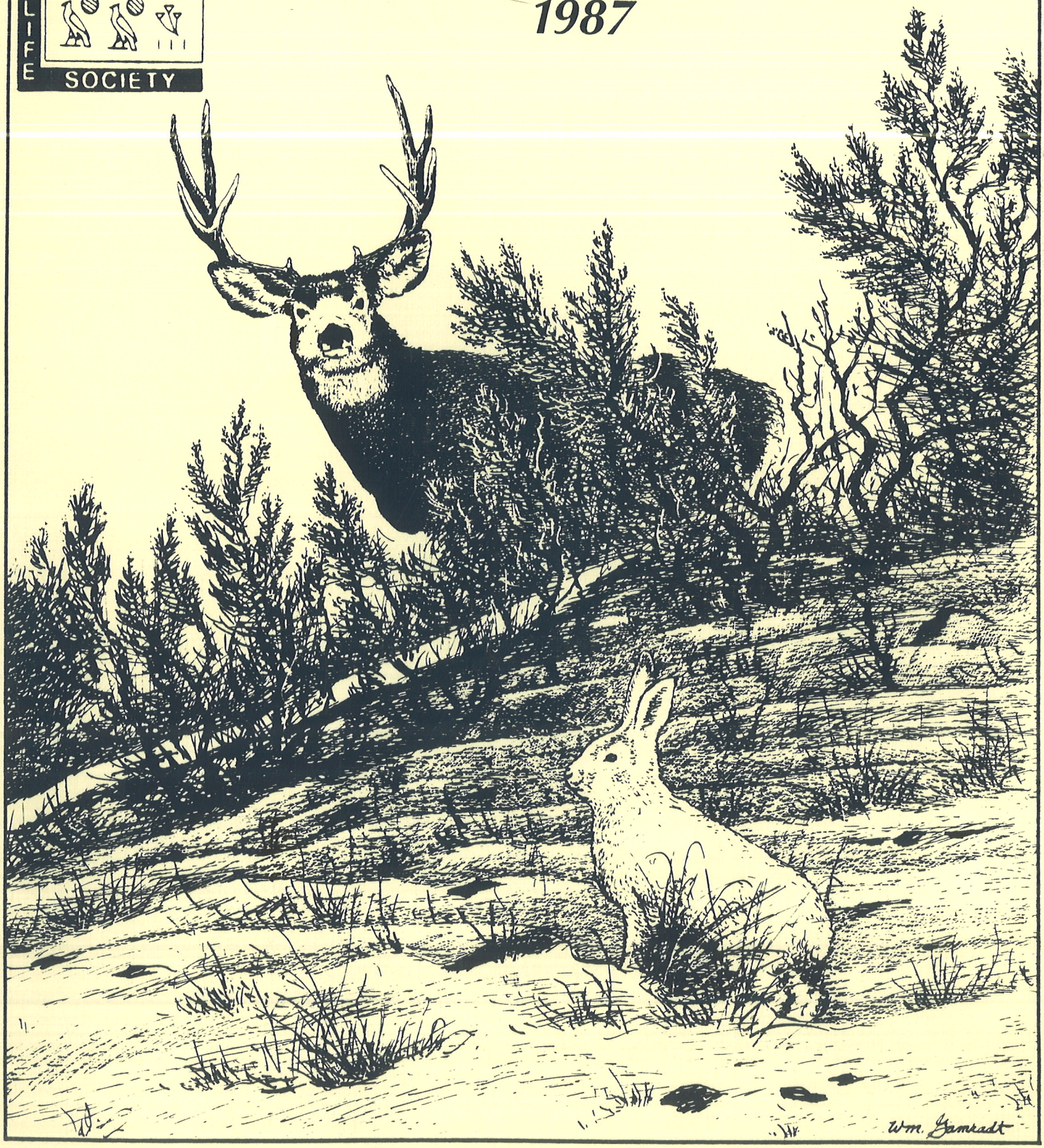
THE WILDLIFE SOCIETY

PROCEEDINGS OF THE MONTANA CHAPTER

1987



TWENTY FIFTH ANNIVERSARY, 1962-1987
MONTANA CHAPTER - THE WILDLIFE SOCIETY
Annual Meeting - February 1987 - Kalispell, Montana

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THE MONTANA CHAPTER OF THE WILDLIFE SOCIETY: A HISTORICAL SUMMARY OF OUR FIRST 25 YEARS

Compiled by Heidi B. Youmans

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Information used to compile the following historical sketch was extracted from the Chapter's "archives" (several boxes of notebooks kept by past Chapter presidents). Record of Chapter transactions varies in detail from year to year....some notebooks even contain newspaper clippings regarding Chapter actions and wildlife issues of the day. For those years for which record of Chapter business is scanty, major wildlife issues are reflected in resolutions and position statements adopted by the membership.

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Efforts to organize a Montana Chapter of The Wildlife Society were initiated in 1962. On August 28, 1963, Montana members of TWS held an organizational meeting at the Florence Hotel in Missoula. Business accomplished at this meeting included approval of tentative bylaws, election of officers and dues collection.

1963-64 pres.-Jack Lyon v. pres.-Tom Mussehl sec.-treas.-Les Pengelly

The first year was a struggle. The new officers embarked on a membership drive. President Lyon was frustrated in his attempts to establish committees. He polled members regarding potential Chapter projects and priorities. Chapter bylaws were approved by TWS. Our first annual meeting was held in Butte (April 18, 1964), in conjunction with the Montana Academy of Sciences, but only 7 of 71 charter members attended. Joe Egan was in charge of resolutions, but action on proposed resolutions was delayed for a year, due to lack of a quorum.

1965 pres.-Louis Moos v.pres.-Philip South sec-treas.-Curtis Halvorson

The Montana Chapter was presented with a Charter (dated 1962) by TWS executive secretary, Dr. Fred Evenden, at the NW Section TWS meeting in Missoula (April 9, 1965). Annual meeting was held at Mammoth in August 1965--followed by a field day in YNP. Membership was 81; annual dues were set at $1. Five resolutions written the previous year were adopted and sent to the Parent Society for approval: Free-Flowing Rivers/Range Mgmt./ Pesticides/Gallatin Elk Herd Mgmt./Preservation of Sagebrush Habitat.

1966 pres.-John T. Harris v.pres.-Robert Howe(transferred to Alaska)/ Jack Schmautz , sec.-treas.-Tom Mussehl

The 1966 annual meeting was held at Butte's Finlen Hotel, in conjunction with the Western Association of State Fish and Game Commissioners. 35 members attended. The Chapter and the Fish and Game Research Section jointly hosted a forum of wildlife researchers from various Montana agencies. Abstracts of research papers were compiled and distributed. Members decided to continue to cosponsor a statewide research forum on an annual or biannual basis. No word yet from the Parent Society concerning approval of our resolutions (resolutions were to be approved by the Parent Society before being distributed by the Chapter).

1967 pres.-Harold Picton v.pres.-Gerry Atwell sec.-treas.-Bob Hensler

The issue of Parent Society approval of Chapter resolutions remained in question. Regardless, resolutions adopted by the Montana Chapter in 1965 were widely distributed to congressional delegates, as well as various agencies and private organizations in Montana. Two controversial issues were addressed by the Chapter: management of the Northern Yellowstone elk herd, and aerial application of oats treated with 1080 (for ground squirrel control).

1968 pres.-Reuel Janson v.pres.-Duane Pyrah sec.-treas.-Duane Whitmer

The Chapter promoted inclusion of a Montana River (Middle Fork of the Flathead) in the Aspenall Wild River Bill and addressed the issue of pesticide use for sagebrush control. Annual meeting was held in Lewistown: 13 of 64 members attended and 29 participated in a field trip to a sagebrush research study area. 14 resolutions were adopted: Reclamation of Strip-mined Lands/Signing of BLM Lands/Animal Control Policy/Multiple Use of State Lands/ BLM Lands Disposal/Lincoln-Scapegoat Wilderness/Wildlife Research on Forested Lands/Mgmt. of Pryor Mtn. Wild Horse Range/Free-flowing Rivers/Overgrazing on Public Lands/ Pesticide Use on Public Lands/ Cooperative Upper Gallatin Elk Herd Mgmt. Plan/Sagebrush Control Projects/ Consideration of Wildlife Values in Land Use Decisions.

1969 pres.-Arnold Foss v.pres.-Curtis Halvorson sec.-treas.-K. Johnson

A committee was formed to write guidelines for reclamation of strip-mined lands. Discontent with the Parent Society (regarding dues structure, voting privileges, and "lack of action on wildlife issues") was blamed for declining

Chapter membership. Only 12 members attended the annual meeting in Billings, November 15, 1969. Subsequently, the Chapter's bylaws were amended to allow voting privileges for Chapter members who were **not** members of the Parent Society.

1970 pres.-Buck Compton v.pres.-Roger Bumstead sec.-treas.-William Radtkey

President Compton received diplomatic notification from TWS that the Chapter's bylaws were no longer in compliance with Parent Society bylaws (with regard to voting privileges) and that the situation needed to be corrected. Members prepared a position statement for presentation at the State Grazing District hearing in Billings (April, 1970). The committee working on reclamation guidelines for stripmined lands (headed by Bob Hensler) developed a reclamation position statement. A packet of 10 Chapter Position Statements addressing issues before the 42nd session of the Montana Legislature, was sent to legislators: (Montana Environmental Policy Act of 1971/Water Pollution Law/Recreational Water Use/Mining Claim Assessment/Fish and Game Department/State Reorganization/Pesticide Use/ Protection of Birds of Prey/Mountain Lion Status/Land Reclamation, Strip Coal Mining). Membership reached 56. The annual meeting was held in Bozeman.

1971 pres.-Bart O'Gara v.pres.-Charles Eustace sec.-treas.-John Firebaugh

The Chapter presented testimony on hardrock mining in the Beartooth Mountains to the Senate Subcommittee on Minerals, Materials and Fuels, August 18, 1971 (Buck Compton). A summer meeting focused on the Bolle Report (timber harvest practices on the Bitterroot NF), Les Marcum's study of logging and whitetail winter range in the Seeley-Swan, and Jack Lyon's report on clearcut practices on Wyoming NF lands. A resolution on Management of Forested Lands and Wildlife was subsequently adopted in August by the Chapter. Due to lack of interest and inclement winter weather in Montana, the annual Chapter meeting was held in conjunction with the NW Section meeting in Corvallis, Oregon.

1972 pres.-Roger Bumstead v.pres.-John Wiegand sec.-treas.-Robert Ream

As in previous years, the possibility of dissolution was considered and discussed ...however, the stalwart few decided to forge onward. A draft position statement regarding Quality Hunting was written by Jim Cole. Packets of position statements adopted by the Chapter were sent to

legislators. The issue of brucellosis in YNP bison surfaced. Only one candidate could be recruited for each Chapter office for the upcoming year.

1973 pres.-Dick Mackie v.pres.-Jim Cole sec.-treas.-Gene Allen

During the summer of 1973, an impromptu meeting of Chapter officers and other Fish and Game biologists was held at Yellow Bay, Flathead Lake, concerning the future of the Chapter. The merits of a having a chapter, its role, and future direction were debated. On a straw vote, 25 of those present voted against, and 3 for, dissolution. A committee of volunteers set to work to organize an annual meeting. Several wildlife issues emerged during the year... An article published in the National Wildlife magazine ("They're Killing Yellowstone's Grizzlies"), and its ramifications, threatened to cause a major rift within the ranks of the state's wildlife professionals. The Chapter addressed the potential use of M44 "coyote-getters" and the use of sodium cyanide for rodent control. The annual meeting ("The Future of Hunting") was held in February of 1974 at MSU, Bozeman. A banquet for the Chapter was sponsored by MSU's Fish and Wildlife Forum, featuring guest speaker Willis Jones, Chairman of the Fish and Game Commission. The idea of staging regional workshops prior to the annual meeting, was proposed. Cole's paper on Quality Hunting was adopted as Chapter policy. Inspired by the success of the 1974 annual meeting, the membership moved to adopt a formal program format for annual meetings, and, in the future, to publish proceedings. Membership grew from 13 to 126 during the course of the year.

1974 pres.-Jim Cole pres-elect.-Duane Pyrah sec.-treas.-Frank Gjersing

Our bylaws were revised to replace the office of vice-president by a president-elect, who would assume the position of president the following year. The concept of annual regional workshops was adopted--five workshop zones were delineated in the state. A summarization of presentations from the 1973-74 annual meeting was distributed with a newsletter. A committee was appointed to look into the idea of establishing Chapter awards. The annual meeting ("Deer Management in Montana") was held in Bozeman, topped off with another banquet organized by MSU's Fish and Wildlife Forum. 120 members attended. The awards committee recommended that awards not be implemented because the Chapter was still too unstable and its professional objectives too poorly defined. However, the membership overruled the committee's recommendation. Two resolutions were adopted: Ecological and Environmental Instruction in Montana Schools/ Upgrading Professional Competence. A resolution promoting certification of biologists was defeated.

1975 pres.-Duane Pyrah pres.-elect.-Bob Martinka sec.-treas.-Rick Wallestad

Our first Proceedings (1974-75 annual meeting) was printed and distributed. TWS Certification received mixed reviews by Chapter members. Dr. Don Quimby of MSU was made an honorary member of the Montana Chapter upon his retirement. "Guns of Autumn" and "Echoes..." were aired by CBS--a program critique written by Duane Pyrah prompted an 8-page response from CBS. The theme of the annual meeting, held at the Village Motor Inn in Missoula, was "Resolving Wildlife - Land-Use Conflicts". This annual meeting was held concurrently with the annual meeting of the Montana Chapter of the American Fisheries Society: the two societies had a joint banquet. Wynn Freeman was presented with the Chapter's first award, in recognition of his outstanding career contributions to the wildlife profession. Our bylaws were amended, establishing the Distinguished Service and Biologist of the Year Awards.

Award: Wynn Freeman

1976 pres.-Bob Martinka pres.-elect.-Dick Knight sec.-treas.-Glen Erickson

The annual meeting ("Recent Progress in Wildlife Management and Research") was held in conjunction with the 28th annual conference of the NW Section TWS at the Outlaw Inn, Kalispell. Prior to the annual meeting, the topic of "Predator-Prey Relationships" was addressed at regional workshops.

1977 pres.-Dick Knight pres.-elect.-Ken Coop sec.-treas.-Jack Jones

--NO RECORDS--

The annual Meeting was held in January 1978 at the Yogo Inn, Lewistown. "Biotelemetry" was the theme. Bob Greene was the first recipient of the Chapter's Distinguished Service Award.

Distinguished Service Award: Bob Greene

1978 pres.-Terry Lonner pres.-elect.-John Wiegand sec.-treas.-James Cross

A committee was appointed to investigate the potential for establishment of a Chapter scholarship award. The Chapter presented testimony in support of the Nongame Funding Bill (Bob Martinka) and against HB 261 (to restrict the ability of the F&G Commission to acquire land) (Les Marcum). The annual

meeting was held at Missoula's Village Motor Inn--jointly, with chapters of the Soil Conservation Society of America, Society of American Foresters, and American Fisheries Society. The Theme was "The Future of Fish and Wildlife Resources in Montana". Attendence (318) was good, even tho authorization for F&G employees to attend on state time was withdrawn just prior to the meeting date. The evening buffet featured Dr. Dale Shaw (alias Dr. Martin Windsor, DVM) --"Hunting: A View From the Other Side".

Distinguished Service Award: Reuel Janson

1979 pres.-John Wiegand pres.-elect-Bob Hensler sec.-treas.-John Cada

The Chapter commented on the Missouri River Breaks Grazing and Environmental Statement draft, USFS Resources Planning Act draft, and aerial wolf control efforts in Alaska. A questionnaire was sent to all members to determine membership opinion regarding appropriate objectives for the Chapter. The Wynn Freeman scholarship fund and award were established. The annual meeting ("The Future of Hunting in Montana") was held at Bozeman's Ramada Inn. A proposal to coordinate transmitter frequencies in the state was implemented. 8 resolutions were also adopted: Air Pollution Control/Federal Aid in Wildlife Restoration/Undesirable Plant Species/Hunter Education/Energy Conservation/Support of Young Explorer children's magazine/Airing Environmental Issues: Montana Outdoors/ Conservation Information.

Distinguished Service Award: Merle Rognrud
A special memorial award honoring Ken Lorang was presented to his widow, Cindy.

1980 pres.-Bob Hensler pres.-elect-John Ormiston sec.-treas.-John Mundinger

Bighorn sheep were released in the Missouri River Breaks. The Chapter commented on FERC's Draft Environmental Impact Statement for the Kootenai River Hydroelectric Project. The Annual meeting ("The Management of Riparian Ecosystems") was held at the Rainbow Hotel in Great Falls. The membership, which had reached 125, voted to increase Chapter dues from $1 to $3 per year. 6 resolutions were adopted: Habitat Preservation-Pine Butte/Non-Game Funding Bill/Fletcher Newby/Designation of the Yellowstone under Wild and Scenic Rivers Act/Management & Preservation of Riparian Ecosystems/The Montana Land Reformation Act.

Distinguished Service Award: Faye Couey

Karl Grover (MSU) was the recipient of the Chapter's first Wynn Freeman Scholarship Award.

1981 pres.-John Ormiston pres.-elect.-Charles Eustace sec.-treas.-Jon Swenson

The Chapter supported Wild and Scenic River designation for the Yellowstone River between YNP and Billings, and the Cooperative Wildlife and Fisheries Unit Programs. Agricultural use of endrin (and other persistent chlorinated hydrocarbon compounds) emerged as a major wildlife issue, following well-publicized fish kills and evidence of widespread contamination of terrestrial game and nongame wildlife populations. The annual meeting, ("Practical Application of Recent Research"), was held at the Northern Hotel in Billings. Banquet guest speaker was Dr. Les Pengelly. Severe, subzero February temperatures did not deter beer consumption... when the Northern ran out, happy hour(s) continued at the Sheraton. Members voted to raise dues from $3 to $10 per year.....membership remained about 125. Two Position Statements (Opposition to the Use of Chlorinated Hydrocarbons and Above-ground Strychnine Applications/Nongame Wildlife Funding Bill) were adopted, as well as 10 resolutions: Water Rights on Public Waters/Coal Leasing Regulations/The International Wildlife Film Festival/ Wildlife Research prior to Oil and Gas Exploration/ Commendations to Deceased Conservationists/Wildlife Biologist Involvement with Proposed SCS Program/ Pesticide Management in Montana/Research Areas/Reauthorization of the Endangered Species Act/Management of Forested Land and Wildlife.

Distinguished Service Award: Bob Eng
Biologist of the Year Award: Tom Mussehl (for his role in the endrin issue)
Wynn Freeman Scholarship Award ($200): Tim Andryk (MSU)

1982 pres.-Charlie Eustace pres.-elect.-Jon Malcolm
sec.-treas.-Mike Hedrick-(transferred to Alaska) /Gary Olson

The annual meeting ("Mitigating the Impacts of Minerals Exploration and Development on Wildlife") was held at Missoula's Red Lion Motor Inn and featured governor Ted Schwinden as the keynote speaker Membership reached 135. Four resolutions were adopted by the Chapter: Nongame Funding/Trapping in Close Proximity to Exposed Baits/Opposition to Regulation of Navigability Status of Streams/Opposition to Sale of Federal Lands Without Adequate Study and Advance Public Notice.

Distinguished Service Award: Jim Posewitz
Biologist of the Year Award: Mike Rath (for his wildlife advocacy role in the forest planning process)

Wynn Freeman Scholarship Awards ($200@): Robin Rae Brown (U of M) and Jody Canfield (MSU)

1983 pres.-Jon Malcolm pres.-elect-Arnold Dood sec.-treas.-Gary Olson

The Chapter submitted recommendations concerning wild horses on Ervin Ridge (Missouri Breaks, Blaine County) for a BLM environmental assessment. The Chapter supported Cooperative Wildlife Research Program budgets for FY 1984 and Senator Armstrong's Plowout Bill (SB 663), and contributed $350 to the TWS Building Fund. The annual meeting, attended by 152 members, was held at Butte's Copper King Inn. The theme, "Agriculture and Wildlife", was introduced with a keynote address by Keith Kelly, Director of the Montana Department of Agriculture. The year's rifle raffle (Wynn Freeman Scholarship fundraiser) was expanded to include an extravaganza of raffle prizes! The Chapter voted to contribute $500 to the Montana Wildlife Federation Lobby Fund. A resolution supporting ethics in wildlife management was adopted. Following the banquet, many attendees participated in a nightime tour of Butte's most renown watering holes, transported by chartered bus.

Distinguished Service Award: Ken Walcheck
Wynn Freeman Scholarship Awards ($200 @): Rob Bennets(U of M) and Scott Greer (MSU)

1984 pres.-Arnold Dood pres.-elect-Rich DeSimone sec.-treas.-Dave Pac

The Chapter supported "Alternative B" of the draft Environmental Impact Statement addressing management of the Charles M. Russell NWR...and opposed further harvest of old-growth stands in the Whale Creek Drainage, Flathead NF. The Chapter submitted written testimony before the Senate Natural Resource Commission on S 2850 (Wilderness Designation of Certain Lands in Montana), and sent comments to congressional delegates regarding the draft EIS for the 1985 National Forest Lands RPA Program. The Unified Dues referendum, a controversial topic within TWS, failed. The annual meeting was held at the Missoula Sheraton, in conjunction with the NW Section meeting, ("Wildlife Management Directions in the Northwest through 1990"), and a Montana Nongame Symposium. Three resolutions (Support of Wildlife Enhancement & Mitigation Plans/Request to Federal Agencies to Support Sending Employees to Professional Society Meetings/ Support Changes in Trapping Law) were adopted, as well as a comprehensive Position Statement concerning management of the Charles M. Russell NWR. A

resolution suggesting that grazing fees on public lands be set at fair market value, was not adopted.

Biologist of the Year Award: Dale Harmes (for his involvement with grizzly bear policy)
Wynn Freeman Scholarship Awards($200 ea): Sandra Noble (U of M) and John Vore (MSU)

1985 pres.-Rich DeSimone pres.-elect-Heidi B. Youmans sec.-treas.-Steve Knapp

The Chapter commented on the proposed Hungry Horse Wildlife Mitigation Plan. Major committee accomplishments included an extensive membership drive, and a survey of other state Chapters regarding extent of their involvement in the legislative process. The annual meeting was held at the Ramada Inn, Billings, in conjunction with the 2nd Annual Montana Nongame Symposium. The theme, "Planning, and the Future of Montana's Wildlife Resources" was kicked off with a memorable keynote address by Dr. Doug Crowe, Deputy Director of the Wyoming Game and Fish Department. Mark Henckel, outdoor writer for the "Billings Gazette" provided banquet entertainment. At the business meeting, the membership voted to join the Montana Wildlands Coalition and to contribute $500 apiece to the Audubon and Montana Wildlife Federation Lobby Funds.

Wynn Freeman Scholarship Awards ($250ea): Scott Jackson (MSU) and Susan Reel (U of M)

1986 pres.-Heidi B. Youmans pres.-elect-Alan Christensen sec.-treas.-Harvey Nyberg

The Chapter cosponsored the 1986 Montana Natural Areas Conference, with a donation of $200 to The Nature Conservancy. The Chapter also promoted continuation of the Fish and Wildlife Management curriculum at MSU (slated for possible elimination by the Board of Regents), and the Congressional Joint Resolution commemorating the 100th Anniversary of the birth of Aldo Leopold. The Chapter's financial assets were subjected to detailed scrutiny by an ad hoc committee of financial wizards, which formulated guidelines for future fiscal policy, including mangement of scholarship funds. Our "archives" were sorted and organized, and a 25-year historical summary compiled in observance of our 25th anniversary. An effort was made to contact and invite Charter members and other former and retired members to our 1987 25th anniversary meeting, held at Cavanaugh's Motor Inn, Kalispell (12 & 13 February, 1987). The meeting theme, "The Role of Private

Lands for Wildlife In Montana: How and Where Do Biologists Fit In?", was introduced with a keynote address by Dr. Charles Meslow, immediate past president of TWS. The 3rd Annual Montana Nongame Symposium was held in conjunction with our meeting. Attendance was the best ever, with 168 registered participants. Bob Greene, retired Charter member and first recipient of the Chapter's Distinguished Service Award, provided banquet entertainment, relating some nostalgic tales and narrating a fashion revue of vintage biologist attire. Jack Lyon, the Chapter's first president, reviewed the Chapter's evolution, from its inception to the present. The Chapter's annual scholarship raffle featured a custom engraved rifle (25th Anniversary edition), won by Jon Malcolm. At the business meeting, the membership voted to assist the North Dakota Chapter TWS in its efforts to contest drainage of critical wetlands, with a $500 contibution to that Chapter's legal fund. An ad hoc "Riparian Oversight Committee" was formed to work in cooperation with a similar committee of the Montana Chapter of the American Fisheries Society. The membership adopted a position statement on Weed Management and a resolution in support of a Forest Watershed Act. A committee was formed to draft a resolution opposing "privatization" of wildlife resources.

Distinguished Service Award: Dick Mackie
Wynn Freeman Scholarship Awards (250 @): Katie Albrecht (MSU) and
Mark Hurley (U of M)

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A complete set of Montana Chapter, TWS annual meeting Proceedings is maintained by the State Library in Helena (reference section), and by the Chapter's "archives caretaker".

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ADOPTED BY THE MONTANA CHAPTER OF THE WILDLIFE SOCIETY

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Complete files of Resolutions and Position Statements adopted by the Montana Chapter of The Wildlife Society are maintained by the current chapter president, resolutions chairperson, and archives caretaker.

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MONTANA CHAPTER, TWS AWARDS
Established 1976

YEAR	RECIPIENT: DISTINGUISHED SERVICE AWARD	RECIPIENT: BIOLOGIST OF THE YEAR AWARD
1976	The first Chapter Award was presented to Wynn Freeman. This award, recognizing Wynn's contributions to and achievements in the wildlife profession, was made prior to the bylaws revision which established the Distinguished Service and Biologist of the Year Awards.	
1976-77	----------	----------
1977-78	Bob Greene	----------
1978-79	Reuel Janson	----------
1979-80	Merle Rognrud	----------
1980-81	Faye Couey	----------
1981-82	Bob Eng	Tom Mussehl
1982-83	Jim Posewitz	Mike Rath
1983-84	Ken Walcheck	----------
1984-85	----------	Dale Harmes
1985-86	----------	----------
1986-87	Dick Mackie	----------

MONTANA CHAPTER, TWS

WYNN FREEMAN SCHOLARSHIP AWARD
Established 1979

YEAR	RECIPIENT(S)	
1980-81	Karl Grover (MSU)	
1981-82	Tim Andryk (MSU)	
	MSU	U of M
1982-83	Jody Canfield	Robin Rae Brown
1983-84	Scott Greer	Rob Bennets
1984-85	John Vore	Sandra Noble
1985-86	Scott Jackson	Susan Reel
1986-87	Katie Albrecht	Mark Hurley

MONTANA CHAPTER, TWS OFFICE-HOLDERS

YEAR	PRESIDENT	VICE-PRESIDENT	SECRETARY-TREASURER
1963-64	Jack Lyon	Tom Mussehl	Les Pengelly
1965	Louis Moos	Philip South	Curtis Halvorson
1966	John Harris	Robert Howe/ Jack Schmautz	Tom Mussehl
1967	Harold Picton	Gerry Atwell	Bob Hensler
1968	Reuel Janson	Duane PyrahDuane	Whitmer
1969	Arnold Foss	Curtis Halvorson	K. Johnson
1970	Buck Compton	Roger Bumstead	William Radtkey
1971	Bart O'Gara	Charles Eustace	John Firebaugh
1972	Roger Bumstead	John Wiegand	Robert Ream
1973	Dick Mackie	Jim Cole	Gene Allen

	PRESIDENT	PRESIDENT-ELECT	SECRETARY-TREASURER
1974	Jim Cole	Duane Pyrah	Frank Gjersing
1975	Duane Pyrah	Bob Martinka	Rick Wallestad
1976	Bob Martinka	Dick Knight	Glen Erickson
1977	Dick Knight	Ken Coop	Jack Jones
1978	Terry Lonner	John Wiegand	James Cross
1979	John Wiegand	Bob Hensler	John Cada
1980	Bob Hensler	John Ormiston	John Mundinger
1981	John Ormiston	Charles Eustace	Jon Swenson
1982	Charles Eustace	Jon Malcolm	Mike Hedrick/ Gary Olson
1983	Jon Malcolm	Arnold Dood	Gary Olson
1984	Arnold Dood	Rich DeSimone	Dave Pac
1985	Rich DeSimone	Heidi B. Youmans	Steve Knapp
1986	Heidi B. Youmans	Alan Christensen	Harvey Nyberg
1987	Alan Christensen	Joe Ball	Harvey Nyberg

CHARTER MEMBERS

Although the Montana Chapter of The Wildlife Society was chartered in 1962, it was not fully and formally organized prior to the first election of officers in 1963, and adoption of chapter bylaws in 1964. The 71 dues-paying members in 1964 are therefore considered to be our "Charter" members.

*****************1964 MEMBERSHIP, MT Chapter TWS*****************

Peter Albers
Clarence Almen
Gerry Atwell
Watson Beed
Donald Bianchi
Jim Bourne
Clait Braun
Dr. Claudeus Brown
Don Brown
Robert Brown
Dr. Gordon Clark
H. Orville Compton
Robert Cooney
Faye Couey
Wilfred Crabb
John Craighead
Benjamin Donley
Joseph Egan
Warren Ensign
Robert Fields
Arnold Foss
Geoffrey Foote
Merle Gee
Lloyd Good
Geoffrey Greene
Robert Greene
Kenneth Greer
W. J. Hadlow, DVM
Curtis Halvorson
Elizabeth Hannum
Fred Hartkorn
C.J. Henry
Dr. Robert Hoffman
Russell Hoffman
Maurice Hornocker
Reuel Janson
Dr. William Jellison
Bill Johnson
Harry Johnson
Kay Johnson
Jack Jones
John Kirsch
Richard Knight
Timothy Knopp
Dr. Jack Lyon
Richard Mackie
Louis Moos
Thomas Mussehl
Donald Nelson
Fletcher Newby
Bart O'Gara
Dr. W.L. Pengelly
Dr. Harold Picton
Merle Rognrud
Robert Rothweiler
Robert Ruff
Gerald Salinas
Jack Schmautz
Dr. Joseph Severy
Nathan Snyder
Philip South
Dwight Stockstad
Dr. Richard Taber
Richard Trueblood
Robert Varner
Owen Vivion
RichardWeckwirth
Duane Whitmer
Dale Witt
Wesley Woodgerd
Dr. Philip Wright

CHARTER MEMBERS - - - TODAY

Peter Albers	3508 Malec Lane, Bowie, MD 20715
Clarence Almen	534 Canyon Gate Dr., Missoula MT
Gerry Atwell	4 Wood Ave., Grafton, MA 01519
Donald Bianchi	8695 Huffine Lane, Bozeman, MT
Clait Braun	Colorado Div. of Wildife, 317 W. Prospect, Ft. Collins, COL.
Don Brown	1050 Broadway, Helena, MT
Robert Cooney	220 Wallace, Helena, MT
Faye Couey	140 Sherwood Lane, Kalispell, MT
John Craighead	5125 Orchard Ave., Missoula MT
Joe Egan	727 North Ewing, Helena, MT
Robert Fields	1030 N.W. 176th Ave., Beaverton, OR 97006
Arnold Foss	104 Sunset Blvd., Bozeman, MT
Merle Gee	226 Kensington Ave., Missoula, MT
Geoffrey Greene	1900 32 South, Great Falls, MT
Robert Greene	Game Farm, Warm Springs, MT
Ken Greer	608 South Grand, Bozeman, MT
Curtis Halvorson	USFWS, Aylesworth Hall, C.S.U., Ft. Collins, CO 80523
Fred Hartkorn	3640 South Ave. W., Missoula, MT
C.J. Henry	Charlo, MT 59824
Russell Hoffman	712 Fair Lane, Nampa, ID 83651
Robert Hoffmann	Smithsonian Institution, Washington, D.C. 20560
Maurice Hornocker	Idaho Coop. Unit, U. of Idaho, Moscow, ID 83843
Reuel Janson	1625 Bel Air Place, Missoula, MT
William Jellison	504 S. 4th, Hamilton, MT
Jack Jones	3014 Irene, Butte, MT 59701
John Kirsch	Laurin, MT
Richard Knight	Bozeman, MT
Jack Lyon	Box 9045, Missoula, MT
Richard Mackie	1312 Cherry Drive, Bozeman, MT
Louis Moos	712 S. 13th Ave., Bozeman, MT
Tom Mussehl	1410 Cherry Drive, Bozeman, MT
Donald Nelson	405 S. California, Dillon, MT
Fletcher Newby	Finley Point Rt., Polson, MT
Bart O'Gara	Montana Coop Unit., U of M, Missoula, MT
Les Pengelly	420 Hastings Ave., Missoula, MT
Harold Picton	3026 Candy Lane, Bozeman, MT
Merle Rognrud	P.O. Box 5115, Helena, MT
Robert Ruff	Univ. of WI-Dept. of Wildl. Ecology, Madison, WI 53706
Gerald Salinas	Route 1 Box 117A, Charlo, MT
Jack Schmautz	4104 Majestic Lane, Fairfax, VA 22033

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Dwight Stockstad	Elkridge Drive, Missoula, MT
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Of the 51 Charter members "Accounted For" in 1986, 5 are 1986 members of the Montana Chapter: Arnold Foss, Jack Lyon, Dick Mackie, Bart O'Gara, and Harold Picton.

Five of our Charter members are deceased: Watson Beed, Claudeus Brown, Gordon Clark, Buck Compton, and Joe Severy.

The remaining 15 Charter members are unaccounted for: Jim Bourne, Robert Brown, Wilfred Crabb, Benjamin Donley, Warren Ensign, Geoffrey Foote, Lloyd Good, W.J. Hadlow, Elizabeth Hannum, Bill Johnson, Harry Johnson, K. Johnson, Timothy Knopp, Robert Rothweiler*, and Philip South.

* Robert Rothweiler is reportedly employed by the National Park Service, somewhere in the Eastern U.S.

SCHEMES FOR WILDLIFE COMMUNITY MANAGEMENT: WHERE ARE WE?

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The topic I will address today has been actively evolving for about 20 years. That makes the issue not quite as old as the Montana Chapter; most of the events surrounding the issue have evolved within the professional lifetime of many of us in this room. Schemes for Wildife Community Management -- I chose the word "scheme" in the title intentionally. Scheme has a devious, suspicious ring to it. If we substituted "plans" for "schemes," we would all feel a little more comfortable with the topic; I'm not going to do that -- sometimes it's good to feel a bit uncomfortable! I'm also more than 50 miles from home, so by definition I am an expert on topics of my choosing. Here I should be careful, though -- Montana is a big state and there are a lot of you who can join me as 50-mile experts; perhaps that will provoke some discussion.

So why this topic? Several reasons. (1) I was asked to address the nongame symposium that immediately preceded this meeting on the topic of single-species management for old-growth forest wildlife. A colleague drew the professionally more palatable assignment of speaking to managing for the wildlife community associated with old forests. (2) Increasingly I am finding myself getting beat about the head and shoulders for directing research that focuses on single species rather than the wildlife community. I'd like to believe that the criticism is undeserved, that the criticism results from being the messenger with bad news about problem species and their habitat needs; but I have nagging doubts.

What follows may be seen as critical of a number of current approaches to wildlife community management. I'm not sure that we can arrive at any single solution either. Probably there is no <u>one</u> appropriate scheme to manage wildlife communities; rather there is a spectrum of schemes, none of which all of us will find particularly satisfying. One good thing about being that "50 miles from home expert" is that I'm largely blissfully ignorant of the individual positions each of you may have on this topic; therefore, I'll offend without prejudice! I cannot, however, plead innocent to being as unaware of some agency policy for approaches to wildlife community management. By the way, the opinions I express are not official positions of either my employer or The Wildlife Society.

Few, if any, of the thoughts I'll try to express are original. I hope each of you will see some of your own ideas included. Stimulation for this topic has come most recently at a gathering of Canadian and U.S. wildlife biologists and foresters in British Columbia -- Habitat Futures. The forest/wildlife relationships volumes produced by Jack Ward Thomas and the "Blue Mountain Boys" and Reade Brown and the "Westside Gang" provided much focus. Papers by Hal Salwasser, Fred Samson, and innumerable discussions with colleagues Bill Mannan, Bruce Marcot, Mike Morrison, and Bob Anthony helped me sort my way through the topic.

In the beginning, wildlife management was game management and the practitioners focused almost exclusively on game species. In many situations, wildlife managers found that those game species responded favorably to forest, range, and even agricultural management practices. This idealic situation has been termed the laissez faire approach to managing the wildlife community. In this approach, the wildlife manager relies on natural processes or the induced processes of another manager to maintain the wildlife community. "Good timber management is good wildlife management" is an overworked example.

Wildlife biologists learn about as fast as any other group. It wasn't long before we perceived that "good-whatever management" was not necessarily good for all wildlife, and the profession rather universally focused on the managment of featured species. To begin with, these were almost all game species. In time, the featured species approach has encompassed nongame species as well, especially endangered species. By the mid-1960's, there were changes brewing. An environmental movement was developing in the nation. With this heightened awareness of wildlife by the public, the game agencies and land-managing agencies moved (or were dragged kicking and screaming) into managing wildlife. A broadened definition of wildlife resulted which now includes at least all birds and mammals and generally picks up reptiles and amphibians as well.

It is important to realize that at various times, as the definition of wildlife was evolving from game species to all terrestrial invertebrates, national legislation defined, placed limits on, or otherwise gave direction to wildlife management. The Multiple Use Sustained Yield Act of 1960 recognized and institutionalized multiple use on public lands. NEPA (National Environmental Policy Act) in 1969 provided a mandatory public disclosure process for proposed management actions impacting the environment. NEPA also provided the public with a formal legal procedure for input to and, if necessary, objection to programs impacting the environment. In 1969 and again in 1973, Endangered Species legislation was enacted. The Endangered Species Act essentially sets a floor -- more a basement threshold level -- below which species trigger a generally unpalatable series of events that prompts us to wish to manage wildlife above that level. By 1976 we had legislation dealing explicitly with forest wildlife management in the National Forest Management Act (NFMA). Regulations written to implement NFMA direct the USDA Forest Service to manage fish and wildlife habitat ".... to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence in the planning area ..... habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area." Quite a bit of specific direction in those several sentences; I think it translates as "thou shalt not create any (more) endangered species." The mandate not to create endangered species is shared by all federal agencies and any state agencies or private groups which accept federal funds.

So here we were by the mid-1970's with a new opportunity (or a new burden) to manage for the whole spectrum of wildlife -- the wildlife community, if you will. This was quite a change. Of the 460 species of terrestrial vertebrates in western Oregon and Washington, or the 378 species in the Blue Mountains of eastern Oregon and Washington, only a small fraction are taken as game animals. So how do wildlife managers get a handle on this community of 400-or-so species when we had not been feeling so awfully comfortable trying to manage for the subset of game species?

Featured Species Management

The featured species approach is an extension of our operating mode as game managers. It was, and is, appropriate for single species objectives. The approach works well, or at least best, when our objective is to maximize or (in the case of pest species) minimize population size. Elk, turkey, deer, and Canada geese are some of the success stories of the featured species approach. From a negative viewpoint, management of grizzly bears and wolves up until the last 40 years would have to be judged to be successful examples of the featured species approach. We had largely eliminated them as "problems." Now, as endangered species, the grizzly bear and wolf hopefully enjoy the reverse scenario of management objectives -- restoration to viable status, again as featured species in the wildlife manager's bag of tricks. Don't knock this management scheme -- featured species management works if we have sufficient knowledge of the biology/ecology of the animal and if we can exert sufficient influence on the management practices to affect the wildlife targeted.

We should look for featured species management to continue to be the scheme of choice for important game species, pest species, and endangered species.

Species Richness Management

Obviously, wildlife managers are not going to be able to intensively manage for perhaps 400 species simultaneously. For a good reason, too -- we don't need to. All 400 species do not require or merit intensive management as featured species. Many species will do quite well, or at least not too badly, within the context of current economically driven land-management scenarios. The alternative to featured species management is management directed at maintaining or increasing species richness (number of species present in viable numbers) within the area of interest. The approach here is to maintain or establish representative vegetation types and seral stages in amounts and distribution to ensure viability of most wildlife species.

In the species richness approach, the management output becomes vegetation types, acreages, and distribution. This greatly simplifies our job of accounting for a product: vegetation doesn't run away and it will hold still to be counted, unlike most wildlife. But there's always

a catch. How do we know that our sophisticated (or pseudo-sophisticated) vegetation management achieved the desired end point? Again, we must resort to enumerating wildlife. But perhaps we don't need to monitor the performance of all the species, rather pick representative species for the various vegetation types of concern. Here we encounter the indicator species.

An indicator species is one whose welfare is supposedly indicative of the welfare of a group of other species. An indicator species offers the opportunity for accounting for management impact on a group of animals without acquiring data on all of the species involved. That's a neat trick if you can do it! the indicator-species concept may be able to work if we know the biological/ecological requirements of the entire suite of animals the indicator is to represent. We must be wise enough to choose the animal with the most restrictive requirements in the group. In all but the most simple assemblages of animals, that is not the state of the art at this point in time. Besides, if we must know all the biological/ecological characteristics of each species, then we could manage each individually. I believe it boils down to the fact that a species is a species: each has its own evolutionary baggage -- its own niche -- and one species cannot totally represent another, let alone a group of species.

Another strategy to simplify accounting for the effects of management employs the use of guilds. A guild is a group of species that exploit the environmental resources in a similar fashion. Administratively grouping species into guilds purportedly facilitates the process of assessing and predicting the effects of natural or man-induced habitat modifications on wildlife communities. When using guilds for management purposes, biologists assume that species in a guild respond similarly to environmental changes. For instance, species of birds that forage and nest in the foliage of fir trees form a logical guild and are expected to respond consistently to treatment that alters the volume of canopy foliage. In point of fact, species within guilds have been shown to lack consistent response to all but the most drastic habitat alterations. The lack of consistent response eliminates the possibility of predicting response of guild members by monitoring the response of a single "indicator" for that guild. Some have argued to then use the total number of all individuals of all species in the guild as a measure of guild response. This approach is less expensive than monitoring all species individually. Again we are frustrated by the fact that a species is a species; each has different requirements. Thus an increase in numbers of one or more species in the guild could mask the decline or virtual absence of others. It is the species that declines due to management that we need to be most concerned about.

Minimum Viable Population and Management Objectives

All of our misgivings about managing for the whole spectrum of wildlife are exacerbated when we face the prospect of managing for minimum population levels. I am unaware of any reputable wildlife or land-managing

agency that publicly advocates managing for the minimum viable population level -- a pair or two above endangered species status. However, each of us is aware of the tremendous economic and social pressures that come into play and force the management of certain wildlife to approach that nebulous minimum viable level. Wildlife biologists have another problem at that point: what is a minimum viable population level? It seems to me that we may be running a series of experiments that may establish that threshold -- one species at a time. The California condor, the black-footed ferret, the Yellowstone grizzly bear, and perhaps the northern spotted owl may be cases in point.

Conclusions

So how should wildlife biologists propose to manage for that full spectrum of wildlife species -- our assemblage of 400? Clearly, we do not have the species-specific knowledge or the resources to advocate an across-the-board featured species approach. But just as clearly, featured species management will be employed for the important game animals, endangered species, and pest wildlife. For the bulk of the wildlife community, however, it seems reasonable to fall back on the speciesrichness approach. For the species-richness approach to be effective, however, we must be able to identify the animals with the greatest resource constraints or habitat demands and provide for them in each vegetation type that may become limited due to management perturbation. Society must bear with us for a while because we must be conservative in our initial estimates of how far we can reduce any habitat or habitat element. As we acquire more knowledge of the animal's biology and ecology, we may find we can afford to be less conservative. In the process, wildlife biologists must be cautious about embracing techniques which group species for convenience of accounting (guilds, indicator species). Remember, a species is a species for a very good reason -- it evolved to be different from all other species.

Let me make one final point. I perceive that society seems to need a crutch, an animal -- preferably a nice feathered or furry one -- before the public seems willing to devote a significant (translate that as sufficient) land base for the perpetuation of an uneconomic land use. For instance, the northern spotted owl is the surrogate for old-growth forest in western Oregon, Washington, northern California. Everyone, especially the scientist, talks about old-growth forests being the real issue but when it comes time to act under NEPA, the challenges are made on the basis of a single species of wildlife. I suspect the situation represents a realistic appraisal by those entering into litigation of what may be possible within current legislative bounds. If this is in fact the case, and habitat perpetuation is currently possible at the system level only if a wildlife species is at threat -- then watch out! Wildlife biologists will receive requests to find an animal or the data to support candidate species as surrogates for alpine meadows, gallery forests, old-growth forests, and a long list of other threatened systems. If a system does not have an apparent obligate wildlife component, wildlife biologists are not obliged to invent one .... nor is the real value of the system any less. Each system has intrinisic value in its own right -- with or without an obligate wildlife component.

CURRENT STATUS OF FEE HUNTING ENTERPRISES IN MONTANA

Steven B. Laursen and John R. Lacey[1]

INTRODUCTION

Wildlife populations are threatened by an increasing human population that converts rural land to urban uses, removes fencerows, transforms small farms to large corporations and applies intensive agricultural practices on wetlands and steep hills (Poelker and Buss, 1972; Gottschalk, 1977; and Pineo, 1985). Although the importance of habitat quality and quantity are recognized (Alexander and Kellert, 1984), managing habitat for the benefit of wildlife is mostly without economic incentive. More than 60% of all hunting, fishing, trapping and other related wildlife activities take place on private lands.

Management of wildlife populations is not an important economic consideration on most private land. Some landowners recognize that big game animals compete with livestock for forage, trample forage and wet soils, and damage crops and fences. Others deny hunter access to private lands because they perceive the potential for intentional and unintentional vandalism (to roads, fences and other facilities), spread of noxious weeds, and fear their susceptibility to liability claims. The practice of charging access fees for hunting is uncommon in states like Montana where federal land management agencies control much of the land (Thomas, 1984).

Fee hunting has become an issue in Montana because landowners and sportsmen have differing opinions on legality and ramifications of such activity (Hadley and Carroll, 1986). While most landowners desire compensation for providing wildlife habitat and recreational opportunities, sportsmen feel that game animals are a public resource managed through license fees paid by sportsmen's dollars (Hadley and Carroll, 1986). Many do not want to pay, through a fee hunting system, for something they already support financially.

Beginning in 1985, the Montana Extension Service began receiving inquiries about the management of recreational enterprises on private lands. Most callers were in search of information on the business management, insurance, habitat improvement and legal aspects of fee-hunting operations. In response, the Extension Service offered workshops and printed material covering these topics. In an effort to provide an organized and complete educational program on the subject, the Extension Service also conducted a statewide survey of private landowners designed to gain a better understanding of the characteristics of fee hunting and other

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recreational enterprises on private land in Montana and obtain information that will assist private landowners in evaluating multiple-use management alternatives for their land and water. Results have implications for the management of wildlife habitat and populations on private lands. They can be useful in 1) predicting the future of fee hunting, 2) evaluating current programs of landowner assistance, 3) examining the potential impact of fee hunting on wildlife, 4) improving communication and understanding between landowners, sportsmen and wildlife biologists, and 5) providing data to aid policymakers. My intention today is to present the results of the survey. I will present the highlights of the scientific methodology, but concentrate primarily on the results as they relate to this audience of educators, policy-makers and biologists.

METHODS

In April 1986, a self-administered, mail-back questionnaire (Dillman, 1978) was mailed to a random sample of 1,000 members of the Montana Stockgrowers Association. Two weeks later, a second copy of the questionnaire was sent to landowners who had not responded to the first mailing. The stockgrowers were logical cooperators in the study because their rangelands provide habitat for most of the wildlife species that are hunted in Montana.

The questionnaire was designed to collect information on how wildlife values are harvested and how wildlife considerations are incorporated into land management decisions. Specific issued included the popularity and extent of leasing, the characteristics of leasing operations, the number of big game animals on leased lands, whether habitat improvements are being implemented to benefit wildlife, what fees are charged, the economic potential of leasing land to sportsmen, and whether landowners should be reimbursed for providing opportunities to sportsmen. It was felt that this type of information would be useful in developing a strategy to anticipate and alleviate conflicts between landowners, sportsmen, and wildlife management agencies.

Frequency analyses were used to determine how respondents answered each question. In order to compare geographical differences in landowner responses, the state was divided into five regions (Figure 1). Chi-square analyses were used to determine if landowner response differed among regions or between landowners who do and do not lease land to sportsmen. The probability level was set at 5% (0.05) for all tests. A study of nonrespondents was not undertaken and no evaluation of nonresponse bias is offered.

RESULTS AND DISCUSSION

Characteristics of Landowner Sportsmen Leases

A total of 555 questionnaires were returned (55% response rate). Eight percent of the respondents leased land to sportsmen, but the percentage differed among the five regions ($P<.05$). The percentage of respondent

lessors ranged from 14% in the southcentral to 2% in the northeastern region (Table 1).

Regional differences in numbers of landowners leasing land to sportsmen can be explained by pattern of land ownership and physical land characteristics. Leasing was uncommon in the western region where 33% of the total land was privately owned, but it was more common in the southcentral and southeastern regions where 66-67% of the land was privately owned (Table 1). In addition, most of the private land was located in relatively large units that made it possible for owners to charge access (only 5-14% of the private land was intermingled with public lands). Because of the small amount of public land in the latter regions, recreationists may be more willing to pay access fees for the use of private land.

The small amount of leasing activity in the northcentral region may be influenced by land use patterns. Cropland makes up 45% of the total acreage in this region, while the statewide average is 35%. As a result, there is probably less big game habitat; and consequently, big game hunters may be less interested in leasing private land.

The percentage of respondents leasing to sportsmen increased from 5% in 1975 to 8% in 1985 (Figure 2). However, the percentage of lessors leasing more than one-half of their land increased from 15% in 1975 to 69% in 1985. This suggests that lessors increased their leasing activity during the ten-year period.

Most of the respondents leasing land to sportsmen reported that the total fee for providing elk hunting opportunities ranged from $1,000 to $2,000. Two landowners reported that they charge less than $100. Higher fees were associated with opportunities that lasted at least six days and included the use of a cabin and horses. Since the completion of this survey, we have learned of at least two operations charging more than $5,000 for three- to five-day elk hunts.

Fees charged for providing deer and antelope hunting opportunities ranged from $10 to $2,000. The lower fee was for a one-day hunt, while the higher fee bought a week-long opportunity that included the use of a cabin and horses.

Several landowners leased land to outfitters. The annual price for leases varied from $.75 to $1.00 per acre. Others reported that they received 10% of the outfitter's gross income. In either case, it was the outfitter's responsibility to regulate all hunting activities.

Income earned in 1985 by charging fees to sportsmen usually made up less than 5% of the lessor's total annual income. However, 8% of the lessors reported that leases to sportsmen accounted for more than 15% of their total earnings (Figure 3).

Most of the leases between landowners and sportsmen involved single hunters (35%) or outfitters (33%). Cooperation with outfitters was significantly higher ($P<.05$) in southcentral Montana (41%) than in the other regions (23%). Hunting groups or clubs accounted for 25% of the leases. The remainder were with fishermen, birdwatchers, and others.

The vast majority of the hunting leases (83%) was granted by individual landowners. The percentage of leases in southcentral Montana involving cooperative agreements among a group of landowners (11%) was significantly higher ($P<.05$) than the percentage reported for the other regions (5%).

The terms of landowner-sportsmen leases have not been well defined in the past. Twenty-eight percent of the respondents reported that their

leases were always informal and 35% used both written and informal lease agreements. Only 13% regularly used written agreements.

Sixty-one percent of the leases were for a specific hunting season, while 22% were for one complete year. Twelve percent of the leases were in effect until a specified number of animals were harvested. Only 5% of the leases covered more than one year. The predominance of short-term leases between landowners and sportsmen may be a reflection of an immature industry.

Eighty-seven percent of the landowners leasing land to sportsmen reported that they had liability insurance. The coverage included personal insurance (44%), outfitters insurance (41%) or both (15%). A higher percentage of the 13% that did not have liability insurance lived in the northcentral, northeastern and western regions.

Landowner Attitudes Regarding Sportsmen Leases

Elk and mule deer were rated by landowners as the two species with the greatest potential for economic return. While landowners in the western and southcentral regions rated elk as the potentially most valuable species, respondents in the southeastern and northeastern areas, where elk populations are very small and localized, gave elk a low rating. Thus, on a statewide basis, mule deer reportedly have the highest economic potential (Table 2).

Thirty-three, 25 and 19% of the respondents gave waterfowl, gallinaceous birds and fish (Pisces spp.), respectively, a very high rating for economic potential (Table 2). This indicates that many of the respondents were cognizant of income potential for non-biggame species.

Fifty-seven percent of the lessor landowners reported that they used management practices to improve habitat on land leased to sportsmen. Forty percent of these landowners reported the use of more than one practice. The most common improvements were water developments and modification of range and forest management practices. Although some of these practices were implemented primarily to enhance livestock or timber production, with secondary benefits for wildlife, 14% of these landowners established food and/or cover plantings or manipulated wetlands. These improvements provided primary benefits for wildlife and suggest that many landowners recognize the value of wildlife.

Most respondents reported that landowners usually pay for habitat improvements on land that is leased to sportsmen. Others reported that the improvements were paid by sportsmen, government or cooperatively between sportsmen and landowners. Although the effect of economic incentives on landowner investment in wildlife habitat improvement cannot be directly assessed by data from the present study, the provision of economic incentives are a positive factor in Texas (Burger and Teer, 1981).

Only 8% of the landowners who did not lease to sportsmen indicated that they were aware of any wildlife habitat improvement projects done on land leased to sportsmen or any available management incentive programs. This amounts fo 384 of the 555 survey respondents. Educational programs that encourage sound stewardship and the implementation of wildlife habitat improvement programs are certainly justified for this group of landowners.

Information regarding incentives for improving wildlife habitat should be an integral part of this educational effort.

Thirty-nine percent of the respondents reported that a certain number of hectares was needed to develop and maintain opportunities for sportsmen, while the remaining 61% felt that the opportunities were not restricted by a minimum amount of land. Most of the former respondents felt that more than 2020 ha (5,000 ac) were needed for elk, 202-404 ha (500-1,000 ac) for mule deer, and less than 202 ha (500 ac) for whitetail deer, pheasant, grouse or fishing. There were no significant differences ($P<.05$) in the perception of a minimum area requirement among sample regions.

Eighty-seven percent of the respondents did not know of any legal problems between landowners and sportsmen and/or state agencies as a result of leasing land to sportsmen. Of the 13% who had heard of legal problems, most were related to the public's right to access along streams crossing private land. There were no significant differences ($P<.05$) in number of legal problems among regions.

Perceptions regarding the impact of leasing on outdoor opportunities differed significantly ($P<.05$) between the landowners who leased land to sportsmen and those who did not. Fifteen percent of the lessors felt that leasing would result in "many more" opportunities and 5% felt there would be "many less" opportunities. Corresponding figures for the nonlessors were 6% and 11%, respectively. The remaining landowners felt that opportunities for recreation would increase or decrease slightly, or not be affected by charging access fees.

Lessors and non-lessors did not differ in their perception of the impact of fee hunting on wildlife populations. Overall, 60% of all respondents felt that leasing would not impact wildlife numbers. However, a higher percentage of lessors (34%) than nonlessors (18%) expected overall habitat to improve with leasing.

Ninety percent of all respondents felt that landowners should be reimbursed for providing opportunities to sportsmen. This attitude was significantly ($P<.05$) more prevalent in southcentral and southeastern Montana than in the remaining three regions. Fifty-four percent of the respondents felt they should be reimbursed directly by sportsmen, 16% felt that they should be reimbursed by the state and 14% preferred receiving indirect benefits (e.g., tax breaks). Many operators may not view tax benefits as a positive incentive because they are losing money in their current agricultural operations. Some Montana landowners have expressed concern over using tax breaks (Pers. Comm.). In their opinion, it can be difficult to repeal tax legislation if it is found to be unsuitable, especially in states where the legislature meets once every two years. Fourteen percent of the respondents preferred a combination of two or more methods of reimbursement.

Comments written by respondents on the questionnaires indicated that the need to supplement traditional agricultural income was responsible for most of the increased interest in managing wildlife resources on private land. Another motivating factor was a backlash resulting from landowners' perception that there has been an erosion of individual rights (i.e., the replacement of "private-property rights" by new "public rights", including recreational opportunities, scenic-site access, and erosion control). As long as these factors persist, the number of landowners charging for access is expected to increase.

SUMMARY AND CONCLUSIONS

The present survey indicates that the number and size of private ownerships involved in fee-hunting enterprises is on the increase for the population sampled, the Montana Stockgrowers Association. Eight percent of survey respondents charged access fees for providing fee-hunting activities on private land, but 90% of all respondents felt that landowners should be reimbursed for providing these opportunities to sportsmen and other recreationists.

Based on the results of this study, it is clear that we would see more landowners in the business of improving wildlife habitat on their land if landowner assistance incentives and programs were developed, encouraged and/or made more visible through educational programs.

Special programs to encourage recreational access on private land have been developed in Montana, Oregon and Washington. An example of state agency efforts is the block grant and walk-in program administered by Montana's Department of Fish, Wildlife and Parks (FW&P). While the landowner permits hunter access to specific areas, department personnel provide signs and maps of the area, and patrol the land for compliance. At present, FW&P reports that there are more landowners willing to participate than funding allows, and more than 242,400 ha (600,000 ac) of private land has been entered into the program. However, this type of program does not provide the economic incentive for private landowners to improve wildlife habitat. New Mexico, California and Colorado all have enacted legislated programs to encourage habitat management on private lands.

Because of the national and statewide concern about the low level of wildlife management on private lands, and the probability of increasing demand on the nation's wildlife resources in the future, it is appropriate to further discuss management strategies that provide landowners with economic incentives to improve wildlife habitat. This consideration is supported by the present study which indicates that landowners who charge access fees tend to invest more in habitat improvement practices.

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Figure 1. Map of Montana showing five geographic regions used in the 1985 landowner-sportsmen survey (1-western; 2-northcentral; 3-south-central; 4-northeastern and 5-southeastern).

Figure 2. Percentage of lessor respondents' land that was leased to sportsmen.

Figure 3. Income earned from leasing to sportsmen as percentage of total gross income for 1985.

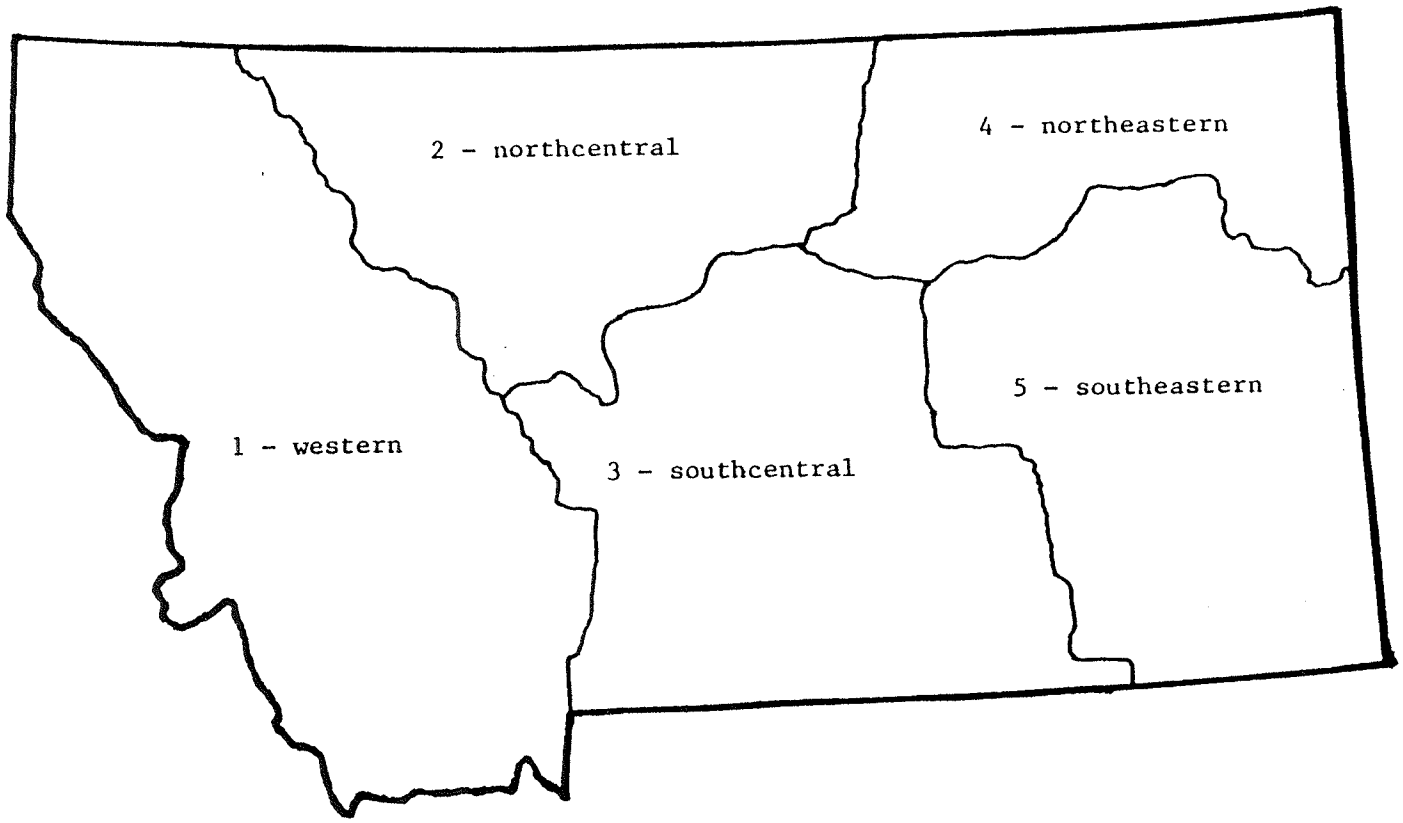
2 - northcentral
4 - northeastern
5 - southeastern
1 - western
3 - southcentral

Figure 1

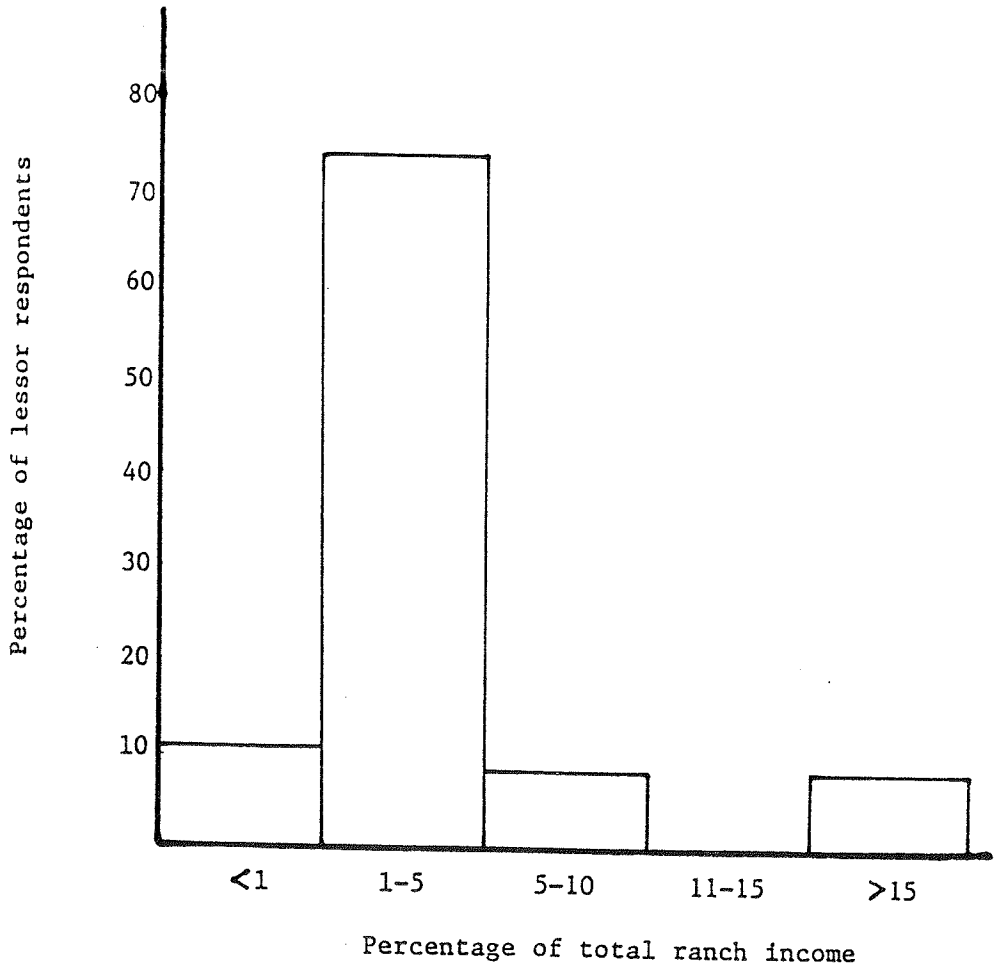
Percentage of lessor respondents
80
70
60
50
40
30
20
10
<1
1-5
5-10
11-15
>15
Percentage of total ranch income

Figure 2

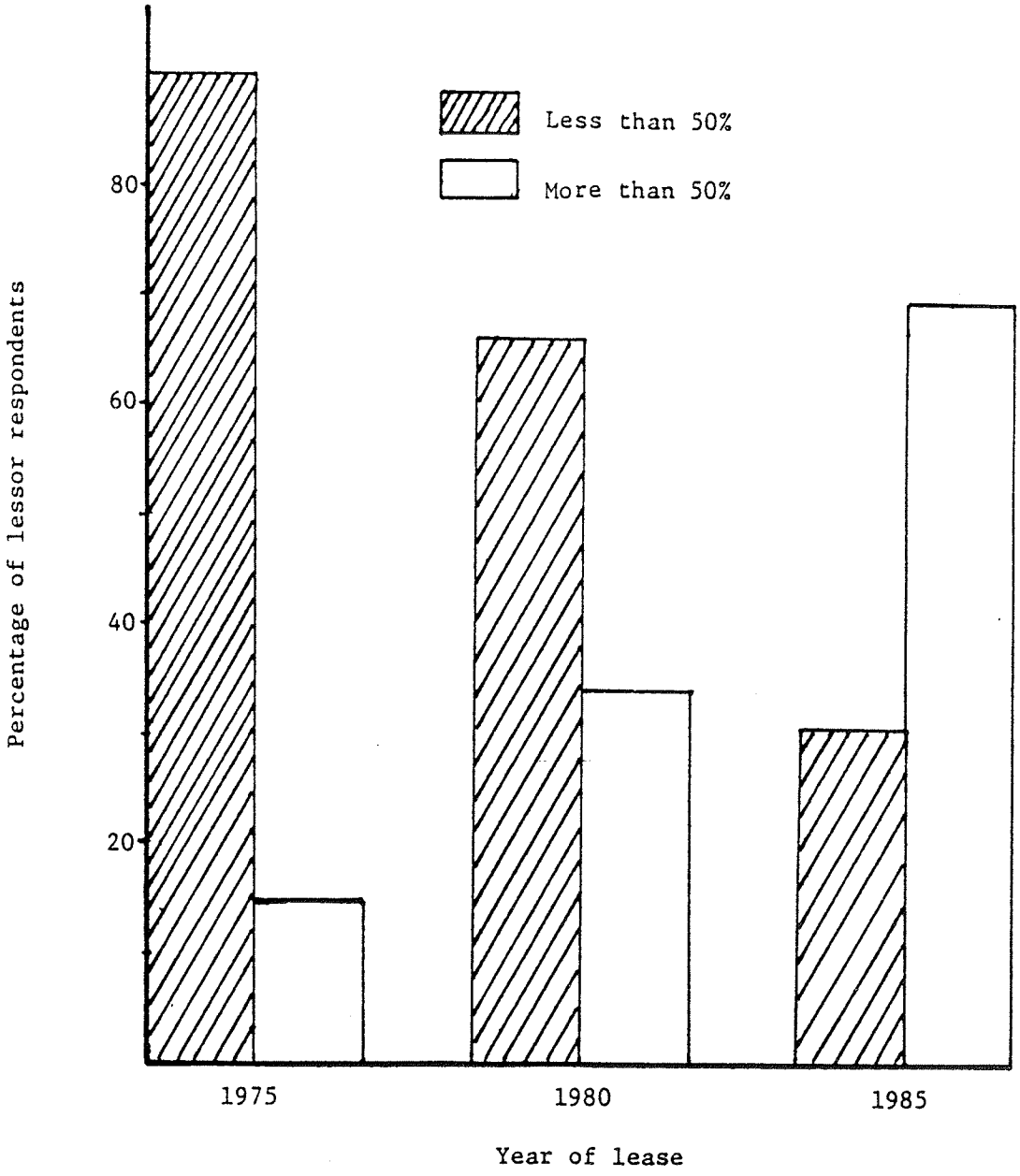
Less than 50%
More than 50%
Percentage of lessor respondents
80
60
40
20
1975
1980
1985
Year of lease

Figure 3.

Table 1. Number of respondents and land area (and percent of total within region) by ownership class per geographic region, landowner sportsmen survey, 1986.

Region	Number of Respondents	Percent of Respondents Leasing Land to Sportsmen	Area of Land (hectares)			
			Private	Checkered[a]	Public	Total
Western	156	7	3,339,008	67,419	5,637,085	11,028,970
			(30.3%)	(18.5%)	(51.2%)	(100%)
Northcentral	83	4	4,430,405	489,247	1,382,019	6,324,670
			(70%)	(8%)	(22%)	(100%)
Southcentral	183	14	4,911,289	807,049	211,380	8,103,941
			(60.6%)	(13.3%)	(26.1%)	(100%)
Northeastern	53	2	2,107,526	867,682	1,693,548	4,679,210
			(45%)	(18.9%)	(36.1%)	(100%)
Southeastern	51	6	4,700,118	2,028,076	731,780	7,508,063
	—	—	(62.6%)	(27.6%)	(9.8%)	(100%)
Total	526	33	19,488,346	4,869,473	9,655,812	37,644,854

[a]Alternating tracts of land are under private and government ownership.

Table 2. Perceived economic potential of wildlife by landowners who charge access fees.

Kind	PERCENT OF RESPONDENTS[a]		
	Very Important	Fairly Important	Unimportant
Elk	74	7	19
Mule Deer	97	0	3
Whitetail Deer	78	13	9
Antelope	58	31	11
Gallinaceous birds	25	68	7
Waterfowl	33	36	31
Fish	19	71	10

[a]Adjusted for missing values.

GAME MANAGEMENT ON SHELTON'S MONTANA RANCH

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Robert R. Shelton's Montana Ranch is located in South Central Montana and extends into two counties, Madison and Gallatin. The ranch is 19 miles southwest of Bozeman, Montana, and 40 miles north of the entrance to Yellowstone National Park known as West Yellowstone. The ranch is generally bordered on the east by the Gallatin River and on the west by the Madison River. The south boundary of the ranch is located on the slopes of the Spanish Peak mountain range.

Shelton's Montana Ranch contains 107,514 acres of deeded land owned by Mr. Shelton, 10,500 acres of Montana State Lease land, 976 acres of Bureau of Land Management Lease land, and 13,708 acres of U.S. Forest Service Grazing Permit land, for a total of 132,698 acres. The ranch acreage includes 5,859 acres of irrigated hayland, 2,315 acres of dry cropland, 390 acres of sub-irrigated pasture, and 124,134 acres of rangeland.

Elevation on the ranch ranges from 8,000 feet along the south boundary to 4,400 feet on the north boundary along the Madison River.

The rangeland varies from steep wooded land on the south, to rolling meadows in the central portion, to high rolling bench topography on the north. The main grasses are needle and thread grasses, mountain bromegrass, fescues, Timothy and blue grama. The south one-fourth of the ranch is heavily timbered, with Ponderosa Pine and Douglas Fir being the predominant species. Precipitation varies from 40 inches in the high mountain area to a low of 16 inches in the north ranges. Frost-free days vary from 30-50 in the mountains to 110-120 days in the northern portion of the ranch. Temperatures range from highs of 70-80 degrees F during summer months to lows of -30 degrees F during the winter.

The ranch is presently carrying about 3,000 animal units of domestic livestock on a year-round basis. The ranch is a cow-calf operation, with small herds of registered Santa Gertrudis and Salers cattle and a large commercial herd of primarily cross-bred cows.

The ranch appears to be good habitat for a variety of native wildlife. Within the ranch boundaries there are established populations of the following species: mule deer, white-tailed deer, American elk, Wyoming moose, pronghorn antelope, black bear, mountain lion, coyote, beaver, mink, marmot, badger, and porcupine. Bighorn sheep and mountain goat occur on the slopes and ridges of the Spanish Peak mountain range immediately south of the ranch boundary. The rivers and streams on the ranch are excellent trout fisheries.

on the ranch has been restricted since 1981 to permit antlered males to reach mature, trophy age classes. The harvest of game animals has been as follows:

BIG GAME HARVEST ESTIMATE
MONTANA RANCH
1979-1987

Year	Bull Elk	Cow Elk	Mule Deer Bucks	White-tailed Bucks	Antlerless White-tailed Deer
1979	30-40	0	25-30	4	0
1980	30-40	0	25-30	4	0
1981	19	10	8	8	0
1982	1	36	1	40	2
1983	0	40	2	10	12
1984	0	68	0	26	5
1985	4	114	0	30	26
1986	9	85	3	5	44
1987	20	77	11	4	N/A

These animals were harvested on the ranch by employees, families, and guests and include animals killed by trespassers.

During the 1987 elk season 16 hunters harvested 12 trophy bull elk with an average rough Boone & Crockett score of 301 points. Twelve commercial hunters paid access/hunting fees of $5,500 each and harvested eight trophy bulls.

Special three-day cow elk hunts were initiated in 1981 to stabilize the elk population and to balance the sex ratio of adults. A special 3-day cow elk hunt was conducted November 27-29, 1987, on the Montana Ranch. Niney-seven hunters participated and harvested 74 antlerless elk during this 3-day hunt.

The following is a summary of the 3-day antlerless elk hunts and the antlerless elk harvest on Shelton Ranch since 1981:

ANTLERLESS ELK HARVEST
MONTANA RANCH
1981-1987

YEAR	PERMITTEES INVITED SR 3-DAY HUNT	PERMITTEES PARTICIPATING & PERCENTAGE	ELK HARVESTED DURING 3-DAY SR HUNT	% HUNTER SUCESS	TOTAL ANTLERLESS ELK HARVESTED SR
1981	0	0	0	0	10
1982	35	19 (54%)	16	84%	36
1983	55	36 (65%)	16	44%	40
1984	100	79 (79%)	28	35%	68
1985	200	125 (62%)	86	69%	114
1986	200	158 (79%)	65	41%	85
1987	125	97 (78%)	74	76%	77
TOTAL	715	514 (72%)	285	55%	430

Annual winter surveys conducted from a helicopter and a fixed wing aircraft over the ranch during February resulted in the location of the following numbers of elk:

WINTER ELK CENSUS
MONTANA RANCH
1981-1987

Date	Trophy	Brushy/ Rag Top Antlered	Yearling/ Spikes	Antlerless	Total
Feb. 1981	0	6	21	699	696
Feb. 1982	0	50	69	623	742
Feb. 1983	15	49	93	679	836
Feb. 1984	2	31	44	868	945
Feb. 1985	15	108	91	961	1175
Feb. 1986	21	67	96	983	1167
Feb. 1987	28	189	92	1026	1335

Based on these surveys and information provided by ranch employees and Montana Game and Fish personnel, winter elk population estimates on the Montana Ranch for 1981-1987 were as follows:

ESTIMATED ELK POPULATION
MONTANA RANCH
1981-1987

DATE	TROPHY BULLS	BRUSHY TOP BULLS	YRLG. BULLS	COW ELK	ELK CALVES	COWS/ BULL	CALF CROP	TOTAL POP. EST.
2/81	1	9	35	535	177	11.8	33%	757
2/82	3	40	70	567	200	5.0	35%	880
2/83	15	50	90	487	308	3.1	63%	950
2/84	15	85	65	617	368	3.7	60%	1150
2/85	20	117	98	650	390	2.7	60%	1275
2/86	25	120	105	656	361	2.6	55%	1267
2/87	30	190	100	693	382	2.2	55%	1395

Identification of elk calves by the novice observer is admittedly difficult during the month of February and the observed calf numbers are believed to be conservative. The vast majority of the antlered bull elk observed in 1981 and 1982 appeared to be yearling bulls with spike antlers or very small forked antlers. The age structure, antler quality and sex ratio of the Montana Ranch elk herd have improved steadily since 1981. According to the data above the current cow:bull ratio on Shelton Ranch is 2.2 cows per bull which is considered excellent.

Although difficult to survey due to cover and topography, the ranch's mule deer herd is recovering from an extensive die-off which occurred several years ago. It is estimated that there are currently 900-1000 mule deer on the Montana Ranch. The majority of the mule deer observed during 1981 - 1985 were antlerless and no adult trophy males were recorded. During 1986 and 1987 observations of mule deer bucks in the 3 and 4 year old age classes increased as bucks were protected and allowed to reach these age classes. It is anticipated that within the next 2-3 years that the harvest of mature age class, trophy mule deer bucks will reach 14-16 head annually.

White-tailed deer are primarily located along the brushy drainage areas, especially those areas associated with Cherry Creek, Pole Creek and Spanish Creek. According to ranch employees, white-tailed deer populations have increased in numbers and have expanded their range in recent years. According to employees who have been on the ranch many years, the first white-tails on the ranch were observed in about 1974. It is estimated that there are currently 300-400 white-tailed deer on the ranch. Forked antlered white-tailed bucks have been protected from harvest for two years. Observations of bucks in the 2-3 year old age classes have increased moderately. It is anticipated that within 2-3 years the harvest of mature, trophy white-tailed bucks will reach 6-8 annually.

Moose occur throughout the ranch but are not numerous. The area known as Willow Swamp is apparently good moose habitat as they are often observed there. Moose have also been sighted on the Breaks, Finnegan Ridge, Pole Creek, and in the upper drainages of Spanish Creek and Cherry Creek. It is estimated that the ranch currently supports a population of 30-40 moose. There is no plan to harvest any moose on the ranch during the next two years.

The elk herd on the Montana Ranch will be allowed to increase to 1600-1800 elk. It is believed that the ranch will carry this number of elk with minimum effect on the livestock operation and without excessive competition between elk, mule deer and/or cattle for preferred forage and cover. The elk herd will not be allowed to increase without control as they will begin to over-utilize preferred forage and compete with domestic livestock, mule deer, and other wildlife species. Therefore, 50-75 cow elk will be harvested annually during the next 3-5 years. The elk herd will be surveyed annually during the fall bugling season and during early February, to determine the population level and herd composition. The harvest of antlered bulls will be limited to 15-20 trophy bulls during the next two years. Bull elk with spike antlers or young forked-antlered bulls referred to as "brushy tops" will not be harvested on the Montana Ranch. The harvest of bull elk in the middle age classes (3-5 years of age) is prohibited. These young bull elk must be protected as the goal is to produce mature trophy bulls. No antlered bull elk will be harvested on the Montana Ranch unless the head and antlers are to be mounted as a trophy by a taxidermist and the meat utilized as food.

Protection of immature (less that 6 years old) bulls and the annual harvest of a reasonable number of cow elk will:

1. Permit male elk to mature and reach the desired trophy age classes of 6-9 years of age.

2. Maintain the adult elk sex ratio at a figure of about two cows per bull.

3. Control the total elk herd at about 1,600-1,800 animals.

Under these circumstances it should be possible to harvest 20-30 mature trophy bull elk annually within the next three to four years.

Every effort should be made by Montana Ranch employees and their families to obtain cow elk permits annually for the special cow elk hunt on the Montana Ranch. This will provide ranch families with some excellent meat and a hunting opportunity.

It is planned to harvest 10-15 trophy mule deer bucks annually during the next two years.

Antlerless white-tailed deer will be heavily hunted on the Montana Ranch. Although presently limited in numbers, white-tails tend to increase rapidly and could become serious competitors with elk, mule deer, and domestic livestock for preferred forage. The harvest of antlered white-tailed deer will be restricted to determine trophy production potential.

Hunting of pronghorn antelope will be extremely limited. Existing populations of this native species number 60-75 head and share rangeland with adjoining landownerships on the plateau west of the Madison River.

USER FEES: A NEW TOOL FOR WILDLIFE MANAGERS IN MONTANA

Michael R. Frisina, Wildlife Biologist,MDFWP,Butte
Heidi B. Youmans, Wildlife Biologist,MDFWP,Forsyth

Fee hunting. To many of us, these are fighting words that go against what we have known and enjoyed in Montana, some for our entire life. But try to unbristle, take a few deep breaths, and consider what opportunities this trend presents us.

The concept of compensating private landowners for wildlife production is not new. In 1931, Aldo Leopold stressed the importance of the private landowner's role in the perpetuation of public wildlife resources:

> "Recognize the landholder as the custodian of public game (on privately owned lands), and protect him from the irresponsible shooter, and compensate him for putting his land in productive condition. Compensate him either publicly or privately, with either cash, service, or protection, for the use of his land and for his labor, on condition that he preserves the game seed and otherwise safeguards the public interest. In short, make game management a partnership enterprise to which the landholder, the sportsman, and the public contribute appropriate services, and from which each derive appropriate rewards."

The private management of wildlife for economic gain is a growth industry in Montana today, partially due to the economic downturn in agriculture and the emerging role of wildlife in the state's economy. Regardless of our personal perception of user-pay hunting, it is an emerging fact. Montanans have a tremendous stake in the potential for long-term public economic gain from the state's wildlife resources, and it should not be taken lightly. Following are some thoughts to consider in this vein:

CONSIDER: Results of a research project conducted by Brock et al (1984) which demonstrated a tremendous economic potential for tourism in Montana. A major portion of this tourism potential evolves around outdoor recreation activities. The primary inhibitor of greater economic growth in the tourism arena is lack of advertising. The current

legislative session is considering several proposals to increase funds for this purpose.

CONSIDER: Results of an MSU study of the economic impact of the outfitting industry on the state of Montana (Taylor and Reilly, no date) which calculates 34.5 million dollars is spent in Montana each year for services associated with recreational activities including hunting, fishing, and packing. This figure includes fees and associated expenses. By applying a standard 2.5 multiplier, the total financial impact is estimated at 86 million dollars annually. This 86 million represents only that portion of the public that utilizes guides and outfitters. The total economic impact is obviously much greater.

CONSIDER: HB 379 which proposes the establishment of private wildlife management areas and would turn over substantial control of big game licenses to landowners. Even if this particular bill does not pass, we will doubtless have to address similar legislation in the future.

Interest in the potential economic values of wildlife extend beyond the issues of 'quality of life' and 'recreational opportunity' toward the realization of substantial tourism expansion, of which recreation associated with wildlife is a major factor. In this light, the future of Montana's wildlife resource is as much a socio-economic issue as it is a biological one.

There is a segment of the hunting public willing to pay to hunt on private land. We need to remember this segment of the hunting public is also part of our constituency. User-fee hunting is another form of hunting opportunity available in Montana.

How can wildlife managers use this trend as a positive tool?

Roughly one-half of the habitat sustaining Montana's wildlife populations is privately owned. The Montana Department of Fish, Wildlife and Parks currently devotes considerable manpower and money to resolve conflicts resulting from the use of private lands by wildlife and hunters (game damage, access, improved sportsman-landowner relations, and investigation of how wildlife populations distribute themselves over public and private lands). While these efforts are worthwhile and deal with important problems, they don't deal with the primary issue that will ensure abundant, healthy wildlife populations in the future. The future of our wildlife resource lies in having a

bountiful supply of high quality habitat maintained on private lands.

The economic benefit to landowners from wildlife populations gives us the opening we need to ensure maintenance of habitat. It is up to us as wildlife managers to demonstrate to landowners that high quality habitat is imperative to maintaining wildlife populations on their land. Basically we need to demonstrate the value of our profession. We can only do this by individually working one-on-one with landowners on a day-to-day basis. Education of landowners is essential, both to our profession and our resource.

We are not advocating conversion of ranches and farms into commercial game farms. We are talking about wildlife becomming a supplemental source of income for landowners. Examples of how dual management of resources can be accomplished include the Department's livestock grazing programs on the Mount Haggin, Isaac Homestead, Wall Creek, and Fleecer Wildlife Management Areas. As a result of these successful experiences with landowners and land management practices, we believe these kinds of efforts result in more tangible, lasting benefits for wildlife than many of the other things wildlife biologists ordinarily do.

In addition, demonstrating the necessity of high quality habitat to private landowners will help wildlife management emerge as a credible profession in the eyes of the public. Within our profession we do not question the value of our expertise. But we're sure everyone here would agree the public perception of wildlife management has yet to reach it's proper status. There are lots of doctor and lawyer jokes, yet their expertise is seen as necessary and valuable to society. If private landowners see that our expertise is necessary for them to maximize wildlife production, the profession stands to gain greatly in visibility and value, both to landowners and the public in general.

We are not urging wildlife managers to promote cash reimbursement for hunting privileges. We need to continue to do everything we can to improve landowner-sportsman relations and to maintain or improve access to private lands. However, we must address the user-pay hunting concept--it is here to stay and will probably grow substantially for social, economic, and supply-demand reasons.

Some people feel if we provide our expertise to

landowners, we are subsidizing their operation. To a certain extent this is true, just as some private landowners currently subsidize wildlife-oriented recreation by allowing the public to freely use the wildlife resource produced on their lands. There is nothing inherently wrong with subsidies. They occur throughout our society and our way of life is dependent upon them.

Some people fear user-pay hunting will put more pressure on public lands, but the opposite may actually occur. Increased hunting on private lands may help offset use on public lands. It remains to be seen, but the potential is there.

Some feel private interests should not derive profit from a public resource such as wildlife. We sympathize with this view, however, historically a substantial portion of the state's economy has been based on the conversion of public resources into profits for private industry (e.g., timber, range, mining). Although this may not be acceptable to some of us, it is acceptable to society and will continue to be acceptable.

We need to choose how we will deal with user-pay hunting. Will we respond with forethought or give the traditional knee-jerk reaction? We are at a fork in the road. We can choose to see the opportunities and seize them, or we can choose not to participate. If we participate, we have the opportunity to play a significant role in the future economic development of Montana and to maintain the wildlife resource we all value.

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LAND STEWARDSHIP - WILDLIFE ON PRIVATE LAND

BY: GARY HAMMOND

I am going to begin this talk with a statement on what I think our objective must be when dealing with the question of wildlife on private lands.

We must encourage and ultimately influence proper land and water conservation on private lands perpetually, while simultaneously providing public access to wildlife on those lands by implementing a user-pays funding source which will ultimately result in an economic benefit to private landowners.

With that thought in mind, let me describe to you a planning paradox. While we have readily established planning goals and objectives by species, we have done so with the full realization that two-thirds of our state is in private ownership over which we have no control. Only recently, as a result of various economic and social consideration, have we begun to feel the full impacts of that situation. We have observed land use practices (including sodbusting) which have resulted in the destruction of valuable wildlife habitat on private lands. Simultaneously, there has been a consistent increase in the amount of private land severely restricted or closed to the general sporting public. The latter situation is at least partially the result of the recognition of the value of wildlife as a commodity. It is significant to note that lending institutions have even begun recognizing the economic potential of wildlife on private lands.

The significance of the access situation is exemplified by the widespread attention it is receiving from a variety of groups, including the Wildlife Federation, Guides and Outfitter Association, and numerous sportsman's organizations, and has even spawned the formation of a new group, the Public Lands Access Association.

In considering this situation, let me describe to you why the climate seems right to proceed with a lands program:

1. There is national attention focused on the need for proper land stewardship, and specifically on soil conservation, through the farm bill and it various provisions, including the Conservation Reserve Program;
2. The economic pressures on farmers and ranchers are the worst since the Great Depression, and wildlife is being viewed as a potential cash crop. Further, game damage reimbursement bills are being implemented in many of our neighboring states to help out the Ag. economy;
3. There is widespread realization of a need to obtain more public access to wildlife on both private land, and to public lands to which access is controlled through private land;
4. Politically, we are seen as the appropriate state agency to address this problem;
5. A proposed user-pays system would serve as the funding source for such a program;
6. Internally, a land's program has been identified as the Department's number one priority.

Recently, in the Wildlife Division, a committee was appointed to develop criteria to initiate the process of identifying and ranking certain geographic areas and subsequently specific projects as to their wildlife value. To date, specific categories proposed include, but are not limited to : 1.) inherent productivity (which could be expressed in relation to animal density) 2.) degree of immediacy (is the area threatened with physical destruction, and if so, when)? 3.) cost/benefit ratio 4.) condition (as related to potential) 5.) feasibility 6.) size 7.) species present.

To demonstrate to you how such a program might work, let me describe what we are doing in Region 7. To begin, using the just mentioned criteria, we identified priority zones within the Region.

The block management program served as a necessary first step toward the goal of ultimately gaining long-term interest on some of these private lands. (We established the block management program on nearly 1,000,000 acres (5%) of private land in Region 7 in 1986). We demonstrated to most of the parties involved that inclusion into such a program is both practical and workable. For example, many landowners expressed concerns that if they kept their places open in the block management program, that they would be overrun with hunters. We were able to prevent overcrowding by designing parking areas and making all hunting as walk-on only. With such a design, we provided hunters the chance to select the type of hunting opportunity they desired from a high degree of solitude and the chance to hunt

remote area for trophy bucks, to areas of easy topography and close to roads where deer could be hunted with a minimal amount of effort.

We thereby established the creditability with those landowners that will be necessary in a long-term lands program, which could include, but not be limited to, the use of conservation easements.

Obviously, for both financial and political considerations, it would not be realistic to acquire fee title to enough land to have any significant influence on wildlife habitat and or on wildlife occupying private land statewide. In spite of this fact, we must not confine ourselves to the use of just one land preservation tool. As a case in point, let me quote from Phil Hoose (1981) on Building An Arc. In this book, he states that "agencies have tended to use easements faddishly, promoting then from time to time as a way to control a major area, becoming discouraged after awhile and then scrapping the whole idea. Out of favor, easements lie around for a time, gathering dust on the floor of a closet full of planning tools, only to be rediscovered periodically, picked up and used again. Efforts to apply one tool indiscriminately to protect vast areas with numerous property owners are almost bound to fail." Therefore, we must recognize that fee title acquisition, conservation easements, block management programs, leases, etc. all have their place in the larger plan for an important area.

Before I discuss specific examples of how we might implement a lands program, let me point out a very important fact -- that you must have an overall plan for an area, and you must also do

your homework in an endeavor to understand a particular landowners values (including his wants and his needs) before you propose any program for him.

As a first example, let us consider Paul's Ranch, which was included in our block management program this year. Paul has some very deep feelings about proper land stewardship, and wants to insure that his property (26 sections) is taken care of after he is gone. He has observed first hand the consequences of his neighbors breaking-up land that should never be farmed. Financially, he is secure, in spite of the current state of the ranching economy.

In considering a perpetual easement on this property as the most realistic alternative to accomplish both his as well as our objectives, we want to specifically prohibit farming on all but a portion of the bottoms which now provide his hay base. We would require a grazing program on the properties which would include a grazing system that would keep that land as near its productive potential as possible and we would want to provide for public access. We both want many of the same things, ie., we share the common value of land stewardship.

To acquaint Paul with rest-rotation grazing, we took him to Mt. Haggin to observe firsthand R-3's rest-rotation system, and we gave him the opportunity to visit Gus Hormay and several landowners who now incorporate that grazing system into their operations (Incidentally, the creditability we gained as a Department with the Ag. lobby with this grazing program will be a necessity as we seek the legislature's approval of a lands program).

Additionally, with the use of our block management program, we demonstrated to Paul that we could in fact control both hunter numbers and their distribution. Remember, this worked in an area where private land open to the public is at an absolute premium.

Therefore, given that Paul wants to ultimately retain ownership of his property, an easement could be donated as a gift, with that gift deduction subsequently used to reduce taxable income; it could be used as an estate planning tool to make inheritance more plausible by reducing the net value of the estate; or we could offer a bargain sale where we pay him some cash, with the donated balance being used to shelter taxes on that payment. Alternately, in lieu of a cash payment, we might pay for fencing costs, water developments, etc. that would be integral parts of setting up a long-term grazing program.

It is important to refer any specific financial questions to the landowners over councel, whether they be estate planners, tax accountants or tax attorneys.

Another example would be the proposed trade with John that we have been working on. This individual's needs are to acquire a base of operation for his daughter and son-in-law. He has roughly 900 acres of Yellowstone riparian bottom that he will have to develop to provide this land base. This would involve clearing and farming. We have offered a trade of an equal value of already farmed land on a portion of one of our management areas. In effect, we would be trading about 200 acres of farmed ground for his 900 acres of riparian habitat. (When considering an easement on land areas which would involve a long listing of

complex stipulations (ie., no subdivision, no logging, no roading, no farming, strict grazing controls, etc.) it might be better to consider acquiring fee title to such a place).

The third example we are working on is with a gentleman named Bud. This 50 section place is in the ownership of a man in his early 70's who has become physically unable to attend to a place of that size. His heirs are apparently not interested in carrying on the ranching tradition.

Potentially, we could obtain a gift of the entire deeded property or at least some significant part of it. (As mentioned previously, we must be able to be flexible in an application of the various acquisition tools in achieving our goals). Another consideration here could be a life estate, whereby he and his wife would be allowed to remain on the property until their death. Conceivably, we could use the grazing as trading stock to obtain an easement on an adjacent property.

Another situation that has been exemplified by the heavy snow that existed early this winter is that of antelope wintering west of Miles City. Because of the physical destruction of vast acreages of sagebrush that was historically antelope winter range, several thousand antelope now concentrate onto a small area where that habitat remains intact. The loss of that remaining winter range would be disasterous. Preservation of that remaining critical winter range must be the priority in this example. While public access is a significant consideration in most of these proposals, preservation of critical habitat must be one of our primary considerations. In this instance, however,

we might obtain an option or a right-of-first-refusal to someday acquire that public access. As part of an overall plan, we might have to be patient in acquiring all pieces necessary to accomplish our objectives.

In these examples, we have talked only about private individual/family landowners. It is important to realize that there are equally attractive economic incentives for companies as well. Considering the number of properties being acquired by various companies, these situations have considerable possibilities. In addition to the economic benefits they would receive, we could provide them with some very good press as well.

An example of this involves a large insurance company having acquired title to a property near Miles City that had been the victim of the 'sodbusting phenomenon.' In this instance, in lieu of a cash payment for an easement, we could pay to have the farmed area reseeded to native vegetation. Additionally, we could help to finance fencing programs, water developments, etc. to help in the establishment of a grazing program.

In this instance, the landowner would obviously benefit by again having the land returned to its proper use (ranching) and restored to its productive potential, as well as realizing tax savings, while wildlife and sportsmen would obviously be principal beneficiaries as well.

Another tool I have not mentioned thus far is land exchange pooling which was established by several federal agencies. This tool could potentially be used to consolidate holdings in and around these core blocks of land. We realize the potential implications of trading or selling some of these disjunct tracts,

but it must be recognized to be a viable tool in this overall land preservation package.

The federal 'areas of critical environmental concern program' mandated in the organic acts of some federal agencies is still another tool that could be used in this endeavor.

A coordinated effort with private conservation organizations could also be mutually beneficial to all conservation organizations which share in the burden of land conservation.

To change gears now, let us proceed by asking the question of how to keep ourselves out of court with a lands program which utilizes these tools, including conservation easements. Quoting Hoose (1981) again, he states that "there is a good amount of case law in defense of an easement program." He goes on to say that "a good monitoring program is an integral part of maintaining compliance of any easement program."

But, to take it a step farther, how do we get the landowner whose land we have encumbered from becoming resentful or antagonistic toward us as the administering agency? Svoboda (1981), who discussed incentives for wildlife management on private lands states, "economic incentives are useful in attracting a landowner's interests initially, but incentives must go beyond that. Wildlife must become part of the landowner's value system, so much so that he would rather cut off his arm than give up his wildlife habitat."

We must therefore develop some sort of unity with that landowner, so that we share a common vision of good land stewardship, whereby the landowner, the administering agency, and

the sportsmen all recognize that maintaining the land base (i.e. the soil, water and vegetation) as close to its productive potential as possible will be the 'highest and best use of that land.' To close, what paper on land stewardship would be complete without a quote from Leopold (1931). He stated that on private lands we must "make game management a partnership enterprise to which the landowner, the sportsman, and the public each contribute appropriate services, and from which each derive appropriate rewards."

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Mule Deer Use of Agricultural Lands Adjacent to Missouri River Breaks Habitat

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Use of Plains habitat by Mule deer (Odocoileus hemionus) is poorly understood compared to use of mountainous habitats. Some studies of mule deer in Plains habitat have been conducted on public land where livestock grazing was the dominant land use. Relatively high productivity and fawn survival rates of white-tailed deer (Odocoileus virginianus) have been attributed to the use of agricultural crops, but croplands are unavailable to mule deer throughout much of their range. This study was conducted on 233 km^2 of private lands where river breaks were interspersed with fields of cereal grains readily accessible to resident mule deer. I used track transects, radiotelemetry and sighting data, and winter population censuses to examine the use of grainfields by mule deer and the potential effects of that use on their population dynamics. Deer used fields from September to April, primarily at night. Feeding occurred more often in stubble strips than in new winter wheat, although the two field conditions occurred with equal frequency ($X^2=4.23$, $p<0.05$). Track transect, radiotelemetry, and sighting data showed similar field use patterns: field use was highest near rough terrain and decreased linearly with distance away from it. Sighting data tended to overestimate use of edge areas <100 m from rough terrain compared to the other techniques used. This bias probably occurred because deer could only be seen during daylight when they were just entering or leaving the fields. Distribution of track densities showed that deer preferred areas <200 m, and avoided those >400 m, from rough terrain ($p<0.01$). High rates of reproduction ($x=1.75$ fawns/radioed doe) and fawn survival(79%, 124 fawns:100 does) indicated that the population was in excellent nutritional condition. Nocturnal monitoring may be necessary to accurately assess mule deer use of open habitats. Management strategies, as related to both harvest and habitat concerns, should take into consideration the nutritional benefits associated with the use of agricultural crops by mule deer and their potential effects on population dynamics in areas where croplands are interspersed with adequate cover or escape terrain.

SOME THOUGHTS ON GAME MANAGEMENT

by Chase T. Hibbard

as presented to
The Wildlife Society
February 12, 1987

Once upon a time there was a young man who grew up on a ranch. Weekends and summers were spent on the property where an abundance of wild game - deer, elk, bear and game birds lived. Blue grouse were abundant as well as sharp-tailed and ruffled grouse, and hungarian partridge. The deer so thick you could see hundreds in the meadow at dusk.

Alas, along came the time to go away for education. Wisked away to far away lands the lad had to ask for the first time to hunt and fish - a humbling experience. After education, it was thought prudent to learn the ways of finance and business so several years were spent in another far away place called California. Here not only did one have to ask for permission to hunt and fish but the multitude of people added still another dimension. One Sunday, I think it was called Super Bowl Sunday, he was fishing for Steelhead on a river called the Smith, inland from the town of Crescent City, where the giant Redwoods are loaded on ships and sent out to sea. The young man had to get to the river before daylight in order to secure a place to fish.

Longing for days of much game and few people, the lad returned to his native land called Montana. Upon his return he found that things had changed near the ranch. The game was still abundant but there was now an Elk Winter Range near by assuring the continuance, if not growth of the herd in the area. Delighted in this course of events he found even more enjoyment in increasing elk numbers. Now you could count on seeing elk in August and September down in the haylands of the ranch. You could watch them in their splendor filter into the fields in the evenings. You could even camp in their midst, chatter with the cows, and arouse the bulls with a bugle.

Only too well remembering what it was like to ask for permission to hunt and fish while away at the far away lands, most people who asked permission to

hunt and fish were granted permission. One day several years later the young man started keeping track. He found that he allowed 600 man days of hunting and about 500 man days of fishing in one year.

"It goes with the turf," he was told. He also felt that way.

One Sunday morning, it was the first day that anyone was allowed on the property that hunting season, fifteen campers, eight horse trailers, twelve 4 wheel drives, and two loads of hay drove by the house. Finally, one stopped and left the Great Falls Tribune, another a bottle of Canadian Club. "Oh, those poor elk!", he thought. Returning into the house he said to his wife: "I don't know most of those people. I work hard here all year and don't get to enjoy this place, and look...all these people coming here to ride and drive all over, and what's more they're probably going to enjoy themselves. This makes me sick." He left the ranch for the city and stayed there the rest of the season.

The next August, he counted 400 elk in the second cutting alfalfa and 70 acre oat field, night after night. He was not in a very good mood just recovering from 3 years of drought and low livestock prices. It was the first time ever he had to buy hay, and lots of it. Hay that probably cost in the six figures overall. He was in a worse mood when he had to take the combine back to the shed after making three rounds around the 70 acre oat field. The grasshoppers ate some, but the elk seemed to like the oats a lot and there wasn't even enough left to make 50 bales of straw in all.

In the meantime, there was lots of talk in the coffeehouse and in seminars around the country about "Asset Management". That means managing your ranch like it were a savings account or something. Putting it where it makes the most return. Maybe doing things a little differently. Some in the stock market, some in bonds, and some in the money market. They say that you are foolish to keep it in the savings account where it's been for years just because you like that banker so well. It is a hometown bank and you feel you should support the hometown bank because the Minnesota Twins might take over if you don't.

Some are even saying that the whole darn state might be in trouble. The Governor and an International

Trade Commission hired an expert to come from the East to try to help fix things up. After the expert left the Governor even appointed an Economic Transition Task Force to work on the problem.

It seems though the traditional industries of Montana....agriculture, mining, lumbering, oil and gas were all in trouble. The answer, it was suggested, is to make a transition from the old economy of harvesting natural resources to a new one based upon adding value, applying technology, performing services and developing products.

The expert from the East had found that while many states around the country had adapted to meet the changing world economy, Montana had not. Being so dependent upon resource based industries, it had not seen growth in the dynamic entrepreneurial activities that have caused growth in other states.

Many solutions were suggested including restructuring the tax system, strengthening education, revising laws and regulations, raising venture capital, changing the perception of the state and developing leadership. How to fix agriculture, still Montana's largest industry, continued to be a problem with no easy answers.

Agriculture is part of the world economy, the prices determined by global factors. The government through its farm policy is keeping lots of agriculture afloat. Agricultural production is on the increase and the world is becoming agriculturally self-sufficient. The costs of production are less for most of our commodities elsewhere in the world. The long term outlook for agriculture in the U. S. is not good, particularly as the farm program subsidies diminish in the future.

One thing begins to come clear in the argument. The coffeeshop talk about "Asset Management", "finding a niche and adding value", being "good and innovative marketers" begins to make sense. There also appears to be new found support for capitalizing on recreation.

The University Extension Service has begun helping private landowners to plan their enterprises to meet future recreational demands. They are helping people with fee hunting.

There is also a bill before the legislature to

allow private wildlife management areas. This would include the provision for a certain number of tags to be given to the landowner to do with as he wishes.

About this time, the lad also discovered that he could make about $15,000 in just one week by taking a few people around his land, feeding them meals, and giving them an opportunity to shoot an elk, a deer, and maybe an antelope.

He thought to himself, "Gee, $15,000 times five weeks is $75,000. That would pay my taxes and then some---and besides isn't this what I should be doing? I'm becoming an "Asset Manager". I'm recognizing that the future is not bright in agriculture and doing something about it. I'm realizing that there are hundreds of people willing to pay for the opportunity to hunt on my land. I'm in effect subsidizing the cows and the sheep and making the business a little more viable."

The Montana Sportsmen came forward and said, "We can understand why you may need to do this, but we don't like it. This is privatization of a public resource, and that just isn't right." The lad countered with "Well...I don't see it that way. I've never added up the animal unit months of grass those elk eat, the fences they tear down, the second cutting alfalfa or oats they eat, let alone the cost in time and hassle in dealing with the public every year during hunting season. If I did add it all up, the elk would probably still owe me some money."

But the lad still felt like he wanted to allow the public to enjoy the recreation and the elk and deer. After all, one hunter cuts the ranch meat for free, and most were good sportsmen, sensitive to the land, and most of all--appreciative.

But then again, the economic pressures have become great, and the future bleak, and the experts from the East and the Extension Service encouraging fee hunting.

The lad felt he had no choice.

This is a familiar theme and one which is becoming even more prevalent in Montana. If the predictions of the expert from the East (David Birch) and if the predictions of John Naisbet in his popular book, MEGATRENDS, and if the Governor's Economic Transition Task Force were correct about Montana, we are going to

have to find some new ways to do business. As the economic pressures become more acute, Montana farmers and ranchers have little choice other than to practice Asset Management, which will increasingly include fee hunting, leasing hunting rights, outfitting and otherwise developing the recreational potential of their lands.

As you all know, the demand for hunting is increasing drastically in Montana. From the '60's to the '80's elk hunters alone increased 44% while the overall elk harvest only increased 25%. At the same time, quality has also reduced in terms of number of branch antlered bulls taken, dropping from 72% of the total bull harvest to 47%.

As more and more private lands go into lease or outfitting arrangements, less and less land will be available to the Montana Sportsman, and much greater pressures will occur on public lands. If these trends are extended into the future, the resource itself will eventually suffer, hurting the sportsman, the landowner, and the general public. I can see the day of public/private polarization, where the sportsman who cannot afford or chooses not to pay, hunts on public land and the sportsman who can afford it hunts on private ground. I would predict that under such a system the public land would soon be overcrowded making management more difficult and driving the game to private ground.

Aldo Leopold in 1931 suggested that "Game Management should be a partnership enterprise to which the land holder, the sportsman and the public each contribute appropriate services and from which each derives appropriate rewards".

In my opinion, until the contributions that private landowners make to game habitat are recognized and compensated fairly, the increased polarization of public and private will continue. Leopold also illustrates in his book GAME MANAGEMENT, a case where the average state game department attempts to practice management on private lands without the assured cooperation of the owner. In this case, the cost is the budget of the department divided by the area of the state. Much of the cost is the expenditure for law enforcement. As you can imagine, the cost is quite low per acre.

It is foolish to think that what is done to manage game does not have implications for private land. Until now, the real cost of game management has been terribly inexpensive, with so much of the habitat (and in a way-management) occurring on private land.

There is also a theorum of game management discussed by Leopold which addresses the necessity of game management in order to maintain a game supply weighed against the level which would deteriorate its quality, recreational value or aesthetics. In other words, the higher the intensity of management, the more the aesthetics deteriorates. He goes on to say that cheaper costs will be incurred for lower levels of game populations, and that only the landowner can practice game management cheaply.

The normal approach to the problem seems to have been to manage a little, at low cost, and count on private land for its share. Purchase of critical habitat is often thought to be a solution.

In my mind, the purchase of habitat accentuates the problem. It seems as though it would be much more appropriate to include the private landowner in the planning process and it might be found that the goals were not as far apart as is generally thought. If the private landowner had adequate incentive, he may be willing to manage his land in such a way that would provide the needed critical habitat, and at little cost to the sportsman or the public.

The real costs would have to be recognized. The current system has been bargain management, and as a result the polarization process has begun.

The MD of FWP has been working on these issues for a number of years and has made progress with block management, ex-officio wardens, a toll-free number to report game violations and more. They are only chipping at the edges, however. Until the real issue of costs is dealt with the problem will not be solved.

This does not have to be direct reimbursement. I can visualize partnerships where the landowners adjacent to a winter range jointly define their goals with the game range. Perhaps the rancher could, by altering his livestock management provide some critical game habitat, increase the quality or quantity of game in the region, and both the public and the private benefit. Perhaps the game range could accomodate

livestock under a grazing system in return for other considerations such as flushing on oats during breeding.

I am not making a case for privatization, rather for cooperation for mutual benefit. Trying to solve the problem through buying more habitat will not work. It will only accentuate the problem and speed polarization.

Achieving mutual goals through cooperation is possible, but the incentives must be appropriate. Tax relief or payment for habitat improvement, redeemable coupon payment for allowing hunting, or allowing landowners to sell a certain number of licenses may be some solutions.

This is a big problem for Montana and one which is going to take some non-traditional solutions. It is my belief however that no long term solution will be found until the <u>real</u> <u>costs</u> are dealt with.

THE DEVELOPMENT OF A FALL ELK CONCENTRATION ON PRIVATE LANDS CLOSED TO HUNTING[1]

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Abstract: A study designed to assess elk habitat use relative to timber management activities inadvertently documented the development of an elk concentration in an area closed to hunting. Between 1977 and 1983, 2,643 aerial locations were collected from 59 radioed cow elk. The elk concentration developed from a few animals in 1980 to approximately 70% of the herd in 1982 and 1983. Security from hunting, forage quality and quantity and home range fidelity were the factors responsible for the concentration. Four management problems resulted from this concentration: loss of hunter opportunity, loss of forage, fence damage and trespass hunters. The management options of hunting, herding and intensive ranching operations are discussed relative to biological, social and political constraints.

Since the turn of the century, elk have shown a marked increase in both distribution and density in response to management programs. This increase has resulted in elk occupying nearly all suitable habitat available under current land use constraints. In addition, elk densities in many of these areas are at or near carrying capacity.

This "success story" has resulted in widespread land management problems that deal primarily with damage to agricultural and forestry crops, where elk concentrate in high densities (Lyon and Ward 1982). Hunting pressure often causes elk to concentrate in areas closed to hunting, which not only creates the usual gamut of depredation problems, but may result in a marked decrease in hunter opportunity. The purpose of this paper is to outline the development of an elk concentration in an area closed to hunting, and to examine the causative factors and management options.

Funding for this study was provided by the Bureau of Land Management, the McIntire-Stennis Federal Forestry Program and the Plum Creek Timber Company. We wish to thank L. Lindbergh, D. Sall and B. Thomas for review of the original manuscript.

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[1]This paper is a revised version of one presented at the Western States and Provinces Elk Workshop in Edmonton, Alberta in 1984.

STUDY AREA

The study area (Fig. 1) lies in the northern Garnet Mountains of western Montana, 56 km east of Missoula. Approximately 85% of the area is forested to some extent, and these areas fall within the Douglas-fir (Pseudotsuga menziesii) and subalpine fir (Abies lasiocarpa) climax series of the Montana Forest Habitat Types (Pfister et al. 1977). Pastures and hayfields, natural meadows, clearcuts, brushy riparian areas, water, roads and scree account for the remainder of the study area. Elevations range from 1,160 to 2,090 m. The Blackfoot River borders the study area to the north and west and State Highway 200 runs along the northern and western edge of the study area. Scott (1978) and Lehmkuhl (1981) described the study area in detail.

Timber management is the principal land use, and much of the study area has been extensively logged within the last 50 years. The western and northern portions of the area are grazed by horses and cattle respectively between June and October. Big game hunting in the fall is the main recreational activity.

Most of the study area lies within the Blackfoot Special Management Area (BSMA), an area created by cooperative agreement between the Montana Department of Fish, Wildlife and Parks, the Bureau of Land Management, Champion International Timber Company, Plum Creek Timber Company, Lubrecht Experimental Forest, and local landowners. The BSMA was designed to encourage elk use in areas which had been roaded and logged, where security cover was limited, to provide a walk-in hunting area and improve the quality of hunting, to gain hunting privileges on private lands which were previously closed to the general public, and to prevent vehicle damage to soils and vegetation (McDaniel 1975). The area is closed to vehicular traffic from 1 September to 1 December. Safety zones, closed to hunting, were established near human habitation and livestock concentration areas within the BSMA.

The area north of the Sunset Hill Road, west of the BSMA and east of Highway 200 (Fig. 2) is closed to hunting. This area contains 6 circular-pivot irrigated hay-pastures, ranging from 40 to 80 ha in size. These are fertilized, seeded to alfalfa (Medicago sativa) and orchard grass (Dactylis glomerata), cut during July and then grazed by cattle, or simply grazed. Surrounding the hay-pastures is grass-sagebrush (Artemisia tridentata) rangeland.

METHODS

Elk were trapped in corral-type traps which were baited with alfalfa from December through April, and salt from March to September. A 150-151 MHz radio inserted in a PVC-pipe collar (Pedersen 1977) was placed on each animal. Elk were located weekly using a Piper Super Cub or a Cessna 182 from mid-May to December, and locations were marked on aerial photographs and transferred to topographic maps. Yearly population

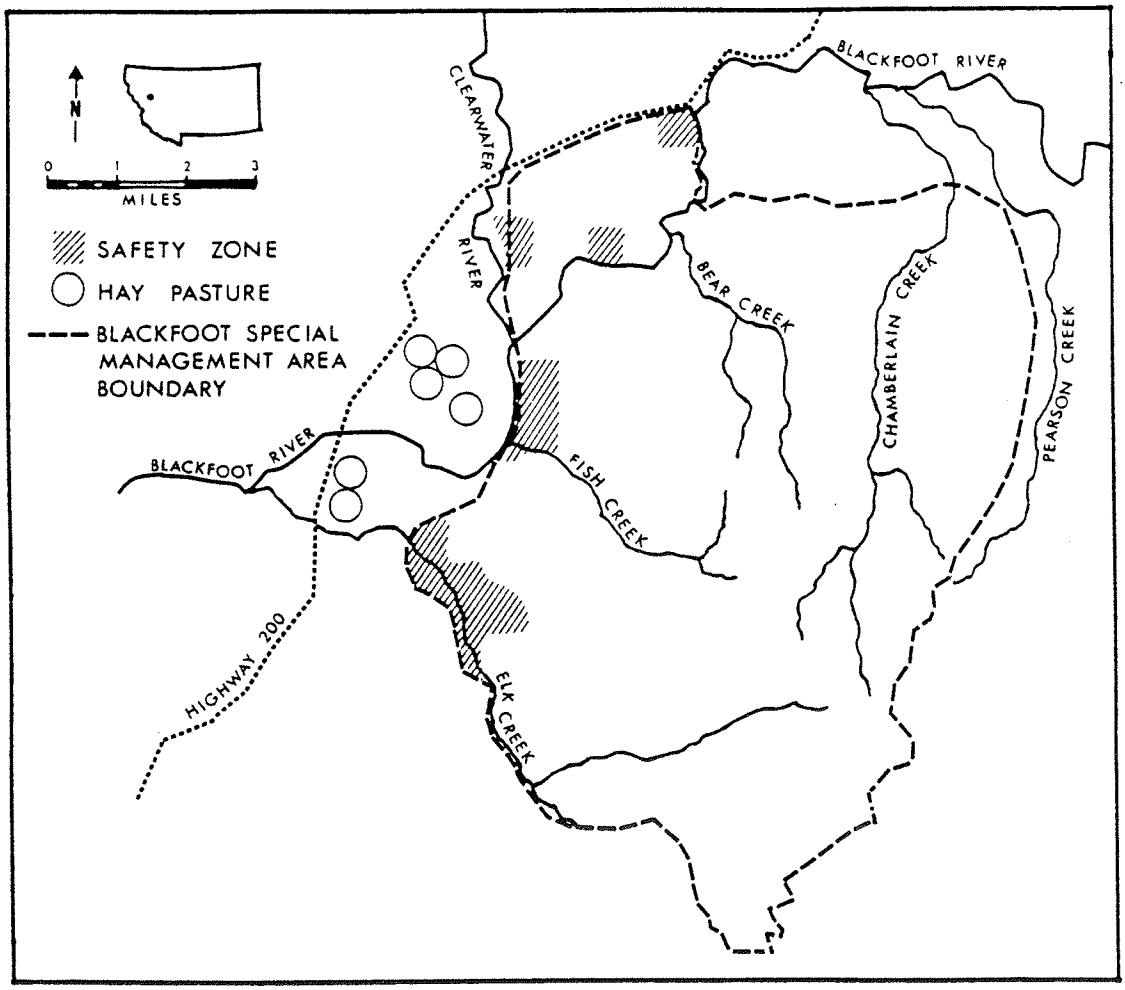

Figure 1. Study area and Blackfoot Special Management Area in western Montana.

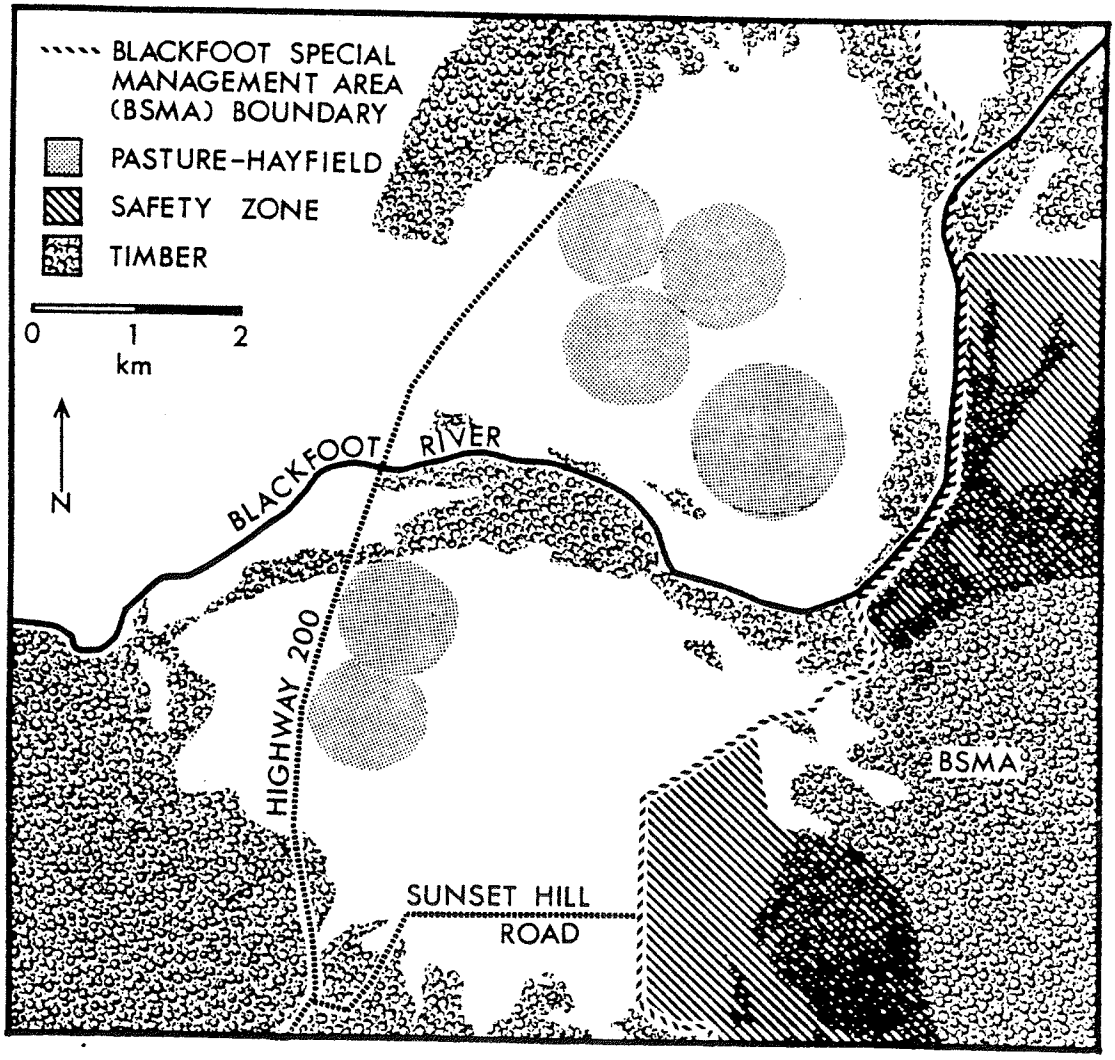

Figure 2. Area closed to hunting where elk concentrated during the falls of 1980 to 1983.

trends were established using aerial spring counts of marked and unmarked elk.

RESULTS

Between 1977 and 1983, 2,643 aerial locations were collected from 59 radioed cow elk. These elk were trapped from 3 trap-sites, and constituted 2 distinct herds (Edge et al. 1986). The animals of interest in this paper are referred to as the Lindbergh herd, believed to be a stable to slightly increasing population based on yearly spring censuses. Although surveys indicated that an area closed to hunting, west of the BSMA, was used by a few elk on an annual basis, 3 years of radio tracking data prior to 1980 showed no evidence the area was used by the Lindbergh herd. The Lindbergh elk began using the area during fall 1980. Movement to the area occurred between mid-September and mid-October each year. The total number of elk and the number of radio-collared elk using this area increased to a high in fall 1982 (Table 1). The transmitter of the only collared elk using the closed area in 1980 failed before the concentration occurred in 1981. However, a high degree of traditional use was demonstrated by the radioed elk returning in subsequent falls. Both collared elk using the area in 1981 returned in 1982 and again in 1983. Of the 10 collared elk using the closed area in 1982, one was illegally killed on the area, one transmitter failed, and one did not return to the area in 1983; the remaining 7 used the area again in 1983.

TABLE 1. Annual concentrations of elk in an area closed to hunting.

Year	Fall Elk Counts[a]	Number of Radios	Percentage of All Radios[b]	Duration of Stay
1980	13	1	11	<7 Days
1981	34	2	33	25 Days
1982	112(148)[c]	10	77	45 Days
1983	92	8	73	51 Days[d]

a Maximum number of elk observed during stay.

b Percent of all radioed elk in Lindbergh herd.

c Ground count of total elk.

d Period includes 3 attempts to move elk off property.

DISCUSSION

We believe that 3 factors contributed to the concentration of elk in this particular area. The concentrations in 1980 and 1981 apparently were the result of elk selecting for security from hunting. During 1980 the elk arrived immediately after opening of the general hunting season. These animals stayed in a timbered area within 250 m of Highway 200 for less than 1 week before returning to the BSMA. During 1981 the elk arrived several days after the hunting season opened and remained on the area throughout the season. Changes in elk distributions due to hunting are well documented in the literature. Lieb (1981) reported that these elk restricted their use to portions of the study area outside areas of intensive hunter use. In Idaho, elk densities were greater in roadless areas than in roaded areas during the hunting season (Thiessen 1976). Ward et al. (1980) found that hunting activity in Wyoming created a zone of influence of 800 m. Lyon (1979) noted a movement to less accessible areas during the hunting season in Montana. Elk also moved from more preferred areas to areas of extensive continuous timber (Irwin and Peek 1979). Marcum (1975) reported a substantial increase in elk use of areas greater than 1.6 km from an open road during the hunting season. Security during the hunting season is apparently influenced by hunter pressure, independent of other factors. The closed area used by elk in our study area was close to open roads and human habitation. Elk use of this area was approximately proportional to the availability of each habitat component, with the pasture hay fields and grass-sagebrush components receiving the majority of use.

A second factor contributing to the elk concentration was forage availability and preference, which apparently resulted in the large concentrations during 1982 and 1983. The Lindbergh Cattle Company, which owned most of the closed area, listed the property for sale in 1982; therefore, during 1982 the circular hay-pastures were fertilized and irrigated, but were not cut, and only lightly grazed by lease cattle during mid-summer. The elk responded to this abundant and highly palatable forage by moving onto the area 3 weeks prior to the opening of the hunting season. Towards the end of the hunting season, elk used the hay-pastures within 300 m of Highway 200 throughout the day. This high visibility resulted in 3 hunters trespassing and illegally killing 4 elk, which in turn drove most of the elk back into the BSMA. The 1982 use, therefore, appeared to be a function of a highly abundant and palatable forage supply in an area that was secure from hunter pressure. Use of the area in 1983 followed a similar pattern to 1982, with elk again arriving before the opening of hunting season.

Forage quality or quantity was felt to be a factor in elk use of clearcuts (Lyon and Jensen 1980). Collins (1979) reported that elk in Utah forage in areas where they obtain the most forage over time. Mackie (1970:36) stated that "Vegetational complexes and the availability of preferred forage as influenced by general range conditions, annual vegetational growth, and prior use appeared to be the primary determinants of seasonal distributions . . . ." Elk in our study area use relatively mesic, high elevation sites during August and much of September, and move to more xeric lowland sites in late September or early October. These movements correspond to the advent of frost in

high areas which apparently results in a decrease in forage palatability.

The third factor that contributed to this elk concentration was home range fidelity. Craighead et al. (1973) and Irwin and Peek (1983) reported strong home range fidelity for non-migratory elk herds. Elk may also show strong fidelity to distinct seasonal ranges (Brazda 1953, Knight 1970, Hershey and Leege 1982). Because of transmitter failure, we were unable to assess this factor from 1980 to 1981. After 1981, however, a high degree of fidelity to the closed area was observed in the radioed elk; once there, forage and security apparently determined duration of the stay. Hershey and Leege (1982) reported that cow elk demonstrate home range fidelity regardless of disturbance, phenological conditions or changing weather. Home range fidelity for Chamberlain Creek elk was not affected by timber management activities (Edge et al. 1985).

Two sets of management problems resulted from the concentrations of elk. From the standpoint of the landowners, forage depredation, fence damage, and problems with trespass hunters were the major problems. From the standpoint of hunters and the Montana Department of Fish, Wildlife and Parks, the greatest problem was loss of hunting opportunity. If the ratio of radioed elk observed in the closed area to total radioed elk in the Lindbergh herd is assumed to be proportional to the portion of the herd using the closed area, then approximately 70-80% of the herd was unavailable to hunting during the 1982 and 1983 seasons. This represented a major loss in hunter opportunity since the Lindbergh herd is 1 of 2 major herds in the BSMA. Unhunted herds are also a real concern for landowners, because this leads to increased elk populations, thus increasing problems in succeeding years.

MANAGEMENT RECOMMENDATIONS

Upon assessing the behavioral, forage and security factors leading to the elk concentration, we offered the following management recommendations in order of probability of success in solving the problem. However, we recognized that because of social and political constraints, the probability of success did not equate to the probability of implementing such management recommendations.

1. Allow hunting within the closed area. Hunting was prohibited in the closed area by the landowners, not by BSMA agreement. We believed that even a very limited hunt would eliminate or greatly reduce the number of animals using the area. However, there were various problems associated with implementing this recommendation. Hunting the closed area could result in a limited number of hunters shooting at a large group of elk, which in turn could result in large numbers of elk being driven toward a concentration of hunters within the BSMA. Serious public relations problems are associated with such "slaughter" situations. Also, because the landowners were cooperators in the BSMA agreement, they would undoubtedly have received a high degree of criticism if they or their friends had hunted in the closed area. The major landowner of the area had

several personal reasons for using hunting as a last resort. First, because the area was in the middle of his ranch, and had always been closed to hunting, he did not wish to set a precedent for hunting the area. Second, the other landowner, north of the river, was adamant against hunting the area. Third, the primary landowner felt sure that the first hunt would result in extensive fence damage due to stampeding elk. Finally, because the ranch was for sale, he felt that other methods should be attempted first because future owners might prefer to allow hunting on the area. Should this solution be attempted, the hunt should be conducted early in the week when there would be a minimum number of hunters within the adjacent BSMA. Should the landowners wish to have the Montana Department of Fish, Wildlife and Parks take responsibility for the hunt, the Department could issue special permits specific as to time and place. This would allow a small number of hunters to hunt the closed area prior to opening of the general hunting season. This option would require a lag period of 1 year for the special hunt to be approved by the Fish and Game Commission.

2. Attempt herding prior to periods of heavy hunter pressure in the BSMA. Three attempts to drive the animals off the property were made in 1983, with limited success. The first 2 attempts resulted in the elk returning within a day or two. The third, made on a Thursday, allowed 2 groups of hunters to successfully kill elk on Saturday near the western border of the BSMA. Both groups independently reported a "large" group of elk moving toward the western border of the BSMA. Herding attempts should be made just prior to opening day or weekends, when the BSMA receives the heaviest hunter pressure. This would prevent elk from being driven into hunters waiting on the boundary, but at the same time make hunters available shortly thereafter in order to prevent the elk from returning to the closed area.

3. Cattle grazing in the area closed to hunting should be initiated during late summer or early fall and maintained at the highest level possible under "wise use" constraints. Human use of the area should be intensified, along with an increase in livestock grazing. It is impossible to tell if the large concentrations observed in 1982 and 1983 would have occurred under "normal" ranching operations. Cattle were only lightly stocked in the area during 1982, and only moderately stocked after the elk arrived in 1983. The potential for social intolerance and direct competition for forage (Nelson 1982) due to cattle use of the area offered the best first approach to solving the problem.

4. Safety zones in the BSMA (Fig. 1) should be monitored during hunting seasons to prevent them from becoming reservoirs for elk. Should this problem arise, the safety zones within the BSMA or the basic agreement may need to be redefined. Safety zones that are designated because of close proximity to human habitation could be opened to hunting by the nearest resident. Those zones created for protection of livestock concentrations could be hunted provided the livestock are removed. However, redefining the safety zones within

the BSMA will require the agreement of all cooperators and would probably be a lengthy process.

ADDENDUM

The Chamberlain Creek Elk Study was completed during fall 1983. These comments are based on observations of landowners.

The fields were not irrigated or fertilized during 1984, 1985, or 1986. Cattle were grazed in the closed area from early fall to November during 1984. There were a few elk in the closed area, but no large concentrations of elk developed during fall 1984.

There was a summer drought during 1985, followed by unusually heavy rains in late August and September. The alfalfa "came back in a big way," and elk started concentrating on the area in early September. Ranchers didn't put cattle on the area because they were afraid the animals would bloat. Just before the end of the bow season (October 14) the elk bunched into one large group (approximately 160-180 animals), apparently in response to disturbance by trespass bow hunters. This group stampeded west, out of the closed area, knocked down 6 fences and stopped traffic on State Highway 200. During late October and November 1985 cattle were grazed in the closed area. Smaller groups of elk were seen in the area, but no "big" concentrations of elk developed while the cattle were there. However, one rancher observed that "The elk got less and less afraid of the cattle as the years went by."

In 1986 the Lindbergh Ranch sold. Some hunting with bow and rifle was allowed on what had been the closed area. The area was also grazed. There were a few elk on the area during fall 1986, but a large concentration did not develop. A concentration of elk did develop nearby on a new alfalfa field, within a safety zone of the Blackfoot Special Management Area.

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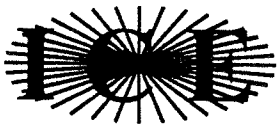
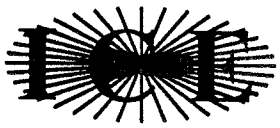




"WHO OWNS THE WILDLIFE - WHO OWNS THE STARS"

A special report to ICE (Intergalactic Council of Exobiologists)

by

Captain Cervus and Odocoileus Moonhead

Long, long ago in a galaxy far, far away there was a tiny planet called EARTH. It was dominated by a medium sized star. On this planet lived a very bizarre civilization called USA. This civilization was divided into two groups; solitary USANS living in small family groups were called country USANS & gregarious USANS living in large clusters were called city USANS. Both groups had a common cultural and religious background; they were all territorial and worshiped privacy. Their religious background also involved a very ancient religion called "Hunting & Fishing".

Territorial boundaries existed at many levels - from state boundaries to hunting district boundaries to very private areas called bathrooms, where their sacred springs were usually surrounded by walls. Strongly associated with the religious ritual called "Hunting & Fishing" was a category of animal they called "Big Bucks". This animal eventually became known as "THE ALMIGHTY BUCK". These almighty bucks were hard to store and carry around, so a sacred USAN parchment came to represent the Almighty Buck. Because the Almighty Buck was so sacred, and walls came to represent Privacy, an important area of exchange for Almighty Bucks came to be known as Wall Street.

The religion of the country USANS was very simple with only 3 main commandments: NO HUNTING, NO FISHING, NO TRESPASSING. We assumed that since the City USANS lived together in large social groups they must be very peaceful & harmonious with no commandments. Our assumption was wrong. The city USANS had a very complex religion with many commandments, ie: NO SMOKING, NO CAMPING IN ALLEYS, NO SPITTING IN FOUNTAIN, NO U TURN, NO PARKING, NO BICYCLES ON SIDEWALKS, NO PEDESTRIANS, NO PETS ALLOWED, NO SOLICITING, NO ADVERTISING, NO JAYWALKING, NO ALCOHOLIC BEVERAGES, etc.

After learning the basics about USAN society we coneheads were very surprised to find that the city USANS, who were use to so many commandments governing their everyday life, became very upset when Country USANS began posting their few commandments on the boundaries of their territories. The following City USAN commandments touched off a religious war that to this light-year hasn't been resolved: NO SHIRT, NO SHOES, NO SERVICE, RESTROOMS FOR PAYING CUSTOMERS ONLY, & FEE PARKING ONLY! These commandments required that when Country USANS were in the territory of City USANS, they were required to give the City USANS some sacred parchment (Almighty Bucks) before they were allowed to perform their most sacred rituals of what Country USANS called "Shopping & Banking".

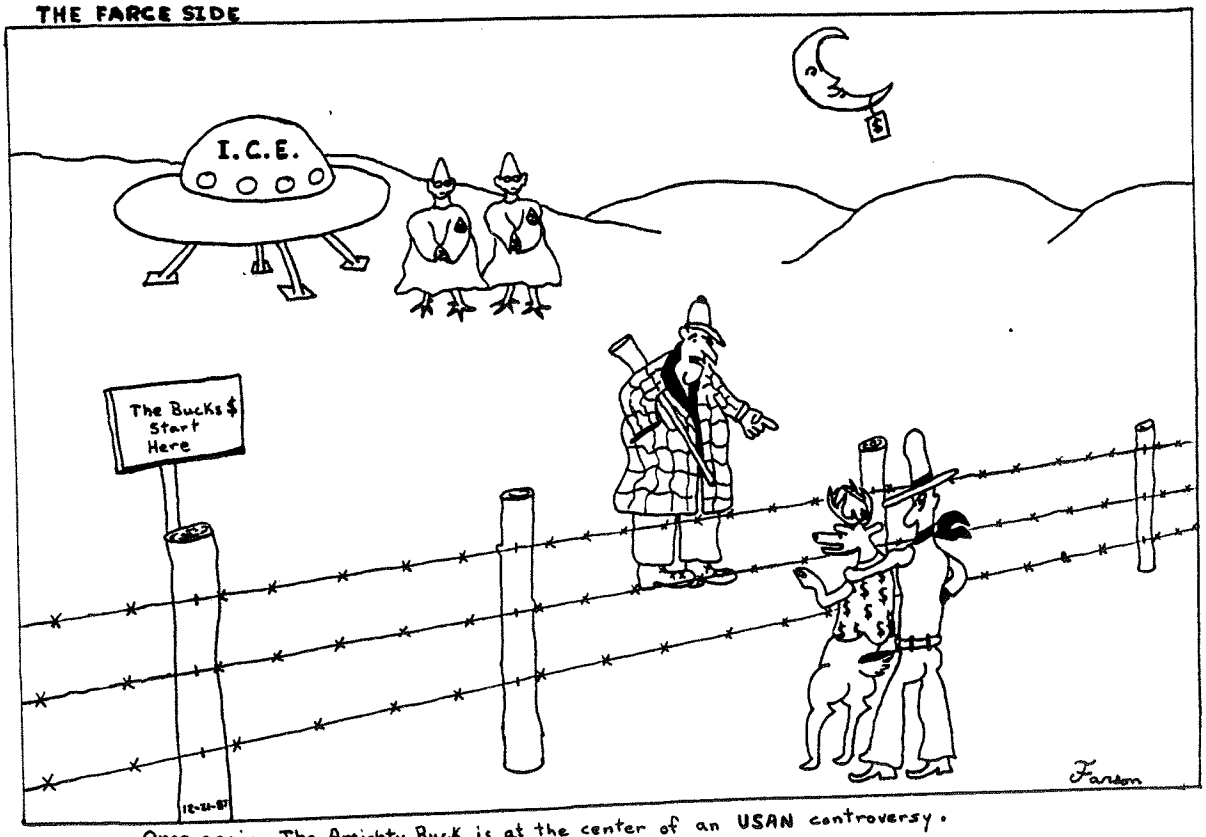
Shortly after this (measured in USAN time), retaliatory action came from the Country USANS. The commandment, "FEE HUNTING & FEE FISHING ONLY!" started to appear on the territorial boundaries of the Country USANS. Thus, the City USANS had to give the Country USANS sacred parchment in order to perform their most sacred rituals of "Hunting & Fishing".

As worshiping sites became more restricted, many City USANS underwent a religious conversion into County USANS. After they converted, they too, began displaying Country USAN commandments.

Eventually, the competition for worshiping sites (Hunting & Fishing Areas) became so severe that only those who had collected the most sacred parchment (thereby proving their love for the Almighty Buck) were allowed to worship.

As fewer and fewer USANS were allowed freedom of worship, the Almighty Buck plunged to an all time low and the hunting and fishing religion declined and faded into oblivion. The USANS apparently never realized that a religion which excluded the multitude by a test of wealth or by any other means will not persist. The great masses of USANS began to turn toward the heavens for religious self-expression and worship of freedom, solitude, and divine design.

And so it came to pass, the more crowded and private the USANS became the more free they wanted to be. Wildlife was a symbol of that freedom, until it too became private. Now it seems their new symbol of freedom is the stars - will they too become private and if so, where will the USANS look next for a symbol of freedom?



Once again, The Amighty Buck is at the center of an USAN controversy.

Antelope Trend Areas: A Preliminary Report.

Abstract

Available data from Total Coverage (TC) surveys of Antelope Hunting Districts in Region 6 (Montana Fish, Wildlife and Parks) were analyzed to select representative Trend Areas (TA). Counting Unit (CU) data were evaluated on the basis of annual trend and production. Trend Areas comprised of those CU's that were within 30% of the population trend in n or n-1 years were designated. A comparison of selected population paramteres showed that TA's provided data that averaged within 6.8% of trend, 3.8 Fawns:100 Does, and 7.5 Bucks:100 does. Average differences were low. The results of a test of the method in HD 611 in 1986 are reported. Management implications and recommendations are discussed.

Introduction

A variety of techniques have been used to gather antelope population data, including: quadrats, strips, and total coverage surveys (Allen and Samuelson 1987 and Pojar et al 198) . In much of Montana, managers still rely on total coverage surveys. Typically, those surveys are conducted at irregular intervals, but usually at least every three years. Spot checks of portions of Hunting Districts are done to monitor changes in the intervening years.

Managing big game populations without reliable annual population data may become inherently conservative and may contribute to game damage and other landowner-wildlife conflicts. In addition, some hi-line populations are subject to occasional, catastrophic winter mortality. Lack of reliable population data may result in harvest regimes that are out of synch with populations. Yet, fiscal and manpower constraints will not allow annual total coverage surveys of even the most important hunting districts.

The objective of this study was to use existing data to select Trend Areas which could be surveyed annually to determine population trend and composition. The trend areas must supply reliable estimates of at least population trend and production. They should also provide reasonable approximations of buck:doe ratios and recruitment, although these parameters could be inferred from other data (i.e. harvest composition) if necessary.

METHODS

Antelope Hunting Districts (HD's) in Region 6 vary in size from 591 to 3,090 square miles. Each HD is subdivided into Counting Units (CU's) small enough to be surveyed in 2 to 4 hours. Both HD's and CU's are geographical subdivisions based on easily recognizable topographic or other (ie roads) features and do not represent antelope populations or herd ranges.

Antelope surveys were conducted by flying north-south transects along section lines within CU's and counting and classifying all antelope within 1/2 mile of the line. Locations of antelope groups are noted to the nearest 1/4 mile. Data from 3 to 8 TC surveys were available for the major HD's. The data available represented the work of a variety of observers in most HD's.

Data for population trend, fawn:doe ratios, and buck:doe ratios for each CU were compared to the TC data. In order to judge how well the CU data compared to the TC data, arbitrary categories were chosen. They were: trend ± 10, 20, 30% and production ± 5, 10, 15%. Data for each CU was compared to the TC data and the CU was listed in the appropriate category.

Results and Discussion

The initial search was for one or more CU's which provided data that were representative for the entire HD. But, none of the CU's for any of the major antelope HD's were representative of both trend and production in all survey years (Table 1). Therefore, spot checks during the years between TC surveys would be unlikely to be representative of actual population status.

Table 1. Counting units with data within 5% of production or 10% of trend in n or n-1 years. N = the number of TC surveys available.

		YRS DATA		PROD		TREND		BOTH	
H.D.	C.U.'s	PROD	TREND	N	N-1	N	N-1	N	N-1
600	16	3	2	-	2	-	2	-	1
611	14	3	2	-	-	1	5	-	-
620	19	4	3	1	1	-	3	-	-
630	13	3	2	1	3	1	7	-	2
650	13	8	7	-	-	-	-	-	-
670	23	3	2	-	1	-	5	-	-

Although CU data exhibited a wide variation, some CU's in each HD were consistently within 30% of trend or 15% of production (Table 2). Those CU's were grouped together into two subsets based on whether they consistently represented "Production" or "Trend" and the data from those were compared to the TC data.

Table 2. Subsets of counting units consistently providing data within 30% of trend or 15% of production.

H.D.	YRS DATA	Subset Trend ±30%	Production ±15%
600	2	3,6,7	3,4,5,6
611	2	1,5,7,12	1,2,5
620	3	2,3,7,9,14,17	2,6,7,16
630	2	3,4,5,7,8,13	6,7,8
650	7	2,3,7,11	6,8,9,12
670	2	(2,3)8,9A,11A,12A	6,14,15,17,10A,12A *1

*1 Counting unit boundaries were changed after 1981 and the old CU's do not readily translate into the new CU's. Therefore, no calculations were made.

In general, both subsets gave reasonable approximations of the population composition observed in the TC survey (Table 3). However, the "Trend" subset provided consistently closer estimates of trend than the production subset, ± 6.8 and 16.8%, respectively. Therefore, the decision was made to further evaluate "Trend" subsets.

Table 3. Comparison of population parameters from trend areas based on "Trend" and Total Coverage surveys.

H.D.	YRS DATA	TREND (%)	Fawns: 100 Does	Bucks: 100 Does
600	3	3.5 / 10.0 *1	5.7 / 5.6	6.1 / 3.5
611	3	4.6 / 17.8	3.3 / 2.1	14.8 / 3.5
620	4	7.0 / 25.6	2.3 / 4.0	7.7 / 6.9
630	3	2.8 / 6.4	2.7 / 2.8	2.4 / 7.3
650	8	16.5 / 20.5	4.7 / 2.7	6.6 / 5.3
670	3	10.2 / NC	10.6 / NC	2.8 / NC
Average *2		6.8 / 16.1	3.8 / 3.4	7.5 / 5.3

*1 Data are from subsets based on Trend / Production and are averages of absolute values of differences.
*2 Averages of all HD's except 670.

Average differences between the TA and the TC data were calculated and the significance of the differences were evaluated using Students t test (Table 4) (Snedecor 1937).

Table 4. Average differences between population parameters derived from Total Coverage and Trend Area surveys. *1

H.D.	YRS DATA	TREND (%)	Fawns: 100 Does	Bucks: 100 Does
600	3	-0.15 / -0.04 *2	- 5.67 / -6.22s	2.57 / 0.57
611	3	2.00 / 0.43	3.26 / 3.27	4.87 / 0.47
620	4	6.97 / 1.56	- 1.85 / -0.91	-7.65 / -2.49
630	3	2.80 / 5.71s	- 1.80 / -1.50	-2.37 / -1.92
650	8	5.00 / 0.67	- 0.54 / -0.24	5.23 / 2.48s
670	3	-7.05 / -0.69	10.57 / 3.74	2.40 / 1.36
Average		1.60 / 0.80	0.66 / 0.29	0.84 / 0.41

*1 Trend areas were those within 30% of trend in n or n-1 years.
*2 Data are average of differences / t statistic; s = signifigant difference.

Since 1983, major antelope populations in Region 6 have been monitored by surveying the TA's identified above. The reliability of the technique was tested in HD 611 during 1986 by conducting a TC survey and then comparing data from the TA to that of the TC. The results of that test are given in Table 5. Except for the estimate of trend, which had a higher than expected difference, they are approximately equivalent to the average differences given in Table 4.

In 1986, the TA method would have resulted in savings of 28.6 hours of flying time on 7 survey days.

Conclusions and Management Recommendations

Trend Areas that are adequate for annually sampling antelope populations can be determined by selecting those Counting Units that consistently provide population trend data that falls within 30% of that given by TC surveys.

Annual Trend Area surveys of antelope populations can provide many benefits including:

- o setting annual permit quotas that accurately reflect population size,
- o shortening the data collection period so that population data is available prior to season setting deadlines,
- o developing a set of baseline data that can be used for more intensive studies of antelope population dynamics and habitat relationships,
- o increasing the amount of time for regional biologists to devote to other activities, and
- o freeing operations dollars for other projects.

Table 5. Comparison of selected population and management parameters for test of Trend Area method of surveying antelope populations in HD 611.

Parameter	TC SURVEY	TA SURVEY	DIFFERENCE (%)
Population			
Total	3,354	3,605	+7.5
Fawns:100 Does	104.2	100.7	-3.4
Fawns:100 Ad Does	123.6	122.8	-2.8
Bucks:100 Does	43.3	41.6	-3.9
Buck Recruitment	21.2	21.9	+3.3
Change from 1982 *	144.6	150.4	+4.0
Composition:			
Bucks	587	620	+5.6
Does	1,355	1,489	+9.9
Fawns	1,412	1,500	+6.2
Management			
Flight Time	42.4	13.8	28.6
Survey Days	11	4	7
Cost	$ 3,180.00	1,035.00	2,145.00

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Beavers and Dams: Are They Mutually Exclusive?

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Hydroelectric energy is one of the most important sources of power in the Northwest. As with any major development, it has incurred some costs. As once free-flowing rivers were transformed into flatwater reservoirs, wildlife habitat was inevitable lost. Due to changing attitudes in recent years, agencies are now attempting to compensate for these losses. Many studies, often collectively called mitigation studies, are underway to assess the loss of habitat and propose mitigation plans; my Master's research was 1 such study.

Many species are affected by dams to some degree, but time and monetary constraints dictate that we concentrate on a few indicator or important species. In the case of my study, we chose the beaver.

The beaver is an excellent indicator species for hydroelectric developments because it occurs on most waterways with the potential for hydroelectric development, is dependent on the land-water interface for both food and shelter (the area most affected by dams), and because it is reasonably adaptable.

Unfortunately, most mitigation studies are carried out on existing projects and we seldom have the luxury of pre-impoundment data. Nor can we simply look to the literature. A great body of information exists concerning beaver habitat use on streams and small lakes, but very little on rivers and reservoirs despite several important differences in the beaver's lifestyle on rivers and streams. For example, beaver on streams can build dams and control water levels, on rivers and reservoirs they are at the mercy of natural or human-influenced fluctuations. Therefore, to use beaver as an indicator species we must first study their habitat use on rivers and existing reservoirs, then look at the impact of dams on those habitat requirements.

My Master's study was conducted on 3 study areas in central Montana. The primary study area was at a proposed Montana Power Company dam site on the Missouri RIver at Carter Ferry, Northeast of Great Falls. Secondary study sites were chosen at Tiber Dam, an existing flood control reservoir on the Marias River approximately 100 km North of Great Falls, and the Marias RIver below Tiber Dam. All areas had similar climate and topography. On all 3 sites, a wide variety of habitat variable were measured that the literature or common sense indicated might be important to beaver. These measurements were compared between active and inactive randomly chosen sites, and for random versus lodge sites.

On all 3 areas active sites were associated with greater degrees of willow and cottonwood development as well as stable banks and lowland bottoms. These variables are undoubtedly correlated.

Significant differences were found between the placement of lodges and dens on the 3 study areas. In all 3 areas, beaver commonly utilized bank dens or hybrid lodge/dens. In most cases, this required at least some excavation of the bank. On the Missouri River at Carter Ferry, lodges were associated with greater development of riparian shrubs and trees, stable soil banks, and bottomland benches and islands.

On the Marias River below Tiber Dam, beaver lodges and dens were associated with the development of riparian shrubs, soil banks, and deeper water near shore. The Marias River is very shallow, especially during drought, and beaver may have selected deeper water sites to insure that den or lodge entrances remained submerged during low water.

On Tiber Reservoir, the placement of lodges was strongly correlated with sites of East to Southwest aspects. Such sites are protected from waves created by the persistent and strong easterly winds that commonly blow in that area. Because the long axis of the reservoir lies in an East-West orientation, these waves can be immense and very destructive. Lodges and dens were also associated with deeper water near shore and low shorelines, the functional equivalent of the lowland river bottoms. Because the reservoir experiences a moderate yearly drawdown, sites with deeper water near shore provide for underwater den entrances at low pool.

Dams create a variety of changes in river systems. There are 3 basic areas of impact, above the reservoir and at the inflow, on the reservoir proper, and below the dam. The degree of impact is related to the dam's purpose.

As water enters the upstream end of the reservoir, it slows and deposits its sediment load, creating a delta. The broad, flat delta provides an excellent site for the development of riparian shrubs and trees, a food source for beaver, but provides few, if any, suitable den sites. Small changes in water levels will result in extensive mud flats, leaving a potential den entrance high and dry.

On the reservoir proper, several changes occur. With the initial filling of the reservoir, riparian vegetation is destroyed. Depending on the topography and dam operations, the vegetation may be slow to recover. The creation of reservoirs results in increased length of shoreline, which can be an advantage to a shoreline dweller like the beaver, but the resulting shore is often steep and rocky, providing little opportunity for riparian shrub development or den sites.

Fluctuating water levels have a profound impact on both the vegetation and the beaver's ability to utilize the habitat. Extreme fluctuations, as found on some flood control, power peaking, and storage facilities, may preclude beaver use or the development of riparian shrubs. Even moderate fluctuations may effect beaver, depending on the time of the change. If water levels rise or fall quickly in the spring, when beaver kits are very small, they may be drowned in the den or deprived of the safety of a den while they are most vulnerable to predation. Drawdowns during the winter may leave the beaver's food cache high and dry or encased in ice and unavailable to the animals.

Wind and wave action on large reservoirs may destabilize banks and cause extensive erosion, reducing the development of riparian shrubs and destroying dens. Reservoirs in northern climates typically freeze for extensive lengths of time. While beaver are adapted to survive such conditions by creating food

caches, the ice, coupled with either poor shrub development or winter drawdowns may reduce beaver survival.

An often overlooked impact of reservoirs is the increase in recreational use of waterways caused by the creation of flatwater conditions. The presence of humans and their pets often excludes wildlife from using the area. When beaver do use an area, their use and human values often conflict.

Water released below a dam is generally very clear, having lost much of its sediment load during the slow passage through the reservoir. As the flowing water regains its sediment load below the dam, extensive erosion may occur. All dams reduce the seasonal water level fluctuations below the dam. This is the main purpose of flood control facilities. Such changes might be expected to improve beaver survival. However, the beaver's food supply, willow and cottonwood, are adapted to invade the newly disturbed sites created by floods. By reducing floods, we may be inhibiting willow and cottonwood development, leading to decadence of the riparian zones.

Although dams reduce seasonal fluctuations, they may increase the daily or even hourly fluctuations below the dam. This is particularly true for power peaking facilities, where short term, high volume production is the rule. Changes of 1 or 2 m in a 24 hour period can have negative impacts on any species tied to the shoreline.

Comparing beaver habitat affinities as revealed by my Master's study with the impacts of dams, we can begin to develop tentative mitigation alternatives. I have concentrated on on-site attempts to recover lost habitat on the project area. These are preliminary ideas, subject to refinement as the information dictates.

Mitigation might be as technically simple as altering the timing or magnitude of releases from a dam or levels on the reservoir. To recover lost riparian vegetation, shrubs and trees could be planted on the appropriate flat low-lying areas or terraced steeper slopes. If mitigation is contemplated before the project is complete, plantings might be irrigated until the reservoir rises.

Because beaver are adversely affected by fluctuating water levels, levels might be stabilized over small areas by taking a lesson from the beaver itself. Small dikes could be constructed across the mouth af coulees or streams. These dikes would be water tight and rise to a level just below the reservoir's full pool. When the reservoir was full, these areas would be flooded. But as reservoir levels drop, the area behind the dike would remain flooded. In fact, with a reasonable input of water from upstream, they might remain dike-full. Eventually the sites would fill with silt, becoming excellent areas for the growth of willows and cottonwoods.

On large reservoirs where wind and wave erosion is serious, the Soviets have experimented with the creation of artificial barrier islands. These islands dissipate the wave energy, protecting the main shoreline.

Whatever mitigation plans are developed, including a scheme to assess the success or failure of the mitigation is important. Beaver again provide an excellent indicator for such assessment because they readily colonize areas or may be transplanted at minimal cost. If beaver can be maintained and reproduce, other species' riparian requirements may also be met.

This is not to say that beaver are a panacea. They are good indicator for only 1 aspect of reservoir impacts, shoreline conditions. They should be 1 of several indicators chosen to monitor the health of all aspects of reservoir biology. Other indicators might be chosen for fisheries, benthos, nest sites, and the like. Beaver can also destroy some riparian areas through overutilization of the shrubs and trees. Especially on young reservoirs, populations should be watched carefully to prevent such overuse.

While not the final answer, beaver can provide a valuable addition to our tools for wildlife habitat management. As agencies become more involved in developing and implementing mitigation plans, the use of beaver as a mitigation indicator species should be seriously considered.

LET'S HEAR FROM ALDO-A TRIBUTE

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This year is the 100th anniversary of Aldo Leopold's birth. It is also a time when demands upon our natural resources, and on wildlife biologists, seem greater than ever. In Montana it often appears that wildlife is being thrown forcibly into the arena of cold, hard economics. We are told that if something cannot compete in that arena, there is no place for it in todays fast-paced world. The writings of Aldo Leopold remain extremely relevant today. A short review of some of these may help answer the question, pertaining to private lands, and to resource management in general, of "Where do wildlife biologists fit in?"

THE MALLARD/PINTAIL POPULATION DECLINE: IMPLICATIONS FOR MANAGEMENT ON PRIVATE LANDS

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Mallard and pintail populations have recently fallen to the lowest levels since surveys to enumerate their numbers were begun. In 1986, there were an estimated 6.351 million breeding mallards and 3.201 million breeding pintails in the surveyed areas of North America (USF&WS 1986). In 1970, these numbers were 10.379 million mallards and 7.004 million pintails. During the intervening 16 year-period, these populations have been on a general decline with highs and lows corresponding to wet and dry years.

The reason for these recent declines is believed to be poor recruitment caused by low nest success over much of these ducks' breeding range (Central Flyway Council 1985). Studies currently being conducted by personnel of the Northern Prairie Wildlife Research Center (NPWRC) as well as past field work throughout the Prairie Pothole Region, data from which is computerized at NPWRC, demonstrate less than 15% nest success over much of the Prairie Pothole Region. It is believed by these researchers that this level is too low to support these populations.

The cause of these duck declines, namely poor recruitment due to low nest success, is a function of habitat change. The intensification of agriculture over much of the prime breeding area annually reduces the amount of undisturbed upland nesting cover. As a result, ducks returning in the early spring to nest find a very limited number of suitable nest sites, most of which are readily searched by nest predators.

The obvious solution to this duck problem which is a function of agricultural intensification on private lands is to "de-intensify" this use through legislation, changes in farm programs, subsidies, and landowner attitudes regarding their responsibilities to proper land use. This obviously is far easier said than done. As a result, public agencies responsible for managing duck resources have attempted to stem the tide of habitat loss by buying or leasing better wetlands and some upland habitat, taking it out of this agricultural jeopardy. Unfortunately, this has not been a successful approach.

Many private lands which became public lands through wetland purchase and easement do not provide adequate upland nesting cover. Others are islands of habitat in a "black desert" of plowed lands creating a "black hole" which attracts ducks as well as duck nest predators from a large area. Granted, wetlands must be preserved, but without impacting larger acreages of associated uplands the preservation of wetlands is for the ducks at least, a dead issue.

So what are the answers? Managers are beginning to realize that what needs to be done is to boost nest success. Some argue that hunting needs to be curtailed or severely restricted. Those making such a claim conveniently forget that once the hunter is taken out of the picture, the demise of ducks will indeed be swift since the present system of refuges, wildlife management areas, waterfowl production areas, D.U. projects,

duck clubs, and most other now-existing habitats are there because hunters bought, leased, or developed them.

For the manager then, the task is to maintain hunting programs and thus hunter support for habitat preservation, while attempting to boost nest success. On our public areas, this is a matter of creating "duck factories." That is, to create conditions where predation is managed to maximize nest success. This of course assumes adequate water areas and upland cover to attract and to meet pair and nesting habitat requirements of the ducks. On public lands, predation can be "managed' through islands and nest structure construction, predator barriers such as electric fences, and through active predator control.

Realistically though, the best way to address the problem is to effect production on private lands. Many public agencies including the Canadian Wildlife Service, the U. S. Fish and Wildlife Service, and state conservation departments as well as private groups such as Ducks Unlimited, are changing their emphasis to begin to impact duck nest success on private lands more directly. The recent jointly ratified Canadian-U. S. agreement misnamed the North American Waterfowl Management Plan is actually a policy statement to do just that. Its focus is to secure 4.7 million acres of habitat for duck production on private as well as public lands in the U. S. and Canada by the year 2000 (U. S. Fish and Wildlife Service 1986). Implementation of the plan will require 956 million dollars to be infused into the project in the next 15 years, a major undertaking. To date, little indication has been shown of the sizable funding it will take to implement this plan.

The current status of pintails and mallards is not just a duck problem. It is a problem of much larger scope. The ducks serve only as an indicator of the degree of wetland and upland loss and degradation that has occurred in North America since settlement of the midcontinent region. It is likely that a major awakening of the public sector to the ways in which private lands are being managed will be vital in stopping the declines in duck populations.

The Central Flyway Waterfowl Technical Committee and Council is beginning a major I. & E. program to attempt to reach a greater number of publics with the problems with ducks. No longer can the duck hunters be expected to carry the load alone. Homemakers, career women, business men, retired persons, and many others not directly involved with ducks and duck hunting must be made aware of the problem and implored to get involved in its resolution. The Technical Committee hopes that once people are reached with this message, they will want to get involved. The bottom line is that not only are we talking about saving mallards and pintails, but also saving marshes and ponds, controlling flooding, reducing soil erosion, and improving air and water quality. In short, we would be making this earth a better place to live.

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ABSTRACT

THE MANAGEMENT OF THE GRIZZLY BEAR ON PRIVATE LANDS: SOME PROBLEMS AND POSSIBLE SOLUTIONS

CHRISTOPHER SERVHEEN U.S. Fish and Wildlife Service, HS 105D, University of Montana, Missoula, MT 59812

The grizzly bear is a wide-ranging animal that is rarely tolerated in close proximity by humans. Much of the remaining low elevation spring and fall habitat for this species is in private ownership in its remaining range in the contiguous United States. The activities of humans in this spring and fall habitat often involve the use or production of attractive food sources for bears such as livestock, fruit trees, bee yards, and garbage. The result is human-bear conflict usually resulting in the death of bears. The majority of human-bear conflicts in recent years have been on these private lands. Major private land areas in grizzly range include the towns of Gardiner, West Yellowstone, and Cooke City, the Rocky Mountain Front, the west slope of the Missions, and the Bull River valley. Solutions to minimize conflicts range from aquisition of such lands to local ordinances to increased public education. The response of local landowners is the determining factor in the succes on management efforts due to the limited statutory authority of state and federal agencies on private lands. The success of the overall grizzly bear recovery effort must include increased efforts to manage bears on private lands as they have the potential to act as population sinks for the surrounding habitat that is in public ownership. Such continued population losses will negate the effectiveness of public land management for the grizzly bear.

THE ROLE OF THE PRIVATE SECTOR IN PRESERVING SPECIES DIVERSITY

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It is not well-known among professional wildlife or land managers that private involvement in the protection of natural land is nearly as old as the nation's. Less than 20 years after congress established Yellowstone National Park as a "pleasuring ground for the benefit and enjoyment of the people", a group known as the Massachusetts Trustees of Public Reservations was founded in 1891 to secure lands so that "crowded populations . . . should not be deprived of opportunities of beholding beautiful natural scenery" (Abbott 1981). Although the Trustees quickly earned a favorable reputation that inspired similar efforts in England and elsewhere, few followed their lead in the United States until after World War II. Since the 1940's, however, the pressures of interstate highways and residential sprawl on the one hand, and the nascent environmental ethic on the other, have increased the number of private land trusts to over 500.

By far the largest of these trusts is The Nature Conservancy, with 35 years of experience and nearly three million acres of protected land in the United States. The nearly 1,000 preserves operated by the Conservancy comprises the largest privately-owned system in the world. At the other extreme, most trust organizations are small and little more than repositories for the occasional charitable contribution of local land or easement. Between these two exists a broad spectrum of trusts which aggressively seek out donations of land, especially partial interests (development rights, right of way, etc.). Using tax benefits of non-profit organization status and resultant ability to receive charitable contributions of interests (including below-market-value sales), land trusts of all sizes present an attractive addition to the nation's protected lands.

Each of these trusts has a similar goal in the protection of land. The difference is the emphasis on what is being protected. The Nature Conservancy has a singular purpose of preserving species diversity through land conservation (Hoose 1981). This is done through a variety of techniques with land purchases being most widely known. The purchase option is reserved for the most ecologically significant areas. Other methods of preservation commonly used on private lands are conservation easements, voluntary protection agreements, management agreements, and leases.

During these fiscally austere times, such activity is increasingly important. In the past 2 1/2 years, the Conservancy acquired lands worth over $200 million to protect habitat of rare and endangered species. During this same period the federal government has spent $60 million for this purpose.

These acquisitions are targeted and given state and global priority through a comprehensive biological inventory known as Natural Heritage Programs. These programs identify and catalog the rarest species and communities in each state and find locations of the best remaining examples on the landscape (Jenkins 1978, 1985; see also Noss 1987). This assures that scarce financial resources are put toward protecting the most viable and defensible sites harboring the rarest elements of natural diversity. Also, by comparing protected sites and species on public lands, unnecessary duplication is eliminated.

The Conservancy retains ownership of the majority of its preserves, assuring long-term stewardship and protection for the species they contain. Some areas are conveyed to government agencies or other private conservation groups for ownership and management. These cooperative projects are highly successful and take advantage of the private sector's ability to commit money quickly on a critical purchase. In many instances, the Conservancy has purchased key areas for public agencies, such as the U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, and many state fish, wildlife, and parks agencies. In others, it has made outright donations of land to publicly administered

agencies. Some examples of The Nature Conservancy projects in Montana include:

1. Pine Butte Swamp

The Conservancy has protected over 19,500 acres of outstanding wildlife habitat on the Rocky Mountain Front. The diverse vegetative cover types range from native short grass prairie to rocky ridges of limber pine and juniper to spruce-fir forests and wetlands. Pine Butte is one of the last sanctuaries for the plains-dwelling grizzly bear. Also present are most of Montana's big game species, raptors, abundant nongame wildlife and furbearers, and over one-third of the songbird species in the state.

The high butte overlooks the largest fen in Montana and the southern-most plains wetland of its kind in North America. Other rarities protected at the preserve include the foothills prairie, several rare plants, such as Craw's sedge, small yellow lady's-slipper, green-keeled cottongrass, Macoun's gentian and others. Pine Butte Preserve plays a key role in protecting this biologically rich area linking the Bob Marshall Wilderness with the High Plains.

2. Crown Butte

Nominated as the state's first natural area, Crown Butte is one of the largest examples of pristine prairie grassland in Montana. From the distance one sees a flat-topped dome rising a thousand feet from the rolling plains of west-central Montana. The 377-acre preserve safeguards one of the nation's few remaining foothill prairies. The rough fescue/blue-bunch wheat grass and green needle grass are thigh high. Beneath these tall grasses are a plethora of native wildflowers.

Crown Butte's grassland ecosystem is also excellent wildlife habitat, and provides undisturbed rangeland for deer and antelope. Numerous prairie passerines and raptors, such as golden eagles, prairie falcons, and ferruginous hawks forage and nest on the butte. Historic Native American eagle catch sites still remain.

3. Swan River Oxbow

This is the Conservancy's newest preserve and the first of the Montana Centennial Campaign -- a $5 million project to identify and protect many of the remaining critical areas in the state.

The Swan River Oxbow Preserve covers 392 acres of river bottomland with a variety of plant communities, spring creeks, vernal pools and old growth forest. The protection efforts are focused on a globally imperiled plant, water howellia. The Swan Valley harbors the most extensive populations of Howellia known. In addition, protection is afforded to two state "threatened" plants and a wide array of old-growth and riparian dwelling species. The site is part of an important travel corridor for grizzly bears between the Swan Range and Mission Mountains.

4. Beartooth Game Range

This was the first of several cooperative projects with the state of Montana. Over 27,000 acres were secured and later transferred to the Department of Fish, Wildlife and Parks. The Beartooth Game Range provides important elk and deer winter range and year-round habitat for many nongame and big game species. The area is also popular for outdoor recreation.

5. Blackfoot River Corridor

Over 9,000 acres of conservation easements, gifts, and registered sites forms a 40-mile protected corridor along the Blackfoot River. Bald eagles, high quality fishery, a thriving riparian community with a high diversity of wildlife species make the Blackfoot a worthy gem for conservation. The River's scenic views and wildlife habitat are protected in perpetuity thanks to the benevolent land ethic of the many landowners along its course.

6. Wildhorse Island

The largest island in Flathead Lake, over 2,000 acres, is another

cooperative project between the Conservancy and Fish, Wildlife and Parks. Wildhorse Island is home to nesting bald eagles, big horn sheep and mule deer. The island offers sanctuary for two of Montana's rarest plants: Columbia River Crazyweed and Spalding's Catchfly. Both of these are known from fewer than a dozen sites on earth. Several rare plant communities thrive on the island. Wildhorse Island is currently managed as a state park. Designation and management as a state natural area is currently being considered.

7. Loon Lake

Nestled away in the forest of Northwest Montana, Loon Lake offers breeding habitat for common loons and numerous other waterfowl, raptors and passerine birds. The lake and surrounding area are rich in wildlife including mountain lion, deer, elk, and black bear. The site also boasts a marl fen and a state-endangered plant, northern bastard toadflax.

8. Dancing Prairie

This site on the Tobacco Plains has been identified by the Natural Heritage Program as a top priority for protection. Nearly 400 acres of palouse prairie grassland is in pristine condition and harbors the last known dancing ground for the Columbian sharp-tailed grouse. Both the grassland community and grouse have drastically declined in the Pacific Northwest, primarily from overgrazing, conversion to cropland, and habitat destruction. The site also hosts the largest known population of the globally endangered plant Spalding's catchfly. Wintering elk use the grassland and a diverse group of nongame species are found there.

Preserve design has been completed and the Conservancy is currently negotiating land deals that will make this special piece of Montana our next protected natural area. This is just a sampling of sites protected by The Nature Conservancy. In total, over 200,000 acres have been set aside at a cost of $20 million. The current Centennial Project plans to raise $5 million over the next two years for protection and stewardship of the most biologically significant areas in Montana. The effort to protect

the remaining ecologically significant areas in Montana goes beyond the ability or jurisdiction of any agency. Establishing a representative natural areas system in Montana and assuring the protection of critical wildlife habitat will require cooperative participation between the public agencies and the private sector. The groundwork has been laid in Montana and the results have been outstanding. The task before us is to identify and protect the best remaining examples of our natural world. This is the only way to ensure that future generations will experience and enjoy the full spectrum of Montana's precious natural heritage.

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TELLING IT LIKE IT IS - A PROFESSIONAL RESPONSIBILITY [1/]

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Many of you are probably wondering what a paper entitled "Telling It Like It Is - A Professional Responsibility" has to do with this meeting, the theme of which is centered around the private or industrial landowner. I would submit to you that professionalism is the foundation from which The Wildlife Society has risen and that it is a primary reason why we sponsor and attend meetings like this. Furthermore, I would also suggest that integrity is the cornerstone of our professionalism and that professional integrity is essential to the maintenance and survival of the wildlife resource - regardless of whether this resource occurs on private, industrial, or public land. We should not forget that wildlife is a public resource, belonging to all the people of the State, unlike timber, minerals, crops, or land.

Let's go back to our origins for a moment, and pursue how we have arrived at where we are. As each of us travel through our careers, we seem to evolve with common experiences, shared insights, and, often, similar pressures and stresses. Who of us was not idealistic about how we would "fix" the world when we were in our academic years and early phases of our careers. After a while we are faced with the realities of our situations. Not only does humanity not revolve around our beloved wild things and wild places, the fact is, most of humanity is out there inadvertently doing their best to eliminate these resources!

The ideal life styles we envisioned as new professionals - that of wonderful treks through hill and dell, of studying our favorite furry critter, and of being praised and embraced by all of humanity - usually turns out to be an endless series of controversies with big business, big government, and big development. In the long run, it is easy to give in, and to give up. It wouldn't be surprising if the stress levels of the modern wildlife biologist are just as great as the giant corporate executive. Well, now, how do we find our way through this morass of stress, conflict, and turmoil? I am certainly not a psycologist, but I do have some ideas.

[1/] Presented at the annual meeting of The Montana State Chapter of The Wildlife Society. Kalispell, Montana, February 13, 1987.

To begin with, we need a clear understanding of the legal basis of the wildlife resource. As mentioned before, wildlife is a public resource. As such, wildlife does not belong to us individually, it belongs to "US" collectively. Because of this, it is a political resource. In the long run, this may be wildlife's salvation.

Wildlife is managed for the people by public agencies - regardless of where it occurs. These agencies have a legal responsibility to manage wildlife for the benefit of this generation and future generations. Many agencies also have other responsibilities that conflict or overlap with wildlife management objectives. Commodity and development plans often have historical precedence and priority. Managing agencies may have a status quo perspective about wildlife resources, particularly if changing management stategies are politically sensitive or require significant tradeoffs with other resources. Unfortunately for wildlife resources, status quo in terms of management emphasis can, and often does, mean a steady decline over the years. As wildlife resources decline to a level of legal or public concern, something must give. When these situations develop, it is not uncommon for a wildlife biologist to be considered over-protective and over-reactive by agency administrators and commodity interests who may want to maintain the status quo, and under-protective and submissive by conservation oriented publics who want immediate emphasis on maintaining or increasing a species population and/or habitat.

So where does this leave the wildlife biologist? Does he or she bend toward the agency or industry perspective, which often hold the paychecks and political power; or to the conservation constituency, from which many of us have arisen from?

I suggest neither path is appropriate. I further suggest that our fidelity should be first and foremost to be a professional, and by doing so, we are serving all legitimate concerns. We also serve ourselves, which is essential for our long-term health, maintaining a positive attitude, and the well-being of the resource we have devoted much of our lives to. The primary responsibility of a professional wildlife biologist is to obtain accurate information, to analyze it fairly and objectively, and to present it in a clear manner which speaks directly to the issues of concern.

Agencies, industries, conservation organizations, and other interested parties (both competing and pro wildlife) require accurate information to base effective conservation programs on, to evaluate and mitigate resource trade-offs, and for the political consensus process to operate efficiently. Hienz and Youmans (1985) suggest that "it is naive to expect the democratic process to function properly in the absence of an informed public."

So, I see that "Telling It Like It Is" is a reponsibility of:

1. The professional wildlife biologist.
2. Public agencies.
3. The Wildlife Society.

I'd like to share with you how I see these responsibilites, and the checks and balances which might operate to facilitate the exchange of factual information.

The Professional Wildlife Biologist

Before "Telling It Like It Is", a wildlife biologist should ensure that he or she has taken the responsibility to become knowledgeable about the species, its habitat requirements, and the situation of concern. The Wildlife Society's Code Of Ethics (Wildlife Society 1983) outlines what the professional wildlife biologists' responsibilities are. These essentially say a biologist should:

1. Perform at the highest standards of integrity and conduct.

2. Recognize research and scientific management of wildlife and their environments as primary goals.

3. Disseminate information to promote understanding of, and appreciation for, wildlife and their habitats.

4. Strive to increase his or her skills to advance the practice of wildlife management.

5. Ensure that we remain competent by maintaining currency in our education and knowledge.

6. Encourage the use of sound biological information in management decisions.

7. Support fair and uniform standards of employment and treatment of those employed.

Those of us who are administrators, and those of us who will be future administrators, encourage those who work with you to "Tell It Like It Is." Promote an atmosphere where factual information is presented in a staight forward fashion and where candor is rewarded. Employees should be encouraged to be honest and objective. Most important, serve as a good example by being honest and candid yourself. Jack Ward Thomas (1985), a past President of The Wildlife Society, recently said that "implied (in the Code Of Ethics), but not specifically mentioned, is the requirement to simply tell the truth. More and more lately, I seem to find myself giving advice to troubled colleagues to tell the truth. It seems so simple. Yet, it can be so liberating. We live in an age of euphemisms, half-truths, obfuscations, double-talk, and double-think -- it sometimes seems so pervasive. Yet, this atmosphere has closed in on us so gradually, so cloaked in the camouflage of the committee or team report, so justified by the need to get the job done, that we've come to consider such things as the norm. Tell the truth, all the truth, all the time. It's the professional thing, the right thing, and the healthy thing to do. The truth can and shall, indeed, set you free.

Public Agencies

I think public agencies have a fundamental commitment and moral responsibility to the people they serve to be honest, candid, fair, and objective. Think about what the alternatives are to this approach and ask yourself if anything less is tolerable in a democracy that espouses to be "For The People, And By The People."

Administrators of public agencies should review their policies, attitudes, and cultures to evaluate whether there is an atmosphere of openess within the agency, and with the publics they serve. Instances where public information is suppressed by public agencies about public resources should be seriously critiqued.

Because most of the pressure to change wildlife policies is applied from non-agency sources (Heinz and Youmans 1985), and because much of the information about wildlife species, wildlife habitat, and wildlife status is generated from agencies, suppression of pertinent wildlife information may result in the publics having inadequate or inaccurate information to bring about necessary wildlife policy changes.

The Wildlife Society

Certainly, The Wildlife Society has some responsibility for maintaining and guiding professional conduct. We must understand The Wildlife Society is only as effective as we make it. The principal objectives of The Wildlife Society make it clear as to what we are about. For those of you who may have forgotten--or perhaps have never heard before--the principal objectives are (Wildlife Society 1983):

1. To develop and promote sound stewardship of wildlife resources and the environments upon which wildlife and humans depend.

2. To undertake an active role in preventing human-induced environmental degredation.

3. To increase awareness and appreciation of wildlife values.

4. To seek the highest standards in all activities of the wildlife profession.

There are other avenues The Wildlife Society might take to ensure accurate information is provided regarding wildlife management, and activities which affect wildlife resources. One of these is position papers which are society endorsed statements about how society professionals see high profile, controversial, and important facts or relationships.
A second way The Wildlife Society could facilitate the interchange of factual information is through sponsoring symposia on wildlife management concerns.

Another way is to involve other professionals and interested citizens in society affairs, such as this meeting. Particularly, active members such as officers of other professional societies, and citizen organizations. Political leaders should be encouraged to attend. I would suggest we invite these people to present to us their positions and concerns relative to important wildlife issues. And we should also invite them to hear our views and positions. I would encourage panel discussions with people of varied backgrounds and perspectives. Imagine the dialog we could create about issues that are vital to wildlife and the quality of human life for us and future generations. Issues for which we have great concern, but virtually no chance of solving independently - in a vacuum.

Summary

In summary, I have suggested that the presentation of factual wildlife information is essential to the resource we are trusted to manage and that the responsibility to provide this rests with each one of us. I'd like to leave you with a paraphrase from Eric Fromm (1965): The question is, whether we have reason to be proud and hopeful. The answer is, yes, but with one qualification. The decision rests with us. It rests upon our abilitiy to take our lives and our happiness seriously; and our willingness to face our own and our society's problems. It rests upon our courage to be ourselves and to be for ourselves. And I'll add to Eric Fromm's words by suggesting next time you find yourself in a tough professional position; be true to your profession, be true to the people and agencies you represent, and, most of all, be true to yourself and "Tell It Like It Is."

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SUMMARY

CENTRAL REGIONAL WORKSHOP

MONTANA CHAPTER
THE WILDLIFE SOCIETY

We met on January 21, 1987 at the DNRC Building in Helena, Montana. About 25 people responded to our announcement which was sent to both universities and to 16 agency offices in Central Montana (Agenda attached with mailing list).

The topic of this year's Central Regional Workshop was "Leasing Private Lands for Recreation and Profit - Its Impact on Wildlife Management and the Role of the Professional Wildlife Biologist".

The morning agenda included coffee and donuts and three excellent presentations by world renowned wildlife professionals; Gene Allen, Rob Hazlewood, and Dick Buscis.

Gene Allen led off with a synopsis of a bill introduced this session which would require the Department to set up management agreements with private landowners that want to lease access and/or guide hunts on their property. The bill would allow (X) permits to be issued to the landowners for their use as they see fit.

Gene also proposed a definition of a Wildlife Professional as someone who:

1. diagnoses wildlife management problems;
2. collects and shares information;
3. predicts consequences of various alternative solutions; and
4. finds solutions within the constraints applied by nature or society.

Rob Hazlewood provided some enlightening facts about the leasing issue and some numbers on Montana's agricultural economy. In summary, his eye opening remarks concluded that:

1. wildlife is an economically valuable natural resource in many parts of the country and actually rivals the value of many of the traditional agricultural commodities;

2. assuming current economic trends continue, it is not too far-fetched to believe that Montana wildlife could actually rival traditional commodities;

3. we should promote classifying wildlife as a valuable commodity to be competitive with other agricultural commodities that alter and destroy wildlife habitat; and

4. a poll of 20 State and Federal biologists around Montana showed that; 1) they believed leasing was on the increase or would increase in the next two years in their area, 2) that traditional management techniques were becoming ineffective in areas where leasing was prevalent, and 3) they stated frustrations with the idea that they were supposed to be managing wildlife but in fact private landowners were the real managers.

Next Dick Buscis presented the biologists dilemma of "managing big game species under the constraints of extensive leasing of private lands, lands that contain prime ungulate seasonal or year-long habitat. In his area we saw how easily the State's management responsibility can be passed to the private landowner when access to privately owned important ungulate habitats is leased. This results in ineffective population management via the gun - 400

John Q. Public's looking for 4 elk on accessible lands, while 4 John R. Lessees take 4 of 400 elk on adjacent private lands. Obviously, new management scenarios are needed in these areas.

The afternoon session was started by Terry Anderson, an Economist from Montana State University. He reported findings of a study by his graduate student John Bushnell titled, "Fee Hunting in Montana". Their preliminary study of the economics of fee hunting are interesting and may be obtained from Terry in Bozeman. Terry introduced the concept of the "Elk Broker" - who is a product of changing markets in Montana. Supply and demand still drive the system. Terry noted that allocative mechanisms (quotas) do not work in Montana anymore and will not work in the future if current economic trends continue. Certain landowners will break tradition to save the farm.

The group discussion that followed Terry's presentation was alive with traditional values, fears over uncertainty, and concern that wildlife professionals would support selling wildlife as a means to solve a problem. We battered the topic around while switching caps from agency man to hunter to philosopher. We finally decided that we did learn something about the issue. We were confused about proper diagnosis. There is not an easy solution. Leasing definitely is a wildlife management dilemma worth our attention. Leasing demands a professional analysis in order to find and implement strategies to reach desired goals.

In conclusion we asked the Chapter's executive committee via Rich Desimone and John Weigand to track the introduced legislation and key our lobbyists into

information gathering and transfer to the society so a position can be presented. And as chairman of the Central Regional Workshop, I ask the Chapter to consider deeply these questions:

1. What is our plan of action as a professional wildlife organization and role in wildlife management in Montana?

2. How and when do we get started?

3. If we are not going to get involved, let us fold up our hypocritical banner and get out of the way so the amateurs can chart the course.

IN REPLY REFER TO:
6500

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
GARNET RESOURCE AREA
3255 Fort Missoula Road
Missoula, Montana 59801

FEB 03 1987

Alan Christensen
c/o Rocky Mountain Elk Foundation
Route 3 Wilderness Plateau
Troy, Montana 59935

Dear Alan:

The following is a brief summary of our regional workshop held on January 21 with 22 participants attending, including 6 speakers.

Jim Cross - Discussed conversion of rural habitats to urban sprawl in the Flathead valley and foothills. He suggested that the biologist is a general practitioner (GP), working with both well and ill patients, practicing preventive and passive medicine, and realizing the biologist can't fix all things.

Kit Southerland - Described Soil Conservation Service organization and role on private lands. He outlined several SCS programs important to private wildlife habitat including Food and Security Act 1985, Water Bank Program, Senate Bill 310, Snow Survey, Plant Center, Outdoor Classroom and Conservation Education. The work of SCS focuses heavily on communicative and cooperative efforts of that agency with large and small landowners using local, state, and other federal expertise and assistance.

Steve Knick - Gave an overview of his work on the grizzly bear in Idaho Selkirk mountains. He expressed problems on the study area with maintenance and acceptance of road closures in managing bear habitat by restricting traditional uses of woodcutting, berry picking, black bear hunting, etc.

Mike Hillis - Led a one man panel on the role of federal lands in buffering activities on private lands. This idea opened several discussions from the audience, ultimately pointing up the need for a substantial process to analyze the cumulative effects of "buffering". In most cases, buffering turns out to be a long term commitment.

Les Marcum - Reviewed and updated "Public Elk on Private Land", an elk concentration situation on the Blackfoot Special Management Area. He talked about the attractiveness of the concentration area in terms of security, forage, and fidelity. Manipulation of one or more of these components resulted in elk movements favorable to both the landowner and hunters.

Lyn Nielsen - Shared some thoughts he has about biologists and wildlife management on private lands. He mentioned a lot of ranches with large acreages do not allow hunting. In his opinion, the biologists only "fits in" on any size land holding where hunting is allowed. He is an advocate of fee hunting for two reasons; hunting is allowed and there seems to be a willingness of the landowner to work with the biologist.

This is essentially the material I will present at the Chapter meeting, if called upon. Feel free to make additions or corrections, as my note taking was a bit foggy during this session.

I'll see you next week.

Sincerely,

David W. McCleerey
Wildlife Biologist

MONTANA CHAPTER TWS EASTERN REGIONAL MEETING
BILLINGS, MONTANA JANUARY 15,1987

The meeting started at 10:00 am at the BLM State Office in the Granite Towers Building. The theme was the Role of Private Lands for Wildlife in Montana and was to include all aspects of this broad subject. However, the main aspect that concerned the speakers and the audience was access, or lack of access, to private land for recreational purposes. About 15 people were in attendance, mostly from State and Federal agencies (1 or 2 were civilians).

The first speaker was Mark Petroni of the Montana Bowhunters Association. Mark spoke from the viewpoint of a Butte Sportsman about hunting "rights" and the increasing lack of free access to private lands. He estimated that only 3,300 square miles of "free" hunting on private land remains in Montana. The sportsmens groups of Montana need to wake up to whats happening to the tradition of "free" hunting in Montana. The discussion following the talk was quite spirited. It was mentioned that state wildlife agencies do have some obligation to obtain access for hunters, but that each individual hunter has an equal obligation to find his own place to hunt and to establish a relationship with individual landowners. The group agreed that the lack of "free" hunting on private land was a growing problem, and it probably will get worse before the majority of sportsmen wake up and do something constructive about the problem.

The next speaker was Steve Knapp the Montana Department of Fish, Wildlife, and Parks (FW&P) biologist in Broadus. Steve's subject was the Department's program to keep private lands open for "free" hunting. This program is in the early stages of development in Region 7, but in 1986 about 1000 square miles were kept open for about $25,000. The program is designed to be flexible in ways of reimbursment to landowners to meet their management needs. The program is being brought along slowly because the biologists involved are concerned about future lack of funding and lack of political support. This presentation generated much discussion about costs, efficiency, and future of the program. Most people commenting agreed that something like this program was needed.

Next Gary Hammond the FW&P biologist from Glendive talked about Land Preservation Tools. Some of the "tools" available include Conservation Easements, land exchanges, land use trades,and others. The Department is beginning a program to preserve wildlife habitat on private land using some of these tools in eastern Montana. Their program has been successful so far. But the biologists involved are procceding slowly because of same concerns about future funding and political support expressed above. The audience agreed that this was a good useful program and deserved the support of wildlife professionals, sportsmen, and other groups interested in the future of wildlife habitat on private lands in Montana.
Gary will be presenting this paper at the Chapter Meeting in Kalispell.

Bill Schwarzkoph, Reclamation Superintendent for Western Energy presented us with an informative and interesting slide show and talk about mining and reclamation at the Rosebud Coal Mine near Colstrip. Great strides have been made in reclamation of strip mined land for wildlife habitat and other surface uses in the past few years. Western Energy wildlife biologists are engaged in some very interesting projects.

Our final presentation was a slide show about New Zealand by Doug Boyd. Doug is a biologist from New Zealand who is teaching in Billings. This presentation was very interesting and had a unique biological aspect. Of course, the majority of questions and discussion centered around the legendary quantities of deer in New Zealand. Unfortunately the advent of commercial deer farming for venison and antlers has resulted in the demise of wild deer in most areas. But if you are interested in hunting red deer in New Zealand, several deer farms will provide hunting opportunity for a few thousand dollars per deer.

This was a very productive meeting and the talks generated some intense discussion amongst the lucky people in attendence. Thanks is due to the speakers for interesting and stimulating presentations, to Ray Hoem for arranging for the meeting place, and to the people who traveled great distances to attend.