

PRAIRIE GROUSE TECHNICAL COUNCIL

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PAST CONFERENCES

First..... September 25, 26, 27, 1957
GRAND ISLAND, NEBRASKA

Second..... March 16, 17, 18, 1959
EMPORIA, KANSAS

Third..... September 8, 9, 10, 1960
STEVENS POINT, WISCONSIN

Fourth..... September 21, 22, 1961
PIERRE, SOUTH DAKOTA

Fifth..... September 18, 19, 20, 1963
NEVADA, MISSOURI

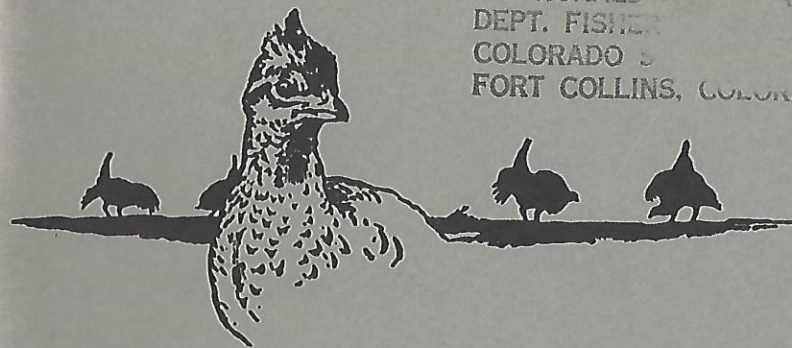
Sixth..... September 14, 15, 16, 1965
WARROAD, MINNESOTA

Seventh..... September 12, 13, 14, 1967
EFFINGHAM, ILLINOIS

Eighth..... September 9, 10, 11, 1969
WOODWARD, OKLAHOMA

Ninth..... September 14, 15, 16, 1971
DICKINSON, NORTH DAKOTA

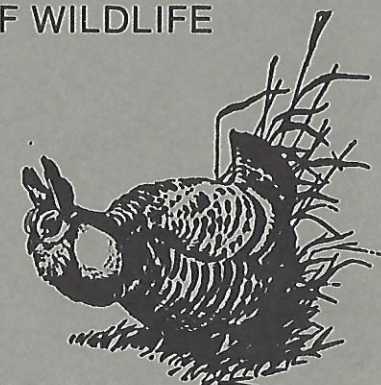
DR. RONALD A. RYDER
DEPT. FISHERY & WILDLIFE BIOLOGY
COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO 80521



PROCEEDINGS TENTH CONFERENCE PRAIRIE GROUSE TECHNICAL COUNCIL SEPTEMBER 5, 6, 7, 1973 LAMAR, COLORADO

Host
COLORADO DIVISION OF WILDLIFE

Compiled by
Donald M. Hoffman
DR. RONALD A. RYDER
DEPT. FISHERY & WILDLIFE BIOLOGY
COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO 80521



Not for publication without consent of contributing author.

PROCEEDINGS OF TENTH CONFERENCE
PRAIRIE GROUSE TECHNICAL COUNCIL

September 5, 6, 7, 1973

Lamar, Colorado

HOST

Colorado Division of Wildlife

Tuesday - September 4

A preconference registration and social hour was held in a meeting room of the Stagecoach Motor Hotel. Warren D. Snyder, Wildlife Researcher, Colorado Division of Wildlife, presented a series of slides on prairie wildlife in Colorado.

Wednesday - September 5

Welcome - Robert R. Elliott, Assistant Director-
Planning, Colorado Division of Wildlife

Mr. Elliott cordially welcomed the delegates.

Morning Session

Dr. Ray Anderson, Chairman

University of Wisconsin
Stevens Point, Wisconsin

PRAIRIE CHICKEN RESPONSE TO
HABITAT MANAGEMENT IN NORTHERN MISSOURI

By

Robert M. Skinner
Missouri Department of Conservation
Macon, Missouri

ABSTRACT

Prairie chickens had almost completely disappeared from northern Missouri during the 1940's and 1950's. Today remnant flocks remain in Audrain and Macon counties. Information about prairie chicken habitat is now being gathered on experimental management areas and on surrounding lands in these counties. Data thus far indicates that prairie chickens prefer medium height cover (12 inches) to tall (36 inches) for winter roosting. Tall, rank cover is avoided for spring nesting. Broods prefer cultivated fields and pastures for summer activities. The reintroduction of native warm season grasses for summer grazing seems to be the most economically feasible method for the private landowner to create prairie chicken habitat in northern Missouri.

MOVEMENTS OF THREE
TRANSPLANTED MALE GREATER PRAIRIE
CHICKENS AS DETERMINED BY RADIO TELEMETRY

By

John E. Toepfer*, Patrick Herzog
and Dr. Raymond K. Anderson
University of Wisconsin
Stevens Point, Wisconsin

ABSTRACT

Three wild male greater prairie chickens were trapped, radio-tagged, moved, and released on booming grounds 20 miles from a study area west of Stevens Point, Wisconsin to the Portage County study area during April, 1973. Three additional males, residents of the Portage County study area, were radio-tagged to serve as controls for movement study.

Movements of transplanted males were characterized by a period of orientation during which the birds made extensive movements. Average distances between location points during the periods of orientation were 3.5 times greater than those of the control birds. Movements of the control birds centered around their respective booming grounds. The average ranges of the transplants and control birds were 5,300 acres and 150 acres, respectively. The transplanted birds "settled down" 21, 22, and 27 days after release. They eventually adopted new booming grounds and ranges 7.5, 1.5, and 1.2 miles from their respective release points.

We recommend that more studies of this type be conducted before additional prairie chicken restoration projects are undertaken.

*Author so marked presented paper

HABITAT UTILIZATION BY
PRAIRIE CHICKENS IN RELATION
TO LAND-USE PRACTICES IN MISSOURI

By

Ron Drobney
Missouri Department of Conservation
Columbia, Missouri

ABSTRACT

Land use practices on a 6 square mile study area in southwestern Missouri were evaluated on the basis of actual habitat usage for vital activities by the greater prairie chicken (Tympanuchus cupido pinnatus) from January through August 1972. Evaluation was based on 7,160 sightings of male prairie chickens, 35 nests and 15 broods totaling 139 birds.

Light to moderately grazed prairie pasture was used most frequently for all activities except feeding. Cover less than 4 inches received heaviest use for feeding; 4 to 8 inches for loafing and broods and 8 to 36 inches for roosting, nesting and escape. Cover quality and habitat diversity appeared to be important factors influencing this heavy use.

Cultivated land was used extensively for feeding during late winter and early spring, but usage declined sharply in April and May due to increased use of other cover types for feeding. The use of prairie hay increased throughout the study owing chiefly to its increased use for roosting, loafing and feeding following spring growth. Legumes were of little value in winter, but were used extensively during spring and summer for nesting, feeding, loafing and brood cover. The use of tame hay, non-agricultural land and improved pasture was relatively low throughout the study, but was of seasonal and local importance as escape, roosting, loafing and brood cover to some birds.

A PRELIMINARY PROGRESS REPORT ON DEVELOPMENT OF METHODS FOR BREEDING AND REARING GREATER PRAIRIE CHICKENS

By

Arnold D. Kruse
Northern Prairie Wildlife Research Center
Jamestown, North Dakota

ABSTRACT

In 1972, 6 greater prairie chicken hens laid 191 eggs of which 143 were fertile (77%) and 86 hatched. Fifty chicks were reared to 8 weeks of age on a diet of mealworms, oat sprouts, starter mash and insects.

In 1973, 18 greater prairie chicken hens laid 436 eggs of which 253 were fertile (63%). Fertile eggs hatched at a significantly higher rate (85%) when turned 12 times daily at 86° F. wet bulb than did those turned 3 times daily (49%) at 83° F. wet bulb. No significant differences were found in survival rates of the following diets: (1) standard center breeding ration (29% protein), (2) breeding diet plus fresh alfalfa greens, (3) breeding diet plus alfalfa greens plus mealworms, and (4) breeding diet plus insects.

One hundred eight of 152 chicks were reared to 14 days of age on the 4 test diets.

THE TALLGRASS PRAIRIE NATIONAL PARK AND THE GREATER PRAIRIE CHICKEN

By

Dr. E. Raymond Hall
Museum of Natural History,
University of Kansas
Lawrence, Kansas

ABSTRACT

The nation's grasslands are of three principal types; shortgrass, midgrass and tallgrass. Each type of grassland not only has its distinctive kinds of grass but also its distinctive kinds of animals. The areas of shortgrass and midgrass least impaired and therefore best for preservation are outside

Kansas. The best remaining areas of tallgrass are in Kansas. The Department of the Interior has the responsibility eventually to preserve an adequate sample of each of the three types of prairie. Preserving an area of tallgrass has priority because there are fewer of those areas and they are in more danger of being destroyed or seriously impaired by roads, pipelines, powerlines, water impoundments, and other modifications than are remaining areas of shortgrass and midgrass.

Preservation of an area of native tallgrass prairie, unimpaired, is essential in order to preserve native species of wildlife - plant and animal. By means of fixed travelways, many times as many individuals as there were of original Indian users can view and enjoy such an area. The State of Kansas has a total area of 52-1/2 million acres; Kansas grassland totals 20-1/3 million acres. A Tallgrass Prairie National Park of 30,000 acres would take less than 1/6 of one percent of the state's grassland.

The National Park would provide nesting cover for the greater prairie chicken in an area where other environmental requirements for that bird are present. Close grazing by livestock, and spring burning of a considerable part of the area, now severely limit nesting cover and thereby reduce the population of the greater prairie chicken to much less than the natural level.

On July 12, 1973, the Honorable Larry Winn, Jr., Congressman from the Third District of Kansas, Washington, D. C., 20515, introduced bill number H.R. 9262 to authorize the establishment of the Tallgrass Prairie National Park. It behooves every person who has well-formed opinions on his proposal to communicate with him and with the person's own Representative in Congress.

Afternoon Session

Gerald D. Kobriger, Chairman
North Dakota Department of Game and Fish
Dickinson, North Dakota

PRAIRIE GROUSE: HABITAT SELECTION AND UTILIZATION

By

Dr. Keith E. Evans
North Central Forest Experiment Station
Columbia, Missouri

ABSTRACT

Six basic habitat types were available to grouse in western South Dakota. These types were classified by dominant plant form as: shortgrass, mixed grass, forb, shrub, tree, and cropland. Habitat characteristics were recorded for observations on 986 sharp-tailed grouse, and 130 greater prairie chickens throughout western South Dakota. Sharptails utilized all 6 habitat types; while prairie chickens were found in all except the tree type. Both species used shortgrass or mixed grass for spring courtship displaying. If available, shortgrass seemed to be preferred. Data on 188 grouse observed during brooding activities reveal that a wide variety of vegetation types are used for brood raising. Following is a list of the percentage of sharptail broods found in each type: 35 percent under a tree overstory, 30 percent in mixed grass vegetation, 20 percent in a shrub type, and 15 percent in a forb type. Nearly all (96%) of the prairie chicken broods were seen in either a mixed grass or a forb type. Herbaceous vegetation was utilized extensively during spring, summer, and early fall for feeding and resting. Woody vegetation types were utilized by sharptails for winter feeding and for shade during midday resting periods during the summer.

A PROGRESS REPORT OF TELEMETRY
AND HABITAT STUDIES ON SHARP-TAILED
GROUSE IN SOUTHWESTERN NORTH DAKOTA

By

Stanley C. Kohn and Jerry Kobriger*
South Dakota State University,
Brookings, South Dakota, and
North Dakota Department of Game and Fish
Dickinson, North Dakota

ABSTRACT

An improved technique for describing the quality and quantity of vegetation found at sharp-tailed grouse nesting and brooding sites was developed. Density and height of vegetation were measured using a density pole. The pole was placed vertically into the vegetation at nesting and brooding sites and observed from the direction of the site at a height of 1.0 meter and a distance of 4.0 meters. Plant species and frequency were analyzed with a square-foot frame.

Twenty-one female grouse were captured on two dancing grounds with the use of cannon nets and equipped with radio transmitters. Daily readings were taken on these birds through the spring and into summer. Nest sites were located by monitoring the movements of these hens and through the use of a cable-chain drag. Land-use and cover-type maps were prepared in order to plot nesting sites and brood movements.

The density pole and square-foot frame were used to measure the habitat where sharptail nests and broods were found. Ten pole measurements were taken at the nest sites with added readings being recorded every 6 feet away from the nests along N - S - E - W compass bearings until a total of ten readings in each direction were obtained. After hatching or nest destruction the square foot frame was placed over each nest and once along

Food habits studies indicated that 72 percent of sharptails' spring diet was dandelion (Taraxacum officinale). Short-horned grasshoppers (Acrididae), cereal grains, and rose (Rosa arkansana and R. woodsii) hips were the major summer and early fall grouse foods. Flower and seed heads of goatsbeard (Tragopogon major), and dandelion, and alfalfa (Medicago sativa) leaves were also important summer and early fall foods. During late fall and winter grouse fed on cereal grains if available; sharptails utilized western snowberry (Symphoricarpos occidentalis), hawthorn (Crataegus spp.) and Russian-olive (Elaeagnus angustifolia) in ranchland areas where cropland was not available.

Metabolizable energy values were determined for 7 food items fed to captive sharp-tailed grouse during the winter energetics study. Metabolizable energy values (kcal/g oven-dry food) in descending order were: 3.91 for corn (Zea mays), 3.16 for silver buffaloberry (Shepherdia argentea), 2.69 for cottonwood buds (Populus sargentii), 2.42 for Russian-olive, 2.31 for western snowberry, 1.86 for hawthorn, and 1.42 for rose hips.

The heat flux model involving values of nutritional energetics and heat transfer was used in the prediction of maintenance metabolism and food intake values. Maintenance metabolism includes the energy expended in basal metabolism, food assimilation, locomotor activity, and homeothermy. The model also incorporated aspects of behavioral thermoregulation. Maintenance metabolism predictions can be used by the wildlife manager to predict quantity and quality of feed required under different environmental conditions, thus, facilitating carrying capacity calculations.

N - S - E - W compass bearings for species identification. Similar measurements were also taken at sites of sharptail brood observations.

Vegetation in pastures under different grazing systems were sampled using the density pole and the clipped-hoop method of range analysis to determine differences in production of living material and to compare weights of live vegetation with visual-obstruction measurements. Clipped herbage was sacked and air dried for subsequent weight determination.

The density pole was used to compare habitat actually used by sharptails to what was available for use. The measurements were compared to samples taken from pastures under different grazing systems and stocking rates, including but not limited to winter, summer, deferred rotation, and rest rotation.

*Author so marked presented paper

CHANGES IN POPULATIONS
AND HABITATS OF LESSER PRAIRIE
CHICKENS IN COLORADO, 1962 to 1973

By

Donald M. Hoffman
Colorado Division of Wildlife
Fort Collins, Colorado

ABSTRACT

Total numbers of lesser prairie chickens counted in 1973 on ten active booming grounds was approximately equal to the number counted in 1962 on 13 active grounds (129 in 1973, compared with 130 in 1962). Of the 129 birds counted in 1973,

60 were cocks, five were hens and 64 were unclassified as to sex. Two isolated Baca County populations had disappeared during the interval from 1962 to 1972 for no apparent reason.

Obvious habitat changes recorded in the immediate vicinity of booming grounds during the interval from 1962 to 1972 include: (1) attempts to eradicate sand sagebrush on some privately owned lands through disking or aerial spraying in the area southeast of Holly in Prowers County; (2) installation of several circular sprinkler systems, and clearing of additional prairie for cultivation, particularly in the area south of the Cimarron River in Baca County; (3) elimination of at least one booming ground on private land in Baca County through gravel mining operations.

HABITAT MANAGEMENT OF THE LESSER PRAIRIE
CHICKEN ON THE COMANCHE NATIONAL GRASSLANDS

By

Charles H. Gibson
U. S. Forest Service
Springfield, Colorado

ABSTRACT

Forest Service interest in the lesser prairie chicken began with the Colorado Division of Wildlife's survey of booming grounds in the early 1960's. The U. S. Forest Service has direct responsibility for the wildlife habitat on its land, therefore, we have felt compelled to gain as much information as possible about population changes,

movements and location of booming grounds. This information can then help us determine what areas need our specific attention in regards to habitat management.

Pasture 1Ae is the focus of our discussion in this paper. Currently, there are at least seven booming grounds in or adjacent to the pasture. Vegetation types can be summed up as follows:

Shortgrass: Blue grama-Buffalo	125 Acres
Midgrass: Sideoats grama-Sand dropseed	738 Acres
Sandsagebrush: Mixed short and midgrasses	6629 Acres
Yucca: Mixed grasses-Sandsage	476 Acres
Total	7968 Acres

Most of the adjacent land is also rangeland, including adjoining land in Oklahoma. However, there are a few tracts of cropland, mostly feed grains, on both the east and west sides. Private landowners say that some of the prairie chickens winter in these fields.

A total of 208 (1248 A.M.) head of cattle graze here with a season extending from May 16 to November 15. The stocking rate is 6.4 acres per animal unit. The pasture is divided into four units and currently is using a deferred rotation system.

As time and finances allow, our management goals will be to: (1) continue to search for new booming grounds, (2) continue to make annual counts at each known booming ground, (3) cooperate with adjacent landowners in such a manner as to safeguard critical habitat on private land, (4) coordinate all land use practices in such a way that the prairie chicken habitat is maintained at a level that will continue to support this species, and (5) cooperate with and encourage the Division of Wildlife to make additional re-

leases of prairie chickens whenever possible on the Comanche National Grassland.

RECENT MINNESOTA DEVELOPMENTS FOR THE GREATER PRAIRIE CHICKEN

By

Grady E. Mann
Co-Chairman Minnesota
Prairie Chicken Symposium
St. Paul, Minnesota

ABSTRACT

It was obvious that there was widespread interest for the prairie chicken in Minnesota, but little support, if any, was coming from interested groups. This potential support was not molded into an action group. The Minnesota Prairie Chicken Symposium, held at the University of Minnesota, Crookston, Minnesota, on April 28, 1973, is helping to consolidate that support into progressive lines of action.

The general order of events went about like this: (1) Statewide Publicity -- ahead of the symposium, a vast amount of publicity went out through the Agricultural Extension Service, the Minnesota press, the Fargo Forum, and radios. (2) The symposium came off on schedule -- April 28, 1973, with a field trip on the following morning. (3) During the summer months the conference proceedings were edited and published by W. Dan Svedarsky, University of Minnesota (Crookston) and Terrance Wolfe, Minnesota Department of Natural Resources. These proceedings are available from the Campus Bookstore, University of Minnesota, Crookston, Minnesota 56716, Price \$2.50. (4) By September 1, a steering committee of some thirty people, repre-

senting a wide cross-section of interests, was named. This group will meet on September 12 at Brainerd, Minnesota to determine the course of action to be taken. They will determine whether a special organization will be formed, and if so, whether that organization would concentrate on acquisition, fund raising, research, management, or education. (5) As major follow-up publicity, the St. Paul Dispatch carried a thorough coverage in one issue of their Sunday Picture section and Doug Hirsch of the Detroit Lakes Record published a full-page article on the prairie chicken in that paper.

Evening Session

Following a supper in a meeting room of the Stagecoach Motor Hotel, Dr. Clait E. Braun, Wildlife Researcher, Colorado Division of Wildlife, Fort Collins, Colorado, presented a slide talk on ptarmigan research.

Thursday - September 6

FIELD TRIP

- 8:00 A.M. - Assembled in parking area south of Stagecoach Motor Hotel.
- 8:20 A.M. - Left Lamar.
- 9:30 A.M. - Sand Arroyo Release Site - Stop 1.
- 11:00 A.M. - Coffee Break - Stop 2.

- 11:30 A.M. - Booming grounds on occupied lesser prairie chicken range southeast of Campo on the Comanche National Grasslands - Stops 3 and 4.
- 1:45 P.M. - Lunch at Branding Iron Cafe, Campo - Stop 5.
- 3:00 P.M. - Game bird development, southwest of Campo - Stop 6.
- 4:30 P.M. - Picture Canyon - Coffee Break - Stop 7.
- 5:00 P.M. - Returned to Lamar - arrived approximately 7:00 P.M.

PRAIRIE GROUSE TECHNICAL COUNCIL

Business Meeting

September 7, 1973

Donald M. Hoffman, Chairman

1. Committee reports:

A. Bibliography Committee:

Dr. Fred Hamerstrom indicated that no work has been accomplished since last meeting.

B. Public Relations Committee:

Dr. Ruth Hine, Chairman - not present and no report.

C. Map Committee:

Leonard Sisson, Chairman - not present.
Ken Robertson and Curt Twedt reported

that the prairie grouse distribution map is nearly complete and will be published by the State of Nebraska. A discussion of up-dating the map will be held at the next Prairie Grouse Technical Council meeting.

D. Public Land Law Review Commission Committee.

No work accomplished.

2. A Resolution concerning management of the National Grasslands suggested by Frances Hamerstrom during the 1971 meeting was sent with a cover letter to five officials and two letters were received in return.
3. Texas was selected as the 1975 host State of the Prairie Grouse Technical Council with Bill Brownlee as Chairman, if the meeting time could be held at the regular time (September) or between December and March. If these dates are not accepted by Texas, South Dakota will be host for 1975 meeting with Art Carter as Chairman. Bill Brownlee accepted the Chairmanship on September 8, 1973, and has indicated the meeting will be held in Victoria, Texas in 1975. Ken Robertson (Nebraska) will be Secretary.
4. Phil Watt proposed that the Prairie Grouse Technical Council support the Tall Grass National Park in principle with management resolutions. Phil Watt will write up management resolutions with suggestions from other states.
5. Robert Tully suggested that the Council have a specific subject or purpose to be discussed at the next meeting of the Prairie Grouse Technical Council.

Gerald Kobriger suggested we have a workshop

concerning techniques and management used in different states.

Dr. Keith Evans suggested a panel discussion on methods and techniques used in sexing, aging, census, etc. and to have each member State contacted before next meeting to discuss management practices at the meeting.

Minutes recorded by Jerry Horak,
Kansas Fish and Game Commission

ATTENDANCE LIST

Anderson, Dr. Ray. College of Natural Resources,
University of Wisconsin, Stevens Point,
Wisconsin 54481

Beck, Tom. Colorado Cooperative Wildlife Research
Unit, Colorado State University, Fort Collins,
Colorado 80521

Bernhoft, Larry. Minnesota Department of Natural
Resources, Box 547, Baudette, Minnesota 56623

Blackmer, Penelope. Box 336, San Luis Obispo,
California 93406

Braun, Dr. Clait E. Colorado Division of Wildlife,
Wildlife Research Center, Box 2287, Fort
Collins, Colorado 80521

Bryant, Eldon. U. S. Forest Service, Springfield,
Colorado 81073

Carter, Art. South Dakota Department of Game,
Fish and Parks, 5 Idlewood Drive, Rapid City,
South Dakota 57701

Christisen, Don. Missouri Department of Conserva-
tion, 1110 College Avenue, Columbia, Missouri
65201

Crooks, Larry R. Colorado Division of Wildlife,
728 West Laurel, Fort Collins, Colorado 80521

Croonquist, David A. Colorado Division of Wild-
life, Box 336, Hugo, Colorado 80821

Curry, Dale. Oklahoma Department of Wildlife
Conservation, 401 South 8th, Okemah,
Oklahoma 74859

Dey, Norman. Nebraska Game and Parks Commission,
Box 30370, Lincoln, Nebraska 68504

Drobney, Ronald D. Missouri Department of
Conservation, #7513 Lue Acres, Columbia,
Missouri 65201

East, Gordon P. Colorado Division of Wildlife,
323 South Vaughn Way, Aurora, Colorado 80012

Elliott, Robert. Colorado Division of Wildlife,
6060 Broadway, Denver, Colorado 80216

Eustis, Art. Bureau of Sport Fisheries and Wild-
life, 4816 Rutledge, Minneapolis, Minnesota
55111

Evans, Dr. Keith E. U. S. Forest Service, 3418
Valencia, Columbia, Missouri 65201

Eyre, Glen R. Colorado Division of Wildlife,
596 Kansas Avenue, Springfield, Colorado
81073

Gaarder, Floyd. South Dakota Department of Game,
Fish and Parks, Presho, South Dakota 57568

Gibson, Charles H. U. S. Forest Service, 725
Roosevelt, Springfield, Colorado 81073

Hall, Dr. E. Raymond (and Mrs.). Museum of
Natural History, University of Kansas,
Lawrence, Kansas 66045

Hamerstrom, Fran. College of Natural Resources,
University of Wisconsin, R.R. 1, Plainfield,
Wisconsin 54966

Hamerstrom, Dr. Fred. College of Natural Resources,
University of Wisconsin, R.R. 1, Plainfield,
Wisconsin 54966

Hembree, Marion. U. S. Navy, McAlester,
Oklahoma 74501

Hodge, Jim D. U. S. Navy, McAlester,
Oklahoma 74501

Hoffman, Don. Colorado Division of Wildlife,
Wildlife Research Center, Box 2287, Fort
Collins, Colorado 80521

Hoffman, Richard W. Colorado State University,
905 Whedbee Street, Fort Collins, Colorado
80521

Horak, Jerry. Kansas Forestry, Fish and Game
Commission, Box 129, Cottonwood Falls,
Kansas 66845

Hull, Dean. Commissioner, Colorado Division of
Wildlife, Starlight Motel, Springfield,
Colorado 81073

Kobriger, Jerry. North Dakota Department of Game
and Fish, 546 1st Avenue W., Dickinson,
North Dakota 58601

Kruse, Arnold D. Bureau of Sport Fisheries and
Wildlife, Box 1747, Jamestown, North Dakota
58401

Kuhl, Jack. South Dakota Department of Game,
Fish and Parks, Fort Pierre, South Dakota
57532

Mann, Grady E. 1352 Raymond Avenue, St. Paul,
Minnesota 55108

McEwen, Dr. Lowell. Bureau of Sport Fisheries
and Wildlife, Bldg. 16, Federal Center,
Denver, Colorado 80225

Potts, Daniel F. Colorado Division of Wildlife,
910 South 8th Street, Lamar, Colorado 81052

Robertson, Ken. Nebraska Game and Parks
Commission, Box 442, Bassett, Nebraska 68714

Rosette, Robert K. Colorado Division of Wildlife,
#1 Highland Street, Lamar, Colorado 81052

Rue, Leslie. South Dakota Department of Game,
Fish and Parks, 748 North Spruce, Rapid
City, South Dakota 57701

Runge, G. Andy (and Mrs.). Commissioner, Missouri
Department of Conservation, 123 E. Jackson,
Mexico, Missouri 65265

Sexson, Keith. Kansas Forestry, Fish and Game
Commission, 229 W. 15th, Emporia, Kansas
66801

Skinner, Robert M. Missouri Department of Con-
servation, R.R. 1, Macon, Missouri 63552

Snyder, Warren D. Colorado Division of Wildlife,
Box 322, Holyoke, Colorado 80734

Tesky, Lowell. College of Natural Resources,
University of Wisconsin, Stevens Point,
Wisconsin 54481

Toepfer, John. College of Natural Resources,
University of Wisconsin, Stevens Point,
Wisconsin 54481

Town, Ralph H. North Dakota Department of Game
and Fish, Box 1897, Bismarck, North Dakota
58501

Tully, Robert J. Colorado Division of Wildlife,
6060 Broadway, Denver, Colorado 80216

Twedt, Curt. Nebraska Game and Parks Commission,
Box 30370, Lincoln, Nebraska 68504

Vance, Russel. Illinois Natural History Survey,
208 E. Grove, Effingham, Illinois 62401

Vogt, Joe. Michigan Department of Natural
Resources, 241 Clarendon, East Lansing,
Michigan 48823

Watt, Phil. Minnesota Department of Natural
Resources, Box 100, Roosevelt, Minnesota
56673

Webster, Larry. Colorado Division of Wildlife,
Box 632, Fort Collins, Colorado 80521

Weyerman, Dean A. Colorado Division of Wildlife,
450 4th Street, Burlington, Colorado 80807