, 83 p., illus.
A mailed questionnaire to 7,478 Colorado hunting and fishing, resident and non-resident license buyers yielded return of 71.8 percent. To

supplement this, data were used from two 1966-67 surveys. Socioeconomic data on resident sportsmen resulted from interviews with 1,865 sportsmen and a mailed questionnaire to 2,335 non-resident sportsmen (73.7-percent return) gave additional socioeconomic data. The average resident sportsman earns \$12,000 annually, is 43 years old, has finished high school, and was employed as a professional or skilled craftsman. The average nonresident earns approximately \$10,000 annually, has had 13 years of formal education, is 40 years of age, and was a professional or skilled craftsman. The average resident had hunted or fished in Colorado for 15 years and devoted 12 days to either sport in 1966. Nonresidents also devoted 12 days to either sport. Satisfaction with the most frequented county was expressed by 87 percent and 70 percent of the resident and non-resident respondents, respectively. Sportsmen wanted more information on available hunting and fishing areas and improvements in camping facilities. Lack of game or fish dominated reasons for not planning to return. In 1968, Colorado sportsmen spent \$237,374,143 on goods and services in connection with hunting and fishing. Residents spent 75.8 percent of this and nonresidents, the other 24.2 percent. Fishermen had the highest per capita expenditure among resident sportsmen (\$370.50); among nonresidents, elk hunters had the highest (\$415.21).

KEYWORDS: Fishing, economics, Colorado, resident vs. nonresident, characteristics , preferences.

658. Noonan, Helen

1958-59. The shooting preserve in New **York**. N.Y. State Conserv. 13(3): 4-5, illus.

Article discusses New York's shooting preserve system, how it has evolved, and steps to take for operating a private shooting preserve.

KEYWORDS: New York, refuge, historical value, management.

O

659. Ogilvie, Philip W.
1969. Making the most of our zoos. *Parks Rec.* 4(1): 32-34, 50, illus.
Zoos justify their existence by their role in conservation, research, and education.
KEYWORDS: Urban wildlife, education, research needs, non-consumptive use.
660. Olsen, Jack
1961. They kill them with kindness. *Sports Illus.* 15(2): 46-56, illus.
Trophy hunting is examined through the eyes of over half a dozen trophy hunters. Hunting satisfactions vary with the hunter, but they include the thrill of searching for and outwitting game, ego-satisfaction and recognition, to do better than the Jones's and collecting for the sake of collecting because it's a basic, fundamental instinct of man. Among sportsmen, the trophy hunter is perhaps the most strongly motivated of all because no frustrations, however tedious, can stay him.
KEYWORDS: Characteristics, benefits.
661. Ormond, C.
1967. A Montana school for guides. *Guns Hunting* 11(8): 30-33, 67, illus.
Outfitters Guide School is described, including subjects on: horsemanship, guiding, game and animals, fishing, camp routine, safety, botany, general orientation, equipment, and food services. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)
KEYWORDS: Education, guide, Montana.
662. O'Roke, Earl C.
1931. What price fishing? *Am. For.* 37(5): 275, illus.
Article compares costs of non-resident fishing licenses in the various States. Suggests the need for an interstate license.
KEYWORDS: Fishing, license fee, economics, historical value, resident vs. nonresident.
663. Orona, Angelo Raymond
1968. The social organization of the Margariteno fishermen, Venezuela. Ph.D. diss., UCLA, 366 p.
Participant observation over 13 months was used to study Margariteno Island commercial fishermen. Fishermen were low wage-earners organized into independent work units and living in a camp, or *rancheria*. The *rancheria* is the main link between fishermen and the environment and the larger mainland market system. Bound by traditional and environmental forces, coastal fishermen fish at night, 9 months out of the year, with the aid of bio-luminescent plankton. Day fishing is done the remainder of the year because of the reduction of plankton life. The aquatic and terrestrial setting, the family structure, the *rancheria*, the religion, the impact of death on the community, the fiesta system, and the fisherman's relation to the Caribbean are some of the forces characterizing his culture. (Condensed from *Dissertation Abstracts*.)
KEYWORDS: Fishing, Venezuela, characteristics, tradition.

664. Osler, P. F.

1958. Observations on the background and prospects for shooting and fishing in North America. 10th Conf. Northeast. Wildl. Trans, 10: 366-373.

The article shows better sport hunting and fishing in a small, densely populated area which practices the free enterprise system of game management than in a vast, still largely unpopulated area such as Canada which operates under the public ownership system. The free, public hunting trend will eventually mean no game for anyone unless we realize that the free enterprise system is the only way.

KEYWORDS: User fee, economics, Canada.

665. Owens, Gerald P.

1964. Income potential from outdoor recreation enterprises in rural areas in Ohio. Ohio Agric. Exp. Stn. Res. Bull. 964, 51 p., illus.

Outdoor recreation enterprises including privately-owned fish ponds, shooting preserves, and trout fishing were inventoried in southern Ohio. Financial data including capital investment, income, expenses, net cash income, interest on investment, and returns to family labor and management are given. Comparisons are also made, based on location, organization, structure and type of management, operator characteristics, decisionmaking, governmental aid and regulation, advertising, insurance, season and hours of operation, weekend use and patronage, technical and management problems, sources of capital, plans for expansion, capital requirements, ownership, and labor requirements. Location was the factor determining the size and success of recreational enterprises. Most, however, had received some governmental aid.

KEYWORDS: Ohio, plant and shoot, economics, landowner-private, non-consumptive use.

666. Owens, John R.

1965. A wildlife agency and its possessive public. Inter-Univ. Case Program No. 87, 52 p., illus. Indianapolis, Ind.:
The Bobbs-Merrill Co., Inc.

This is a case study of the existing and future programs and plans of the California Department of Fish and Game and the Fish and Game Commissions. Subjects covered include department organization, financial difficulties, policy conflicts, clientele, survey procedures, and implementation of the planned program.

KEYWORDS: Administration, management, California, either-sex hunt.

P

667. Pace, Charles W.
 1954. Something to think about. Fla. Wildl. 7(8): 6-8, 30, illus.

The possibilities, advantages, and disadvantages of introducing into Florida a county fishing license are examined--to be required of all persons who fish only in their own county with either a cane pole or artificial fishing equipment.

KEYWORDS: Fishing, Florida, license fee.

668. Page, Warren
 1967. Hunting will never be the same. Field Stream 72(5): 62-63, 100-103.

Increased population will have a great effect on the quality of hunting in the years ahead. Drastic changes may occur for hunters in the future, such as shifts in hunting pressures and concentration of some species, with emphasis on quality, trophies, and a whole new concept of game management. Measures which some States have taken to combat increased hunter pressure are described. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: Management, crowding.

669. _____ and Ray Camp
 1955. Is public hunting doomed? Part 111. Field Stream 60(8): 52-54, 83-86, illus.

Population densities and land utilization have increased the hunting pressure in the Northeast. Game is plentiful but land is scarce. Only 5 percent of the National Forest lands lie in this region and they offer only deer and grouse. Waterfowl, the major sport bird, and its habitat are rapidly disappearing. Local farmers are reluctant to host hordes of hunters. For example, Massachusetts has no open public land for hunting. In contrast, New York deer and grouse are easily taken if the hunter is willing to travel upstate for them. But posted land is increasing, especially near large cities. Farmer-sportsman cooperation attempts have failed. Many sportsman groups are leasing land for the exclusive use of those willing to pay. Unless the States can buy and manage more land, public hunting is doomed. Though public pay-preserves are disliked, they do alleviate pressure on the open fields, and their cost is easier to meet than the private preserves. (Also see part I (Anonymous 1955) and part II (Titus and Laycock 1955).)

KEYWORDS: Landowner-private, user fee, administration, surveys, waterfowl, upland game birds, farmer-sportsman relations.

670. Palmer, T. S.
 1904. Hunting licenses: their history, objects, and limitations. USDA Biol. Surv. Bull. 19, 73 p., illus.

This is an excellent historical reference which traces all aspects of resident and non-resident hunting licenses from 1691 to 1904 in the United States. Topics presented include: license legislation, market-hunting, fees, details of issue, objective of licensing, limitations of license

systems, enforcement, legality of licensing, and licensing in nine foreign countries. An index is provided and 29 references are listed on non-resident licensing.

KEYWORDS: License fee, historical value, resident vs. nonresident, foreign country-general, commercial hunting, legislation, enforcement, surveys.

671. Palmer, Walter Lawrence

1966. An analysis of the public use of southern Michigan game and recreation areas. Ph.D. diss., Mich. State Univ., 131 p.

Visitor use on public hunting areas as compared with spring and summer use was measured. Personal interviews and questionnaires revealed that daylight use during the 1961-62 hunting season was about 1 million man-hours, hunting pressure was 60 percent greater than in 1955-56, and the kill of game increased 17 percent. Daytime spring and summer use was less than hunting-season use. Of the 4,004 hunters contacted by questionnaire, 98 percent were male, tended to hunt a variety of game rather than one species, were apt to be rural residents, tended to have middle-class incomes, and averaged just under an 11th-grade education. Hunters in certain age classes harvested some game species more intensively than did others. Various hunting habits such as distances traveled, number of days hunted, and problems of access are correlated with socioeconomic factors and place of residence. Differences in some characteristics appeared to exist in a sample of nonrespondents who were interviewed by telephone. Ethnic and socioeconomic factors apparently affect mail-questionnaire response rates. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Characteristics, Michigan.

672. Park, Edwin Clyde

1959. The use of the set camera as a technique in wildlife photography. M.S. thesis, Oreg. State Coll., 87 p., illus.

A set camera is one placed in position so that an animal, by some natural act such as walking along a trail or picking up food, will trip the shutter and take its own picture. The types of equipment investigated and uses described include camera type, film size, lighting including natural, flood, electronic flash, and flashbulbs, triggering devices, lures and baits, and protection and concealment of equipment. Disadvantages of set camera photography include a limit of one photograph per night, the time needed to locate an animal and set equipment, and lack of control in selecting the sex, age, condition, or body position of the animal being photographed. This technique is a last resort to be used when more desired techniques are impractical. Careful selection of triggering devices and baits and location of sets help minimize the problem of photographing the wrong animal species. The main advantage of a set camera is in photographing nocturnal animals. During the 2-year study, 236 sets were made. A total of 48 photographs of animals was obtained, or approximately one photograph for each five sets. However, only 29 were photographs of the anticipated animal. Electric motors recently put on the market allow more than one picture to be taken per night and may be applicable to census work.

KEYWORDS: Non-consumptive use.

673. Parker, Francis W., Jr.
 1946. Increased hunting pressure and human welfare. 11th Conf. North
Am. Wildl. Trans. 11: 124-127.
- Practice and familiarity are the answers to safety problems. Rifle clubs can serve as training centers. Practice should be required before a hunting license is issued. Firearms registration is opposed because it would increase accidents and lead to government confiscation.
- KEYWORDS:** Crowding, education, safety.
674. Patton, Clyde P.
 1963. The role of law enforcement in State game and fish management. 53d Conf. Int. Assoc. Game Fish Conserv. *Comm. Proc.* 52: 63-66.
- North Carolina's method of enforcement is described.
- KEYWORDS:** Enforcement, education, North Carolina.
675. Patton, R. D.
 1956. The wildlife economic survey and what it means to wildlife management. 46th Conf. Int. Assoc. Game Fish Conserv. *Comm. Proc.* 46: 196-200.
- Guides for operating policy can be derived from the National Survey of Hunters and Fishermen. Expenditures for hunting and fishing are in a class with expenditures for public utility services and health services. The most important aspects of the sport, however, may be immeasurable. Legislators and others who control the financial support should become aware that wildlife is not solely judged by economic value of the game.
- KEYWORDS:** Fishing, economics, surveys, management.
676. Pearl, Robert P.
 1960. The 1960 national survey of fishing and hunting. 50th Conf. Int. Assoc. Game Fish Conserv. *Comm. Proc.* 50: 128-132.
- Paper describes plans for conducting a survey of the U.S. hunter and fisherman population to determine incidence of participation, economic value, and demand for hunting and fishing.
- KEYWORDS:** Fishing, research methods, surveys.
677. Pearse, Peter H.
 1969. Toward a theory of multiple use: the case of recreation versus agriculture. *Nat. Resour. J.* 9(4): 561-575, illus.
- Paper addresses the problem of simultaneous and conflicting use of a natural resource. The author develops a theoretical approach to evaluating the recreational value of deer and the value of cattle using the same rangeland. The assumed objective is maximization of resources' contribution to the group in whose interest it is managed. A high level of hunting success means fewer hunters but more total dollar value than a lower success level. Therefore, maintenance of high levels of hunting success makes more valuable use of the game resource. Deer are more valuable than cattle as long as the value lost in cattle is exceeded by the corresponding marginal value gained in deer.
- KEYWORDS:** Economics, resource use, non-consumptive use.

678. _____ and Gary Bowden
1966. Big game hunting in the East Kootenay. Univ. B.C. 39 p., illus.

Personal interviews were administered to 544 resident hunters, 56 being rejected. Mail questionnaires to all non-resident hunters yielded 381 usable returns (64 percent) and to all 84 licensed guides yielding 29 usable returns (35 percent). In 1964 15,000 hunted in the East Kootenay, spending 147,000 hunter days and harvesting about 14,000 animals. Nonresidents had significantly higher incomes and education than B.C. hunters. Local hunters, residents, and nonresidents spent an average of \$8, \$14, and \$62 per hunter day, respectively. In total they spent more than \$2 million in the 1964 season. Average distance traveled to hunt was 35 miles for local hunters, 400 miles for other B.C. hunters, and 1,500 miles for nonresidents. Hunter occupation, duration of hunt, size of party, age, and motivation for the trip are presented. The local guiding industry, which had revenues of nearly \$400,000 or an average of \$44 per hunter per day in 1964, is the source of much dissatisfaction. Evidence suggests that the usual economic forces that stimulate efficiency in a competitive market are prevented from working by the system of administration.

KEYWORDS: Fishing, harvest statistics, economics, characteristics, Canada.

679. Pearson, T. Gilbert
1935. Our bird treaty with Canada. 27th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 27: 13-21.

Paper describes the long campaign by Senators, naturalists, game managers, and conservationists to persuade the government to assume protection of migratory birds.

KEYWORDS: Historical value, legislation, waterfowl, Canada.

680. Peay, Golden B.
1958. How can the States more adequately enforce the license provisions of nonqualified holders of resident licenses. 38th Conf. West. Assoc. State Game Fish Comm. Proc. 38: 308-309.

Utah's method of enforcement is described.

KEYWORDS: Enforcement, Utah.

681. Peckumn, Jim W.
1958. How can the States more adequately enforce the license provisions of non-qualified holders of resident licenses? 38th Conf. West. Assoc. State Game Fish Comm. Proc. 38: 310-312.

Paper spells out statutory requirements for purchasing a resident hunting or fishing license in New Mexico; outlines the State's method of enforcement; and suggests that an "information card system" on violators be adopted between the States.

KEYWORDS: New Mexico, license fee, enforcement.

682. Peek, J. M.
1966. Comparison of two mid-winter elk hunting seasons, Upper Gallatin Drainage, Montana. 46th Conf. West. Assoc. State Game Fish Comm. Proc. 46: 87-95.

Number of permittees hunting and hunter success were evaluated in relation to hunter origin and weather conditions. Number, sex, age, and location of elk killed were compiled for the two seasons.

KEYWORDS: Harvest statistics, big game, Montana.

683. Peery, Charles H.
1966. Progress report of Virginia's trout fee-fishing program. 20th Conf. Southeast. Assoc. Game Fish Corn. Proc. 20: 346-356, illus.

The first fee-fishing stream in Virginia has been in operation from the first Saturday in April through Labor Day for trout anglers each year since 1964. Results of a fisherman survey cover days of fishing, type of sample, number of previous trips, type of fishing license used, and origin of fishermen. Data comparisons for each year with analyses are included. Also described are stream regulations, facilities, stocking methods, concessions, record-keeping procedures, camping facilities, law enforcement, and cost of operation. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: License fee, fishing, management, characteristics, Virginia.

684. Pelgen, David E.
1955. Economic values of striped bass, salmon, and steelhead sport fishing in California. Calif. Fish Game 41(1): 5-17, illus.

Average expenditures per angler day were determined in 1953 by a questionnaire survey. Striped bass anglers spent an average of \$9 per day and the estimated value of this fishery was \$18,000,000. Salmon anglers spent an average of \$16 per day, and steelhead anglers spent \$18 per day. The major expenditures were transportation, food, lodging, services, and supplies. License costs amounted to about 1 percent of the total costs.

KEYWORDS: Fishing, economics, California, benefits.

685. Peterle, Tony J.
1958. Game management in Scotland. J. Wildl. Manage. 22(3): 221-231, illus.

In Scotland, the landowner has exclusive use of his own land, and he considers hunting an asset which can be leased or sold. The landowner also controls seasons, sets bag limits on species not under protection of bird acts, hires game keepers, controls predators, rears pheasants, and drives game to the hunter's guns. Sportsman groups often purchase shooting rights from small landowners.

KEYWORDS: Scotland, landowner-private, management.

686. ———
1961. The hunter--who is he? 26th Conf. North Am. Wildl. Nat. Resour. Trans. 26: 254-266, illus.

A sample of 6,810 Ohio hunting license buyers returned 3,616 mailed survey questionnaires. This preliminary tabulation of data from 200 questions was based on a sample of 1,100 randomly selected returns. The composition of the Ohio hunting population was described, giving age, sex, marital status, education, salary, place of birth, occupation, race, armed forces experience, employment status, and size of family. Information also includes hunter's attitudes, social life, and hunting experience. Possible distinctions between hunter types are briefly stated, and differences between hunters and those who buy a license but do not hunt are suggested. (Also see Yuhas 1962.)

KEYWORDS: Characteristics, Ohio.

687. _____ 1967. Characteristics of some Ohio hunters. J. Wildl. Manage. 31(2): 375-389.

Mail questionnaire with 200 questions was sent to 1 percent of Ohio hunters licensed in 1959 and, after the followup letters, received 70 percent return costing about \$1 apiece. Regression analysis related hunter characteristics to success and days afield, Interview followup revealed a non-response bias (see Yuhas 1962). Correlations between independent variables forming a 128 x 128 item table matrix and the questionnaire are available on request. Time spent afield and game killed were related to education, occupation, age of initial hunt, and type of hunter. Also, hunters who favor sound biological approach to game management were not typically from rural backgrounds. They typically read wildlife publications and favored firearm training and a three-shell limit for waterfowl hunting. Peterle concludes hunters are a minority that is diminishing as population grows but are a group of increasing importance to the wildlife resource. (Excellent review of other hunter studies with 34 references cited. Analysis and presentation do not do justice to the data available, although this is one of the best studies of hunter characteristics.)

KEYWORDS: Research methods, preferences, characteristics, Ohio.

688. Petersen, Eugene Thor
1953. The history of wild life conservation in Michigan, 1859-1921. Ph.D. diss., Univ. Mich., 342 p.

This historical study attempts to establish the beginning and evolution of the State conservation policy related to wild animals, birds, and fish. Initial impetus for conservation came from sportsmen's groups and later from special interest groups. State action during this period relied on restrictive measures to preserve wildlife, but refuges and species propagation were soon needed. Today Michigan's reputation is evidence of the success of the constructive policies adopted after 1910. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Michigan, conservation, historical value, legislation.

689. Peterson, Fred
1954. John Doe--friend or foe? 34th Conf. West. Assoc. State Game Fish Corn. Proc. 34: 97-100.

Paper suggests that game departments remove restrictive pressures from their public relations men, pay them sufficient funds, and encourage all department workers to seek out the press.

KEYWORDS: Public relations.

690. Peterson, William J.
1969. A literature review on deer harvest. Colo. Div. Game Fish Parks Coop. Wildl. Res. Unit Spec. Rep. No. 22, 15 p.

Two major factors affecting harvest, deer distribution, and hunter distribution are discussed. Deer distribution is influenced chiefly by weather and topography. Distribution of hunters is affected by weather, topography, vegetation density, area accessibility, opening date, season bag limit, and access roads and trails. (References, 180.)

KEYWORDS: Crowding, big game, characteristics, literature,

691. Phillips, F. Donald
1938. Game laws from the judge's viewpoint. 30th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 30: 38-42.

From the earliest traditions, the right to kill wild mammals and birds has been legally controlled by the Nation. American colonists imported English common law; and in the United States, game is controlled by the State. It is the duty of the courts to interpret and enforce hunting and fishing laws. The courts should punish violators but also create a profound respect for the laws to deter further violations.

KEYWORDS: Legislation, historical value, enforcement.

692. _____
1940. The importance of education and law enforcement in wildlife programs. 34th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 34: 51-57.

In order to properly enforce wildlife conservation laws, the public must be educated to realize the importance of wildlife. There must be respect for the laws governing wildlife, love of wildlife, a sense of its value to mankind, and a cooperation--for its protection--between law-enforcement officers, citizens, and the courts. References are made to the Migratory Bird Treaty and the Mexican Treaty.

KEYWORDS: Education, enforcement, legislation.

693. _____
1956. Ownership of wildlife: ancient Athens to America of today. Outdoor Calif. 17(9): 4-5, 12, illus.

The history of ownership of wild game is presented. During Roman times wild game was considered property in common to all the citizens of the state. After the Norman Conquest and before the Magna Charta in England, ownership of wild game was vested in the king. In modern times in the United States, ownership is common among all people, as it was earlier. Individuals may acquire property rights in game only as a matter of privilege, not as a matter of right. The article specifically covers the legal problems of migratory birds of North America and the necessity of treaties and enactment of harvest restrictions.

KEYWORDS: Historical value, waterfowl, legislation, landowner-public, landowner-private.

694. Phillips, John C.
1931. Naturalists, nature lovers, and sportsmen. AUK. 48(1): 40-46.

An analysis is presented of the different mental horizons of ornithologists and sportsmen.

KEYWORDS: Esthetics, fishing, non-consumptive use.

695. Phillips, Paul H.
1965. The economic impact of the Louisiana deer hunter on the communities surrounding the Chicago Mill Game Management area. M.S. thesis La. State Univ., 43 p.

Questionnaires mailed to 2,345 Louisiana deer hunters visiting the 102,000-acre Chicago Mill Game Management area yielded a 60.8 percent response after three mailings, and results were checked with 56 personal

interviews. Data include costs of transportation, lodging, clothing, and equipment. Local hunters spent an average of \$13.55 per hunting effort, and "foreign hunters" spent an average of \$45.59 per hunting effort. Local hunters' expenditures totaled \$69,000 compared with \$190,000 for foreign hunters. Author concluded that hunting could become the primary cash crop of the local area and that deer hunter expenditures in Louisiana approach \$1million annually.

KEYWORDS: Economics, Louisiana, big game.

696. Pimlott, D. H., C. J. Kerswill, and J. R. Bider
1971. Scientific activities in fisheries and wildlife resources. Sci. Counc. Can. Spec. Study No. 15, 191 p., illus.

A study included the application of fisheries and wildlife science, the way agencies and professionals relate to society, and determination of wildlife goals in relation to national Canadian goals. Chapters include social and economic values of fisheries and wildlife. Social values include recreational, therapeutic, artistic, educational, and ecological. Others include the excitement of the chase, the pleasure of sensory enjoyment, and the satisfaction of obtaining trophies. Wildlife is essential to health, to the understanding of man, to teaching ecology and to promoting awareness. The economic impact from angling and hunting comes from food values and from other expenditures such as equipment and lodging. Fishermen spent a total of \$188 million in 1961, for an average of \$143 per fisherman. Hunters spent a total of \$87 million for an average expenditure of \$110. The average expenditure per day was \$9.50 for sport fishing and \$8.16 for hunting. Both federal and provincial resource agencies should support socioeconomic studies of recreational resources.

KEYWORDS: Canada, fishing, administration, economics, benefits.

697. Pinkas, Leo, James C. Thomas, and Jack A. Hanson
1967. Marine sportfishing survey of southern California piers and jetties, 1963. Calif. Fish Game 53(2): 88-104, illus.

The magnitude and significance of sport fishing activities was determined by a creel census. Data show that a minimum of 5.1 million man-hours of fishing was expended in catching 1.86 million fish from February to December 1963. The catch consisted of 49 species of fish, and well over 60 percent of the activity and catch occurred from piers. Pier development should continue, and periodic surveys should determine sport fishing activities for the entire California coast.

KEYWORDS: Fishing, harvest statistics, California.

698. Pollock, Norman Hall
1968. The English game laws in the nineteenth century. Ph.D. diss., Johns Hopkins Univ., 416 p.

After 1671, the English aristocracy developed a stringent code of laws to protect game and to make shooting the exclusive preserve of those owning land. Thomas Paine and other radicals questioned the aristocracy's claim to a monopoly of game. After 15 years of protracted debate, the Game Act of 1831 eliminated the property qualification and made shooting available to anyone who secured a license. Allegations that game damaged farmers' crops were as much exaggerated as the reformers' oversimplification that the game laws alone caused rural crime. Conservatives predicted that without

cruel deterrents game would be annihilated and country gentlemen driven off their estates. These myths had the power to arouse public opinion and were used as vehicles for grievances less easy to articulate. A decade later, radicals made the game question part of the larger land question and sought to win the farmers' allegiance by advocating abolition of the game laws. Farmers used the game issue as a vehicle for other stresses in the landlord-tenant relationship. The war of 1914 ended the luxurious sport of the previous decades, and field sports, stripped of their worst abuses, remained an important feature of English country life. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Historical value, folklore, England, legislation.

699. Pomeroy, Kenneth B.

1961. Recreation trends in the South. *Am. For.* 67(6): 44, 46-48.

Review of current trends in outdoor recreation in the South indicates that hunters, fishermen, and other recreationists can exert considerable influence upon the future of southern forestry.

KEYWORDS: Fishing, non-consumptive use.

700. Poole, Daniel A.

1971. Insuring the future of hunting and fishing. *Wildl. Soc. News* 136: 45-46.

To insure the future of hunting, more attention must be given to the public-acceptance factor. Four avenues of approach are discussed: better service to hunters, greater personal responsibility by the sportsman, better understanding of and service to landowners by both the wildlife agency and the sportsman, and better understanding within the profession as to what constitutes sport hunting.

KEYWORDS: Fishing, farmer-sportsman relations, public relations.

- 701.

1972. How to insure the future of hunting and fishing. *Colo. Outdoors* 21(4): 1-4.

Public acceptance has much to do with the future of hunting and fishing, yet wildlife agencies do little work in this area. Better attention could be given to this public acceptance factor by: better service to hunters by State game departments, better discharge of personal responsibility by the sportsman himself, better service to landowners by both the wildlife agencies and sportsmen, and a clearer understanding among wildlife professionals that more hunting is not necessarily better hunting.

KEYWORDS: Administration, antihunting, public relations, communications, farmer-sportsman relations.

702. Powell, Lawrence E.

1958. Hunter report cards versus questionnaires. 38th Conf. West. Assoc. State Game Fish Comm. Proc. 38: 235-238.

Paper favors the questionnaire method over the hunter report card system because the former is statistically accurate.

KEYWORDS: Arizona, research methods.

703. Powers, James F.
1960. The commissioner's responsibility in keeping private lands open to public hunting. 40th Conf. West. Assoc. State Game Fish Comm. Proc. 40: 94-97.
- Game commissioners are responsible for keeping private lands open for public hunting. To properly manage wildlife resources, periodic harvests must be taken on private as well as public land.
- KEYWORDS: Landowner-private, access, management.
704. Prendergast, Joseph
1962. What people want for recreation. 27th Conf. North Am. Wildl. Nat. Resour. Trans. 27: 59-66.
- Following are factors to consider for recreation development. People tend to choose recreation that is already familiar to them; they will choose a new and untried recreation activity if it captures their imagination; and a certain proportion of the population seeks activities which challenge their skill. The playground leader, wildlife manager, forester, and wilderness ranger must provide leadership to Americans so they can realize opportunities in recreation.
- KEYWORDS: Non-consumptive use, resource use, preferences.
705. ———
1966. Hunting and fishing recreation on State and Federal Park lands. 56th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 56: 142-145.
- The National Park System is authorized by law to prohibit public hunting on Park lands, but fishing is allowed. Hunting ranges are under the jurisdiction of the Forest Service and Bureau of Land Management, and they comprise approximately 70 percent of the public domain. Hunting is also permitted in most national seashores, rivers, and national recreation areas. The policy on hunting in State parks and recreation areas varies widely. Although hunting may have to conform with future land usage problems, it is now a form of recreation and should be taken into account when planning park and recreation areas.
- KEYWORDS: Landowner-public, management, fishing, resource use.
706. Prichard, Albert T.
1958. Relative importance of biological recommendations and public opinion in setting hunting and fishing seasons. 38th Conf. West. Assoc. State Game Fish Comm. Proc. 38: 151-153.
- It is important to have biological inputs as well as public opinion, but biological considerations must not weaken under group pressures.
- KEYWORDS: Public relations, management, legislation.
707. Public Land Law Review Commission
1970. Fish and wildlife resources, p. 157-175. **In** One third of the Nation's land. 342 p., illus. Washington, D.C.: Supt. Doc.
- This report to the President and to Congress covers an evaluation of publicly owned lands and the natural resources on those lands. Chapter 9, "Fish and Wildlife Resources," concentrated on 20 States, each with public lands exceeding 6 percent of its area. Eight recommendations covering

fish and wildlife on Federal lands are discussed: (1) Statutory authority should be given to Federal officials for land use decisions such as restrictive harvest regulations and controlling user density and dispersions, (2) Uniform State-Federal cooperative agreements should be formed for fish and wildlife programs, (3) Objectives of wildlife management should be required to minimize conflicting land and resource uses, (4) Guidelines are needed for minimizing conflicts between fish and wildlife and other land uses and values, (5) Zoning to identify key habitat should designate dominant use of fish and wildlife, (6) A Federal land use fee should be charged for hunting and fishing, (7) The States and Federal Government should share financial burden of fish and wildlife programs such as habitat improvement, population surveys, control, and stocking, and (8) State policies should be abolished which discriminate against non-resident hunters and fishermen using Federal lands.

KEYWORDS: Landowner-public, management, surveys, Federal-State jurisdiction, resource use, administration.

708. Pulling, A. V. S.

1928. The importance of wild life and recreation in forest management. *J. For.* 26(3): 315-325.

The attitude of the forestry profession toward sporting and recreational uses of the forests has been one of mere toleration. Professional foresters must recognize that the public interest in wildlife and recreation is superior in some areas to wood production and may produce an income and pay taxes on uncommercial forests. Many examples illustrate the low interest rates from timber growing and compare these with the values obtained from recreation and wildlife.

KEYWORDS: Economics, historical value, non-consumptive use, resource use, benefits.

Q

709. Quigley, Merle J.

1966. A survey of Idaho Wildlife Federation affiliates. M.S. thesis, Utah State Univ., 125 p., illus.

A personal interview survey of 63 active Idaho conservation clubs (includes hunting, fishing, and sportsman's clubs) that were affiliated with the Idaho Wildlife Federation determined how active the clubs were, what projects they sponsored, what factors were responsible for their continuing activity, and whether clubs attempted to make other people aware of conservation problems. Data were analyzed by mechanical edge-punch-sort system, then placed on reciprocal relations tables. Findings show that retired people exert the most leadership on clubs; a positive relationship exists between number of years an officer has been a club member and the success of the club; club activities are largely consistent with club purposes; area population had little effect on club size; clubs with hunting, fishing, or conservation as major purposes have the most members and the highest number of completed projects; location of the club meetings affects club success; club success was highly related to amount of communication with the parent State organization; and landowner-sportsman relations were a major public relations project for most clubs.

KEYWORDS: Idaho, Conservation, clubs.

R

710. Rachford, C. E., Seth Gordon, and Elliott S. Barker

1935. National Forest regulation G-20A. J. For. 33(1): 28-33.

Three articles briefly discuss the workability and desirability of Forest Service control rather than State control of fish and game protection. Rachford explains the regulation, Gordon addresses himself to "Is it wise? Will it stick?" and Barker gives "A game official's views of regulation G-20A."

KEYWORDS: Federal-State jurisdiction, legislation, historical value.

711. Rakestraw, Lawrence

1955. A history of forest conservation in the Pacific Northwest, 1891-1913. Ph.D. diss., Univ. Wash., 358 p.

Shortly after the Civil War, scientists, recreation and esthetic groups, and men disturbed by public land law violations of economic and political interests became interested in preserving forest lands. Between 1891 and 1897, seven reserves were set aside in the Pacific Northwest as the result of legislation permitting the President to establish forest reserves. Because the Federal forests were under three Bureaus with conflicting jurisdiction, the years 1897 to 1905 were spent developing an efficient forest administration. After 8 years, the reserves, or National Forests, were placed under the Forest Service with Gifford Pinchot heading the Bureau. During those years, problems, including grazing policy and reduction and

creation of reserves, were met. Administrative decentralization of the National Forests began in 1905 and was completed in 1908. District foresters instituted professionalism and established first timber management and grazing policies. The period 1905 to 1913 saw the rise of a coalition of conservative politicians and land looters along with guild associations consisting of State, Federal and private timberland owners. By 1913 the Northwest set a model for the rest of the country in cooperative fire protection and was ready to extend its work into other forest problems. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Historical value, conservation, surveys.

712. Ramsey, Bob

1955. Texas holds second antlerless deer hunt. *Tex. Game Fish.* 23(8): 2-3, 26-27, illus.

A total of 3,329 antlerless deer, part of an estimated 9,000 surplus deer, were killed during 1954 in a special "doe" season.

KEYWORDS: Big game, Texas, either-sex hunt, harvest statistics, management.

713. _____ and Eugene Walker

1954. Take 'em (like this) or leave 'em (like this). *Tex. Game Fish.* 12(7): 4-6, 20-21, 27-28, illus.

Article describes Texas' first antlerless deer hunt designed to improve and strengthen deer herds and provide hunting of game which would otherwise die on overpopulated ranges.

KEYWORDS: Texas, either-sex hunt, management, harvest statistics, big game.

714. Randle, Thurman

1945. The semi-automatic as a sporter. *10th Conf. North Am. Wildl. Trans.* 10: 70-74.

Many hunters become used to semiautomatic and full automatic weapons from army experiences. The name "automatic" is a misnomer when applied to hunting because true automatic actions are outlawed. The confusion between the two types of weapons presents problems and has often caused the semi-automatic gun to be banned from hunting. Misuse of the semiautomatic could be curtailed by limiting the magazine to three-shot capacity. Several military weapons are not considered sporting arms, but if a gun accepts a properly designed sporting cartridge of adequate power, is accurate at sporting ranges, and its action is dependable, it will be just as sporting as its owner.

KEYWORDS: Equipment, safety, historical value.

715. Rawley, Edwin V.

1952. A survey of extension work in wildlife management and the development of a guide to wildlife extension work in Utah. M.S. thesis, Utah State Agric. Coll., 101 p., illus.

Data were obtained by personal interview of 85 Utah farmers and 23 others, including fur dealers, sportsmen, youth leaders, fur farm operators, nurserymen, hatcherymen, and locker plant operators to determine the need for a wildlife extension service in Utah. In addition, mail questionnaires gave information from 28 Utah county extension agents, seven State wildlife conservation organizations, 48 State cooperative agricultural extension

services, and nine national wildlife conservation organizations. The data show that 28 States have been requested to add a wildlife specialist to their staff, while 42 States have been asked to solve problems that could be handled by a wildlife specialist, and 39 States have been asked to supply materials that could be handled by a wildlife specialist. These findings suggest that wildlife specialists are needed "in most of the states." The author develops a guide to be used by Utah wildlife extension specialists to integrate wildlife conservation interests with other agricultural extension activities. (References, 42.)

KEYWORDS: Surveys, education, conservation.

716. Redmond, Howard R.

1953. Analysis of gray squirrel breeding studies and their relation to hunting season, gunning pressure, and habitat conditions. 18th Conf. North Am. Wildl. Trans. 18: 378-389, illus.

A questionnaire census of Mississippi game kill showed that over 79 percent of the total license holders in Mississippi hunt squirrels. A 3-year average of squirrel hunters' bag checks revealed that the average time spent per hunt was 2.8 hours, 75 percent of the total squirrel hunters were still-hunters, 25 percent used dogs, and the average kill per hunt was 2.2 squirrels.

KEYWORDS: Harvest statistics, Mississippi, small game.

717. Reed, Jim

1961. Wildlife is wealth. Fla. Wildl. 14(9): 11-13, 34, illus.

Brief outline is given of the economic and recreational value of Florida's wildlife.

KEYWORDS: Florida, non-consumptive use, fishing, economics, characteristics, benefits.

718. Reeves, John Henry, Jr.

1960. The history and development of wildlife conservation in Virginia: a **critical** review. Ph.D. **diss.**, Va. Polytech. Inst., 345 p.

Precolonial forest and field conditions were suitable for elk, bear, turkey, grouse, squirrel, and buffalo; habitat-conditions were poorer for rabbits, deer, and quail. With the introduction of agriculture in the colonial era, habitat improved for quail and rabbits, but deer numbers were so reduced that legislation was enacted to protect this species. Virginia's postcolonial period 1778-1915 was one of extravagance. As a result of agricultural expansion, lumbering, the Civil War, and market hunting, buffalo and elk were extirpated from the State. Refuges were developed and legislation enacted, but there was little hope that the game animals could be perpetuated. The laws intended only to prolong wildlife existence. During 1916-58, wildlife management practices improved greatly and appear to be satisfactory for deer, bear, grouse, quail, rabbit and squirrel; only the turkey is decreasing. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Historical value, Virginia, management, conservation.

719. Reid, Leslie Merle

1963. Outdoor recreation preferences: a nationwide study of user desires, Ph.D. **diss.**, Univ. Mich., 299 p.

Characteristics of recreation visitors, with particular attention given to the preferences, desires, and dissatisfactions, were reported for visitors at 24 selected public, non-urban, outdoor recreation areas distributed throughout the United States. A self-administered questionnaire yielded information about user socioeconomic data, travel characteristics, activities and facilities used, and opinions of satisfaction and dissatisfaction associated with the visit. Single families predominate on extended vacation trips, and groups of families on shorter trips closer to home. Mileage from home rather than the kind of area largely determines the use made of recreation areas. Relaxing is an important element in most visits. National Parks had the highest rate of camper dissatisfaction. Restrooms generally received the most criticism of all facilities, and roads and parking areas were generally acceptable. Two categories of dissatisfaction were: conditions beyond the control of management such as bad weather, and conditions which management could control such as crowding, unsanitary or littered conditions, and pricing of sale or rental items. Visitor satisfactions are determined by the amount of personal enjoyment resulting from the visit. User desires alone are inadequate for determining desirable recreational development and administration. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Resource use, preferences, administration, surveys, characteristics.

720 Reinecker, Tom

1968. Unlawful purchases of resident licenses by nonresidents. 48th Conf. West. Assoc. State Game Fish Comm. Proc. 48: 667-674.

Paper includes outlined procedure for Idaho conservation officers to follow in handling all license applications, plus ideas and recommendations for other States. Questionnaire sent in 1967 to 12 western States reveals only Idaho was using a separate license application for residents and nonresidents.

KEYWORDS: Idaho, license fee, resident vs. nonresident, administration, law violation.

721. Rettinger, D. O.

1961. Hunter management on Federal lands in Illinois. 51st Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 51: 50-56.

The following three programs are employed in Illinois on 40,000 acres of the Mississippi River fish and waterfowl management areas: (1) restricted public hunting areas with intensive hunter use; (2) isolated open public hunting areas; and (3) small waterfowl refuges. Hunter control laws are flexible and permit annual program changes. A brief history of the areas illustrates the conditions which necessitated basic hunter-management controls. Blinds are no longer monopolized, and enforcement problems have decreased. Hunter education, sportsmanship, and hunter restrictions are helping to improve hunter quality.

KEYWORDS: Management, Illinois, waterfowl, legislation.

722. Reynolds, Carlos

1964. Florida Game and Fresh Water Fish Commission public relations for the wildlife officer. 18th Conf. Southeast. Assoc. Game Fish Comm. Proc. 18: 576-581.

Paper tells how to gain public acceptance and favor through sound public relations.

KEYWORDS: Florida, public relations, profession, enforcement.

723. Reynolds, Hudson G.
1971. Game production and harvest in Czechoslovakia. J. For. 69(10);
736-740, illus.

Game keeping in Czechoslovakia is similar to that in other countries of central Europe because of the common aristocratic origin of the hunting tradition. Ownership of game by the State resembles that of Poland, but differs from West Germany and Austria where game belongs to the landowner. Regardless of ownership, the basic objective of game management remains the same--maintenance of quality game populations in harmony with forestry and agriculture. Game management is intensive, including plans for carefully detailed harvests and strict hunter qualification. Intensified game management in America will require greater direct and indirect participation by the hunter in environmental concerns at local and national levels if the European experience is used as a guide.

KEYWORDS: Czechoslovakia, management.

724. Rice, Alfred W.
1956. A big step forward. Wis. Conserv. Bull. 21(10): 3-6.

Article outlines recommendations and regulations of farmer-sportsman program.

KEYWORDS: Wisconsin, farmer-sportsman relations.

725. Richards, Edward C. M.
1932. European game management as suggestive of American procedure.
J. For. 30(8): 948-950.

Public hunting in Europe differs from that known in America. The hunter may not keep the game he shoots. Hunting and game management are controlled by foresters who have learned that silviculture and game production must be coordinated. Agreements between timber and game interests in America should follow the European example. American game is owned and administered by the States, and forest considerations and conflicts have not yet been given sufficient thought except where damage has resulted from overpopulation by game.

KEYWORDS: Rumania, management, Switzerland.

726. Richards, Jack Arthur
1968. An economic evaluation of Columbia River anadromous fish
programs. Ph.D. diss., Oreg. State Univ., 286 p.

Anadromous fish of the Columbia River compete with irrigation, flood control, navigation, and other products requiring construction of dams that blockade essential fish migration routes. Costly passage facilities at the dams prevent total blockage of the lower river, and supplemental projects, such as fish hatcheries, at least partially replace lost productivity. Benefits of these fish, resulting from commercial, sport, and Indian fishing, cannot be directly measured through market prices and must be estimated. The cost of regulated inefficiency was used to estimate net benefits from commercially caught fish. Transfer costs were used as a proxy for non-existent market prices to estimate the value of sport-caught fish. Past, present, and future program costs and associated benefits indicate that the effort to preserve Columbia River anadromous fish probably could not have been justified by economic criteria in the 1930's when major costs first appeared. The share of this program remaining in 1965 could be justified

on economic grounds if traditional capital costs were used and where alternative investment possibilities were not considered. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Fishing, economics, resource use.

727. Richards, Thomas H., Jr.

1964. The role of private enterprise in providing fishing and hunting recreation in California. 44th Conf. West. Assoc. State Game Fish Comm. Proc. 44: 91-95.

Most of the waterfowl, pheasants, valley quail, doves, and about 35 to 40 percent of the deer in California are found on private lands. Both the landowner and governmental agencies have recognized the importance of game on private lands and have initiated programs that pay the farmer (either through good will, added protection, or money incentives) to develop his lands for wildlife,

KEYWORDS: California, landowner-private, fishing, clubs, waterfowl, big game, economics.

728. Richter, Marcelle Thiebaut

1962. The allegory of love's hunt: a medieval genre. Ph.D. diss., Columbia Univ., 415 p.

A literary type, in which a hunter's quest parallels his amatory worth, survives in eleven old French and Middle High German poems dating from the 13th to the 15th century. Questions crucial to the genre are: How is the hunt situation distorted to be metaphorically useful in representing courtly love, and how does the hunt metaphor alter the concept of courtly love? Presented are hunting practices found in medieval handbooks, investigation of medieval assumptions about hunting, through the images of hounds and stags, and a discussion of allegories specific to each poem. The German allegories feature the quest and sterner aspects of the hunt, while the French allegories preserve pleasant fellowship of hunts and avert the hint of anguish in the quest. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Literature, historical value, Germany, France.

729. Riegel, A. E.

1952. Sportsmen's clubs and their relation to the fish and game departments. 32d Conf. West. Assoc. State Game Fish Comm. Proc. 32: 18-21.

Paper presents the aims and objectives of Montana's wildlife federation and discusses what the biologist has to offer the sportsman.

KEYWORDS: Montana, education, administration, clubs.

730. Riegen, Carl

1962. Hunting and fishing in National Park areas. 52d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 52: 18-20.

Paper suggests that the management of game and fish on National Park lands be turned over to State game and fish commissions.

KEYWORDS: Resource use, administration, Federal-State jurisdiction.

731. Riley, Smith

1920. A national game policy. J. For. 18(8): 767-774.

The forester must direct public thought and guide public action to fix a national wildlife policy. Forest lands, once administered to produce life for the chase, must now produce products of first importance in maintaining human values. America as a nation is commercial, yet human values must stand above property to perfect this commercialism.

KEYWORDS: Philosophy, public relations, administration.

732. Ritter, Charles

1955. ~~What~~ is it worth to you? Wyo. Wildl. 19(5): 32-34, illus.

Relative amounts spent by resident and non-resident big game hunters in Wyoming are listed for 1954.

KEYWORDS: Wyoming, fishing, economics, user fee, resident vs. nonresident.

733. Robel, Robert J.

1960. Detection of elk migration through hunter interviews. J. Wildl. Manage. 24(3): 337-338.

Elk numbers can be better determined by using hunter reports of elk sighted per hour rather than the number killed. Sightings eliminate biases of hunter marksmanship and selectivity. In the interview, hunters reported 2,858 hunter-hours afield. This technique was found acceptable, although frequently obstructed by hunter biases and antagonism toward fish and game departments.

KEYWORDS: Big game, research methods.

734. Roberts, Don

1951. The gates are opening. Fla. Wildl. 5(6): 6-7, 33-35, illus,

Florida's conservation commission opens over a million acres to public hunting for a \$5 public area stamp.

KEYWORDS: Florida, access, user fee.

735. Robertson, A. Lee

1959. The hunter safety program in Utah. 39th Conf. West. Assoc. State Game **Fish Corn.** Proc. 39: 375-378.

Paper describes a Utah survival training program intended to decrease all types of accidents.

KEYWORDS: Utah, safety, education.

736. _____

1964. Survival training, an important part of hunter safety. 44th Conf. West. Assoc. State Game **Fish Corn.** Proc. 44: 321-323.

Paper gives brief description of Utah's survival (when lost) program and advice for controlling one's tendency to panic.

KEYWORDS: Education, safety, Utah.

737. _____

1966. Hunter safety classes--a captive audience of tomorrow's sportsmen. 46th Conf. West. Assoc. State Game **Fish Corn.** Proc. 46: 381-384.

Paper suggests including a presentation of range and wildlife management problems during hunter safety classes.

KEYWORDS: Education, safety.

738. Robson, D. S.
 1960. An unbiased sampling and estimation procedure for creel censuses of fishermen. *Biometrics* 16(2): 261-277, illus.
 Article discusses estimation of total catch and total fishing effort by means of individual fisherman interviews and an untested sampling design which provides data for unbiased ratio-type estimates. The proposed plan sacrifices efficiency of operation in the field for complete objectivity in the data. (Includes complex computational procedure,)
 KEYWORDS: Harvest statistics, fishing, research methods,
739. Roca-Garcia, Helen
 1964. If I were teaching a boy to hunt. *Nat. Wildl.* 3(1): 32-33, illus.
 Train a boy to hunt with his eyes, ears, camera, and field glasses, rather than with a gun.
 KEYWORDS: Non-consumptive use, antihunting.
740. Romney, Henry
 1960. How to reform hunters. *Sports Illus.* 13(11): 66-69, illus.
 Article describes utilization of the New York Fish and Wildlife Management Act which offers protection and enforcement to landowners who open their land to responsible hunters.
 KEYWORDS: Enforcement, New York, farmer-sportsman relations, legislation.
741. Rosasco, M. Edwin, and Elwood M. Martin
 1964. Extent to which U.S. waterfowl hunters hunt in States and countries other than those in which they purchase their duck stamps. *USDI Bur. Sport Fish. Wildl. Serv., Div. Wildl. Res., Migratory Bird Pop. Stn. Admin. Rep. No. 66*, 9 p.
 Data were obtained from the 1963-64 National Waterfowl Kill Survey of duck stamp purchasers. Estimates show the numbers and distribution of hunters, by State. The Atlantic flyway leads all others in the proportion of hunters hunting outside their State. About one-half percent of the total duck stamp purchasers hunted in a foreign country.
 KEYWORDS: Waterfowl, surveys, resident vs. nonresident.
742. Rose, Philip S. (Chairman)
 1939. Farmer-sportsman, a partnership for wildlife restoration. 4th Conf. North Am. Wildl, Trans. 4: 144-200.
 Nine authors individually discuss farmer-sportsman relations: Aldo Leopold, Judge Geo. W. Wood, John H. Baker, Walter P. Taylor, Lester MacNamara, Harold Titus, G. W. Bradt, Justus H. Cline, and Walter F. Kirk.
 KEYWORDS: Landowner-private, legislation, farmer-sportsman relations, administration.
743. Rose, Thomas E.
 1948. The role of the enforcement officer in public relations. 38th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 38: 131-135.
 Paper reviews duties and qualifications of the enforcement officer, enforcement-division assistance to management and research, and responsibility of administrator and technician to the enforcement division.
 KEYWORDS: Administration, enforcement, Connecticut, profession, public relations.

744. Roseberry, J. L., D. C. Autry, W. D. Klimstra, and L. A. Mehrhoff, Jr.
1969. A controlled deer hunt on Crab Orchard National Wildlife
Refuge. J. Wildl. Manage. 33(4): 791-795.

To reduce a high white-tailed deer population on the closed portion of the refuge, a controlled 10-day hunt was held in January 1966. A total of 3,232 Illinois residents hunted 3,919 times and harvested 1,073 deer. An additional 36 wounded and dead animals were retrieved. Methods were employed during the hunt to achieve maximum recreational benefits consistent with the primary objective of controlled herd reduction.

KEYWORDS: Big game, harvest statistics, refuge, Illinois, management,

745. Ruch, James B.
1967. There's one born every minute. 47th Conf. West. Assoc. State
Game Fish Comm. Proc. 47: 462-469.

Article criticizes public agencies which advertise and promote sacred hunting and fishing "hot spots" in the name of full natural resources utilization. They are guilty of using education programs to expose good hunting and fishing spots in order to increase tourist revenues. Such promotion is hard to justify on ethical grounds.

KEYWORDS: Public relations, resource use, philosophy.

746. Ruhl, H. D.
1946. Acquisition and management of public hunting grounds. 36th
Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 36: 98-113,
illus.

A survey of public shooting programs in the United States includes the following information: land management activities by public agencies, acreage of public land owned for hunting, number of hunter licenses issued, gun pressure, and regulations.

KEYWORDS: Landowner-public, management.

747. Rutherford, R. M.
1941. Wildlife restoration through State and Federal cooperation
under the provisions of the Pittman-Robertson Act. J. For.
39(2): 157-160.

A summary is given of the Pittman-Robertson Act covering: funds, how they are derived and appropriated, design purpose, conditions for participation, land acquisition, land development, and wildlife management research programs of some States. The wide variety of wildlife restoration projects by participating States shows that State and Federal governments can cooperate.

KEYWORDS: Administration, economics, legislation.

748. _____
1950. Federal aid for sport fishing. J. For. 48(12): 891.

Article gives description of the Dingell-Johnson Federal Aid to Fish Restoration Act designed to aid the Nation's 15 million sport fishermen in the same manner that the Pittman-Robertson Act aids nearly 13 million licensed hunters. Funds, apportionments, lines of approvable work, and other features of the act are discussed.

KEYWORDS: Fishing, legislation, economics.

749. Ryan, Pat
1971. ...and a partridge in a palm tree. Sports Illus. 34(2): 44.

A humorous report is given on a serious matter from Cocoa, Florida, on the annual Audubon Society Christmas bird count which for 71 years has encouraged people to count, not kill, the local birds. Bird-counting teams across the Nation compete to observe the greatest number of birds.

KEYWORDS: Non-consumptive use.

750. Ryel, L. A.
1971a. Deer hunter participation survey, 1970. Mich. Dep. Nat. Resour. Res. Dev. Rep. No. 254, 11 p.

A mail questionnaire followed by four followup mailings and a personal contact were used to obtain a 94-percent response rate of 358 deer licensees sampled. Data from the 1970 survey and previous years include: ownership and use of snowmobiles by hunters; opinion on hunter congestion; lodging used; hunting frequency from 1963 to 1968; the number buying regular gun licenses from 1963 to 1968; summary of occupations and ages of hunters; the number purchasing licenses and State park permits; opinion on a proposed combination of bow and arrow and firearm deer licenses; and opinions on allowing a hunter to take two deer in 1 year—one with bow and arrow and one with a firearm.

KEYWORDS: Michigan, big game, preferences, characteristics, archery.

751. _____
1971b. Deer hunters' opinion survey, 1970. Mich. Dep. Nat. Resour. Res. Dev. Rep. No. 255, 15 p.

Hunter mail surveys returned from 1,212 hunters polled opinion on the necessity of antlerless deer hunting and the factors that determine the number of deer in an area. Data are shown for the years 1962 through 1970. Data include the following. In 1970, 56.7 percent of the respondents felt it unnecessary to shoot does and fawns. Since 1967 the number objecting to shooting does has increased slightly. More of the successful hunters indicated a need for antlerless harvest than did unsuccessful hunters. Most of those who felt such a need mentioned reduction of population, starvation, and habitat damage as their reasons. Most of those who felt the harvests were unnecessary gave "too few deer" as the reason. About two-thirds of the hunters mentioned habitat as the most important factor in determining deer numbers.

KEYWORDS: Big game, either-sex hunt, Michigan, preferences.

752. _____ G. C. Jamsen, and L. J. Hawn
1970. Some facts about Michigan hunters. Mich. Dep. Nat. Resour. Res. Dev. Rep. No. 197, 25 p., illus.

This paper is a collection of tables and graphs, with data drawn from several years of hunter mail surveys, license sales figures, and census data. Data generally cover the period 1920 to 1968. Age, sex, and residence information are given with the data which include: age distribution, number of deer hunters utilizing firearms and bow and arrow, hunting license sales, occupations, hunting frequency, and number of license types.

KEYWORDS: Michigan, license fee, big game, historical value, characteristics.

753. Rymon, Larry Maring
1969. A critical analysis of wildlife conservation in Oregon. Ph.D.
diss., Oreg. State Univ., 441 p.

Time period covered is from prior to white settlement to the year 2010. The Oregon Indian conducted himself as a "prudent predator"; the only major control he extended over his environment was burning. White pioneers in the 1840's settled in the best agricultural areas, also the areas of prime game habitat, and had a severe impact on wildlife populations. Drainage, reclamation projects, drought, and excessive killing reduced wildlife populations. After 1893, wildlife management evolved through periods of protection, stocking, refuges, and systematic management. Although wildlife populations have been largely restored through systematic management and protective legislation, they are again decreasing in numbers due to competition with man for living space and resources. It appears that the burgeoning human population will eventually cause the annihilation of many wildlife species, an unpleasant but real prospect for Oregon's future. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Management, Oregon, historical value, conservation, legislation.

S

754. Sandfort, Wayne W.
1972. Definitions of wildlife. 52d Conf. West. Assoc. State Game Fish Comm. 30 p. (mimeo)

The paper includes definitions, by State, of the terms: wildlife, rare, unique, common, uncommon, abundant, overabundant, extinct, and endangered species. Also included is a listing of Federal and State agencies with wildlife management responsibilities.

KEYWORDS: Library, surveys, profession, dictionary.
755. Sargent, F. O., C. C. Boykin, O. C. Wallmo, and E. H. Cooper
1958. Land for hunters...a survey of hunting leases. Tex. Game Fish. 16(9): 22-23, 29, illus.

Personal interviews with 48 ranch and farm managers in Texas show that seasonal and pasture leases constituted 68 percent of all lease types and the cost per hunter for a season varied from \$10 to \$150 or from \$5 to \$25 per day. Income to the farmer varied from \$45 to \$3,750 or from 4 cents to \$1.53 per acre of leased land. Farmer attitudes toward leases were divided into (1) a means of controlling hunter numbers, (2) an unimportant but welcome source of additional income, and (3) a potentially significant source of income. Offered are recommended provisions for written hunting leases.

KEYWORDS: Lease, economics, Texas.
756. Sauer, Richard
1960. Hunting pressure composition in New York. N.Y. State Conserv. 14(3): 16-17, illus.

Paper presents analysis of hunter composition in 1956 according to age group and place of residence. Fewer city than country boys hunt in the 14- to 21-year age group. City hunters outnumber country hunters by more than 9 percent in the 21- to 34-year brackets, although they fall behind again in the 34- to 54-year bracket.

KEYWORDS: Crowding, New York, characteristics.
757. Saults, Dan
1953. Not just what: why? 18th Conf. North Am. Wildl. Trans. 18: 624-630.

Paper advocates a better system of conservation education to successfully sell a code of ethics.

KEYWORDS: Education, public relations, philosophy.
758. Schaefer, Richard K., and Kenneth C. Nobe
1969. Economic evaluation of the land acquisition program of the Colorado Division of Game, Fish and Parks. Colo. State Univ. Dep. Econ. NRE-6, 57 p.

Based on survey responses from 3,230 sportsmen, it appears that land acquisition and development procedures of the Colorado Division of Game, Fish and Parks do not take into account the current desires of a growing

number of sportsmen and recreationists in the State. A behavioral, socio-economic approach to estimating desired demand is introduced. This approach is oriented toward the concept of consumer sovereignty. The relationship between desired demand and supply is explored through benefit-cost analysis. Any recreational lands that could be purchased in fee simple, leased, or obtained through easement should be considered. Land acquisitions and improvement plans, or similar methods to express alternatives, benefits, and costs, should be developed for each possible site. Plans indicating maximum benefits per unit of cost are most desirable. Such plans would rank priorities on a systematic and economic basis, would readily indicate the benefits to be gained or lost, would provide a means for improving the efficiency of allocating the land acquisition budget, and should help to improve the bargaining position of the Division in its competition for scarce public funds.

KEYWORDS: Economics, resource use, administration, Colorado.

759. Schaffer, W. C.
1945. Fitness examination for hunters. 10th Conf. North Am. Wildl. Trans. 10: 66-70.

Fitness examinations to avert hunting accidents are refuted because: (1) they cannot measure hunter's mental reaction under extraordinary field conditions, (2) scale of operation is too extensive (700,000 hunters yearly in Pennsylvania alone), and (3) there is no practical standard. A questionable comparison of motor vehicle license examinations supports the contention that examinations would not achieve desired results. "Until a practical standard is devised, the examination of hunters appears to be largely a waste of time, effort and money." After 9 years as a hearing referee of more than 600 hunting accidents, author concludes that "primary causes of hunting accidents are greed and carelessness" and continued safety programs are the only way of attacking the problem.

KEYWORDS: Education, safety, accident.

760. Scheffer, Paul M.
1959. Farming for waterfowl in the Pacific flyway. 24th Conf. North Am. Wildl. Trans. 24: 238-244.

"Farming for waterfowl" describes the development and management of tillable lands for waterfowl. Data from the Pacific Coast indicate that lands of marginal agricultural value can profitably be used for waterfowl. Total operational cost is \$36 per acre, and waterfowl land leases range from \$75 to \$100 per acre annually. Many waterfowl farming projects on non-club lands have been made under the Conservation Reserve Program which includes Federal cost-sharing to reduce initial development cost and also provides that wildlife may be the only harvestable crop.

KEYWORDS: Waterfowl, landowner-private, economics, management.

761. Scheftel, Zane
1958. An economic evaluation of the sport fishery in Minnesota. 23d Conf. North Am. Wildl. Trans. 23: 262-268.

A two-part investigation of fishing expenditures of non-resident and resident anglers was accomplished by a mail survey and personal interviews. Annual total expenditure averaged \$96.86 for non-resident and \$83.93 for resident fishermen. Few nonresidents fished in Minnesota during the winter season, but they made 2,850,000 summer season trips. Minnesota residents made 9,200,000 trips during the 1956-57 season.

KEYWORDS: Fishing, economics, Minnesota, resident vs. nonresident.

762. Schermerhorn, Richard W., and William K. Starkey
 1966. An economic feasibility study--shooting preserves in Maryland.
 Univ. Md. Agric. Exp. Stn. Misc. Publ. No. 584, 34 p., illus.
- The 18 Maryland shooting preserves analyzed by questionnaire were not heavily capitalized; their average investment, excluding land, was about \$4,100 in 1965. The average preserve grossed \$5,484 in revenue annually but showed a net cash return of \$544. Pheasants were most popular and profitable and quail and ducks the least profitable. Although not high in terms of non-farm standards, income from hunting preserves is substantial when compared with returns from other farm enterprises. To be self-sufficient, a preserve would have to handle a very high volume of birds.
- KEYWORDS: Refuge, Maryland, economics, plant and shoot.
763. Schierbaum, Donald L., and Philip U. Alkon
 1963. Characteristics of a sample of cottontail rabbit hunters in eastern New York. N.Y. Fish Game J. 10(2): 125-138, illus.
- During a 5-year study in three counties, over 200 hunters provided information about 3,300 cottontail hunts. The average hunter made eight hunts annually, each lasting 3½ hours, during which he and one companion saw four cottontails and shot two. This averaged 4 man-hours per rabbit bagged. Hunts with dogs were longer, and on an hourly basis the take was as high without dogs.
- KEYWORDS: Harvest statistics, management, New York, small game.
764. _____ and Donald D. Foley
 1955. Movement of waterfowl hunters in New York State. N.Y. Fish Game J. 2(2): 232-238, illus.
- The movement of waterfowl hunters in pursuit of their sport was studied by means of hunter bag checks and leg band analyses. Data from both sources indicated that over 70 percent of the gunners were within 25 miles of home. Few hunters traveled from one zone to another to take advantage of the 2 separate opening days.
- KEYWORDS: Waterfowl, New York, characteristics.
765. Schindler, Daniel John
 1968. A study of the efficiency of the double sampling technique for measuring recreational use at the Crab Orchard National Wildlife Refuge. M.S. thesis, South. Ill. Univ., 76 p.
- Eight developed recreation sites were double sampled by vehicle traffic counters and by on-the-spot counts. Formulas were developed during the calibration period for estimating use. Results show 249,963 visitor days per year, with use concentrated in swimming, picnicking, sightseeing, and shore fishing. Two of the sites had large errors (49 and 29 percent) due to bus use and faulty counters, respectively. Four sites had acceptable errors of less than 20 percent, and two sites had excellent results of less than 10-percent error. Recommendations are given for use of traffic counters. Sport hunting use is reportedly heavy but was not considered in study. (Bibliography, 20.)
- KEYWORDS: Refuge, non-consumptive use, fishing, research methods, Illinois.

766. Schneider, R. Michael
 1969. The zoo's changing role. *Parks Rec.* 4(9): 41-44, 95-96, illus.
 Zoological gardens everywhere are likely to find themselves without stock in the next generation unless they accept their new role as animal sanctuaries. Zoo design should consider people as well as animals.
 KEYWORDS: Urban wildlife, non-consumptive use, refuge.
767. Schoenfeld, Clarence A.
 1957. Public relations aspects of wildlife management. *J. Wildl. Manage.* 21(1): 70-74.
 An appeal is made for more public relations and human behavior considerations in wildlife management. The management of game requires public support. Trained men are often pawns of ill-advised sportsmen; and unless a clear, candid summary of management activities is provided, the public will harass managers. Seventeen references are cited in making his case, divided between public relations and wildlife management; and several examples and parallels are given.
 KEYWORDS: Public relations.
768. Schoenfeld, Clay
 1963. Let's cut out the numbers game nonsense. *Am. For.* 74(5): 10-13, 55-56, illus.
 As outdoor recreation increasingly becomes a principal forest product, a major problem will be allocating lands for recreational experiences of varying qualities. Needed is a more comprehensive use of user fees, restriction of quantity and control of quality in certain areas, heavy investment in research and education, a reexamination of the present administrative framework, and a recognition of the present conservation crisis. Open space, scenery, and solitude have joined cellulose as prime products of our forests.
 KEYWORDS: Conservation, resource use, administration.
769. Schofield, Raymond
 1966. **Where** do you hunt? *Mich. Conserv.* 35(6): 8-9, illus.
 A map **shows** average number of deer hunters per square mile by Michigan counties, 1963-65, and square miles cut over for pulpwood, 1961-65. Migration of hunters from southwest to northeast Michigan often takes them through **low** hunter concentration areas to high concentration areas. (Origin of data not given. No analysis.)
 KEYWORDS: Crowding, Michigan, preferences.
770. Schorger, A. W.
 1955. Public and private shooting preserves for game birds and small game mammals. 45th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 45: 103-109.
 The establishment of public hunting grounds is the most successful step taken to provide hunting. Private shooting preserves have a distinct place in the economy since they provide shooting, relieve pressure on general hunting areas, and provide cover. Public and private shooting grounds, however, are only stopgaps for the growing army of hunters. The best hope lies in converting the farmer into a game manager.
 KEYWORDS: Wisconsin, refuge, landowner-private.

771. Schubert, Ted
1967. Hunting, fishing, and license fees. Colo. Outdoors 16(4): 1-4.
The most important game and fish legislation to be presented in the Colorado State Legislature in 20 years was five bills introduced in the 1967 session that embodied the increases for game and fish licenses. Reprinted in their entirety are the arguments by Representative Ted Schubert before the final vote was taken. His speech is credited with convincing the majority. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)
KEYWORDS: Legislation, license fee, fishing.
772. Schunke, William H., and Irven O. Buss
1941. Trends in the kill of Wisconsin whitetail bucks, 1936-1940. J. Wildl. Manage. 5(3): 333-336, illus.
The hunter contention that whitetail bucks are decreasing in weight and antler size is substantiated. Incidental to the study, the authors found that hunters used 34 different calibers and more than three times that many makes of rifles and shotguns to shoot 215 buck deer.
KEYWORDS: Big game, Wisconsin, equipment.
773. Schwanz, Lee
1963. They chased politics out of conservation. Nat. Wildl. 1(5): 10-13, illus.
Article tells how Missourians removed politics from their game and fish department and gives some highlights of the 25 years following this.
KEYWORDS: Missouri, conservation, politics.
774. Scott, Robert F.
1951. Wildlife in the economy of Alaska natives. 16th Conf. North Am. Wildl. Trans. 16: 508-523.
The present and future relationships between Alaska natives and the wildlife resource involve important sociological, ethnic, and economic implications far beyond the scope of apparent legal or moral rights. The need for intelligent controls and management is shown by past events and is more serious than would appear from a superficial view. The questions of wildlife conservation in Alaska are (1) what legal restrictions must be enforced to adequately control hunting pressure? (2) how can enforcement and education change unsound practices? and (3) what management measures could bolster the wildlife supply generally and locally? Although the "new economy" still doesn't generate enough cash income to replace the use of wildlife for food and clothing, both native and white Alaskans cling to a mental concept of living off the land.
KEYWORDS: Alaska, conservation, resource use, economics, native claims.
775. Scott, Walter E.
1946. Possible increase in post-war hunting. J. Wildl. Manage. 10(1): 72-73.
A questionnaire survey of 322 servicemen stationed in the south and central Pacific and from the States of Michigan, Wisconsin, and Minnesota provides some data on the expected increase in postwar hunting. Percentages

are based upon the number who have hunted or plan to do so. Of those servicemen reporting, 58 percent had previously hunted deer; and of the remainder, 26 percent planned to begin hunting upon return. Another 16 percent stated they would never hunt deer. Of the prospective increase in deer hunters, 84 percent are from city areas unsuitable to deer hunting. Small game had been hunted at some time by 87 percent of the servicemen, 5 percent indicated a desire to begin hunting small game, and 8 percent did not wish to hunt small game.

KEYWORDS: Preferences, historical value, characteristics, military.

776.

1948a. Controlled hunting. *Tex. Game Fish.* 6(10): 4, 21.

In the western States, controlled hunting is now an important management method used especially to prevent overshooting of big game and overconcentration of hunters. In the rest of the country, controlled hunting is still in the experimental stage. Except for the southeastern States, the legal authority to limit hunter numbers is frequently lacking. Although projects such as this can be operated by States in cooperation with Federal agencies on their lands, using their trespass powers in issuing permits, enabling legislation would be desirable. Wildlife managers should investigate the possibilities of controlled hunting to solve special problem cases. The sportsmen and the general public often favor additional regulations which will improve the recreational enjoyment of orderly hunting and prevent overharvesting of wildlife resources.

KEYWORDS: Historical value, management.

777.

1948b. Methods of controlled public hunting in the United States and Canada. *J. Wildl. Manage.* 12(3): 236-240.

Article examines historic development in controlled hunting, starting in 1629 in New Netherlands. Controlled hunting is mainly experimental except in the western States where it is used to prevent overshooting and hunter crowding. Legal authority to limit hunter numbers is lacking except in the southeastern States.

KEYWORDS: Historical value, Canada, management, legislation.

778.

Searcy, Margaret Zehmer

1954. Tuscaloosa County hunting. **M.A.** thesis, Univ. Ala., 129 p.

This is a sociological study rich in hypothesis and premises. Participant observations of hunters plus 22 formal interviews provide data on history of hunting, hunting culture and customs, folklore, the hunting class and caste systems and their interrelationships, and hunting clubs of Tuscaloosa County and nearby areas. With sportsmanship as the guiding principle, unwritten "laws" are more rigidly enforced, by social exclusion, than written laws. Descriptions are given on the characteristics of 15 game species as to their prestige among hunters, hunting methods used, etc. Hunting prestige is based on who is participating, scarcity of game, cost, necessary skill, and food value of game. Prestige symbols include deer antlers, turkey feet and beards, homemade turkey callers, bobcat hides, and dogs, varying according to hunter's class and caste. Hunting dog description for each species of game and care is presented. The role of and participation in hunting by Negroes, women, and children are described.

For example, in raccoon hunting, the Negro's role is more than servant but less than equal, but in deer hunting he is a paid servant. Wives cannot escape husbands' hunting activities, and acceptance often comes after a trial of painful experiences. Many customs are described, e.g., the first deer kill is bled and smeared on the young hunter's body and clothing. Four types of hunting clubs are described with detail on size, membership requirements, dues, facilities, and social events.

KEYWORDS: Alabama, tradition, folklore, small game, big game.

779. Sears, Paul B.

1951. Wildlife in today's economy: biological and ecological values. 16th Conf. North Am. Wildl. Trans. 16: 23-26.

Economics deals with the needs which men feel strongly enough to pay for. The ecologist sets priorities to help discriminate among those needs. There is visible money in wildlife, but are squirrels, insects, or coyotes necessary? Plants and animals inhabited the earth long before man. They established an order that we violate at our own peril. Those who discount the importance of conservation often lack biological training, although even conservationists find it difficult to obtain precise and convincing evidence that wildlife is an essential part of any balanced habitat.

KEYWORDS: Economics, conservation, benefits.

- 780 Sendak, Paul E.

1968. A consumer analysis of licensed hunters and fishermen in Massachusetts. M.S. thesis, Univ. Mass., 206 p.

Also see Sendak and Bond (1970).

KEYWORDS: Fishing, Massachusetts, refuge, characteristics, economics, preferences.

- 781 _____ and Robert S. Bond

1970. A consumer analysis of licensed hunters and fishermen in Massachusetts. Univ. Mass. Agric. Exp. Stn. Bull. No. 583, 43 p., illus.

Questionnaire by mail to 1,070 of the 226,590 hunters and fishermen in Massachusetts yielded a 64.3-percent response. Of the 593 nonrespondents, 23 were contacted and agreed to complete the questionnaire. No significant differences were found between nonrespondents and respondents. Socioeconomic findings include: (1) Massachusetts sportsmen are more highly educated than those of the national average with 29 percent of them having gone beyond high school as opposed to 20 percent of the entire country; (2) no significant difference exists in job distribution between Massachusetts and the Nation's sportsmen; (3) level of hunting and fishing is unrelated to income; (4) fishermen devote more time to fishing than hunters to hunting because the fishing season is longer and Sunday is a legal day for fishing but not for hunting. Sunday makes up at least half of the weekly leisure for 79 percent of the hunters; and (5) a rural background is more prevalent among people who both hunt and fish than those who either hunt or fish. Other findings include: (1) 36 percent of the hunters and 47 percent of the fishermen were introduced to the sport by their parents; (2) the intensity of participation in hunting and fishing is little affected by socioeconomic

and childhood participation factors; **(3) 46** percent of the hunters are willing to pay an owner for access to land, but hardly any fishermen were willing to pay to fish. Also presented is an analysis of marketing opportunities for hunting and fishing. (Literature cited, **25**. See Sendak **(1968)** for Master's thesis of original data.)

KEYWORDS: Fishing, Massachusetts, refuge, characteristics, economics, preferences.

782. Severe, Bill

1967. Are the achievements of your wildlife law enforcement recognized? 21st Conf. Southeast. Assoc. Game Fish Comm. Proc. **21: 577-580**, illus.

To command due respect, the law enforcement officer must upgrade his education, training, and personal characteristics. The director and commissioners must recognize the officer's abilities and accomplishments. The officer's salary must qualify him as a professional man.

KEYWORDS: Enforcement, education.

783. Severinghaus, C. W.

1952. Determination of the location of hunting pressure and ratio of success of Central Adirondack deer hunters in relation to distance hunted from a road - **1952**. N.Y. State Conserv. Dep. Job VII-A, P-R Proj. **W-89-R-1, 11 p.**

Data were gathered at three big-game checking stations from **1,669** successful hunters. Tables present data and size of hunting party, days hunted per hunter, distance hunted from road, animals shot, and hunter-days per buck shot. Data are separated into road-based hunters (those who started each day's hunt from a point accessible by car) and camp-based hunters (those who hunted from a camp at least **1 mile** from the road). Results show that **420** road-based parties averaged **3.6** men per party, and they hunted an average of **3.8** days. Thirty-six camp-based parties averaged **4.4** men per party and **5.4** days hunting. In cumulative percents, **32** percent of the hunters hunted within **1 mile** of a road, 52 percent within 2 miles, and **70** percent within **3** miles.

KEYWORDS: Big game, New York, characteristics, harvest statistics, crowding.

784. _____ and C. P. Brown

1956. Hunting accidents in relation to types of deer seasons, N.Y. Fish Game J. 3(1): **88-92**.

Records of deer hunting accidents in New York during **1941-54** were studied in relation to man-days spent afield in buck-only areas, in doe-only areas, and in either-sex areas. The number of accidents per 100,000 man-days was **1.9** in areas where bucks only could be hunted, and 0.6 where either-sex hunting was permitted. No accidents occurred on areas where does only were hunted, but the number of man-days afield was low. Data collected during 3 years reveal that less than one-quarter of all deer hunting accidents were due to people having been mistaken for deer.

KEYWORDS: Big game, New York, accident, either-sex hunt.

785. Severson, Keith E., and F. Robert Gartner

1972. Problems in commercial hunting systems: South Dakota and Texas compared. J. Range Manage. 25(5): **342-345**.

Charging a fee to use private lands is relatively new to South Dakota, but it began in Texas in the early 1920's and today it is impossible to hunt big game and many small game species without paying a land-use fee. Success or failure of a commercial hunting operation depends on State hunting regulations, proximity of public lands, hunter demand, the amount of game available, and attitudes of landowners and hunters. These factors are compared in their effects on fee hunting in South Dakota and Texas.

KEYWORDS: Big game, upland game birds, commercial hunting, South Dakota, Texas, user fee, landowner-private.

786. Sewell, W. R. D., and J. Rostron
1970. Recreational fishing evaluation: a pilot study in Victoria, British Columbia. Dep. Fish. For., Ottawa, Can., 133 p., illus.

To develop and test methodology for identifying factors which influence recreational choices, a sample of 100 participants from Victoria, Canada, in the 1968 King Fisherman Contest were given a written questionnaire and were interviewed. Results show that salt water sport fishing appeals to people from all sections of society. Thirty percent of the respondents were in the managerial, professional, and technical occupational classes, 17 percent were craftsmen, 40 percent were clerks, laborers, and service personnel, 12 percent were retired, and 1 percent were students. Most of the sample (86 percent) completed high school, while 14 percent attended university, and only 5 percent had advanced degrees. Annual family income was less than \$5,000 for 13 percent, between \$5,000 and \$9,000 for 63 percent, between \$9,000 and \$12,000 for 14 percent, and over \$12,000 for 10 percent. Sport fishermen spend more time on salt water sport fishing than on other outdoor recreation activities. Fresh water fishing was an activity for only 55 percent of the salt water fishermen studied. Only 24 percent of those who went sport fishing also hunted in 1968, implying that hunting and fresh water fishing do not provide satisfactory off-season substitutes. Economically, 60 percent had invested over \$500 in 1968, and 37 percent had over \$1,000 invested in fishing alone. A relatively weak correlation was found between family income and investment in fishing equipment. Fishing participation rates were influenced by number of hours available and family responsibilities, but not costs. Factors which influenced demand included enjoyment of outdoor esthetics, enjoyment in planning the trip, getting away from work, and pleasure boating.

KEYWORDS: Fishing, characteristics, economics, Canada, non-consumptive use, benefits.

787. Shafer, Elwood L., Jr., Paul H. Amidon, and C. W. Severinghaus
1972. A comparison of violators and nonviolators of New York's deer-hunting laws. J. Wildl. Manage. 36(3): 933-939, illus.

A 1967 survey of 1,140 New York hunters revealed several differences and similarities between respondents who were known to have violated deer-hunting laws and respondents who were not known to have done so. Law violators legally killed significantly more deer per year of hunting experience than did nonviolators. Although violators encountered law enforcement officers more often, and felt that there was justification for breaking game laws if it were done accidentally or for food, they did not feel justified in breaking the laws to obtain psychological benefits such as the challenge or excitement involved. Both groups of hunters had similar investment costs for equipment and similar attitudes about various

hunting regulations. Dissatisfaction with regulations centered mainly on laws that regulated the distribution of hunters and their behavior patterns rather than on laws that regulated the number of deer harvested.

KEYWORDS: Characteristics, preferences, law violation, New York.

788. Shaw, Stanley

1961. An outline of content for wildlife education and a study of wildlife knowledge of high school seniors of Louisiana. Ph.D. diss., La. State Univ., 137 p.

Of the 50 States, 38 reported using some type of wildlife conservation materials. These materials were examined and analyzed according to their topics. Ninety-four wildlife leaders were selected to appraise and propose an outline for elementary and secondary school wildlife education. The appraisal group felt that details in wildlife education should not be emphasized and that greater stress should be placed on broad concepts of wildlife conservation. A test, consisting of 100 items, was administered to 3,266 seniors in 70 State high schools. Boys had a greater knowledge of wildlife conservation than girls, but even their knowledge was insufficient. Subjects considered helpful in taking the test were biology, general science, and fishing. The activity considered the least helpful was going to summer camp. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Education, Louisiana, surveys, conservation.

789. Shay, Ron E.

1964. A comparison of information retention by television and nontelevision hunter safety students in Oregon. 44th Conf. West. Assoc. State Game Fish Comm. Proc. 44: 324-327.

There is little difference between retention of material on television- and non-television-instructed hunter safety students over a 9-month lapse of time, and both television and non-television students retain virtually all of the information from the course when tested by written examination.

KEYWORDS: Safety, communications, education, Oregon.

790. Shea, John P.

1948. A new approach to farmer-sportsmen cooperation. 13th Conf. North Am. Wildl. Trans. 13: 163-169.

Human relation problems between farmers and sportsmen are a major wildlife management problem. In addition to physical and biological factors for wildlife studies, a social science survey is needed to determine human opinions, values, and institutions. To gain community cooperation, two types of group leaders should be located: (1) leaders of opinion (prominent people with reputation) and (2) action leaders (natural leaders without title; actions rather than words govern their lives). Failure to find, cultivate, and gain cooperation of action leaders has led to poor farmer-sportsman cooperation.

KEYWORDS: Public relations, farmer-sportsman relations.

791. Shepard, Paul, Jr.

1959. A theory of the value of hunting. 24th Conf. North Am. Wildl. Trans. 24: 504-512.

Hunting (killing) for sport is regarded as morally indefensible.

Historically, hunting has been defended as: (1) a sporting activity that prepares man for better conduct in human affairs, (2) the stalk that promotes character, self-reliance, initiative, (3) satisfaction for instinctive needs and psychological releases, (4) an excuse to escape civilization, and (5) affirming one's virility. None of these is valid, according to Shepard. Hunting confirms man's continuity with the dynamic life of animal populations, his role in the complicated cycles of elements and the sweep of evolution. "Killing and eating the prey are the most important things that hunters do." Early societies viewed hunting as ceremonial, highly ritualized, and an act of religion. As a contemporary ritual, hunting is based on a peculiar assemblage of restraints--legal, ethical, and physical--constituting sportsmanship. Restraints are balanced by man's technological advantage. (A philosophical article with rich insights. However, author dogmatically dismisses five theories of the value of hunting and replaces them with one of his own. References, 9.)

KEYWORDS: Philosophy, antihunting.

792. Shepard, Ward

1921. Science versus tradition in game protection. J. For. 19(4): 409-411.

Game protection in America revolves around bag limits, universal open or closed seasons, and unlimited license sales. These traditional principles have influenced game legislation, but they have failed to meet the needs of 20th century America. New Mexico's method of game protection includes a game commission empowered to establish game refuges and local closed season. Recent legislation provides an opportunity for cooperation between State and Federal officials, but the responsibility for game management is thrown to the State where vast amounts of public sentiment favor game management.

KEYWORDS: Administration, New Mexico, legislation, Federal-State jurisdiction.

793. Sherwood, Glen A.

1970. Characteristics of North Dakota goose hunters. N.Dak. Outdoors 33(3): 8-11, illus.

In personal interviews with 100 hunters, the average hunter had 24 years of general hunting experience and 15 years of goose hunting. Each fired an average of 68 shots at geese in eight hunts during each season. Hunting styles showed that 39 percent used decoys and hunted from a pit or blind; 30 percent used the crawl-and-sneak approach; 17 percent hunted from fence-lines; 9 percent preferred pass shooting; and 5 percent hunted in fields without decoys. The average hunter spent about \$75 per year hunting geese, with transportation the single most expensive item. Reasons for goose hunting in order of importance are outdoor enjoyment, the challenge, and meat. Sixty-one percent of the hunters favored a seasonal limit of less than 16 geese; and although 11 percent of the hunters had paid a fee or leased land, 86 percent were opposed to the practice. On the average, hunters believed that 38 percent of their fellow hunters were poor sportsmen, favored increased restrictions, and supported increased duck stamp fees.

KEYWORDS: Characteristics, North Dakota, waterfowl, economics, preferences.

794. Shoemaker, Carl D.

1952. Status of new and pending legislation. 42d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 42: 123-131.

Paper is mainly a discussion of waterfowl management. It briefly covers the legislative status of the Tackett Bill which seeks to earmark 10 percent of the U.S. Forest Service receipts for recreation and improvement of wildlife habitat, the Lantoff Bill which calls for a refuge for the protection of Florida's Key deer, the Water Pollution Control Act, and the Johnson Bill which prohibits the construction of dams within National Parks and Monuments.

KEYWORDS: Waterfowl, refuge, economics, legislation, management.

795.

1954. A proposal for action on a wildlife legislative program. 44th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 44: 80-85.

Paper discusses four bills being introduced to Congress which would accelerate and advance the wildlife movement. These are the Pittman-Robertson Surplus Fund, the Baker Bill, the Duck Stamp Money and Refuge Program, and the Coordination Act.

KEYWORDS: Legislation, historical value, refuge, waterfowl.

796. Shooting Sports Association

1968. You and your lawmaker: a citizenship manual for sportsmen. 22 p., illus. Riverside, Conn.: Shooting Sports Assoc., Inc.

Booklet was designed to stimulate interest in legislation affecting outdoor recreation and to serve as a practical guide to intelligent and positive action by the sportsman.

KEYWORDS: Legislation, education.

797. Short, Alexander Walker

1939. Improvement in farmer-hunter relations in Ohio. 4th Conf. North Am. Wildl. Trans. 4: 514-518.

To alleviate access, enforcement, and hunter congestion, the Bureau of Game Management was created in Ohio. A game management agent system was adopted. Opening of public lands to State supervised hunting has reduced hunting pressure on private lands. Issuance of a license tab to be worn on the back has discouraged law violations. The use of permit tags issued on supervised areas trains hunters to ask permission to hunt, and the activities of both youth and sportsman's groups have been encouraged.

KEYWORDS: Management, Ohio, farmer-sportsman relations.

798. Sigler, William F.

1946. An experimental farmer-sportsman cooperative in Iowa. J. Wildl. Manage. 10(3): 274-275.

In 1940 two farmer-sportsman cooperative areas, initiated and administered by sportsmen, were received with mixed feeling by many other sportsmen. The organization easily obtained enough cooperating farmers in each area to serve as a testing ground for future work. Farm youths participated actively in the program.

KEYWORDS: Iowa, farmer-sportsman relations.

799.

1956. Wildlife law enforcement. 318 p., illus. Dubuque, Iowa: Wm. C. Brown Co.

The book includes chapters on: the need for adequate wildlife laws and for effective enforcement through an historical review of wildlife management and present day practices; the legal basis for various State and Federal game laws; the problems of State versus Federal ownership and jurisdiction over the Nation's wildlife resources, and the rights of private citizens; problems of wildlife law violation by minors, adults, and members of certain American Indian groups; officer's qualifications and professional preparation; departmental procedures; use of code books and indexes; legal and technical problems involved in making an arrest; the reserve-warden system; the officer in court; and the preparation of evidence. (Appendix includes 55 pages of definitions and legal terms; 265 references are given.)

KEYWORDS: Enforcement, law violation, legislation.

800. Simpson, James C., and Ted C. Bjornn
1965. Methods used to estimate salmon and steelhead harvests in Idaho. 45th Conf. West. Assoc. State Game Fish Comm. Proc. 45: 217-226, illus.

During 1964, estimates of steelhead trout harvest were obtained from a postal-card questionnaire survey, voluntarily returned steelhead permits, a random sample of steelhead permits, and check stations. Substantial bias was found. The random sample catch estimate was about one-half the size of the estimates based on the questionnaires and the voluntarily returned permits. Estimated catch from the South Fork of the Salmon River based on the random sample of permits was very close to the actual harvest of fish, as determined by check station count of virtually all the fish taken from the drainage. Relatively precise, accurate estimates of catch can apparently be obtained by the use of similar permits and a random sampling procedure.

KEYWORDS: Research methods, fishing, harvest statistics, Idaho.

801. Singh, Ajmer
1965. An economic evaluation of the salmon-steelhead sport fishery in Oregon. Ph.D. diss., Oreg. State Univ., 176 p.

Estimates have been made of annual expenditures by salmon-steelhead sport anglers, the net economic value of this resource, and some basic relationships of fishermen's demand for salmon-steelhead fishing. Data were obtained from 4,400 returned questionnaires and 305 personal interviews. Net economic value was estimated by simulating a market pricing mechanism. During 1962, these anglers spent over \$9 million for durable fishing equipment and over \$8 million on "current" expense items associated with fishing trips. With license expenditures counted, the annual gross economic value of the sport fishery was about \$18 million, plus or minus \$3 million. Net economic value (if a market existed for the opportunity of fishing for salmon-steelhead) was estimated at \$2.4 to \$3.0 million per year. A 40-percent increase in net economic value to \$4 million annually within 10 years is possible if income and population trends of the past 15 years continue. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Fishing, economics, Oregon.

802. Sloan, E. F.
1954. Hunter safety through education. 34th Conf. West. Assoc. State Game Fish Comm. Proc. 34: 319-324.

A summary is given of events leading up to the development of the National Rifle Association's Hunter Safety Training Course and a discussion of the California Hunter Safety Training Program.

KEYWORDS: Safety, education, California, historical value.

803.

1964. The National Rifle Association and firearms legislation. 44th Conf. West. Assoc. State Game Fish Comm. Proc. 44: 110-113.

The article presents a statement of policy concerning firearms control legislation and a review of the status of several Federal bills. The ownership of firearms must not be denied to American citizens of good repute if they use them for lawful purposes.

KEYWORDS: Legislation, safety, equipment.

804. Smith, Anthony Wayne

1962. The National Parks Association position on hunting in the Parks. 52d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 52: 20-23.

Paper suggests continuation of the no-hunting Park policy.

KEYWORDS: Non-consumptive use, resource use, antihunting.

805. Smith, Charles F.

1949. For better conservation: realistic game management. Wis. Conserv. Bull. 14(1): 3-5.

"Real" game management rejects "aspirin" cures and emphasizes fishing and hunting on a sporting rather than a meat basis.

KEYWORDS: Conservation, management.

806. Smith, Gene

1969. Hunting...fair or foul? Fla. Wildl. 22(9): 19-21, illus.

Opposition by preservationists to lawful hunting is increasing in Florida, but conservation's wise-use concept calls for a regulated harvest of some wild species. Also sportsmen's donations pay for wildlife research and management, whereas the preservationists pay few of the country's mounting wildlife conservation bills. Hunters and preservationists should cooperate to perpetuate wildlife populations with variety and numbers for everyone to see, enjoy, and harvest.

KEYWORDS: Conservation, Florida, antihunting.

807. Smith, Herbert A.

1915. Hunting on the National Forests. Am. For. 21(3): 172-182, illus.

Author argues that the natural balance of nature must be replaced by an artificial balance, such that the greatest satisfaction of human requirements is realized. This includes killing predators to decrease livestock losses and checking the natural increase of elk and deer by hunting.

KEYWORDS: Management, historical value, predator, resource use.

808. Smith, J. R.

1960. We can produce more game. Wis. Conserv. Bull. 25(3): 3-5, illus.

Landowners must have economic incentives to make game an attractive crop and to permit hunting.

KEYWORDS: Farmer-sportsman relations.

809. Smith, J. R., and H. C. Jordahl
1959. Two decades of progress on Wisconsin's public hunting and fishing grounds program. 24th Conf. North Am. Wildl. Trans. 24: 322-344.

Wisconsin's 20-year program of lease and purchase of land has resulted in opening 5,133,778 acres for hunting and fishing. Data from the 20-year period are summarized and several generalizations are drawn. Sound programs of land leasing and purchase must be provided by continuous earmarked funds. Private initiative should develop fee shooting. Steps are being taken to use zoning power to preserve wetland, but where conflicts with other economic interests occur, cooperative programs are developed.

KEYWORDS: Wisconsin, characteristics, upland game birds, economics, lease, landowner-public, historical value.

810. Smith, R. H.
1961. Results of pilot work on a small game hunter take survey. 41st Conf. West. Assoc. State Game Fish Comm. Proc. 41: 168-171.

A pilot study during the 1960-61 hunting season evaluated various phases of a small game questionnaire. In one survey, 500 hunters were contacted preseasonally by tally cards available through specified license dealers and then sent a post-hunting-season questionnaire. Another group of 500 hunters was not contacted preseasonally, but they received a post-hunting-season questionnaire. After one followup, 84.4 percent of the preseason group and 74.4 of the post-season-only group had responded to the questionnaire. The preseason group were more successful and had a higher percentage of participation.

KEYWORDS: Research methods, small game, upland game birds.

811. Smith, R. J.
1960. Wildlife and recreation--its place on public lands today. 50th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 50: 90-93.

Not all Federally administered lands (which total approximately a third of the continental United States) are meeting the increasing demand for recreation and wildlife. Forest Service lands best meet the basic requirements of water, timber, mountains, and space for privacy and freedom to move around. The Bureau of Land Management cannot meet future challenges unless Bureau lands are made permanent public lands, more realistic fees are charged for land use, and multiple use management is provided. The National Park Service should initiate controlled big game harvest programs in cooperation with State fish and game departments. Hunting should be encouraged on National Refuge and Department of Defense lands whenever the sport would not interfere with the primary purpose of these lands.

KEYWORDS: Landowner-public, non-consumptive use, resource use, administration.

812. Smith, Robert J., and N. J. Kavanagh
1969. The measurement of benefits of trout fishing: preliminary results of a study at Grafham Water, Great Ouse Water Authority, Huntingdonshire. J. Leisure Res. 1(4): 316-332.

Recreation benefits were measured by a Clawson-type demand curve for a trout fishery, the basis of which is a relationship between distance and visitation rates from zones surrounding the fishery. Nearly 23,000 permittees caught over 32,000 fish. Recreational demand for trout fishing was measured, and data indicate that gross annual recreation economic benefits in 1967 were approximately 45,632 British pounds.

KEYWORDS: Fishing, economics, benefits, England, research methods.

813. Smith, Tommy L.
1959. A study of conservation information flow in western Montana.
M.S. thesis, Mont. State Univ., 67 p.

The study attempted to determine the effectiveness of the following information and education techniques used by the State Fish and Game Department: a Wildlife Forum series, to discover changes in wildlife comprehension of those attending; radio-TV and other news media in western Montana to determine their use of department news releases; a circulation count of the department publication, "Montana Wildlife"; and public exhibits, displays, and contacts by department field personnel. Data were gathered through a written questionnaire, along with newspaper releases, subscription files of the department publication, and records of personal contacts made during the 3-week sample period by department personnel. Results of the study show that there was no radio or TV coverage, but utilization of these would probably improve the department's program; more locally-oriented fish and game news releases would increase their use in smaller newspapers; and the "Montana Wildlife" publication is mailed to 741 people in the study area. Department personnel averaged 11 public contacts per employee per day for the 21-day sample period, indicating the importance of this type of public relations.

KEYWORDS: Montana, education, communications.

814. Snapp, Charles C.
1956. A commissioner's viewpoint on law enforcement. 10th Conf.
Southeast. Assoc. Game Fish Comm. Proc. 10: 180-181.

Paper discusses qualifications and training of Arkansas' conservation officers.

KEYWORDS: Enforcement, education, Arkansas.

815. Snyder, Bill
1952. Better than medicine. Fla. Wildl. 6(3): 14, 15-47, illus.

A game commissioner and VA hospital sponsor a therapeutic fishing program for disabled patients. An outing and personal reactions are described.

KEYWORDS: Fishing, benefits.

816. Snyder, Harold Z.
1961. An investigation of the educational potential of the Kellogg Bird Sanctuary. Ph.D. diss., Mich. State Univ., 192 p.

Appreciation of wildlife on the Michigan State University's Kellogg Bird Sanctuary was significantly improved for groups of fourth-grade classes receiving pretrip training and preparation. Minimal appreciation was expressed by those without the preparation. The author developed educational classroom instruction units on waterfowl, trees, mammals, and conservation practices. Recommendations are made to utilize a specific program in the sanctuary's education program. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Refuge, education.

817. Snyder, Jonas Louis
1964. Progress of shooting preserves in Michigan. M.S. thesis,
Univ. Mich., 79 p.

Restricted to University of Michigan campus use.

KEYWORDS: Refuge, Michigan, historical value.

818. Sofranko, Andrew J., and Michael F. Nolan
1970. Selected characteristics, participation patterns, and attitudes of hunters and fishermen in Pennsylvania. Pa. State Agric. Exp. Stn. Bull. 770, 39 p., illus.

A random sample consisted of 318 hunters, 116 fishermen, and 338 persons with both licenses. The majority of all three groups were male, married, and employed. Almost a fifth of the hunters were students, and a fourth of the fishermen were either retired or housewives. Of all the sportsmen, half had some high school education, a fifth had none, and one out of 10 had completed college. Most of the sportsmen were in the middle income group. About seven out of 10 sportsmen with hunting licenses and one-half of the fishermen had spent their youth in rural areas. Factors determining hunting and fishing participation were age, number of hours worked daily, whether sportsmen had a paid vacation, the number of days off each week, and frequency of hunting participation during youth. Sportsmen took children and wives fishing more often than hunting. Hunters had more access problems than fishermen. Most sportsmen wished to preserve the landowner's right to post but were unwilling to pay for use of the property. When compared with urbanites, hunters and fishermen differed in participation in only one of seven activities--picnicking.

KEYWORDS: Fishing, Pennsylvania, characteristics, preferences.

819. _____ and Michael F. Nolan
1972. Early life experiences and adult sport participation. J. Leisure Res. 4(1): 6-18, illus.

Mail questionnaires were sent to 1,000 hunters and fishermen in Pennsylvania during 1965. Response rate was 77 percent (318 hunters, 116 fishermen, and 338 combination hunters and fishermen). Results show that youth participation was directly related to adult participation, even when residence and "how sportsman was introduced to sport" were held constant. Frequent youth participation was associated with high levels of adult participation. Rural area youths and those introduced by their parents tended to participate more in hunting or fishing as a youth than those from non-rural areas or those introduced by another source. Variables important to youth participation may recede in adult life when other factors take precedence such as work condition, income, free time, and access.

KEYWORDS: Pennsylvania, fishing, preferences, characteristics.

820. Sohn, Arnold Joseph
1968. Competitive recreational uses of selected Iowa lakes. M.S. thesis, Iowa State Univ., 171 p., illus.

The activity on five Iowa lakes, user conflicts, and reasons for use fluctuation were determined by time-lapse cameras, mail back questionnaires sent to lake users and to lake residents, pneumatic car counters, and line-intercept boat counts. Fishermen reported fishing most often during early morning hours from 5 a.m. to 8 a.m., but evaluation of time-lapse pictures showed greatest activity from 9 a.m. to 11 a.m. Saturday and Sunday comprised 46 percent of the total fishing pressure. Residents generally thought that pleasure boaters and fishermen did not conflict with one another, but 75 percent favored the zoning of areas for these specific uses. A majority of interviewees agreed with the statement "we tend to select vacation lakes on the basis of their fishing quality."

Fishing ranked high among five other activities as being the "most enjoyed" at three lakes. Fishing and other activities are compared for age and occupation. Hunters indicated that hunter concentration was favorable although high. Hunting parties averaged more than 2.5 persons, and their average age was about 31 years. (Recommendations are given, along with 21 reference citations, interview schedule, and questionnaire.)

KEYWORDS: Iowa, fishing, waterfowl, crowding, preferences, characteristics.

821. Solman, Victor E. F.

1951. The creel census in the national parks of Canada. 16th Conf. North *Am.* Wildl. Trans. 16: 225-233.

The history of recording fish catch by creel census is summarized, with emphasis on Canadian programs. Several factors important to lack of angler cooperation are: misunderstanding of the aims of the creel census, mistrust of government activities, reluctance to admit failure to take a bag limit, and reluctance to admit breaches of angling regulations.

KEYWORDS: Fishing, harvest statistics, Canada, historical value.

822. Sorrells, Cliff

1957. Should sidearms be worn by game and fish enforcement personnel? If so, how and when? 37th Conf. West. Assoc. State Game Fish Comm. Proc. 37: 305-307.

A game and fish enforcement officer, who has the required qualifications for the position, should be authorized to wear a sidearm at any time and any place while performing his duties.

KEYWORDS: Enforcement.

- 823.

1958. How can the States more adequately enforce the license provisions of nonqualified holders of resident licenses? 38th Conf. West. Assoc. State Game Fish Comm. Proc. 38: 313-314.

Paper is primarily a discussion on Arizona's solution. Lists suggestions for enforcing license provisions: publicity, training of license sellers, investigations, stiffer license requirements, efficiency, and cooperation between States.

KEYWORDS: Enforcement, Arizona.

824. Spaulding, Irving A.

1970a. Selected Rhode Island sport fishermen and their fishing activity. Univ. R.I. Agric. Exp. Stn. Bull. No. 403, 31 p.

Data were collected by questionnaire during 1968 from boat-using sport fishermen. The report is presented in three units: social characteristics of the fishermen; their fishing activity; and the values they experience in their fishing activity. Most fishermen were between 40 and 59 years old, male, and married with two to four children at home. Most had finished high school. Income ranged from under \$4,000 annually to \$20,000 or more. More prevalent were those incomes between \$8,000 and \$12,000. Boats used were characteristically power boats, between 15-19 feet in length, made of wood, and with 30-60 horsepower motors. Daytime fishing was preferred to night fishing, and fishing at high tide was preferred. Occupational associates were indicated as fishing companions less frequently than family

members and others. Values associated with fishing ranked from greatest to least are: euphoric-tension dynamic, catching fish in the fishing situation, person-environment relationship, other relationships in the fishing situation, and lastly, situation change.

KEYWORDS: Fishing, Rhode Island, characteristics, preferences.

825.

- 1970b. Variation of emotional states and environmental involvement during occupational activity and sport fishing. Univ. R.I. Agric. Exp. Stn. Bull. No. 402, 78 p.

On the whole, tension levels were lower during sport fishing than during occupational activity. Occupational categories--professionals, managers, craftsmen, and all others--did not differ with respect to the influence of mechanistic devices on occupational activity, even though they did differ with respect to the influences of other people, one's own feelings, and natural events. The occupational categories did not tend to differ widely with respect to regulatory influences on sport fishing. Mechanistic devices and other people tended to influence occupational activity more than one's own feeling and natural events; for sport fishing, the influence of these pairs was reversed. In the value orientation of the fishermen, emphasis was found most frequently on experiencing some degree of change in euphoria-tension level; emphasis was placed least frequently on personal integrative responses such as "being oneself," "thinking things through," or "forgetting." Frequently mentioned were catching fish, experiencing the environment, the people with whom one went fishing, and the esthetic characteristics of the setting in which one fished.

KEYWORDS: Fishing, Rhode Island, characteristics, preferences.

826.

1971. Occupation, recreation and phasic commutation: selected Rhode Island sport fishermen. Univ. R.I. Agric. Exp. Stn. Bull. 405, 43 p.

Study involves a mail questionnaire to 302 fishermen. Analysis is based upon 146 respondents. A euphoria-tension index measured states of relaxation and states of tension, while an energy-fatigue index measured states of being tired and states of being energetic. These indexes were compared on fisherman occupational categories. Fluctuation between the two states resulting from moving between occupation and sport fishing is termed phasic commutation. A portion of the data supports evidence for a principle of phasic commutation while other data do not. There was evidence that the two indexes are functionally independent.

KEYWORDS: Characteristics, Rhode Island, fishing, benefits.

827. Spillman, Robert J.

1961. What the sportsman expects from the land. 41st Conf. West. Assoc. State Game Fish Comm. Proc. 41: 27-30.

The understanding sportsman expects access to private and public land, wise conservation and management practices, and good hunting and fishing at a reasonable price. The unreasonable sportsman is merely concerned with good hunting and fishing. He is disdainful of multiple land use, property rights, or volunteering his time to conservation. A sportsman, however, should expect to reap only what he sows in time and effort.

KEYWORDS: Farmer-sportsman relations, landowner-private, landowner-public.

828. Stack, Robert

1971. Thanks to the hunter: Nat. Wildl. 9(6): 17.

In this "Age of Environment" many preservationists oppose hunting in the name of conservation. However, hunting, game management, conservation, and environmental concern are partners. Sportsmen, at least, put their money where their mouths are. By buying licenses they provide money for fish and game programs and pay the salaries of fish and game department people.

KEYWORDS: Conservation, antihunting.

829. Stains, Howard James

1951. An economic survey of North Carolina's wildlife resource.
M.S. thesis, N.C. State Coll., 140 p., illus.

Mail questionnaire surveys, with interview followups of nonrespondents, were conducted on five categories of hunters and fishermen, game breeders, veterinarians, kennel owners, equipment jobbers, sportsman's magazine publishers, and five miscellaneous wildlife values. Returns ranged from 20 to 70 percent. Expenditures generated by wildlife exceeded \$46 million for the State. Fishing accounted for \$22 million and hunting, for \$15.5 million. Sportsmen showed preference for rabbit, squirrel, quail, bass, panfish, catfish, and trout. Expenditure by items, pounds of game caught, and kill data are listed in detail. (References, 37.)

KEYWORDS: Fishing, preferences, economics, harvest statistics, North Carolina.

830. Stamm, Keith R.

1970. Two orientations to the conservation concept of scarcity.
J. Environ. Educ. 1(4): 134-139.

A stratified, random sample of 607 Wisconsinites was interviewed to determine the conflicting interpretations of the term "conservation" and the origins of the interpretation. Scarcity is the crux of conservation disputes, and two views predominate: (1) harvesting to reverse trend toward scarcity of browse, and (2) feeding of functional equivalents for browse. Scarcity orientation was measured by questions which dealt with conservation problems. Results indicate that Wisconsin's hunters, fishermen, campers, and hikers are more likely than nonparticipants to hold either the functional equivalents or reversal of trends orientation to scarcity. The hypothesis that participants in outdoor activities would be more reversal-oriented was strangely not supported, as this group was associated with both orientations. Hunters, fishermen, campers, and hikers were more likely than nonparticipants to read outdoor conservation columns and magazines and to belong to conservation groups. Results show that readers of conservation columns and conservation group members significantly scored high on reversal more often than nonreaders. Readers of conservation magazines scored higher than nonreaders on both reversal and functional equivalents. Study results indicate that the conservation media do not play a very strong role in shaping an individual's scarcity orientation. (A pioneering study in an important area of environmental attitudes and the media responsible for those attitudes.)

KEYWORDS: Conservation, Wisconsin, characteristics, education, communications.

831. Stanojevic, Tihomir
1967. Where is the limit between the right of man to the game and the right of game to exist. 7th Congr. Int. Union Game Biol. Trans. 7: 503-508.

Today's man must not deprive future generations of the precious, natural wealth of game. The right of game to exist is determined by the obligation owed to future generations to insure their right of observing wild game. Cooperation between countries is necessary to insure an adequate supply of game.

KEYWORDS: Non-consumptive use, conservation.

832. Stealey, Wallace Rozell
1968. The politics of the Colorado Department of the Game, Fish, and Parks. Ph.D. diss., Univ. Colo., 182 p.

Author examines the State agency bureaucracy, centering upon the interaction and alliance structure developed by the Colorado Department of Game, Fish and Parks for purposes of achieving policy freedom. The existence of a subsociety incorporating both "in" and "out" groups was documented with situational data according to each group's respective role. Group pressures and governmental political significance were tied to game, fish, and parks politics in Colorado. A more direct association between the governor and the department was suggested. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Colorado, administration, politics.

833. Stearns, Forest W.
1967. Wildlife habitat in urban and suburban environments. 32d Conf. North Am. Wildl. Nat. Resour. Trans. 32: 61-69.

Paper points out the potentials and problems of urban wildlife habitat. Such habitats provide the last major opportunity for city dwellers to contact the realities of nature. Urban wildlife provides a laboratory for the public schools to teach ecological concepts such as carrying capacity and territoriality.

KEYWORDS: Non-consumptive use, education, urban wildlife, benefits.

834. Stevens, Joe B.
1966. Angler success as a quality determinant of sport fishery recreational values. Am. Fish. Soc. Trans. 95(4): 357-362.

Three Oregon sport fisheries--salmon, clam, and bottom fish--were economically evaluated to determine benefits that would result from several pollution control alternatives. A multiple regression analysis of angler responses to a mail and field questionnaire showed that a hypothetical 10-percent increase in probability of success in salmon angling would induce a 3- to 6-percent increase in effort. Bottom fish anglers did not exhibit this degree of responsiveness to success. Increased income and travel distance were reflected in more pronounced responses to success changes. If pollution reduced angler success by 50 percent, the yearly net economic value of the aggregate sport fishery would drop from \$22,747 to \$12,375.

KEYWORDS: Economics, Oregon, fishing, preferences.

835. _____ 1969. Measurement of economic values in sport fishing: an economist's views on validity, usefulness, and propriety. *Am. Fish Soc. Trans.* 98(2): 352-357.
- Disagreement over measurement of recreation values stems from poor communication between the biologist and economist. Validity, usefulness, and propriety are explained in the context of economic valuation of recreation resources. To whom values accrue cannot be separated from recreational "value." Values accrue to anglers and to the economy of an area in the form of income flows. Controversy arises over placing empirical estimates on these two types of values and the role they play in public decisionmaking. One should neither blindly accept nor reject recreation demand estimates, because the following considerations will determine the utility of the estimate: possible exclusion of certain users such as non-consumptive users, exclusion of "option demand" by nonusers (people who do not use the resource even as a spectator but who place a value on its existence or may want the option of use in the future), and the possibility that a decision will lead to future unwanted and irreversible consequences.
- KEYWORDS: Economics, resource use, fishing, non-consumptive use, management.
836. Stiles, Bruce F.
1951. Keeping land open to public hunting. 41st Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 41: 122-126.
- Paper gives rambling discussion on how hunters in Iowa individually gain access to farms through preseason contracts with farmers.
- KEYWORDS: Farmer-sportsman relations, Iowa, access.
837. Stoddard, Charles H.
1951. Wildlife economics--a neglected tool of management. 16th Conf. North Am. Wildl. Trans. 16: 17-22.
- Freedom of the outdoors is not strictly biological but social and economic as well. The ecological motive need not be in direct competition with the profit motive.
- KEYWORDS: Economics, landowner-private, resource use.
838. _____ and Albert M. Day
1969. Private lands for public recreation: is there a solution? 34th Conf. North Am. Wildl. Nat. Resour. Trans. 34: 186-196.
- Recreational activities are usually pursued by individuals or very small groups and require little more than access to land, water, and wildlife. Impediments to public access include a lack of economic incentive, blocking of public land by private holdings, and the American "pioneer" attitude of free access. Past and current efforts to resolve the problem center mainly around landowner permission or sportsman education programs and the increasing use of private company lands. The American Forest Institute claims 93 percent of the industry lands are available to the public for recreation. Any successful access plan should provide for request by the user, liability relief of owner, responsibility of user for damage, revenue to the landowner, creation of a manageable unit, and a public information program.
- KEYWORDS: Non-consumptive use, landowner-private, access.

839. Stokes, Gerald Lamar
 1966. Outdoor activity and personality. M.S. thesis, Univ. Ga., 56 p.
 Bibliography, 18; questionnaire; dogmatism scale; and Gough-Sanford Rigidity Scale are included. For summary see Moss, Shackelford, and Stokes (1969).
 KEYWORDS: Fishing, research methods, characteristics, benefits.
840. Strahle, Ronald
 1964. The problems of access. 44th Conf. West. Assoc. State Game Fish Comm. Proc. 44: 114-116.
 Public access to over 1½ million acres of public lands in Colorado is blocked by 236 private landowners. Four approaches--force, persuasion, the profit motive, and education--are combined to solve the problem.
 KEYWORDS: Access, landowner-private, resource use, Colorado.
841. Stransky, John J., and Lowell K. Halls
 1968. Small forest holdings could be combined for hunting leases. 22d Conf. Southeast. Assoc. Game Fish Comm. Proc. 22: 125-127.
 Small holdings characterize **most** forest land in the South. Much needed hunting land and income for rural landowners could be provided by combining small forest holdings into large units and leasing the hunting rights.
 KEYWORDS: Landowner-private, lease.
842. Street, D. R.
 1967. Recreation economics--fee fishing in Pennsylvania. Pa. State Univ. Dep. Agric. Rural Sociol. No. 62, 10 p.
 Interviews held with 119 operators in 1962 to determine income from fee fishing lakes revealed the following: (1) small demand for fee fishing services; (2) excess of fee fishing lakes; (3) low profits and, to some operators, severe losses; (4) special circumstances necessary for successful fee fishing lakes. These circumstances have not been considered in analysis. (Condensed from "Index to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)
 KEYWORDS: User fee, Pennsylvania, fishing, landowner-private, economics.
843. Street, Donald R.
 1969. The fee fishing lakes as a business in Pennsylvania. Pa. State Univ. Agric. Exp. Stn. Bull. No. 755, 24 p., illus.
 Interview were made with 119 respondents out of a total of 125 commercial fishing lake enterprises. Only 89 firms had sufficient data to determine income levels. Of these, only 39 firms had a positive net return to family labor, management, and investment; 50 firms had a negative income. Half of the firms were, therefore, subsidizing recreation. Only 12 firms had sufficient residual income to pay their own labor \$1 per hour. Of the 119 lake operators, 93 had some other occupation. The losses were as high as \$4,500 per year while gains went up to \$18,000. Data analysis indicated that it was not economically feasible to establish fee fishing lakes. Demand is low, and there is an excess of supply. Several means were available to improve the efficiency of operations, including fish culture education and improved business management practices. (Bibliography, 10.)
 KEYWORDS: Economics, landowner-private, Pennsylvania, user fee, fishing.

844. Strohm, John
 1966. Conservation hall of fame: John J. Audubon. *Nat. Wildl.* 4(2): 29.
- A brief biographical sketch of Audubon, an ornithologist-artist who contributed to the foundation of the conservation movement.
- KEYWORDS:** Historical value, biography, conservation.
845. Stroud, Richard H.
 1957. Financial aspects of fishing and hunting licenses. 47th Conf. Int. Assoc. Game Fish Conserv. *Comm. Proc.* 47: 57-63.
- Nationally, four basic fishing licenses and five basic resident hunting licenses collectively produce over 90 percent of the revenues. Yet there are about 70 different types of resident hunting licenses alone. Variety of licensing is essentially a fund-raising device which falls short of producing the needed revenue. Yearly, 25 million sportsmen spend \$3 billion, but only 3 percent of this sum goes for license purchases. The average spent on licenses per angler or hunter in 1955 was \$3.10. License types should be consolidated. Nationwide, substitution should be made of extra-fee resident licenses, carrying reciprocity privileges with other States, for the present array of non-resident and short-term licenses. Fees should be increased several-fold, and license coverage should be extended to all users of the resource.
- KEYWORDS:** Fishing, economics, license fee.
846. ———
 1967. Environmental quality: costs versus benefits. *Bull. Ecol. Soc. Am.* 48(2): 47-49.
- The cost of preserving our environmental quality will have to be measured against long-term benefits using economics as a criterion. This article presents an excellent example from the Galveston-Trinity-East Bay estuarine complex, where the recreation use for sport fishing outweighs the commercial use by 36 times the economic value as a source of limestone aggregate and calcium. (Condensed from "**Index** to Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)
- KEYWORDS:** Economics, resource use, fishing.
847. Sturges, Frederick W.
 1959. Report on the Izaak Walton League of America's "Hunt America Time program." 49th Conf. Int. Assoc. Game Fish Conserv. *Comm. Proc.* 49: 128-131.
- Paper summarizes the objectives of the program and its accomplishments in various States including: relief of hunter pressure, better farmer-sportsman relations, reduction of hunting accidents, and representation of sportsman interests at the State level.
- KEYWORDS:** Farmer-sportsman relations, safety.
848. Surber, Eugene W.
 1968. Effects of a 12-inch size limit on smallmouth bass populations and fishing pressure in the Shenandoah River, Virginia. 22d Conf. Southeast. Assoc. Game Fish *Comm. Proc.* 22: 300-311, illus.

Total fishing pressure for 1964 through 1967 of the Shenandoah River was determined by airplane censuses of fishermen. Creel checks supplied information on fish species caught and fisherman hours. Serious bass stock depletion occurred in 1964 and was remedied in 1965 by imposing a 12-inch minimum length size on bass. Total fishing pressure has decreased from 140,000 fishing hours in 1964 to 75,000 hours in 1967.

KEYWORDS: Harvest statistics, fishing, Virginia, management.

849. Swank, Wendell G.
1966. Solutions to some multiple use recreation problems. 46th Conf. West. Assoc. State Game Fish Comm. Proc. 46: 425-431.

Paper discusses the outdoor recreationist in general but mainly the problem of growing criticism of the hunter. Contention that hunting is hazardous to other recreationists is refuted. We need to organize to save hunting.

KEYWORDS: Resource use, public relations, antihunting.

850. Swanson, Evadene Burris
1940. The **use** and conservation of Minnesota game 1850-1900. Ph.D. diss., Univ. Minn., 321 p.

After the Indian treaties of 1851 opened Minnesota for farming, most of the State's wilderness aspects were obliterated and wildlife became adapted to settlement. Newspaper reports and fur company records reveal the extent of the fur harvest during this period. Market hunting, aided in 1870 by improved transportation and refrigeration, supplied game to restaurants, hotels, and lumber camps. In addition to the depredations of commercial hunting and trapping, wildlife was subjected to lumbering and land drainage activities. While several new game species appeared, others became scarce or moved their range. Restrictions on methods of hunting and trapping were formed, and market hunting was condemned even in 1871, but official provision for law enforcement was not made until 1890. When Federal law supported State statutes by prohibiting game shipments as part of interstate commerce in 1900, conservation had won its first great battle and opened the way for progress in the twentieth century. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Historical value, Minnesota, trapping, legislation.

851. Swanson, Gustav A., and E. L. Cheatum
1957. Public hunting--the problem, the program. N.Y. State Conserv. 11(11): 2-3, 33, illus.

Increasing amounts of land are being posted against hunting. A suggested Wildlife Management Practice Act would initiate wildlife management practices on privately owned lands, improve access to them, and provide safety zones and adequate control for the cooperating farmer.

KEYWORDS: Landowner-private, access, legislation.

852. _____ and Eugene C. Waldbauer
1967. Public hunting opportunities in the State of New York. 32d Conf. North Am. Wildl. Trans. 32: 89-95.

New York and other States with large populations still offer surprisingly great opportunities for public hunting. A statewide study indicates

that, of the less densely populated areas which comprise 84 percent of the State, only 26 percent are posted against hunting. Even on posted land, 50 percent said they would allow hunting if strangers would ask permission. Categories of lands and landowners are discussed in terms of the different needs and opportunities represented by each.

KEYWORDS: Landowner-private, New York, access.

853. Swift, Ernest

1961. Esthetic values and merchandising. Wyo. Wildl. August: 34-37, illus.

Wildlife's esthetic and cultural values are rapidly being lost to the mass greed of merchandising with the false attitude that if wildlife cannot be eaten or sold, it is not worth preserving.

KEYWORDS: Philosophy, esthetics, economics, benefits.

854. _____

1964. Private hunting. Fla. Wildl. 17(9): 5, 26.

Author discusses private shooting preserves as an infringement on public rights.

KEYWORDS: Landowner-private, refuge.

855. _____

1965. Conservation hall of fame: Aldo Leopold. Nat. Wildl. 3(3): 20.

Brief biographical sketch is given of Leopold as a conservation visionary.

KEYWORDS: Historical value, philosophy, conservation, biography.

856. Swift, Ernest F.

1951. Maintenance of the hunting and fishing sports. Wis. Conserv. Bull. 16(6): 3-6.

Author discusses some problems of the game management profession including lack of controls on the spreading hunter population, the impact of sportsmen on private lands, and public attitude. It is suggested that any one resource cannot be managed with disregard to others. To solve hunting and fishing pressures, one must have a broad picture of conservation in all its intricate patterns.

KEYWORDS: Fishing, management, resource use.

857. Swift, Lloyd W.

1959. Landowner-government roles in European wildlife management. 39th Conf. West. Assoc. State Game Fish Comm. Proc. 39: 67-73.

Hunting and fishing rights and ownership belong to the landowner in Europe. Countries set the hunting season and control the sale of game in the markets. Federal or State management is almost unknown, and protection, production, and management are up to the landowner. Countries mentioned include Yugoslavia, Norway, the Low Countries, the Mediterranean area, England, Scotland, West Germany, and Austria.

KEYWORDS: Foreign country-general, management, landowner-private.

858. _____

1961. Who hunts and fishes in Western Europe. 41st Conf. West. Assoc. State Game Fish Comm. Proc. 41: 15-19.

Paper gives an account of personal hunting experience and a description of hunting and fishing rights based on land ownership in Europe.

KEYWORDS: Foreign country-general, fishing, landowner-private.

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859. Taber, Richard D.
1961. Wildlife administration and harvest in Poland. *J. Wildl. Manage.* 25(4): 353-363, illus.

Described for Poland are the administration of game ownership, management units, hunting regulations and licenses, hunting societies and circles, hunting seasons for over two dozen species, game damage, recent developments in wildlife conservation, and wildlife institutions. Comparisons are made between Poland (a socialist nation) and West Germany (a democratic, capitalistic nation). A minute proportion (0.12 percent) of the Polish population hunt by North American standards. The hunting fraternity is an elite social group, and management is derived from the system of estates of 19th century aristocratic hunting traditions.

KEYWORDS: Poland, administration, management.

860. _____ Richard A. Cooley, and William F. Royce
1970. The conservation of fish and wildlife as natural resources in the United States, p. 143-151. *In* No Deposit, No Return, Huey D. Johnson [ed.]. Reading, Mass.: Addison-Wesley Publ. Co., Inc.

There are four interrelated problems in the use of fish and wildlife as natural resources in the United States: ownership, habitat, cropping, and husbandry. Discussion of each problem is followed by recommendations which include: the need for a broader base of responsibility for fish and game departments and appropriate funding to free them from dependence on sportsmen; an increase in research support; means to reverse habitat deterioration on private lands; effective pollution regulation; international cooperation and control; and control of human populations.

KEYWORDS: Management, conservation, economics, fishing.

861. Taft, A. C.
1947. Maintenance of angling in California. 12th Conf. North Am. Wildl. Trans. 12: 254-257.

An estimate of the total fish catch for California in 1944 was made by post-card questionnaires sent to 10 percent of the license holders. Only 25 percent responded. Questionnaires sent to nonrespondents revealed that 6 percent of the permittees never fished. Of those who went fishing, 11 percent made no catches and expressed the least satisfaction. Artificial production of fish is an expensive luxury. Of the \$2 the sportsman spends each year, approximately \$1 is used to provide about 12 percent of his total annual catch. Fishermen, accustomed to an annual bag of 71 fish, do not realize that this large number was not supplied by their \$2. Sound management will come when this unrealistic view is counteracted. Cost figures correlated with catch are used to argue against fish stocking.

KEYWORDS: Fishing, management, California, economics.

862. Tallman, John D.
1956. The status of underwater spearfishing in the Puget Sound area of Washington. M.S. thesis, Univ. Wash., 164 p.

Questionnaires mailed to 260 known underwater spearfishermen (not sport divers) yielded a 53-percent return. Nearly 98 percent were men, median age

age was 24.5 years, over 30 percent began the sport in 1952 or later, almost 90 percent participate year round with 'almost 50 percent participating once a week, over half own scuba equipment retailing for about \$160 (\$100-200 was median expenditure for some 36 listed items of equipment), and about 60 percent belong to some 14 underwater spearfishing clubs. Twenty-four spearfishing areas in Puget Sound are listed, with areas close to Seattle the most popular. The ling cod is Puget Sound's most commonly speared fish. Fishermen get at least one fish on three of four trips. Only two-thirds had diving or water safety training. No State or local laws were found pertaining to underwater spearfishing. Rules, diving limits, and conduct codes are set by the director of the State Department of Fisheries. Survey results indicate most spearfishermen prefer no limitations on equipment (27 percent were against gas-powered guns), oppose fish planting, and 63 percent do not favor licensing. Recommendations are presented for the University of Washington Fisheries Department, the State legislature, underwater fishing clubs, surface anglers, sportsmen, and future research. A brief history is presented on surface spearfishing, swimming, and submarine diving with extended treatment of worldwide, U.S., and Puget Sound underwater spearfishing. (A unique topic with interesting historical material.)

KEYWORDS: Fishing, historical value, Washington, preferences, characteristics.

863. Tarzwell, Clarence M.

1941. A second season of creel census on four Tennessee Valley Authority reservoirs. 6th Conf. North Am. Wildl. Trans. 6: 202-221.

A creel census started in 1936 and expanded in 1940 obtained records on 47,030 fishing trips with a listed catch of over 158,000 fish weighing about 154,000 pounds, taken in about 234,000 hours at the rate of 0.7 fish per hour. On the area as a whole, 25 percent of the anglers failed to catch fish. Average fishing time was 5 hours; the average catch was 3.4 fish weighing 3.3 pounds.

KEYWORDS: Crowding, fishing, harvest statistics, surveys.

864. Taylor, Jim

1961. Let's even up the deer **kill!** Wis. Conserv. Bull. 26(1): 14-15, illus.

Author defends the party permit and suggests inclusion of a "variable quota" feature to assure adequate yearly deer harvest.

KEYWORDS: Big game, harvest statistics.

865. Taylor, John I.

1963. As the farm groups see the game departments. 43d Conf. West. Assoc. State Game Fish **Corn.** Proc. 43: 30-35.

Farmer and rancher criticize the game department's relationship with individuals and groups, their role in promoting wildlife and recreational opportunities, and their policies in land management, leasing, and buying.

KEYWORDS: Farmer-sportsman relations, administration, resource use.

866. Taylor, Lytton

1954. A factual press results in a conservation-minded public. 19th Conf. North Am. Wildl. Trans. 19: 555-562.

Managers are losing public support for policies because they are not

keeping the public informed. Conservation education can provide this information only if agencies provide material. Unskilled writers have failed to gain support for a shortened season--agencies cannot keep good newsmen. Civil Service regulations keep the wages of agency reporters lower than those of regular reporters. These regulations must be overruled, and agencies must become involved with public relations to get public support.

KEYWORDS: Conservation, education, public relations, communications.

867. Taylor, W. Hassell

1963. Game harvest and hunter use camp, A. P. Hill, Bowling Green, Virginia. 17th Conf. Southeast. Assoc. Game Fish Comm. 17: 168-172.

The Army's Camp A. P. Hill provides an excellent example of multiple use of military areas. With a two-deer (one of which may be a doe) bag limit, it has produced and sustained a high deer kill and a high hunter use for all recorded periods. Hunting pressure increased 816 percent in the 7-year period from 1954-62.

KEYWORDS: Resource use, management, harvest statistics, Virginia, military.

868. Taylor, Walter P.

1934. Significance of extreme or intermittent conditions in distribution of species and management of natural resources, with a restatement of Liebig's law of minimum. Ecology 15(4): 374-379.

Land use policies, range administration, forest conservation, and game protection should be adjusted not to average conditions, but to those poorer than average or extreme. Species are not adapted to average conditions but to very unfavorable conditions experienced from time to time. The maintenance of wildlife depends upon livable conditions at the period of most critical character.

KEYWORDS: Resource use, administration, management.

869. Teague, Richard D. (ed.)

1971. A manual of wildlife conservation. 206 p., illus. Washington, D.C.: Wildl. Soc.

Included are 49 papers in eight sections which include policy and administration, people and wildlife, wildlife management, fisheries management, wildlife law, wildlife and private land, wildlife research, and techniques for developing an effective short course.

KEYWORDS: Administration, non-consumptive use, management, legislation, landowner-private, education.

870. Teer, James G.

1952. Controlled waterfowl hunting on a State-owned public shooting ground, Forney Lake, Iowa, 1950. Iowa State Coll. J. Sci. 26(4): 541-553, illus.

During the 1950' waterfowl hunting season, 25 floating three-man blinds were distributed over the 489-acre shooting ground. A total of 1,704 hunters harvested 1,417 waterfowl--an average of 0.83 bird per man-day and 7.66 hours per bird. Eighty-two sportsmen harvested daily limits of ducks. Crippling loss amounted to 20.9 percent. Blind success varied according to hunter ability and equipment. Of 875 reservations issued, 382 or 56.3

percent used them. An increase in hunter numbers did not increase the total daily harvest. Of 235 parties questioned, **211** (89.2 percent) were satisfied with area management. Of 202 parties, 175 (86.6 percent) were in favor of the area remaining controlled. Hunters' greatest complaints concerned "sky shooting" and defects of the blinds. Total cost to the conservation commission was \$2,415.37 or \$1.41 per hunter. A 50 cent fee per day to be charged in 1951 should completely defray the cost of managing and operating the area.

KEYWORDS: Waterfowl, management, harvest statistics, economics, Iowa.

871. Texas Game and Fish

1953. Deer laws here and there. Tex. Game Fish. 11(12): 8-9, illus.

General summary is given of laws pertaining to deer hunting, including definition of a legal buck, legal weapons, license fees, calling devices, and other laws. Over 25 States are mentioned.

KEYWORDS: Big game, legislation, surveys.

872. Thomas, Jack Ward, and James C. Pack

1968. Joe Typical, profile of a hunter. Outdoor West Va. 32: 19-20, illus.

A 1967 interview study of 1,353 hunters in West Virginia yielded the following profile of the typical hunter. He was a resident nearly 40 years of age with 19 years of experience. He traveled 110 miles to reach his favorite hunting spot and primarily hunted deer with a shotgun. He spent 8 hours of hunting effort for each deer he saw and 167 hours for each deer he killed.

KEYWORDS: West Virginia, characteristics.

873. Thompson, Emmett F., James M. Gray, and Burd S. McGinnes

1967. Estimated hunting expenditures in Virginia. Va. Polytech. Inst. Dep. For. Wildl. Res. Rep. 116, 8 p., illus.

A mail questionnaire was sent to 1,800 resident and non-resident sportsmen in Virginia. Analysis is based upon a 40-percent return. The average hunter spent \$233 for his hunting activity and \$87 million was estimated as the total expenditures by hunters.

KEYWORDS: Virginia, economics.

874. Thompson, Jesse F.

1948. The public must be educated to the knowledge that legislation and regulation constitute the management of their fish and wildlife resource. 38th Conf. Int. Assoc. Game Fish Conserv. Corn. Proc. 38: 135-138.

Paper discusses briefly the need to control man's predations by better public relations.

KEYWORDS: Public relations, education, management, conservation.

875. Thornton, J. E.

1969. Big Levels--a game management laboratory, Va. Wildl. 30(2): 4,5,23, illus.

Big Levels was established as a game refuge in 1938, but later the

ban on hunting was removed. It is now a testing ground for many new techniques, ideas, and regulations.

KEYWORDS: Refuge, Virginia, management.

876. Threinen, C. W.

1955. Where is sport fishing headed? Wis. Conserv. Bull. 20(2): 23-24, illus.

With proper management, in the year 2000, Wisconsin will host 2,000,000 resident and non-resident anglers. Each angler will have an average of half an acre of water and 50 pounds of fish with which to try his luck.

KEYWORDS: Fishing, Wisconsin, management.

877. Throckmorton, Michael

1958. Some special educational projects of service to sportsmen. 38th Conf, West. Assoc. State Fish Game Corn. Proc. 38: 348-353.

Paper lists and analyzes the educational responsibilities of Idaho's Information and Education Division. Topics included are farmer-sportsman relations, conservation workshops, firearms safety, youth education, and clubs.

KEYWORDS: Idaho, education, farmer-sportsman relations.

878. Tillett, Paul

1963. Doe day: the antlerless deer controversy in New Jersey. 126 p., illus. New Brunswick, N.J. : Rutgers Univ. Press.

Controlling the deer population through antlerless deer hunting seasons led to controversy among groups including landowners, sportsmen, farmers, wildlife managers, motorists, newspaper columnists, governmental agencies, and finally the State supreme court. This book traces the debating and politicking over the shooting of doe deer and the personalities involved over a 3-year period.

KEYWORDS: Big game, Federal-State jurisdiction, either-sex hunt, New Jersey, farmer-sportsman relations, politics.

879. Tindall, Barry S.

1968. Aldo Leopold--a philosophy and a challenge. Parks Rec. 3(10): 28-30, illus.

The philosophy, writings, and achievements of Aldo Leopold carry a plea for recreational experiences of the highest order which deserve more attention from professionals in parks and recreation.

KEYWORDS: Conservation, non-consumptive use, philosophy.

880. Titcomb, John W.

1931. State control of fishing waters. 23d Conf. Int. Assoc. Game Fish Conserv. Corn. Proc. 23: 21-28.

Paper describes how Connecticut leased 4-year fishing rights from rural landowners at a nominal sum and a fair 10-year or all-time-basis renewal price.

KEYWORDS: Fishing, landowner-private, Connecticut, lease.

881. Titus, Harold

1951. Effects of political interference on wildlife administration.
41st Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 41: 78-82.

One problem facing wildlife managers is the continual meddling of statesmen. Opposition to the statesmen's "conservation ideas" can cause the loss of legislative approval for a bureau's budget. Types of "self-proclaimed conservationists" include: those not concerned with wildlife but with political gains, those concerned with wildlife but skeptical of trained personnel, and those not directly in the legislature yet influencing it. Elected managers must play political games to keep their position.

KEYWORDS: Legislation, administration, politics.

882. _____

1958a. Farewell to free hunting? Field Stream 63(8): 37-39, 104-105, illus.

Landowners are rapidly recognizing the advantages of charging for public hunting on privately owned land. Paid shooting preserves restrict the number of hunters per area and often allow a larger bag limit of pen-reared birds than on public areas.

KEYWORDS: Landowner-private, refuge, farmer-sportsman relations, plant and shoot.

883. _____

1958b. More hunting for everyone. Field Stream 63(4): 47, 107-109.

Wildlife researchers have recommended longer seasons or increased bag limits in some areas to keep the game supply at its best. Sportsmen who do not understand concepts of range carrying capacity will be confused, since many of them believe that large bags one year will always mean less game the next.

KEYWORDS: Conservation.

884. _____ and George Laycock

1955. Is public hunting doomed? Part 11. Field Stream 60(7): 82-84, 172-176, illus.

One-third of the Nation's hunters live in the 13 North-central States, where for every acre of free public hunting there are 23 acres of restricted hunting. Even with 11 million acres in National Forests and 11 million in State-owned or -leased forests, there is not enough to meet demand. Private pay-as-you-shoot areas absorb some of the demand. Illinois feels the greatest pressure for more hunting opportunity. Pheasants are stocked and the hunter buys a license and pays \$4 a day for pheasant hunting. North Dakota, by contrast, has a great deal of good hunting land, but landowners are beginning to lease it to clubs. Other North-central States have met hunting demand by forming farmer-hunter cooperatives, promoting self-help programs, and buying land outright. Private shooting preserves are very popular in this region, but only 4 percent of the land is free public range. (Also see part I (Anonymous 1955) and part III (Page and Camp 1955) of this series.)

KEYWORDS: Landowner-private, farmer-sportsman relations, surveys, upland game birds, waterfowl, user-fee, plant and shoot, access.

885. Tody, Wayne H.
1970. Zones for the big lakes. Mich. Dep. Nat. Resour. 39(2): 3-9, illus.
- In 1964 Michigan's fisheries were below par, and fishing license sales declined due to poor quality lake fish. The development of sport fishing on the Great Lakes has improved the fishery. A zone management plan designates three types of water areas: sport fish development zones, rehabilitation zones, and commercial fishing zones. Recreation and commerce are challenged to become complementary.
- KEYWORDS: Fishing, resource use, Michigan, Great Lakes.
886. _____ and Howard A. Tanner
1966. Coho salmon for the Great Lakes. Mich. Dep. Conserv., Fish Div. Fish Manage. Rep. No. 1, 38 p., illus.
- The ultimate aim of introducing coho to the fresh-water environment of the upper Great Lakes is to convert an estimated annual production of 200 million pounds of low value fish into an abundance of sport fish for recreational fishermen and to restore the depressed commercial fisheries to a productive and economically viable industry. (An excellent fisheries management plan is discussed in detail, but all primary considerations are biological.)
- KEYWORDS: Fishing, management, Great Lakes.
887. Toler, Harris
1961. Definition: public fishing rights, Tex. Game Fish. 19(7): 4-5, 27.
- Laws and Supreme Court rulings pertaining to Texas fishing rights are explained.
- KEYWORDS: Texas, legislation, fishing.
888. Tomlinson, George E.
1961. Meeting the needs for hunting and fishing in the southeast river basins. 51st Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 51: 57-64.
- Demand for hunting and fishing in the United States is predicted to increase $2\frac{1}{2}$ times by the year 2000; and although the overall resource potential is great enough to meet it, State and Federal agencies in the southeast river basins may be confronted with financial crises as demands for better accommodations and more assured harvests increase.
- KEYWORDS: Fishing, surveys, economics.
889. Towell, William E.
1967. Do residents control resident game? Am. For. 73(7): 20-21, 40-41, illus.
- One of the hottest States' rights issues in a quarter century concerns the regulation of the harvest of fish and resident game on Federal lands. States are jealous of their historical prerogatives to set seasons and limits. Private land is increasingly going into Federal ownership, and much of it will be closed to public hunting. Current legislation in

Congress which strongly favors the States' position is discussed in its historical perspective.

KEYWORDS: Federal-State jurisdiction, resource use, legislation, historical value.

890. Towles, Harry, and Ronnie Rhody
1955. A well rounded informational and educational program for fish and wildlife departments. 9th Conf. Southeast Assoc. Game Fish. Comm. Proc. 9: 119-123.

Paper encourages and describes full public relations by fish and wildlife agencies.

KEYWORDS: Public relations, education.

891. Trefethen, James B.
1961. Crusade for wildlife. 377 p., illus. New York: Boone and Crockett Club.

This text is an excellent historical reference on wildlife conservation in the United States with focus on the formation, development, and growth of the Boone and Crockett Club. The emergence of sportsmanship is described, along with details on the development of the club's big game trophy records of North America. Details are given on the club's role in setting aside Yellowstone and Galcier National Parks as wildlife sanctuaries, as well as in the formation of the National Forest System and the Wildlife Refuge System. The club was instrumental in the formation of many State game and sportsman policies, legislation, and international wildlife treaties. It was the first to speak against the bounty system on predators and market hunting. The roles of Theodore Roosevelt, Gifford Pinchot, and many others in the conservation field are generously described.

KEYWORDS: Conservation, legislation, commercial hunting, historical value, resource use, predator.

892. Trippensee, R. E.
1939. Wildlife management in the United States: past, present and future. For. Chron. 12(4): 375-381.

Author surveys the highlights of wildlife history and development including past interest and growth in wildlife management, the struggle to save wildlife from extinction, and recent developments in wildlife conservation, research, education, and demonstration.

KEYWORDS: Management, historical value, conservation.

893. Tucker, William J.
1933. Is it wise to tinker with the legal status of game? 25th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 25: 125-130.

Author criticizes the European system of game management wherein the state surrenders game control to the landowner. Advocates licensed shooting preserves on private property where the state maintains control of game.

KEYWORDS: Refuge, Texas, Federal-State jurisdiction.

894. Tucker, Wm. J.
1943. Shooting preserves pay off. *Tex. Game Fish.* 1(4): 6-7, 17, illus.
Article describes Texas' pioneer efforts in a sportsman-landowner cooperative system.
KEYWORDS: Historical value, Texas, Farmer-sportsman relations, refuge, economics.
- 895 Tulane, Roy G.
1953. State's rights in controlling the destiny of interior rivers. *43d Conf. Int. Assoc. Game Fish Conserv. Comm. Proc.* 43: 128-135.
Paper shows how the Federal Government acquired jurisdiction over all the rivers in Wisconsin. Cooperation between State and Federal agencies resulted in a solution to the question of whether or not to construct a dam on the Namekagon River.
KEYWORDS: Federal-State jurisdiction, conservation, Wisconsin.
- 896 Turner, David B.
1948. Professional opportunities in the wildlife field. 208 p. *Am. Nature Assoc. & Wildl. Manage. Inst.*
This somewhat dated text has historical value. Topics covered include individual training, institutions of higher education, and Federal, State and provincial employment. (Bibliography, 21.)
KEYWORDS: Profession, education, Canada.
897. Twiss, Robert H.
1967. Wildlife in the metropolitan landscape. *32d Conf. North Am. Wildl. Nat. Resour. Trans.* 32: 69-74.
Landscape is significant not in its superficial appearance but in its deepest meaning. We must consider the richness of the landscape, its natural processes, its history, and its scenery as an environment for human drama. Resource development should consider spatial arrangement and visual form and a response to functional tasks. Research questions into the human response to the landscape include: what attracts attention, what can most observers identify, what do observers prefer, and what is memorable? Resource managers should solicit design talent for their projects and thus hasten the application of ecosystem evaluation and management in the metropolitan setting.
KEYWORDS: Esthetics, research needs, non-consumptive use, resource use, urban wildlife.
898. Tyre, Gary L., and George A. James
1971. Length and rate of individual participation in various activities on recreation sites and areas. *USDA For. Serv. Res. Note SE-161*, 4 p. Southeast. For. Exp. Stn.
Statistically reliable methods for estimating recreation use on large areas exist, but these often prove prohibitively expensive. Alternatives utilizing length and rate of individual participation in specific activities are presented. Data were obtained from interviews of 7,186 recreationists

from June 13 through October 8, 1966, on the Eldorado National Forest, California; 10,219 recreationists from June 15 through September 4, 1967, on the Toiyabe National Forest, California-Nevada; and 8,144 recreationists from May 15 through September 9, 1969, on the Ashley National Forest, Utah-Wyoming. There were 12,028 persons engaged in fishing, and these represented a 47-percent participation rate, with a mean length of stay of 5.8 hours excluding sleep time. There were 1,194 persons engaged in hunting, and these represented a 4.6-percent participation rate with a mean length of stay of 7.6 hours. Twenty-one other activities are listed, including nature study.

KEYWORDS: Fishing, California, Nevada, Wyoming, Utah, crowding.

U

899. Uhlig, Hans G.

1961. Survey of leased waterfowl hunting rights in Minnesota. J. Wildl. Manage. 25(2): 204.

Survey of 49 waterfowl hunting leases on 3,919 acres showed cash value of hunting rights averaged \$5.10 per acre. Almost half the landowners received an average of \$1.45 per acre. Highest priced leases of \$13 per acre netted the same profit as cropland acreage. Size of area had little to do with cost of lease. Outside hunters paid three to five times the lease price of local hunters.

KEYWORDS: Economics, landowner-private, waterfowl, Minnesota, lease.

900. Underhill, A. Heaton

1958. Hunting and fishing opportunity in an industrial society. 48th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 48: 63-66.

Future hunting opportunity in New Jersey will be founded on public lands, and clean water will be the primary provision for good fishing. Fish and game administrators must demonstrate integrated planning and the public must pay to preserve its outdoor heritage.

KEYWORDS: New Jersey, fishing, conservation.

901. _____

1967. Bureau of Outdoor Recreation and Hunting and Fishing. Remarks at the Fontana Conservation Roundup, Fontana Dam, North Carolina, May 19, 1967. Bureau of Outdoor Recreation. 4 p.

The role of hunting and fishing in outdoor recreation programs is explained. Hunters and fishermen must join with wilderness lovers, foresters, municipal park planners, and local legislators to plan wisely. To the maximum extent possible, the various outdoor interests must be coordinated to pool resources. Outdoor recreation can and should become the rallying point for the development of some non-consumptive uses of fish and wildlife, for wise land use, for sound conservation practices, and other long-range objectives in order to realize an environment that really enhances the joys of living. (Condensed from "Index of Selected Outdoor Recreation Literature," volume three, by Bureau of Outdoor Recreation.)

KEYWORDS: Non-consumptive use, management, fishing.

902. _____ Harry R. Woodward, Charles S. Collins, and Fred L. Jones

1965. The role of fish and wildlife in outdoor recreation. 55th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 55: 78-91.

A series of four articles describes the place or role of fish and wildlife in recreation, presented from the viewpoint of the Federal, State, county park, and State park administrators.

KEYWORDS: Non-consumptive use, administration, fishing.

903. U.S. Bureau of Sport Fisheries and Wildlife

1955. National survey of fishing and hunting. USDI Bur. Sport Fish. Wildl. Serv. Circ. 44, 50 p., illus.

In 1955, 20,813,000 sport fishermen spent \$1,914,292,000 and 397,447,000 recreation days, taking 341,333,000 trips and traveling 17,910,434,000 miles by automobile. The 11,784,000 hunters spent \$936,687,000 and 169,423,000 recreation days, taking 154,370,000 trips and traveling 6,072,296,000 miles by automobile. In 1955, 18,420,000 fresh water fishermen spent \$1,425,353,000; 4,557,000 salt water fishermen spent \$488,939,000; 1,986,000 waterfowl hunters spent \$118,745,000; 9,822,000 small game hunters spent \$494,033,000; and 4,414,000 big game hunters spent \$323,909,000. Approximately 20,000 households were sampled in each of the 48 States, yielding interviews with 6,220 fishermen and 3,108 hunters.

KEYWORDS: Economics, fishing, surveys, characteristics.

904.

1961. 1960 National survey of fishing and hunting. USDI Bur. Sport Fish, Wildl. Serv. Circ. 120, 73 p., illus.

In 1960, 25,323,000 sport fishermen spent over \$2.6 billion and spent 465,796,000 days fishing. They took 412,343,000 trips and traveled over 18.8 billion miles by automobile. The 14,637,000 hunters spent over \$1.1 billion and spent 192,539,000 days hunting. They took 178,284,000 trips and traveled over 7.6 billion miles by automobile. Sportsman expenditures are broken down by fresh water fishermen, salt water fishermen, and waterfowl, small game, and big game hunters. Approximately 45,000 persons 12 years of age and older were chosen in the national sample, and detailed interviews were completed with 6,500 fishermen and 3,800 hunters. Comparison of data is made with the 1955 national survey of fishing and hunting.

KEYWORDS: Economics, fishing, surveys.

905.

1965. National survey of fishing and hunting. USDI Bur. Sport Fish. Wildl. Serv. Res. Pub. No. 27, 76 p., illus.

Personal interviews with 6,400 individuals are summarized in a subsample of the U.S. labor force in a monthly survey by the Bureau of the Census. Included are only those sportsmen who had fished or hunted at least any part of 3 days or spent \$5 or more to go fishing or hunting during 1965. Details include the different types of fishing and hunting by the money and recreation days spent, the number of trips, places of residence, income, occupation, and license status. In 1965, U.S. sport fishermen numbered 28,348,000, spent \$2,925,304,000, spent 522,759,000 recreation days, took 451,449,000 trips, and traveled 22,719,918,000 passenger miles. In 1965 hunters numbered 13,583,000, spent \$1,121,135,000, spent 185,819,000 recreation days, took 169,327,000 trips, and traveled 8,659,034,000 passenger miles. (Popular presentation of survey results in simplified pictorial graph form along with extensive tables giving details of results.)

KEYWORDS: Fishing, economics, surveys, characteristics.

906.

1970. Selected list of Federal laws and treaties relating to sport fish and wildlife. USDI Bur. Sport Fish. Wildl. Serv. WL-489, 4 p.

The 36 Federal conservation laws most commonly associated with the protection and management of wildlife are referenced. Acts are listed and their provisions briefly described. Starting with the Lacey Act of 1900, it ends with the Endangered Species Conservation Act of 1969.

KEYWORDS: Management, legislation, historical value.

907.

1971. Sport fishing USA. USDI Bur. Sport Fish. Wildl. Serv., 464 p., illus.

A comprehensive discussion of sport fishing includes essays on fish biology, the equipment and techniques of angling, places to fish, fish management practices, environmental pollution and quality problems, and economic benefits. The latter reviews data from national surveys of fishing and hunting. Reports on boating activity in relation to fishing and various fisherman expenditure reports substantiate the knowledge that anglers are growing rapidly and that their expenditures are in the billions of dollars.

KEYWORDS: Fishing, access, non-consumptive use, benefits, economics, research methods, resource use, surveys.

908.

1972. 1970 National survey of fishing and hunting. USDI Bur. Sport Fish Wildl. Serv. Resour. Publ. 95, 108 p., illus.

In a mail-questionnaire screening survey, results showed that among those Americans aged 9 years or older, almost 55 million fished, hunted, or both, and spent 779 million days in recreation. Seven million Americans birdwatched, and 5 million photographed wildlife. A second interview-survey revealed that more than 33.1 million Americans hunted and 14.3 million participated in fishing. The fishermen spent \$4.9 billion and fished a total 706 million days. Hunters numbered over 14 million and spent \$2.1 billion on equipment, bait, guides, food, lodging, transportation, and licenses. Detailed tables are presented for demographic variables, game pursued, and sportsman expenditures.

KEYWORDS: Fishing, economics, surveys, characteristics.

909. U.S. Department of Agriculture

1964. The principal laws relating to the establishment and administration of the National Forests and other Forest Service activities. USDA Hand. No. 20, 127 p.

Laws related to wildlife include: (1) 1908, "Enforcement of State laws relating to livestock, forest fires, and wildlife," (2) 1916, "Game refuges," and (3) 1959, "Use of aircraft or motor vehicles prohibited for hunting certain wild horses or burros; pollution of watering holes."

KEYWORDS: Legislation, administration.

910. U.S. Outdoor Recreation Resources Review Commission

- 1962a. Hunting in the United States - its present and future role. ORRRC Study Rep. 6, 117 p.

Study comments on history of hunting, the future supply of huntable game such as the kinds and amounts of game, where it will be found, conditions of the hunter's access to it, the trends that have influenced hunting

in the past and are likely to influence it in the future, and the significance of land use changes and ownership patterns. Study makes "no pretense of being quantitative," but many demographic and resource statistics are presented in tabular form. Also presented are land use and wildlife characteristics of nine study regions in the United States.

KEYWORDS: Historical value, management, economics, resource use, surveys,

911. _____ 1962b. Sport fishing - today and tomorrow. ORRRC Study Rep. 7, 127 p., illus.

During the decade from 1950 to 1960, increase in resident license holders was twice the population increase. Almost 30 percent of all males over 12 years of age are fishermen, and 10 percent of the females. Only 9.8 percent of the inhabitants of big cities are anglers. In towns and rural areas 21.4 and 24.6 percent, respectively, are fishermen. Current trends indicate 63 million anglers will fish 1.3 billion days by year 2000. Increase in fishing demand can be met with only slight reductions in the average catch by adding new waters (mostly new impoundments and farm ponds), by better management of existing waters, and by more fishing in coastal waters. The survey reveals data on fishing as a form of recreation, the status of fishing waters in 1960, problems of supply, management policies and responsibilities, sport fishing in the years ahead--1976, 2000-- and a summary of prospects for regions of the country. Social and economic advancements, technological changes, and population expansion have caused many adjustments in the concepts of sport fishing. Angler overcrowding apparently appeals to the gregarious nature of a sizable segment of the fishing public. Anglers normally accept crowding if fishing is good. Much biological and management information was gained by questionnaires sent to all 50 State game departments. All 50 States responded.

KEYWORDS: Economics, fishing, historical value, management, preferences, surveys.

912. U.S. Senate Committee on Commerce
1965a. Compilation of Federal laws relating to the conservation and development of our Nation's fish and wildlife resources. 89th U.S. Congr., 1st Sess., 472 p.

KEYWORDS: Legislation.

913. _____ 1965b. Treaties and other international agreements containing provisions on commercial fisheries, marine resources, sport fisheries, and wildlife to which the United States is party. 89th U.S. Congr., 1st Sess., 410 p.

KEYWORDS: Legislation, foreign country-general.

914. _____ 1970. Treaties and other international agreements on oceanographic resources, fisheries, and wildlife to which the United States is party. 91st U.S. Congr., 2d Sess., 672 p.

KEYWORDS: Legislation, foreign country-general.

V

915. Van Den Akker, John B., and Vanez T. Wilson
 1951. Public hunting on the Bear River Migratory Bird Refuge, Utah.
 J. Wildl. Manage. 15(4): 367-381, illus.
 A refuge checking station operating since 1932 has yielded the following. Setting hunting dates to miss the presence of protected species is more effective than differential bag limits; bag limits affect bag averages little but they do affect total kill. The most important factor in total kill is the number of hunter days spent in the field. The split season and the State optional open-season dates permit longer seasons and increase the enforcement problem. Standard starting and closing times should be 7 a.m. and 4 p.m. The average bag for the years 1932-48 was 3.5 birds per hunter day. Hunter success is proportional to bird population density, hunting skill, and the quality of equipment.
 KEYWORDS: Crowding, waterfowl, refuge, harvest statistics, Utah.

916. Van Dresser, Cleveland
 1956. Elbow room for sportsmen, Am. For. 62(7): 18-19, 46, illus.
 Florida's public hunting program has created a sportsman's paradise by opening 2 million acres to hunters and anglers while keeping the land-owner happy.
 KEYWORDS: Landowner-private, Florida, fishing, access.

917. _____
 1959. Multiple use wildlife refuge. Am. For. 65(3): 20-21, 46-48, illus.
 St. Mark's refuge is primarily a wildlife sanctuary. It also serves as a public recreation area by providing boating, fishing, waterfowl shooting in season, and historical points of interest.
 KEYWORDS: Refuge, Florida, resource use, waterfowl.

918. Van Etten, Robert C., D. F. Switzenberg, and Lee Eberhardt
 1965. Controlled deer hunting in a square-mile enclosure. J. Wildl. Manage. 29(1): 59-73, illus.
 Seven annual controlled hunts (1954-60) conducted in a square-mile fenced enclosure in northern Michigan show quantitatively what proportion of a white-tailed deer herd a hunter may see and bag under various hunter conditions and deer concentrations. Results indicate that deer are usually more plentiful than seems evident to the casual observer. In 1954, a party of six hunters required 124 man-hours (15% man-days) of hunting even to see a buck, although seven were known to be on the square mile hunted. Over the seven years, hunters on the average saw a deer every 1.3 hours, but bucks were seen only every 18 hours of hunting time. "Good" days were correlated with large number of sightings. Still-hunting or stalking was the most popular method of hunting, but driving was most effective means per unit of effort for killing deer. No bucks were ever seen on a drive.
 KEYWORDS: Big game, management, research methods, harvest statistics, Michigan.

919. Van Orden, George O.
1945. Retraining the returned G.I. to shoot safely. 10th Conf. North
Am. Wildl. Trans. 10: 53-61, illus.

Tests on 5,000 rehabilitating Marine war veterans at Klamath Falls, Oregon, revealed lack of firearm safety knowledge and skill. Most rated themselves better shots than the test revealed. About 60 percent expressed desire to hunt with either rifle or shotgun after the war, and 81.3 percent expressed interest in competitive shooting. They showed poor marksmanship (compared with N.R.A. standards), and a test of 824 men showed declining marksmanship with increased years of service. (Testing procedure and research incompletely described.)

KEYWORDS: Safety.

920. Vessels, Jay
1952. King of the market hunters. *Tex. Game Fish.* 10(12): 11-14, illus.

A story is told of an 86-year-old named Nat Wetzel who was one of the world's biggest commercial agents in wildlife half a century ago. He insists that the decline in wildlife populations resulted from encroachment of civilization, not from market hunting. Wetzel is described as the big game, frog, onion, and melon king. He trained hunters in the art of catching frogs which grossed \$50,000 a year in two States.

KEYWORDS: Commercial hunting, historical value, big game.

921. Vilkitis, James R.
1968. Characteristics of big game violators and extent of their activity in Idaho. M.S. thesis, Univ. Idaho, 202 p., illus.

Questionnaires mailed to 874 randomly selected big game hunters and to 874 convicted violators yielded 38.4-percent returns from violators and 51.5 percent from hunters. Interviews of 32 violators and 29 sportsmen supplement questionnaires. Violators were more likely than hunters to be male, not own a telephone, of age 20-29 years, have an elementary school education, married, three dependents under 18 years, rent, be industrial workers, hold more than one job, be less conscious of class structure, spend more time on public land, and prefer to hunt over other forms of recreation. Violators were more likely than hunters not to turn in violations by strangers. Both were unwilling to report a friend for violating. Personal interviews revealed that violators, contrary to hunters, thought hunter crippling losses were higher, that game laws were well enforced, and that a higher percentage of violators were not apprehended. Differences in age, income, marital status, and family between closed-season violators and open-season violators are presented. Of all arrests for big game violations, 62.2 percent involved deer, 12.2 percent elk, 3.4 percent moose, 3.1 percent antelope, 0.5 percent bear, 0.4 percent sheep, and 0.1 percent goat. Checking station violations constituted 10.5 percent of all citations. Violations include 66.2 percent for unlawful procedure, 23.6 percent for closed season, 3.5 percent for over the limit, 1.3 percent for illegal gear, 2.3 percent for no season, and 3.1 percent for no license. The majority of hunting season arrests occurred on weekends, while the majority of closed season arrests occurred on weekdays. Hunting season citations, in general, were increasing, while the average fine was decreasing. An effort to determine the ratio of violators to nonviolators per arrest was unsuccessful. Conclusion is that the hunting public, although opposed to violations, will condone them. (Thesis emphasizes description of research

methods and design, but severe non-response bias may exist. Literature cited, 11.)

KEYWORDS: Enforcement, research methods, preferences, characteristics, Idaho, law violation.

922. Vogt, William

1961. The management of human populations. 26th Conf. North Am. Wildl. Nat. Resour. Trans. 26: 4-18.

Control of man, the most dynamic animal in the environment, is lacking. Population is discussed in its historical, cultural, religious, economic, and educational aspects. Motivation is cited as a major problem. An astounding ignorance of human anatomy, physiology, and the reproductive process is revealed. Abortion, sterilization, taxation, and restriction on immigration are suggested control methods.

KEYWORDS: Crowding, education, historical value, management.

923. Vogtman, Donald Benjamin

1942. Results of a controlled shoot on the Soap Creek experimental pheasant area, Corvallis, Oregon, October, 1941. M.S. thesis, Oreg. State Coll., 70 p., illus.

Simple management practices and total hunting protection over a 5-year period justified a controlled pheasant harvest. Only 27 permits were issued for the experimental area. Average shooting distance was 36 yards and 329 shots were fired, but 75 percent of the shots missed their mark. Average crippling loss was 39.4 percent. Farmers showed little interest in monetary return but were interested in controlling unrestricted hunting on their lands. The history of controlled hunt programs in other States is discussed.

KEYWORDS: Historical value, Oregon, upland game birds, farmer-sportsman relations.

924. Vorderstrasse, Roger Ernest

1955. Hunting deer with bow and arrow in the McDonald Forest, Oregon. Oreg. State Coll. M.S. thesis, 51 p., illus.

Descriptive study used 2,520 checking station records, field observations, hunter report cards, and mail questionnaires to 59 successful hunters during 1953 and 1954 seasons. Data revealed 32 shots per kill, 50 percent of hunters getting shots, 4.2 percent successful archers, 195 hours hunted per kill, 34 yards average length killing shot, and about 70 yards traveled by mortally hit deer. Details are given on arrow hit location, organs injured, arrow penetration, blood trails, sex-age classes of deer, equipment used, two accidents, hunter and landowner complaints, etc.

KEYWORDS: Big game, archery, harvest statistics.

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925. Wagar, J. V. K.
1947. The contest for western public game fields. J. For. 45(5):
323-328.

Sympathy for the interests of cattle ranchers, settlers, hunters, fishermen, and public land management agencies is maintained throughout this review of the current public land contest between the livestock industry, public land agencies, and the public itself. Author suggests problems that will arise if certain legislation proposed by stockmen and backed by the Chamber of Commerce becomes law. Caution and full examination of the facts are advocated before policies are enacted that may cause further conflict in use and deterioration of resources.

KEYWORDS: Landowner-public, legislation, historical value, resource use.
926. Wagner, Fred H.
1954. Public hunting grounds. Wis. Conserv. Bull. 19(8): 18-21.

Public hunting grounds provide extra space when other areas become too crowded, Wisconsin ranks high in providing hunting areas for its sportsmen.

KEYWORDS: Wisconsin, landowner-public, landowner-private, resource use.
927. Waldbauer, Eugene Charles
1966. A study of posting on private lands in New York State. Ph.D. diss., Cornell Univ., 278 p.

This is a study of private land posting from 1962-65 in 100 randomly selected towns in New York State. Investigation consisted of qualitative and quantitative aspects of posting and motivation. Results showed 26 percent of huntable State land posted by absentee, second party, full-time farmers, and rural nonfarm owners. The Hudson Valley-Catskill area had the largest (52 percent) amount of posted land. Poster condition, message, materials, cost, and legality were also studied. Interviews with 361 or 5 percent of the landowners in each ownership category show that the primary reasons for posting were: protection from large groups, personal and family safety, damage to fences, desire to have private game available, and hunter shooting near buildings. Although 83 percent of the landowners would allow friends and relatives to hunt, only 50 percent would permit strangers on land. Eighty percent of the owners were more concerned about regulating hunter behavior than in stopping hunting entirely. Very few owners were interested in pay or other incentives which might encourage them to allow public hunting. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Lease, landowner-private, preferences, economics, access, New York.
928. Wallace, Robert F.
1952. Economic aspects of wildlife resources of the State of Washington. Wash. State Coll. Econ. Bus. Res. Bull. No. 19, 42 p.

In 1950 an estimated \$100 million was spent for wildlife or in its pursuit. Of this sum, \$80 million was spent by the State's 400,000 resident licensees, who averaged about \$200 each. In popularity, fishing ranked first, then big game, upland game, and waterfowl last, with sportsmen spending \$125, \$88, \$74, and \$60, respectively, in each pursuit. Hunting expenditures are broken into 16 goods and service categories, and these

totals are compared with other industries in the State. Washington wildlife, in 1950, represented nearly 20 percent of all agricultural income. (Condensed from a review by Lee E. Yeager in *Journal of Forestry* 51(1): 37-38.)

KEYWORDS: Economics, Washington, benefits, research methods, fishing.

929.

1956. An evaluation of wildlife resources in the State of Washington. Wash. State Coll. Econ. Bus. Res. Bull. No. 28, 63 p., illus.

A questionnaire was mailed to 1,051 sportsmen. The response after one followup letter, telephone calls, and personal interviews was 851, or 81 percent of the sample. Returns indicate that the average licensed sportsman spent \$152 in 1954. License expenditures of \$3 million bring the sportsmen's total outlay to \$71 million. Fishing brought in the most money, with 79 percent of the respondents reporting average expenditures of \$116. Big game hunting had 50 percent of respondents reporting an average \$67 expenditure. Upland game accounted for 36 percent of respondents and \$54 average, and waterfowl 22 percent and \$41. When the \$71 million spent by sportsmen is combined with the \$25 million paid to Washington commercial fishermen for their 1954 catch, \$96 million was spent that year for wildlife or in its pursuit. Comparisons are made between the amount of money paid for wildlife resources and the amounts paid for other crops, products, and services during a similar period. Such data afford a basis for observing the economic importance consumers attach to wildlife in comparison with farm crops or the retail trade. Evaluation of wildlife resources in other States is discussed.

KEYWORDS: Fishing, economics, Washington, benefits.

930. Walsh, Clark B.

1957. Do you see red? Oreg. State Game Comm. Bull. 12(1): 3, 6, illus.

Prealysis results of a series of tests conducted at Fort Lewis in Washington State suggest that yellow is preferable to red as a color to wear for safety while hunting.

KEYWORDS: Safety.

931. Walters, D. W.

1957. The methods used in Alabama in combating the hunting of deer at night. 11th Conf. Southeast. Assoc. Game Fish. Proc. 11: 378-393.

Ten different papers each deal with ways to prevent headlighting or hunting deer at night. Conservation officers from the following States present what their State is doing: Alabama, Arkansas, Florida, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, and Tennessee.

KEYWORDS: Big game, law violation, enforcement, Alabama, Arkansas, Florida, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee.

932. Wandell, Willet N.

1946. An intensive method of determining hunter numbers and activities. 11th Conf. North Am. Wildl. Trans. 11: 373-382, illus.

A method of hunter census based on report cards was devised and used in 1940-43 on a 6,000-acre Massachusetts area during the course of an intensive

investigation of ring-necked pheasant populations. Hunters were divided into two groups: resident and transient. Residents were contacted before the season and asked to record their hunting activities. Transient hunters were contacted or their cars were tagged. Approximately four out of five cards distributed to transient hunters were returned with usable data. The accuracy of the information supplied, according to field checks, was high. Resident hunters need frequent reminders to keep their cards up to date. The cost for a 30-day season was \$1.29 per square mile.

KEYWORDS: Research methods, Massachusetts.

933. Ward, Charles L.

1957. Wildlife educational information desired by Colorado sportsmen from State game managers. M.S. thesis, Colo. Agric. Mech. Coll., 184 p.

Mail questionnaires sent to 505 resident hunters yielded a very low 11.5-percent return and indicated that transplanting and information on exotic species, trophy information, and history of game were desired by respondents. Posting and access to private land was a "pet peeve." Boy Scouts, a rod and gun club, and an American Legion Chapter added 123 questionnaires. Content for a pamphlet includes distribution, life history, habitat, and management of nine big game and 16 upland game animals. (Fairly good discussion of need for more communication and public relations in wildlife management. Questionnaire included. References, 137.)

KEYWORDS: Education, Colorado, preferences, historical value.

934. Watt, Richard Darrell

1966. The recreational potential of the Arctic National Wildlife Range. M.S. thesis, Univ. Alaska, 103 p., illus.

The Arctic National Wildlife Range was studied for 42 days of field travel. The minimum cost for two people to spend 10 days on the range was approximately \$450. Feasible activities include backpacking, mountain climbing, photography, canoeing, hunting, and fishing. Of 298 questionnaires received from recreationists, 199 indicated an interest in visiting the Arctic Range. Their primary reason was backpacking, followed in ascending order by photography, mountain climbing, canoeing, fishing, science, and hunting. A zoning system of management is recommended, with one area to be in the National Wilderness Preservation System and another to be reserved for utilitarian uses. Also given are a history of the establishment of the refuge, including congressional hearings; a physical description of the area; details on equipment, rates of travel, food and supplies needed for the activities mentioned above; and guidelines for administrative planning.

KEYWORDS: Alaska, non-consumptive use, refuge, economics, historical value, administration, legislation.

935. Weatherby, Roy E.

1963. As a sporting goods manufacturer sees us. 43d Conf. West. Assoc. State Game Fish Corn. Proc. 43: 60-62.

Manufacturer suggests caliber and energy restrictions be placed on hunting weapons, and that the government's 11-percent excise tax on firearms and ammunition be transformed into a more expensive hunting license.

KEYWORDS: Economics, license fee, equipment.

936. Webb, William L.

1960. Forest wildlife management in Germany. J. Wildl. Manage. 24(2): 147-161.

German hunting is highly formalized and traditional. A hunter must pass a difficult examination, which covers aspects of game and traditions, before he can secure a license. All land, public and private, is included in the revier (or district) system, and the hunter must be invited to hunt by a revier owner. The revier owner is responsible for preparing a shooting plan which includes feeding game and insuring perpetuation of trophy animals through selective cropping. A licensed hunter who belongs to a revier has high status, for he has demonstrated his knowledge of traditional hunting rules and ethical concern. Before animals are shot, they are studied through binoculars to determine whether they meet specific requirements spelled out in the shooting plan. After the game is shot, it becomes the property of the revier owner, and no hunter expects to take home game although he may be given a small portion of meat. Hunter clothing is characterized as formal. Red shirts and a "slouch" hat are considered foolish. Germans wear green clothing, neat trousers, a necktie, and a respectable hat.

KEYWORDS: Management, Germany, landowner-private, characteristics.

937. _____

1968. Public use of forest wildlife: quantity and quality considerations. J. For. 66(2): 106-110.

Quantitative games such as "cost-benefit" and "count the people participating" need replacement with an "esthetic game." Public concern for quality has arrived. Regulation of hunting and fishing pressure is an immediate quality consideration. The emphasis should shift from "game" management to "wildlife" management. Today's outdoor recreationists seek not only material but also esthetic, emotional, spiritual, and intellectual challenges.

KEYWORDS: Esthetics, resource use, fishing.

938. Webber, Joel F.

1950. Ancient beliefs about fish. Tex. Game Fish. 8(6): 20-21, 29, illus.

Most of our modern superstitions are relics of the ancients. The Egyptians believed the carp was the bravest of all fish and that eating carp flesh increased one's perseverance and good fortune. Successful fishing in the days of the ancients was governed by charms, occultisms; and the position of the planets and the moon. Anglers often regarded unusual fishes they caught as wayward pets of the gods.

KEYWORDS: Historical value, folklore, fishing.

939. _____

1955. Man the hunter. Tex. Game Fish. 13(2): 11-12, 23, illus.

Author describes development of "man the hunter" and "man the sportsman" from prehistoric time to the present. Man's weapons are significant in this development.

KEYWORDS: Historical value, equipment.

940. Weber, Andrew J., Frank B. Barick, and Jerry Wood

1966. Calibration of deer hunting effort and success. 20th Conf. Southeast. Assoc. Game Fish Comm. Proc. 20: 181-188, illus.

A statistical analysis of participation and kills on wildlife management areas in North Carolina during 1965-66 revealed that the average for 13,468 buck hunters was 1.8 trips each and 21 trips per kill. Local buck hunters were most successful, and all hunters were more successful in the morning. Either-sex hunts were made by 8,817 hunters, with an average 1.3 trips each and 15 trips per kill.

KEYWORDS: North Carolina, harvest statistics, either-sex hunt, big game.

941. Weber, Henry M. D.

1963. What kind of outdoor recreation can an exploding population expect? 43d Conf. West. Assoc. State Game Fish Comm. Proc. 43: 52-56.

Author examines points of agreement, difference, and divergence among members of the conservation movement. Issues easily agreed upon include: use of poisons, water pollution, parks and wilderness preservation, abuses to lands, predator "control," and market hunting. Points of divergence include: quantity and quality priorities in granting a license to kill wildlife, failure of State and Federal agencies to protect wildlife, dollar value of wildlife, dangers incident to the influence of pressure groups that benefit from exploitation of wildlife, and dangers of exotic species importation.

KEYWORDS: Non-consumptive use, conservation.

942. Webster, H. T., and Ed Zern

1945. To hell with fishing, 87 p., illus. New York: Appleton-Century-Crofts, Inc.

This book contains a collection of cartoons and humorous short stories about fish and fishermen. Essays include: how to dispose of dead fish, why dumb people catch more trout than smart people, how to tell fish from fishermen, all about guides, all about big-game fishing, and the truth about Izaak Walton.

KEYWORDS: Fishing, non-consumptive use, characteristics, folklore.

943. Westerman, Fred A.

1936. What are public waters? 28th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 28: 95-102.

A brief history is given of the development of definitions for "public" and "private" waters and navigability. A summary is given of the Pine River Case which involved the rights of an Ohio citizen who acquired the title to both banks of several miles of a Michigan trout stream and then attempted to prevent public fishing from the water by jamming the river with logs. The final decision favored the public interest and declared the river to be navigable and public.

KEYWORDS: Michigan, landowner-private, historical value, legislation, resource use.

944. Westerskov, Kaj

1951. Observations on deer kill under different systems of hunting. J. Wildl. Manage. 15(1): 27-32.

In 1945, Denmark's deer harvest doubled that of Michigan. Higher kill under the Old World system was due to closer herd checks, longer season, no

bag limits, and the hunting right invested in landownership. Hunters in Michigan lack the requirement for making a greater kill: a good knowledge of the deer herd--its numbers, age, health conditions, development, and sex ratio.

KEYWORDS: Big game, Michigan, Denmark, harvest statistics.

945. Whisenhunt, Matt H.

1961. Suggested methods and pitfalls of selling an antlerless deer season to the public. 15th Conf. Southeast. Assoc. Game Fish Comm. Proc. 15: 453-455.

A four-step method includes: listing objections and alternate plans after an antlerless season has been suggested, refuting objections with biological data, educating employees on the proposal, and using all news media to disseminate information.

KEYWORDS: Public relations, either-sex hunt, education.

946. White, David L.

1955. How New Hampshire attached the dollar sign to its fish and wildlife. N. H. Fish Game Dep. Tech. Circ. 11, 20 p.

In 1952 a mail questionnaire sample of 3,260 sportsmen was made from six license categories, including resident and non-resident hunting and fishing. Two followups to nonrespondents were made and an interview was attempted for persistent resident nonrespondents. The data show sportsmen spent an average \$144.66 during 1952. Residents spent over \$11.6 million compared with \$10.7 million spent by nonresidents. The highest expenditure for residents was transportation, which accounted for 21 percent of their total expenditure. For nonresidents, food and lodging took 57 percent of their total expenditures. Fourteen different expenditure items are listed.

KEYWORDS: Resident vs. nonresident, New Hampshire, economics.

947. White, William M.

1953. Economic value of fish and wildlife. Va. Wildl. 14(6): 21-23, illus.

Author discusses difficulties in estimating hunter and fishermen expenditures. Sportsmen expenditures of \$3 billion for 1950 are based on an estimated sportsmen expenditure of \$100 each.

KEYWORDS: Fishing, economics.

948. Whiteman, Eldon Eugene

1965. A comparative study of the effect of a traditional and a specially designed college course in biology upon conservation attitudes. Ph.D. diss., Mich. State Univ., 203 p.

A Likert-type scale was used to test and evaluate conservation attitude changes in two control and one experimental Michigan college biology classes. The experimental class was given 5-week conservation and ecologically-oriented course of renewable resources--soil, water, forests, and wildlife--preceded by an introduction to the population crisis and its effect on the natural resource base. The control classes received no conservation instruction. Results showed a positive change in the attitudes of the experimental group; no statistically significant changes occurred in either control group; sex was not a factor in attitude change; rural students were influenced

more by their place of residence than were urban and suburban students; 4-H training appeared to affect attitudes, but scouting had no significant effect. (Condensed from *Dissertation Abstracts*.)

KEYWORDS: Michigan, conservation, education, preferences.

949. Whitesell, Dale E.

1952. An analysis of the farmer-hunter problem in Ohio. 17th Conf. North Am. Wildl. Trans. 17: 533-538, illus.

Personal interviews were made with a sample of the farm operators living in the open country zone of Ohio. The open country zone consists of all unincorporated places. The survey revealed that 61.8 percent of Ohio's farm land is available to hunters who obtain the farmer's permission, and only 3.9 percent of Ohio's farm land is closed to all hunting. Thirty percent of the State's farm operators have experienced hunter damage, with 66.3 percent of this involving fence damage. Various nuisances (such as shooting near buildings, hunting out of season, road shooting, and neglecting to close fence gates) and the percentage of farmers reporting them are tabulated.

KEYWORDS: Ohio, farmer-sportsman relations.

- 950.

1968. Our most important endangered species--the hunter. *Conservationist* 22(5): 28-31, 47, illus.

The vice president of Ducks Unlimited encourages wildlife management to save the hunter from extinction, since the hunter contributed \$100 million toward wildlife conservation in 1966 and still provides most of the funds necessary to maintain and improve waterfowl habitat.

KEYWORDS: Economics, antihunting.

951. Whitesell, Dale Edward

1951. A comprehensive study of the Wood County, Ohio, township hunting associations. M.S. thesis, Ohio State Univ., 70 p., illus.

Due to a general disregard for the farmer's rights throughout the county prior to 1930, farmers organized into 12 associations during the 1940's. Objectives of 11 of these were studied and found to be as follows: to afford mutual protection to landowners and hunter permittees, to insure an adequate brood stock yearly, and to have association lands used by as many hunters as possible. Personal interviews with 322 farm households showed that association members reported fewer incidents of trespass and damage than the non-association farmers. Through trial and error one of the associations found that 75 non-resident permittees and 125 landowner permittees were a suitable number of hunters on the 4,000-acre area to insure human safety and protection of game stock. Suggestions for running a farmer association are given.

KEYWORDS: Farmer-sportsman relations, upland game birds, Ohio, harvest statistics.

952. Whiting, Gerry Harshorn

1968. Ice fishing as a form of outdoor recreation in an expanding urban environment: Kensington Metropolitan Park: a case study. M.S. thesis, Univ. Mich., 111 p.

Restricted to University of Michigan campus use.

KEYWORDS: Fishing, preferences.

953. Whittaker, James C., and James F. Connors

1971. The "Maine Sportsman" revisited. Life Sci., spring. 5 p.

Usable questionnaires were received from 583 respondents to an earlier study of Maine sportsmen, which represented a 56-percent response from those contacted. Less than one-third of the respondents were consistent hunting or fishing license purchasers. Nearly all resident hunting license purchasers hunted deer in 1968, and most spent 5 or more days in pursuit of their game. Snowmobile owners may be overrepresented in this survey. Few use their machines to get to deer hunting areas. Almost half the snowmobile-owning respondents reported using their machines to go ice fishing and nearly 41 percent went pleasure cruising on 40 or more occasions during the 1968-69 winter season. The non-resident big game hunter typically makes one trip of a week's duration. The nonresident who participates in both hunting and fishing is likely to make about seven trips of 1 or 2 day's duration each.

KEYWORDS: Big game, fishing, Maine, resident vs. nonresident, characteristics, equipment.

954. Wiita, Clifford B., and James G. Bell

1959. Managed hunting at Horicon. Wis. Conserv. Bull. 24(10): 12-14, illus.

Description is given of regulated hunting for waterfowl, pheasants, and deer at Horicon Marsh. Six-year summary of man-days, pounds of game, and dollar value is given. Overuse suggests need for rationing. (No analysis of data. Also see Bell, Gunther, and Jahn (1956) and Bell, Jahn, and Gunther (1955).)

KEYWORDS: Wisconsin, management, economics, archery, harvest statistics.

955. Wildlife Management Institute

1971a. Report to the Western Association of State Game and Fish Commissioners on nonresident hunting and angling. Wildl. Manage. Inst., 16 p.

Thirteen western States, including Alaska and Hawaii, were examined. There were 268,000 non-resident hunters and 927,000 non-resident anglers in 1970. Non-resident sportsmen were most numerous in Wyoming, Colorado, Idaho, and Montana. On the average, it cost a nonresident 5.5 times as much to hunt as it did a resident, while anglers paid 2.5 times as much. Total hunting revenue from nonresidents ranged from 1.3 percent in California to 84.7 percent in Wyoming, and yet the nonresident comprised only 9 percent of all hunters. Nine recommendations include: (1) non-resident hunters should pay no greater than five times what residents pay for the same privilege, (2) non-resident anglers should pay no more than three times what the resident pays, (3) non-resident quotas on hunters should be established only for wildlife management reasons such as safety or harvest of species, (4) States may prohibit nonresidents from hunting species that are in limited numbers, (5) mandatory use of guides should be eliminated unless there are safety considerations, (6) State wildlife commissions should be authorized to set quotas and controls to accomplish the above recommendations, (7) residence requirements should not be greater than 6 months, (8) States heavily dependent on non-resident income should seek funds from other sources, (9) uniformity and reciprocity of fees among States should be established as a desirable goal. (Seventeen tables.)

KEYWORDS: Economics, administration, fishing, resident vs. nonresident, surveys.

956. _____ 1971b. The American game policy and its development 1928-1930. *Wildl. Manage. Inst.*, 44 p., illus.
- Article includes the report of the Committee on American Wildlife Policy which was presented to the 16th American Game Conference in 1929 and a summary and formal policy statement presented to the 17th American Game Conference in 1930. This analysis of the American game policy includes precise definition of the following: game management and administration and the mechanisms of management, classes of game and land in relation to management, an analysis of the farm game problem (organizing farmers and sportsmen, criteria of sound landowner relationships, and recent developments), an analysis of the forest and range game problem, the wilderness game problem, the migratory game problem, controversial issues (predator control, excess game, "protection" vs. management, native vs. exotic species), fact finding and education, and finally organization and finance. (See Leopold 1929, 1930a, 1930b for more detailed abstracts.)
- KEYWORDS: Historical value, administration, education, farmer-sportsman relations, predator, profession, management.
957. Wildner, James
1948. Public hunting grounds: how set up and why. *Wis. Conserv. Bull.* 13(10): 7-10, illus.
- A summary is made of the Wisconsin public hunting grounds program including administration, area selection, lease and purchase of areas, and public cooperation.
- KEYWORDS: Landowner-public, administration, Wisconsin.
958. Wilkins, Bruce Tabor
1967. Outdoor recreation and commercial fishery data development, and use in planning: a case study, Town of Southold. Ph.D. diss., Cornell Univ., 180 p.
- Focus was on the development of methods, such as personal interview, useful in estimating levels of participation for swimming, boating, pic-nicking, fishing, clamming, and hunting. Land and aerial observation yielded figures on participant days; but further study of boating and hunting participation, perhaps using time-lapse camera, is suggested. On-site, personal interviews provided appropriate socioeconomic characteristics. Planning based upon recognition of variations in user characteristics (by residency group or between different group activities) is urged. Suggestions are given to restrict deterioration of recreationally attractive portions of the marine ecosystem. Changes in recreation participation activities are projected. Procedures are given to community planners for quantifying outdoor recreation for amenity or economic purposes. (Condensed from *Dissertation Abstracts*.)
- KEYWORDS: New York, fishing, research methods, management, economics.
959. Willard, E. V.
1936. Control of fish, game, lakes and streams in the various States by the Federal Government. 28th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 28: 48-55.
- Present Federal laws and regulations, giving jurisdiction over wildlife within federally owned areas, constitute a challenge to exclusive State

control. Divided responsibility does not produce increased efficiency and harmony between State and Federal agencies. State control is favored but it can be lost through negligence. To properly maintain and operate the increasing number of federally owned areas, Federal agencies may be forced to invade a State's jurisdiction and sources of wildlife revenues.

KEYWORDS: Federal-State jurisdiction, legislation.

960. Williams, Fred

1955. Highlights of progress in law enforcement in the last decade, 9th Conf. Southeast. Assoc. Game Fish Corn. Proc. 9: 19-25.

Paper gives a concise outline of law enforcement progress by States in the Southeastern Association of Game and Fish Commissioners. Suggestions are given for advancing enforcement standards.

KEYWORDS: Enforcement, historical value, Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, North Carolina, South Carolina, Tennessee, Virginia.

961. Williams, Frederick Arthur

1960. A plan for improving hunter-farmer relationships based on the Orenco Game Management Project. M.S. thesis, Oreg. State Coll., 66 p.

Thesis describes Oregon Game Department's adaptation of the Pennsylvania Cooperative Farm-Game Program, including details of field-rearing of pheasants. Thirty-three landowners signed agreements to allow regulated hunting on their lands, and 21 were interviewed. Only one farmer reported property damage by hunters, while four reported crop damage by birds. Management reports show the average hunter spent 2.55 hours afield and killed 0.53 pheasant. Dog "harassment" tended to disperse birds to adjacent areas. Eleven (50 percent) of the farmers preferred that all hunters ask permission to hunt.

KEYWORDS: Management, Oregon, landowner-private, farmer-sportsman relations.

962. Williams, Lou

1950. The Federal point of view in river basin management; Part I. 40th Conf. Int. Assoc. Game Fish Conserv. Corn. Proc. 40: 129-135.

A brief outline is given of the history and principal objectives of the Tennessee Valley Authority and a discussion of this agency's contributions to recreation, forestry, soil management, and conservation. The fishing use for Gunterville Dam jumped from 72,800 fishermen catching about 4.6 pounds per trip in 1947 to 166,700 fishermen catching 5.4 pounds per trip in 1949. License sales in Tennessee totaled \$560,000 in 1947 compared with \$80,000 in 1934.

KEYWORDS: Economics, fishing, historical value, harvest statistics, Federal-State jurisdiction, surveys.

963. Williamson, Leslie A.

1940. Regulated private shooting preserves in Connecticut. 5th Conf. North Am. Wildl. Trans. 5: 354-359.

Since 1934, regulated shooting preserves in Connecticut have not hurt the public interest. Private preserves do not appreciably lessen the hunting pressure. Over a 6-year period, 21,252 birds were not killed. However, many of these may have drifted off the preserves to become available to hunters on public shooting areas.

KEYWORDS: Crowding, refuge, management, Connecticut, upland game birds, plant and shoot.

964. Wilson, John E., and Robert F. Perry
1961. Controlled waterfowl hunting. N. Y. State Conserv. 15(2): 2-5, illus.
- The New York Conservation Department's two largest waterfowl areas are managed to provide quality recreation through controlled hunting. On the Wilson Hill Game Management Area during 1960, the permit system was used to provide maximum data on waterfowl kill. The cost of controlled public hunting should be charged directly to the participants. Most hunters were inexperienced, unfamiliar with waterfowl identification, and reluctant to report a crippling loss. The Oak Orchard Management Area has adopted the hunter control plan and also serves as an outdoor laboratory for testing new management techniques. Due to its high cost, controlled hunting is incorporated only on intensively managed wetlands capable of sustaining annual waterfowl populations.
- KEYWORDS: Management, New York, user fee, waterfowl.
965. Winch, Captain Frank
1922. Posted property and a solution of the hunting problem. Calif. Fish Game 8: 179-181.
- The policies of the Eisner National Rod and Gun Club are outlined: to recognize the farmer's rights as a sportsman and landowner, to assist him in game propagation, to share the burdens and the pleasures of hunting with the farmer, to equalize the number of city sportsmen and farmers in the club's directorate, to secure legislation in the best interest of the majority, and to encourage sportsmanship, safety, and conservation.
- KEYWORDS: Resource use, farmer-sportsman relations, clubs.
966. Windsor, B. W., and Walter L. Flory
1967. Cooperation between civilian and military game law enforcement. 21st Conf. Southeast. Assoc. Game Fish Comm. Proc. 21: 558-560.
- Article describes the "outstanding" relations between civilian and military game wardens on the Marine Corps base at Quantico, -Virginia.
- KEYWORDS: Enforcement, Virginia, landowner-public.
967. Winnie, Robert F.
1954. It's a bum gamble. Wis. Conserv. Bull. 19(4): 7-8.
- Out-of-staters who try to operate with resident licenses have much to lose.
- KEYWORDS: Fishing, law violation.
968. Wirth, Thomas L., and William E. Gerl
1952. Door County sport fishing - 1951. Wis. Conserv. Bull. 17(4): 19-21, illus.
- A creel census in Wisconsin during the 1951 season of 1,730 anglers revealed an average of one fish taken for each 46 minutes of fishing.
- KEYWORDS: Fishing, harvest statistics, Wisconsin.
969. Wisconsin Conservation Commission
1948. Aldo Leopold. Wis. Conserv. Bull. 13(6): 2-3.
- Obituary of Aldo Leopold is presented by Wisconsin Conservation Commission.
- KEYWORDS: Historical value, biography, conservation.

970. Wolf, Bill
 1956. Hunters never had it so good. *Sat. Evening Post* 229(17): 38, 39, 115, 116, 120, illus.
 The development of a commercial pheasant shooting preserve near Gettysburg, Pennsylvania, shows the problems involved in beginning a preserve. These include finding suitable cover, deciding whether to raise or to buy young pheasants, and overhead costs. The advantages of preserves include longer shooting seasons, close proximity to population centers, higher bag limits, and high success rate per hunter.
 KEYWORDS: Pennsylvania, plant and shoot, upland game birds, landowner-private,
971. Wood, Roy
 1956. An experiment in regulated pheasant hunting, Allatoona Reservoir project, Georgia. 10th Conf. Southeast. Assoc. Game Fish Comm. Proc. 10: 190-196, illus.
 Hunting of 100 released birds on a 120-acre lot was sustained for 4 days, during which 25 hunters exerted a total pressure of 33 man-days. Each of seven hunts averaged 3 hours in duration. Eighty pheasants, or 2.4 birds per man-day, were bagged at a cost of \$3.30 per bird, exclusive of ammunition, dogs, transportation, and equipment. Hunting conditions were natural, dog work excellent, shooting reasonable sporting, success satisfactory, and cost average.
 KEYWORDS: Upland game birds, harvest statistics, Georgia, economics, plant and shoot.
972. Woodin, William H.
 1966. Esthetic values of native animals, p. 73-76. *In* Native plants and animals as resources in arid lands of the Southwestern United States: a symposium. J. Linton Gardner (ed.). *Am. Assoc. Advance. Sci.* symp,
 Western man's attitude toward animals has been based on their direct usefulness to him. Not until the 18th century did the idea that animals could be valued for their own sake first appear in print. Increasing numbers of people take pleasure in observing wildlife.
 KEYWORDS: Esthetics, non-consumptive use, historical value, benefits.
973. Woods, John Parkman
 1921. The interfusion of politics and wild life, 13th Conf. Int. Assoc. Game Fish Conserv. Comm. Proc. 13: 21-37, illus.
 Charge is made that political appointment to conservation positions is unfair and unwise.
 KEYWORDS: Administration, conservation, politics.
974. Woods, John W., Larry Shanks, and Dale Walker
 1969. Florida's fishing future. *Fla. Wildl.* 23(7): 22-26, illus.
 In 1968, 152,000 non-resident and 460,000 resident fishing licenses were sold, contributing \$150 million to Florida's economy. Pollution is the greatest threat to the State's fishing resource. Major sources of aquatic degradation are: discharge of domestic, agricultural, and industrial wastes, stabilization and reduction of water levels, increased runoff of

pesticides and nutrients, unrestricted dredging and filling, unauthorized introduction of exotic species of fish, uncontrolled killing of water hyacinths, and failure to fully utilize a natural resource by restricting the removal of commercially harvestable fish. Suggestions are given for sustaining and enhancing water resources and are related directly to the previously listed problems.

KEYWORDS: Fishing, Florida, pollution, economics, resource use.

975. Woodward, Hugh B.

1947. Why public lands should be held for the public. 37th Conf. Int. Assoc. Game Fish Conserv. Corn. Proc. 37: 74-86.

Federal public lands should not be ceded to State or private ownership until permanent guarantees concerning land deterioration and misuse, provision for wildlife use, and provision for public recreation rights are assured.

KEYWORDS: Landowner-private, resource use, conservation, landowner-public.

976. Woolner, Frank

1960. Hunter orange--your shield of safety. Field Stream 65(6): 36-37, 157-160, illus.

Recent tests in Massachusetts have rendered yellow obsolete as a hunter safety color. About 1,267 people were used as subjects; and the following colors were tested: yellow, red and fluorescent blaze orange, fire orange, arc yellow, and neon red, with white as a control. Eight to 9 percent of the men had some form of color-deficient vision. Blaze orange and the other three fluorescents were more rapidly seen and identified than the yellow and red.

KEYWORDS: Safety.

977. Worley, David P., and John D. Gill

1969. Strengthening the wildlife manager's hand in multiple-use conflicts. 26th Conf. Northeast. Wildl. Trans. 26: 11-26, illus.

Methods used by economists to compare alternative courses of action may sharpen the land manager's judgment in identifying and resolving his multiple use conflicts. One needs to recognize the critical factors in management for each resource, to predict the effects of manipulating each factor, and to display the interactions among the various management choices. Display of the interactions on relative scales of benefits allows more positive judgment to be directed toward management goals. This approach to resolving conflicts is illustrated, with examples based on timber, squirrel, turkey, and deer management.

KEYWORDS: Management, resource use, economics, big game, small game, upland game birds.

978. Wright, John

1965. The hunter and the law of trespass in Ontario. Rod Gun 66(12): 20-21, illus.

Trespass in Ontario is considered an interference with possession rather than with title, and the fines are stiff. Owners are protected by the Petty Trespass Act, the Game and Fish Act, or the common law under which the trespasser may be liable although he has caused no damage.

KEYWORDS: Landowner-private, law violation, Canada, legislation, enforcement.

979. Wright, Stillman

1943. Some unregarded factors in creel-census studies. 8th Conf.
North Am. Wildl. Trans. 8: 387-392.

Conclusions concerning a Utah fishery where diurnal changes in fish availability are rapid and complete lead to erroneous conclusions when catch per man-hour is used to measure fishing pressure and fish availability. The man-hour is unreliable as a measure of seasonal change because time per fishing trip remains more or less constant, but effective fishing time changes markedly. It is unreliable as a measure of annual change because the mean time per trip changes from year to year, but effective fishing time remains fairly constant. Proposed units of effort are the man-effective-hour for seasonal changes and the man-trip for annual changes.

KEYWORDS: Harvest statistics, fishing, research methods, Utah.

Y

980. Yeatts, E. S.
1968. Significance of law enforcement--Virginia Special Areas. 22d Conf. Southeast, Assoc. Game Fish Corn. Proc. 22: 555-560.

Author discussed special trout areas and related management programs of land acquisition, public education, law enforcement, creel checks, and stocking. Law enforcement officers commend the program to sportsmen while patrolling the areas for violations.

KEYWORDS: Enforcement, fishing, Virginia.
981. Young, Stanley P.
1942a. The war on the wolf; Part 1. Am. For. 48(11): 492-495, 526, illus.

A brief history of man's 2,700-year-old practice of rewarding wolf killers, with particular emphasis on the conflict which has raged across North America in the wake of an expanding livestock industry for more than three centuries.

KEYWORDS: Predator, historical value,
982. _____
1942b. The war on the wolf; Part 2. Am. For. 48(12):552-555, 572-574, illus.

The North American conflict between man and wolf is traced westward over a trail blazed by professional wolf poisoners and enraged stockmen to the last stand of the wolf on the Great Plains.

KEYWORDS: Predator, historical value.
983. _____
1943. Early wildlife Americana. Am. For. 49(8): 387-389, 414, illus.

An historical account is given of the earliest recorded bounty plan for any predator on the Pacific slope of North America. Bounties were designed to curb the puma in Lower California and Mexico.

KEYWORDS: Predator, historical value.
984. _____
1967a. The strychnine caper; Part I. Am. For. 73(6): 20-23, 62-63, illus.

This is part I of an historical account of the use of strychnine poisoning against the coyote and the wolf.

KEYWORDS: Predator, historical value.
985. _____
1967b. The strychnine onslaught; Part II. Am. For. 73(7): 32-33, 52-53, illus.

This is part II of an historical account of the use of strychnine poisoning against the wolf and coyote.

KEYWORDS: Predator, historical value,

986. Yuhas, Joseph G.

1962. A comparison of respondents and non-respondents to a hunter questionnaire. M.S. thesis, Ohio State Univ., 53 p.

Personal interviews with 7.67 percent of 1,773 questionnaire non-respondents (Peterle 1961, 1967) showed that hunters failed to respond because: "I didn't hunt enough, " "lack of time," "questions too personal - didn't pertain to hunting," and "lack of interest." Chi-square tests showed no significant difference between respondents and nonrespondents for marital status, sex, hunting success, and "who took you on first hunt?" But, non-respondents differed from respondents in having greater unemployment, lower income, less education, fewer days hunting, less membership in sportsmen's clubs, less hunting before age 13, fewer born on a farm, different occupational patterns, more hunts with companions, and younger age.

KEYWORDS: Characteristics, research methods.

Z

987. Zeedyk, William D.
 1964. Kentucky's Primitive Weapons Hunting Area; its management, administration, public use and acceptance. 18th Conf. Southeast. Assoc. Game Fish Comm. Proc. 18: 120-124.

The 7,300 acres are limited to persons with primitive weapons such as longbows, crossbows, muzzle-loading rifles, and muzzle-loading shotguns. Management objectives include promotion of primitive weapons hunting, emphasis on quality hunting, demonstration of wildlife management techniques, and stimulation of the local rural economy. Policies include keeping regulations to a minimum, emphasizing habitat development, developing and maintaining populations at the maximum sustainable levels, and protecting the remote atmosphere while facilitating optimum harvest. Regulations favoring the primitive weapons hunter over the conventional hunter were avoided. Care was made not to arouse public feeling against the area. There is an indication that the primitive weapons hunters stimulated the local economy. In 1963, 95 deer hunters showed that they had hunted 290 days; 59 used longbows to kill nine deer, three used crossbows to kill two deer, and 33 used muzzle-loaders to kill three deer.

KEYWORDS: Archery, administration, Kentucky, management, harvest statistics.

988. Zeller, Howard D.
 1960. Surveys for fisherman access in Georgia. 14th Conf. Southeast. Assoc. Game Fish Comm. Proc. 14: 239-242.

Data from Georgia's public access areas were collected by surveying and classifying all the "big water" in the State. Forms used to classify fisherman access and fishing camps are included. Access surveys should provide the basis for a building program and permit a better distribution on little known or underfinished areas. Good publications on statewide access are valuable to sportsmen and must clearly present information regarding locations, facilities, and travel routes, although this may necessitate a lengthy and expensive publication.

KEYWORDS: Access, fishing, Georgia, research methods.

989. Zern, Ed
 1947. How to tell fish from fishermen or a plague on both your houses. 99 p., illus. New York: D. Appleton-Century.

This book contains a collection of cartoons, anecdotes, and humorous short stories about fish and fishermen. Included titles are: the low-down on guides; card shark; sex life of fishermen; shaggy fish story; sex life of fishes; once a fisherman always a barefaced liar; all about women fishermen; how to buy a reel.

KEYWORDS: Non-consumptive use, characteristics, folklore, fishing.

990. _____
 1960. I loathe and detest all fish tournaments. Sports **Illus.** 13(19): 54-55, illus.

Big-prize angling derbies should be ended because: they transform an essentially non-competitive sport into a competitive contest; all the

traditional values associated with fishing become secondary to winning money; tournaments encourage cheating; and the defenders of tournaments are rarely sportsmen or conservationists.

KEYWORDS: Fishing, philosophy.

991.

1972. I am a hunter. Audubon 74(1): 17-19.

The author describes a day in a duck blind and defends his hunting activity to nonhunters and antihunters. By visiting the marsh without a gun or without the intention of using it, man becomes a spectator, or a peeping tom, or a bystander. Nature is one big food chain, and man is part of the chain when he acts as a predator-hunter. Antihunters are curiously selective with the "reverence for life" argument when it comes to fishing, logging, and farming. The conservation activities of hunters have saved many species through habitat restoration.

KEYWORDS: Antihunting.

992. Zimmerman, Donald E.

1966. Determination of the sources of conservation information and characteristics of selected Kansas sportsmen. M.S. thesis, Kans. State Univ., 102 p., illus.

Of two Kansas sportsmen's groups, 363 members (68.5 percent) responded to a mail questionnaire and one followup. Responses indicate 88.7 percent watched outdoor conservation television shows, 83 percent read a hunting and fishing or related sporting magazine, 78.6 percent read outdoor columns or pages in newspapers, 63 percent listened to outdoor or conservation radio programs, and 60.6 percent read conservation magazines. Sportsman characteristics are given for age, income, occupation, education, sex, status, membership affiliation, and presence of children.

KEYWORDS: Preferences, characteristics, conservation, non-consumptive use, Kansas, communications.

993.

1972. Sources of conservation information. J. Environ. Educ. 4(1): 62-63.

Questionnaires were sent to a random sample of 532 Kansas sportsmen and 68.5 percent were returned. Results indicate that television was the most common source of conservation information, followed by sporting magazines, newspapers, radio programs, and a State fish and game conservation magazine. The attitudes and knowledge of the respondents were reflected in their answers to many questions on management practices. Generally, sportsmen whose names had been obtained from the *Kansas Fish and Game* magazine mailing list were better informed on wildlife management practices than respondents who were sampled from the Kansas Wildlife Federation mailing list.

KEYWORDS: Conservation, communications, preferences, Kansas.

994. Zimmerman, F. R.

1962. Where will you hunt? Wis. Conserv. Bull. 27(5): 8-9, illus.

To provide more room for the hunter, Wisconsin Conservation Commission has purchased thousands of acres within easy reach of cities.

KEYWORDS: Resource use, Wisconsin, farmer-sportsman relations.

995. Zwickel, Fred

1961. Are hunters affecting game character? Wash. State Game Bull.
13(4): 5.

Bulletin presents the following interesting but unsupported concept: easily observed animals are tamer and are thus under heavy hunting pressures. Results are genetic selections favoring wilder, less tame animals. This accounts for hunter complaints of scarce game animals when in fact they have been redistributed. Properly used, hunter selection could be used to produce a more desirable sports animal.

KEYWORDS: Preferences, management.

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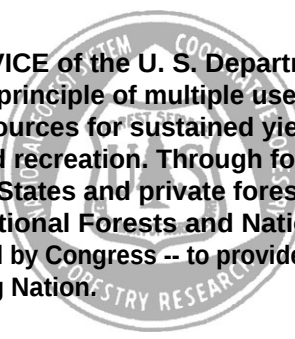
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Within this overall mission, the Station conducts and stimulates research to facilitate and to accelerate progress toward the following goals:

1. Providing safe and efficient technology for inventory, protection, and use of resources.
2. Development and evaluation of alternative methods and levels of resource management.
3. Achievement of optimum sustained resource productivity consistent with maintaining a high quality forest environment.

The area of research encompasses Oregon, Washington, Alaska, and, in some cases, California, Hawaii, the Western States, and the Nation. Results of the research will be made available promptly. Project headquarters are at:

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