

PRAIRIE GROUSE TECHNICAL COUNCIL

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ELK CITY, OKLAHOMA

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

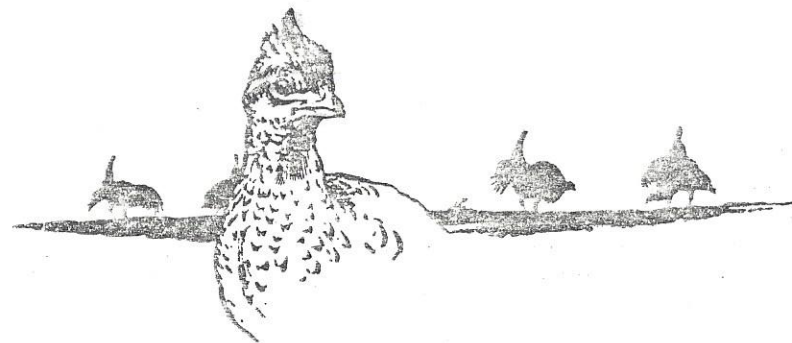
Fourth September 21, 22, 1961
PIERRE, SOUTH DAKOTA

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



PROCEEDINGS NINTH CONFERENCE PRAIRIE GROUSE TECHNICAL COUNCIL

SEPTEMBER 14, 15, 16, 1971

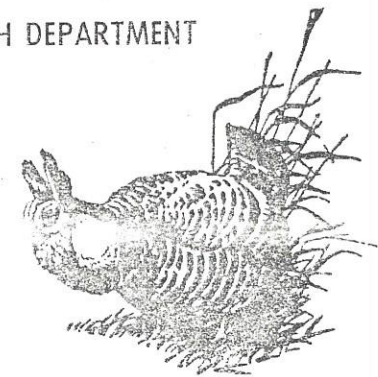
DICKINSON, NORTH DAKOTA

Host

NORTH DAKOTA GAME AND FISH DEPARTMENT

Compiled by

GERALD D. KOBRIGER



PROCEEDINGS OF NINTH CONFERENCE
PRAIRIE GROUSE TECHNICAL COUNCIL

September 14, 15, 16, 1971
Dickinson, North Dakota

HOST

North Dakota Game and Fish Department

Monday - September 13

A preconference registration and social hour was held in the Crown Room of the First National Bank Building. Lowell Tripp, pheasant biologist, North Dakota Game and Fish Department, presented a slide talk on North Dakota. He explained the major geographical areas of the state, the major fauna found in these areas, and briefly reviewed game seasons and harvest.

The movie Prairie Killers was shown. This film was produced by National Educational Television (NET) in cooperation with the South Dakota Department of Game, Fish and Parks and the Bureau of Sport Fisheries and Wildlife

Tuesday - September 14

Welcome - Wilbur Boldt, Deputy Commissioner, North Dakota Game and Fish Department

Mr. Boldt extended a cordial welcome to the delegates.

Morning Session
Ken Robertson, Chairman
Nebraska Game and Parks Commission

CHANGING HABITAT CONDITIONS AND THE DECLINE OF THE
GREATER PRAIRIE CHICKEN IN COLORADO

By

Warren J. Snyder and Robert J. Tully*
Colorado Division of Game, Fish and Parks

ABSTRACT

(No abstract available)

*Author so marked presented paper

SUMMER MOVEMENT OF ATTWATER'S PRAIRIE CHICKENS. A
PRELIMINARY STUDY

By

William C. Brownlee
Texas Parks and Wildlife Department

ABSTRACT

A total of 10 chickens were trapped from March 25, 1971 to July 7, 1971 of which five were males and five were females. One transmittered bird was lost after five days due to transmitter failure. Two were killed by coyotes; one death was attributed to a skunk and two death losses were from unknown causes. Two night movement studies on July 5 and July 7, 1971 indicated no movement during the night time period.

P-241 male captured April 5, 1971 moved approximately 4½ miles from booming ground by September 2, 1971. P-242 male captured April 9, 1971 moved approximately 4½ miles NE of booming ground by July 7, 1971. P-243 male captured April 18, 1971 moved approximately 1½ miles NW of booming ground, remained in area until found d 1 July 30, 1971. P-246 female captured April

30, 1971 nested and brought off brood June 7, 1971. Followed 1 complete day, movement data indicated moved approximately 1 mile from 6:00 A.M. to 6:00 P.M. Presently located approximately 2 miles from capture site. P-3503 male captured July 7, 1971 remained in area of capture until August 4, 1971. Moved approximately 2 miles from capture site. P-3504 female captured July 7, 1971 remained in area until July 17, 1971, now located approximately ½ miles from capture site. Total movement of P-3504 was approximately 5.6 miles.

THE EMERGENCY PRAIRIE CHICKEN PROGRAM IN MICHIGAN

By

G. A. Ammann

Wildlife Division, Michigan Department of Natural
Resources

(Although Andy was unable to attend the meeting, his abstract is included for the information of the members).

ABSTRACT

Prairie chickens have declined drastically in Michigan. Once numbering in the thousands and an important game bird, today there are no more than several dozen individuals in three counties. Although it is extremely unlikely that prairie chickens can ever again be legally hunted in the state, the prospects for maintaining a colony or two for future generations to see seem good.

Twenty years ago, the birds were still moderately plentiful, occurring in some 17 counties in the Lower Peninsula. They had even increased in numbers and re-occupied some of their former range. Then in 1954, a decline began which has continued to this

day. Colony after colony, when the number of birds in spring got down to 5 or 6, would hang on for a few years, then disappear. The first restoration attempts, in the mid-fifties, consisted of purchasing three scattered tracts (totalling 420 acres) in a largely privately-owned 20,000-acre area in Mis-saukee County where more than half of the state's chicken population was found. Land management pract-ices on these state-owned tracts consisted of plant-ing winter food patches, mowing, and brush removal.

For a while it seemed that the chickens held up better in this area, than elsewhere, but when in the late sixties there were practically no birds left here it became clear that we needed to re-assess the situation and come up with a more effective man-agement plan, and soon. So, early last year it was decided to abandon the original area and concentrate all our efforts on the largest remaining colony, in Osceola County, where numbers have remained rela-tively stable for the last twenty years, at least. Since then an intensive campaign was begun, appealing to the public for donations to lease or buy land in this immediate vicinity. The response was extremely gratifying, for some 60 groups and more than 1500 individuals contributed over \$18,000 to date. In-cluding 48 acres which the Michigan Nature Associa-tion is purchasing, and funds from the Public Recrea-tional Bonding Program, we now have, or very shortly will have, close to 600 acres to manage exclusively for prairie chickens within a mile of the booming ground.

Our goal is to acquire control of at least 50 percent of this 4-square mile area in the next year or two, and in the long run to acquire 8 or 10 square miles to, hopefully, embrace at least two active colonies in order to maximize the chances for the survival of the species in Michigan.

By

Ed Bry
North Dakota Game and Fish Department

ABSTRACT

After being very abundant in the early years of North Dakota, the prairie chicken is now at the en-dangered point. A project to help the birds started in the spring of 1968. Photos taken of some of the few birds found were printed in the Department's magazine along with articles. People were asked to contribute to help buy land for a Management Area. When available, Department funds would also be used. So far, 1640 acres of land have been purchased, most-ly with Department funds. Contributions, mostly small amounts from individuals, now total \$7,000. The land purchased is poor farm land, saline and wet, mostly in grass, available for around \$50 an acre. Management to improve the land for chickens is still in the planning stage. No farming is being done. Except for limited haying, the land is now left alone and grows a variety of grasses, forbs, and woody growth. To keep hunters from shooting chickens in the sharptail season, the immediate area has been closed to sharptail hunting. Some census work has been done but not near enough--probably about 50 chickens are found in the two townships involved. Approximately six chicken-sharptail hybrids were found on the Management Area in May 1971. The North Dakota Chapter of the Wildlife Society has a prairie chicken committee which makes recommendations for the future management of the land purchased. It is believed the Management Area provides the best oppor-tunity available to keep prairie chickens in North Dakota's future. The Sheyenne National Grasslands and some Federal Refuge areas are also important to the bird.

MANAGEMENT TECHNIQUES AND POPULATION RESPONSES OF
PRAIRIE CHICKENS IN ILLINOIS

By

Ronald L. Westemeier
Illinois Natural History Survey

ABSTRACT

The population level of prairie chickens on Illinois' primary research and management area near Bogota in Jasper County showed a gain for the third consecutive year. The peak count of 159 cocks at Bogota this spring was 47 percent higher than the peak count in 1970. The Bogota flock comprised 72 percent of the known state-wide population of 222 cocks. Eight census areas in six counties outlying Bogota collectively showed a loss of 28 percent since 1970, thus continuing the steady decline of prairie chickens on essentially unmanaged areas of Illinois.

Numbers of prairie chickens at Bogota were correlated with the total acreage of grassy nesting cover available on the area during the years 1963 through 1970. However, in 1970, sanctuaries contained 71 percent of the available nesting cover and about twice as many prairie chickens were present at Bogota as in 1963 when only five percent of the same number of acres (about 800) of nesting cover was present because of the sanctuaries.

When the fate of 216 prairie chicken nests found at Bogota was analyzed with respect to a decreasing phase (1963-64), a relatively stable phase (1965-67), and an increasing phase (1968-70), in the population level, three definite trends were evident. Firstly, hatching success increased from 36.2 to 47.5 to 60.2 percent for the decreasing, relatively stable, and increasing periods, respectively. Secondly, the percentage of nests destroyed by plowing and hay mowing decreased from 51.7 to 30.0 to 9.3 percent for the three periods, respectively. Thirdly, the percentage of nests

destroyed by predators or abandoned, or both, increased from 21.1 to 22.5 to 30.5 percent for the 1963-64, 1965-67, and 1968-70 periods, respectively.

Research and management have clearly demonstrated the critical role and relationship of booming grounds and preferred nesting cover in the ecology and preservation of prairie chickens. Requirements for booming grounds are 5- to 10-acre tracts of bare ground or very low, sparse vegetation available from late summer through the following spring. The booming ground should be surrounded by preferred grassy nesting cover. The optimum spacing between booming grounds appears to be about 600 yards.

A combination of management techniques, including combining grass seed (redtop and timothy), burning, late mowing for hay and weed control, light grazing, and prairie restoration is used on most sanctuaries to provide a diversity of cover situations for nesting and brood-rearing. The size of fields on sanctuaries is held at 5 to 20 acres to provide a maximum of edge. Prescribed burning is proving to be a useful tool for rejuvenating old sod as nest densities up to 1.2 acres per nest were found in timothy which was in the second growing season after a burn. Sharecropping is proving to be an efficient and economical means of establishing and managing most of the cover on the sanctuaries.

As a result of land acquisition by the Prairie Grouse Committee of the Illinois Chapter-The Nature Conservancy, the Prairie Chicken Foundation of Illinois, and the Illinois Department of Conservation, acting through the Illinois Nature Preserves Commission, 15 tracts totaling 1,322 acres are now available for habitat development to assure the preservation of this native game bird. The totals include 11 areas with 862 acres near Bogota in Jasper County and 4 areas totaling 460 acres near Farina and Kinmundy in Marion County. The goals of land acquisition call for a 1,500-acre sanctuary system in each county.

PRAIRIE CHICKEN EXODUS: NOTES ON THE PRAIRIE CHICKEN
IN CENTRAL MINNESOTA

By

Max Partch
St. Cloud State College

ABSTRACT

Some historical records indicate that the greater prairie chicken entered southeast Minnesota during the early half of the nineteenth century, although Leopold and Schorger would include south-eastern Minnesota in the original breeding range. Chickens advanced northward into central Minnesota, along with early cultivation, from about 1850 to 1870. They were absent in the Red River Valley 1873 but had become abundant there by the 1880's at which time they had reached the Canadian border. It may have taken about fifty years to expand their range the 500 miles from south-east Minnesota to Canada (Portage la Prairie) or about an average of ten miles a year. The species was slower to invade the forested areas of north-central and north-eastern Minnesota following logging, fires, and other man-made openings.

Because of the geological and vegetation pattern of Minnesota it is suggested that there were three main routes of invasion north of the 45th parallel. One route was through the tall grass prairie area of western Minnesota including the Red River Valley, one went northward in central Minnesota along the Mississippi River Valley on the sandy outwash prairies, and a third was in east-central Minnesota where logging and fires created openings. Successional stages more favorable to sharp-tails and lack of agriculture probably prevented an earlier invasion of prairie chickens.

Chickens frequently increased sharply following the original invasion of an area. Abundances were recorded somewhere in the state for every decade from

the 1840's through the 1880's. In central Minnesota chickens were last abundant about 1925 decreasing thereafter despite their wide range in the 1930's.

The last two booming prairie chickens in Benton County were observed in 1953. Four booming grounds in Morrison County were observed from 1954 to 1965 when the last birds were seen. A graph shows the numbers seen during this period. The number of birds seemed to fluctuate most on the booming grounds with changing vegetative cover due to cultivation. No hay fields were involved. The maximum number of seventeen chickens occurred on the one pastured booming ground in 1956 with a more or less steady decline thereafter until the final disappearance. The breeding population in central Minnesota lasted just over one century. Only sporadic winter sightings have been recorded since.

The prairie chicken breeding range decreased at the rate of about one county width per decade in central Minnesota.

Afternoon Session

G. Wayne Pepper, Chairman
Saskatchewan Department of Natural Resources

PROGRESS REPORT ON STUTSMAN COUNTY, NORTH DAKOTA
PRAIRIE GROUSE MANAGEMENT STUDIES

By

Leo Kirsch
U.S. Fish and Wildlife Service

ABSTRACT

Spring dancing and booming ground surveys were conducted on Kensal and Nogosek townships and the 4-3/4 square-mile Woodworth Study Area in Stutsman County, North Dakota during the 1964 to 1971 period. Land-use surveys were made in 1965 and 1971 and

brood and nest surveys were made on portions of the Woodworth Study Area during the 1968 to 1971 period.

These surveys show that sharp-tailed grouse and prairie chickens do not survive on privately operated pastures or on haylands which are cut annually. Lightly grazed pastures on the Arrowwood National Wildlife Refuge do not support prairie chickens and most such pastures do not support sharp-tailed grouse. Sharp-tailed grouse readily invade newly created habitat where alfalfa and sweetclover, mixtures of alfalfa-sweetclover and grasses, or brome grass have been seeded and left in an undisturbed condition. This invasion usually occurs during the third season after seeding.

Experimental spring burning of native and exotic grasslands at Woodworth resulted in marked increases in sharp-tailed grouse brood use during the year of the burn as well as the year following the burn. Nesting use increased markedly during the second growing season following the burn and one nest was located on a burn during the year of the fire.

Highest nest densities, a nest per 85 acres searched, were on fields planted to mixtures of alfalfa-sweetclover and grasses. A nest per 140 acres was found on burned prairie during the second growing season after the fire. On similar but unburned prairie a nest per 314 acres was found. Lowest densities were on grazed areas where a nest per 2,330 acres was found. All areas searched were near enough to active dancing grounds to expect nesting.

These studies offer further confirmation to the fact that prairie grouse have a marked affinity for relatively undisturbed subclimax plant associations. Providing such habitat on the land where prairie grouse are present produces gratifying responses by grouse populations.

LAND-USE AND PRAIRIE GROUSE POPULATION ON ARROWWOOD NATIONAL WILDLIFE REFUGE

By

Arnold Kruse
U.S. Fish and Wildlife Service

ABSTRACT

Prairie grouse populations, which reached their peak during the early succession-non-use period (1935-1942), on the refuge, have gradually decreased with the increased land use-late succession years. In 1941, there were 2,100 sharptail grouse and 360 prairie chickens using the refuge; by 1966 there were only 250 sharptail grouse and no prairie chickens.

Since 1966 grazing has been greatly reduced, controlled burning has been initiated and old cropland areas are being reseeded to more desirable types of vegetations in efforts to increase prairie grouse and waterfowl breeding populations.

Sharptail grouse populations have increased 30% since 1969 and have shown positive responses to controlled burning. They have also established 3 new dancing grounds on or near newly burned areas in the last 2 years.

Efforts are being made to re-establish the prairie chicken on the refuge.

TOPOGRAPHY AND VEGETATION OF SHARP-TAILED GROUSE DISPLAY GROUNDS IN THE NEBRASKA SANDHILLS

By

Curt Twedt
University of Nebraska

ABSTRACT

During the spring of 1969, measurements of vegetation and topography of 8 sharp-tailed grouse dancing grounds and 8 random sites were made on the Bessey Division of Nebraska National Forest near Halsey, Nebraska. The study area consisted of 10 square miles of Sandhills dominated by bluestem (*Andropogon* spp.) and sandreed (*Calamovilfa longifolia*). Terrain varies from choppy sandhills to dry valleys. The entire study area is grazed on a Forest Service allotment basis of about 15 acres per animal unit for a 5-month period (mid-May to mid-October).

Vegetation was sampled in a series of 0.1 m X 1.0 m belt transects photographed against a 1 m X 1 m black cover board gridded with white dots at 5 cm intervals, horizontally and vertically. Ektachrome-X transparencies were made of individual 1-meter segments identified by site and location numbers. Sample size was 305 one-meter segments on the 8 dancing grounds and 160 one-meter segments on the 8 random sites. Upon completion of photographing, data sheets were filled out for each segment. Total hits (number of dots intercepted by vegetation); average height of vegetation; and "clumpiness index" were determined for each. The latter value is an expression of vertical outline of vegetation, or irregularity of profile. Data from vegetation sheets were entered on IBM cards for statistical analysis.

Topographic measurements were made on dancing grounds (and adjacent area) and on random sites with an Abney level and stadia rod. Lines from the center of each site were extended 210 meters along N - E - S - W compass bearings, with vertical change in angle recorded at 15-meter intervals. Topographic sections and elevation change tables were prepared for all sites; general topography of approximately 40 acres was thus described for each of the 16 sites.

Vegetation characteristics of dancing grounds and random sites are compared in the following table:

	<u>Dancing Grounds</u>	<u>Random Sites</u>
Total Hits (ave. per 1 m segment)	16.9	53.7
Average Height (cm)	8.0	17.0
Clumpiness Index	12.9	23.4

Analysis of Variance tests to compare vegetation characteristics of dancing grounds and random sites were run at the University of Nebraska Computer Center. The F-statistic, at the 1 percent level, was significant for all three values (number of hits; average height; and clumpiness index).

The topographic characteristics of dancing grounds vs. random sites did not differ in a statistically significant manner (paired-sample "t"-test). Variability of random sites apparently accounted for lack of pattern in topography.

ACOUSTICAL COMMUNICATION IN THE SHARP-TAILED GROUSE

By

G. Henry Kermott
University of Minnesota

ABSTRACT

The Sharp-tailed Grouse has evolved a complex system of visual and accoustical signals in response to the close social interaction necessary in a prairie environment. The first portion of the Spring mating season is primarily concerned with establishment and defense of territories. Predominant accoustical signals are aggressive, highly ritualized, and involved in individual and species recognition and location. By mid-season territories are stable and females begin visiting regularly, are courted by males, and copulations occur. Accoustical signals are concerned with attracting and stimulating females, vary

on a time and frequency continuum, and are thus not as highly ritualized, but are associated with ritualized visual displays. During the last portion of the season all activity diminishes.

RANGE MANAGEMENT IN NORTH DAKOTA

By

Warren C. Whitman
North Dakota State University

ABSTRACT

North Dakota has about 14 million acres of native grass of which about 12.5 million acres are in more or less permanent grazing use as pasture and range. About 1.5 million acres are used as native hayland. If seeded grass pastures, hay mixtures, and the alfalfa acreage are added together and combined with the native grass range the total grassland area of the state is in excess of 16.5 million acres.

The bulk of the existing grassland of the state is of the mixed grass (shortgrass) type and is mainly concentrated in the western 2/3 of the state. Small but important acreages of the tall grass prairie remain in the eastern and northern sections of the state. A rough estimate would indicate that about 12,000,000 acres of mixed grass and transitional grassland remain for grazing use, with only about 500,000 acres of tall grass still available for grazing or haying. Small acreages of minor grassland types are found in the state.

Woody vegetation is largely confined to stream borders, valley sides or to steep draws in the western part of the state. Such vegetation generally occurs as stringers or as brush pockets, although in a few areas it occurs as open rolling woodlands of limited extent. The woodland and shrub types are of great importance to the wildlife population of the state and where intermingled with the native range

areas are essential as cover and browse for winter grazing for big game animals.

Mixed grass ranges in excellent condition can be expected to produce about 1500 lbs. of dry forage per acre, but since most of the ranges of this type are in the low-good condition status average production probably does not exceed 1000 lbs./acre. Tall grass ranges in good condition will produce from 3000 to 4000 lbs. of forage per acre.

The mixed grass prairie is responsive to good management, and improved management generally results in a shift in composition of the cover from shorter grasses and sedges to higher percentages of the mid-grasses. Seeded supplementary pastures, nitrogen fertilization, and deferred grazing of native ranges applied as management practices can be expected to result in increased grazing capacity and improved range condition. In many cases weed control will increase grazing capacity of deteriorated ranges. Range interseeding, mechanical treatments, and rest-rotation grazing and burning are improvement practices that have not yet been used to any appreciable extent on North Dakota ranges.

RESUME OF PAST MANAGEMENT OF NATIONAL GRASSLANDS AND FUTURE OUTLOOK

By

Richard Ellison
U.S. Forest Service

ABSTRACT

The Medora Ranger District contains 523,791 acres of National Grasslands intermingled with approximately 628,000 acres of private and State land.

The total area of 1,151,791 acres provides grazing for approximately 36,000 cattle and 1500 sheep. There are 271 permittees who graze on a total of 260 allotments.

These livestock operations are set up on a twelve month operation with a summer grazing season from May 1 to December 31. Most of the permittees have a two months winter grazing season and two months feeding period.

All of the Forest Service land is under ten year grazing agreements with either the Medora, Little Missouri Grazing Association or the Horse Creek Cooperative Grazing Association.

Under terms of the grazing agreements, the associations are responsible to see that proper grazing use of the land is achieved, that all range improvements are maintained and that grazing trespass does not occur. The grazing agreements assign the fire control responsibility to the grazing associations with cooperation from the Forest Service.

Wildlife on the District includes mule and whitetail deer, antelope, sage and sharp-tailed grouse, pheasant, Hungarian partridge, waterfowl and turkeys. Bighorn sheep have been planted in the area and are increasing. Several dams have been stocked with fish.

Mineral resources include oil, lignite coal and uranium. There are four active oil fields on the District. Thirty four producing oil wells are on Federal land.

The District offers many opportunities to the outdoor recreation-minded public. North Dakotans are aware of the Badlands attraction. The Governor, the Greater North Dakota Association, most Chambers of Commerce and a great number of private individuals have put on an extensive and successful campaign to attract more tourists.

The Forest Service has developed a five-unit camp-ground at the Burning Coal Vein-Columnar Juniper area approximately 30 miles south of Medora.

The Buffalo Gap campground is scheduled for construction along Interstate Highway #94 approximately eight miles west of Medora. Initial development will be 37 units with utility service developed during the summer of 1970.

There are about 4000 acres of Ponderosa pine of which 630 acres are on Federal land in the southern part of the district. There are also about 200 acres of Limber pine mostly on Federal land in the south-western area and many thousand acres of scattered Juniper, Ash and Cottonwood throughout the district. The primary use being made of the timber at the present time is the annual sale of about 2000 juniper and ash posts.

The 523,791 acres of National Grasslands are interspersed with about one and a half times as many acres of private and State lands. Numerous land exchanges were made in the past. There are still isolated tracts of Federal owned lands that are suitable for private ownership and are not needed to maintain program objectives. There are a number of tracts of private land that would be desirable for public ownership because of recreation and watershed values. The pines area in Slope County is an example.

County returns as their 25% share of the forest receipts for 1968 were:

Billings County	81,593.21
Slope County	38,993.47
Golden Valley County	27,089.28

Wednesday - September 15

FIELD TRIP

- 8:00 a.m. - Assembled at Southwest District Headquarters of North Dakota Game and Fish Department, one mile west, one-half mile south of Dickinson.
- 9:15 a.m. - Gornam-Fairfield Study Area. Tour of sharptail nesting and brooding study area.
- 10:40 a.m. - Rest Stop, Whitetail Camp Ground
- 12:15 p.m. - Bye Enclosure. View areas of control, cattle enclosure, and deer and cattle enclosure. Effect on browse and hardwoods.
- 1:30 p.m. - Dinner at Roughrider Hotel in Medora
- 2:30 p.m. - Leave Medora
- 3:10 p.m. - Upland Enclosure. Native grasses protected from grazing for over 30 years.
- 4:15 p.m. - Tour Billings County Sharptail Census Area.
- 5:00 p.m. - Tour Burning Coal Vein and Columnar Juniper Area.
- 5:30 p.m. - Return to Dickinson
- 7:30 p.m. - Fish fry, courtesy of Fisheries Division, North Dakota Game and Fish Department

Thursday - September 16

Morning Session

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

WEIGHT AND PRIMARY FEATHER CHARACTERISTICS AS AGING
CRITERIA FOR SIBLING SHARP-TAILED GROUSE CHICKS

By

Major L. Boddicker
Interlakes Environmental and Outdoor Education Program
ard

Conrad Hillman*
South Dakota Department of Game, Fish and Parks

ABSTRACT

Between 1966 and 1971, 173 sibling chicks were collected from 46 broods of sharp-tailed grouse, Pedibecetes phasianellus jamaesi. Collections were made in Jackson, Washnabaugh and Mellette counties of South Dakota.

Chicks were weighed to one half gram on an Ohaus triple-beam balance. This weight was then used to interpolate age from age-weight data fitted to a Compertz growth curve published by McEwen et. al., (JWM, 33(2): 281, 1969). This comparison resulted in the separation of sibling chicks in up to four week classes. As chicks matured, variation between chick weights increased. Aging by comparing weights of wild chicks with weights of penned chicks was 76% efficient.

Chicks were aged according to primary growth criteria as developed by Raos (unpublished paper presented to PGTC, Effingham, Illinois, 1967) and Jansen (1965, unpublished). Primary feather measurements (primary IX to ten weeks; primary VIII from ten to eighteen weeks) varied among sibling chicks. One

brood contained chicks which were placed in four week classes by the primary measurements. Twenty one broods of 46 contained chicks from more than one week class. Seventeen broods contained chicks which were classified in three or more week classes. Assuming that the age of the majority of chicks in a brood to be the correct age class, the primary measurement technique was 76% efficient.

It was concluded that variability in heredity and competition between brood members creates both runts and super chicks. In these chicks, the primary growth rates and weights do not conform to those of the remainder of the brood. Repeated measurements taken on penned birds which constitute the basis for present aging techniques result in a minimal variability which is commonly exceeded in wild birds. Accurate aging of wild chicks into week classes may only be done by collecting two or more sibling chicks and averaging age data collected by primary measurement and weight comparison. Based on this study, aging techniques of juveniles used at South Dakota bag checks are about 76% efficient. It would be helpful if a more efficient technique could be developed.

*Author so marked presented paper

SOME SHARP-TAILED GROUSE POPULATION STATISTICS FROM SOUTH DAKOTA

By

Robert J. Robel
Kansas State University,

F. Robert Henderson
Department of Game, Fish and Parks, South Dakota

and

Warren Jackson*
Department of Game, Fish and Parks, South Dakota

ABSTRACT

A total of 5,680 sharp-tailed grouse (*Pedioecetes phasianellus*) was trapped, banded and released on the Kadoka Area (2,100 square miles) and 1,605 on the Missouri River Area (750 square miles) of South Dakota during the winters of 1963 through 1968. Winter grouse population estimates on the Kadoka Area varied between 0.7 and 1.8 birds per square mile and between 0.9 and 1.8 per square mile on the Missouri River Area. The population estimate for the Missouri River Area was probably low due to low trapping effort on that area. A significant difference ($P < 0.01$) existed between juvenile/adult ratios of hunter-killed birds and those trapped during the initial month of trapping on both areas. A reduction in the juvenile/adult ratio of trapped birds on the Kadoka Area between December (3.50) and January-March (1.94) was significant ($P < 0.01$) as was that for the Missouri River Area between January (6.36) and February-March (3.68). These differences in age ratios probably reflected differential trap vulnerability of juveniles and adults early in the trapping periods.

Annual mortality determined from recapture of marked birds was 71.5 and 70.4 percent for the Kadoka and Missouri River areas, respectively. Annual mortality based on returns of hunter-killed birds was 79.5 and 70.6 percent for the Kadoka and Missouri River areas, respectively. Hunters harvested a minimum of approximately 20 to 25 percent of the birds on the Missouri River and Kadoka areas each year.

* Author so marked presented paper

RESULTS OF A QUESTIONNAIRE ON DISTRIBUTION AND MANAGEMENT OF PRAIRIE GROUSE IN NORTH AMERICA

By

Leonard H. Sisson
Nebraska Game and Parks Commission

A summary of questionnaire results were presented to the group. Following presentation of this summary, further work by the committee was discussed during the business meeting.

PRAIRIE GROUSE TECHNICAL COUNCIL

Business Meeting

September 16, 1971

Gerald D. Kobriger, Chairman

1. A discussion was held to determine the fate of the materials gathered by Leonard Sisson for the Prairie Grouse Technical Council. This information consisted of density and distribution maps of prairie grouse and data concerning public owned lands. The Council Recommended that Leonard Sisson and his committee finish analyzing the material and find a source for publication.
2. Bud Exendine made a motion to drop the award given for the best paper presented at each council meeting. This award was first given at Woodward, Oklahoma, during the 1969 meeting.

The Council voted to drop the award.

3. Committee Reports:

A. Bibliography Committee:

Dr. Fred Hamerstrom and Harry Lumsden, Chairmen.

Hamerstrom reported that the Ontario Department of Lands and Forests would publish the prairie grouse bibliography. Dr. Hamerstrom went on to say that he has gathered at least 1000 file cards on grouse, but they will have

to be re-checked from original source. Work has been going slow on this project due to heavy work load on other projects. He would like to "farm out" some work on publication research. Some bibliography work has been recently done by Bill Brownlee (Texas), Keith Evans (U.S. Forest Service), and Gerald Horak (Kansas).

B. Information and Education Committee:

Glen Sanderson, Chairman. No report.

C. Research Committee:

James Ruos and Andy Ammann, Chairmen. No report.

The council eliminated the Information and Education and Research Committees.

4. Colorado was selected as the 1973 host for the Prairie Grouse Technical Council. Don Hoffman, Chairman, indicated that Fort Collins would be the meeting site. Don selected Gerald Horak as secretary.
5. Bud Exendine made a motion that the new chairman select a committee to draft opposition to the principles of the Public Land Law Review Commission's recommendations. The Council approved the motion.
6. Frances Hamerstrom proposed a motion that the Prairie Grouse Technical Council pass a resolution as follows on the National Grasslands:
 - A. Close all off-trail vehicles from the grasslands.

That it be placed in the scenic areas.

- C. Size and types of fencing should be determined.
- D. Set aside a special area for scientific studies.
- E. Define wildlife management plans on the grasslands.

This resolution was referred to the chairman for further study.

Minutes recorded by Gerald Horak

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