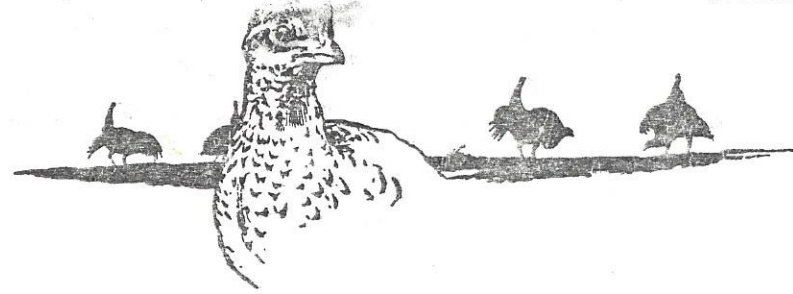


Michael A. Schroeder



PROCEEDINGS
8TH CONFERENCE
PRAIRIE GROUSE
TECHNICAL COUNCIL

September 9-10-11, 1969

Woodward, Oklahoma

Host

Oklahoma Wildlife Conservation Department

Compiled by
BUD EXENDINE
JOE ELLIS



Not for publication without consent of contributing a

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TECHNICAL COUNCIL

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PROCEEDINGS OF 8TH CONFERENCE PRAIRIE GROUSE
TECHNICAL COUNCIL

September 9, 10, 11, 1969

Woodward, Oklahoma

HOST

Oklahoma Department of Wildlife Conservation

Tuesday - September 9

Welcome - Leland E. Roberts, Assistant Director,
Oklahoma Department of Wildlife Conservation

Mr. Roberts extended a cordial welcome to
the delegates.

Objective of Conference - Bud Exendine, Co-chairman,
Prairie Grouse Technical Council

Meetings of technical specialists in conferences
like this are most productive to administrators
and technicians. We are exposed to new ideas
and techniques from a wide geographical region
which gives each of us an in-depth look at
management and research problems throughout the
prairie grouse range in North America.

Curt Twedt, Chairman and Discussion Leader

PROGRESS (?) REPORT ON THE DRUMMOND ISLAND, MICHIGAN
SHARPTAIL POPULATION

By
G. A. Ammann*

ABSTRACT

Sharptail populations on Drummond Island, at the easternmost extremity of Michigan's Upper Peninsula, have had their ups and downs. In the past 25 years, the number of cocks on dancing grounds has varied from 22 to 170. Wild-trapped stock was released in 1941; by 1945 when the first counts were made there were close to 100 cocks. In the next eight years (1946-1953) the population held up well with more than 100 cocks each year, with continued open seasons. Then it started to decline until by the spring of 1956 when there were only about 33 cocks, and the season was closed to hunting sharptails that fall, for the first time.

From 1957 until the present time, we counted an average of only about 50 cocks annually, and only once did the count come close to 100 again -- in 1965. During this period we closed the Island to sharptail hunting in 9 of the 13 years. Each time the season was reopened, except in 1957, populations the following spring showed a rather drastic drop. In the latest open season in 1965, following four closed seasons during which time sharptail numbers steadily increased, about 200 birds were harvested. The next spring we counted only 22 cocks, a drop from about 95 the previous spring and the lowest on record. After four more closed seasons, they are making a very slow and uncertain recovery.

From the record it seems clear that, in the earlier years at least the sharptail population was able to maintain itself with an open season

in years when there were 100 or more cocks in the spring. When there were fewer than 100, however, they declined after open season. In the later years, in the face of deteriorating habitat and increased hunting pressure, the population never did reach 100 birds in the spring and it apparently became increasingly more difficult for the birds to recover from an open season.

Hunting seems to have been effective in controlling sharptail numbers not only as a result of birds shot, but probably indirectly by causing reducing productivity when numbers fall below a certain minimum level. In the future, if and when an open season again seems warranted, we probably will have to curtail the kill considerably.

*Michigan Department of Natural Resources,
Lansing, Michigan

EFFECTS OF HUNTING ON SHARPTAILED GROUSE POPULATIONS
IN NORTHWESTERN MINNESOTA

By
Paul E. Bremer and Philip G. Watt*

ABSTRACT

During a six-year period of general population increase from 1963 through 1968, moderate hunting pressure resulted in no significant difference in spring densities of dancing sharptailed grouse between two ecologically similar 36 square mile study areas located within hunted and unhunted portions of uniformly occupied portions of the sharptailed grouse range in northwestern Minnesota.

The total number of birds bagged on the "open" study area and the amount of hunter effort expended

were not dependent upon hunting season length or the starting date of the season, but apparently were determined by the availability of birds (population levels) in the portion of the sharptail range represented by the two study areas.

*Department of Conservation, St Paul,
Minnesota

DISTRIBUTION AND SELECTION OF SHARPTAILED GROUSE DANCING GROUND IN THE NEBRASKA SAND HILLS

By
Leonard H. Sisson*

ABSTRACT

Characteristics of sharptailed grouse dancing grounds on Nebraska National Forest, Bessey Division, were studied between 1962 and 1966. The study area included 25 square miles of prairie. The major land use on the area is grazing. Water is provided for cattle by windmills which are distributed more or less evenly at approximately one per square mile. A total of 35 dancing grounds were located with the number of grounds active in a given year varying from 17 to 23. Of 35 dancing grounds, 26 were located within 1/8 mile of a windmill. Species composition of vegetation on dancing grounds was similar to that for random plots on the study area. Height of vegetation on most dancing grounds was low due to trampling and grazing by cattle. Most dancing grounds were located on a site affording a good view in all directions. Movement of dancing grounds often followed movement of associated windmills resulting in a new dancing ground being established at the new

windmill site. It was concluded that concentration of grazing by windmills created sites suitable for dancing grounds by altering structure of vegetation.

*Nebraska Game and Parks Commission, Lincoln,
Nebraska

WINTER NUTRITIONAL ENERGETICS OF CAPTIVE SHARPTAILED GROUSE -- A PRELIMINARY REPORT

By
Keith E. Evans*

ABSTRACT

The objectives of this study are to describe the nutritional values of food items eaten by sharptailed grouse and the energy exchanges of this species with their environment during the winter in southwestern South Dakota. Only preliminary results of the following objective are reported here: A determination of the average nitrogen and energy contribution of major food items to the winter diet of sharptailed grouse.

Corn seeds (Zea mays), hawthorn fruit (Crataegus sp.), rose hips (Rosa Woodsii), Russian-olive fruit (Elaeagnus angustifolia), snowberry fruit (Symphoricarpos occidentalis), and cottonwood buds (Populus sargentii) were used in feeding trials. Although corn had a lower gross energy than the other material, corn was readily eaten by grouse, and was highly digestible. The gross energy of corn was 4.56 Kcal/g, compared with an average of 4.83 Kcal/g for all feeds tested and a high of 5.38 Kcal/g for cottonwood buds. Nitrogen corrected metabolizable energy for a corn diet was 85.3% of gross energy. The large, hard seeds in the fruit of hawthorn and Russian-olive were not digested. Therefore, they lowered the nitrogen

corrected metabolizable energy value of the two-species diet to 29.7% of gross energy.

The nutritive values of cottonwood buds were high, however, the grouse did very poorly on a cottonwood bud diet. The poor results obtained from feeding cottonwood buds were probably due to two major factors; first, the grouse ingested less dry matter from the buds than from the other diets, and secondly, the grouse were on an extremely negative nitrogen balance (nitrogen intake was .20 grams/grouse/day compared with .83 grams of nitrogen excreted/grouse/day). The nitrogen corrected metabolizable energy for cottonwood buds was 47.1% of gross energy.

*Rocky Mountain Forest and Range Experiment
Station, Rapid City, South Dakota

PRAIRIE GROUSE AND LAND-USE

By
Leo M. Kirsch*

ABSTRACT

In the spring of 1965 there were 139 male sharp-tailed grouse (Pedicecetes phasianellus) and 29 male prairie chickens (Tympanuchus cupido) in Kensal and Nogosek Townships, Stutsman County, North Dakota. Three land-use types: Soil Bank, Hayland and Grazing Land were supporting prairie grouse. The average area of each land-use type required to support a male prairie grouse was: Soil Bank 29 acres, hayland 288 acres and grazing land 376 acres. No prairie chickens were associated with grazed land. Sharptailed grouse population densities in 1,858 acres of lightly grazed pasture, grazed at a rate of from 15 to 20 acres per cow, averaged one male per 88 acres in 1965. Adjoining Soil Bank land supported one male per 22 acres or

four times more grouse per acre than did the lightly grazed pasture. One hundred and seventy-two acres of Cropland Adjustment Program land planted to a mixture of alfalfa and sweetclover in 1966 was supporting 13 male sharptailed grouse in the spring of 1969, or one male per 13 acres, while 320 acres planted to bromegrass and alfalfa supported seven male sharptailed grouse, or one male per 46 acres.

Other evidence that mixtures of alfalfa, sweetclover and grasses provide good nesting habitat was found on the Woodworth Study Area in North Dakota where a 40-acre tract produced a minimum of 14 sharp-tailed grouse and 162 ducks during 1969.

Study areas on unused prairie lands also produced more grouse than did study areas subjected to various intensities of grazing or haying.

It was suggested that idle prairie lands be managed for sharptailed grouse by periodic burning, fertilization, soil disturbance such as light disking or combinations of these practices. Areas planted to mixtures of alfalfa and sweetclover or alfalfa, sweetclover and grasses may be maintained by periodic burning, fertilization, plowing and reseeding or combinations of these practices.

*Bureau of Sport Fisheries and Wildlife,
Woodworth, North Dakota

Wednesday - September 10

Prairie Chicken Session

Robert E. Jones, Chairman and Discussion Leader

ATTWATER'S PRAIRIE CHICKEN

By
Bill Brownlee*

ABSTRACT

The Federal Aid Project W-100-1 entitled Attwater's Prairie Chicken was approved May 26, 1969. Presently, prairie chickens occupy approximately 223,000 acres. Problems associated with Attwater's prairie chicken management are changing land use practices, poor drainage, tropical rains, hurricanes and predators. Urbanization, and crop production has eliminated large acreages of former prairie chicken range. Changes in grazing practices and burning have not benefited prairie chickens. Poor drainage on the prairies make it difficult to conduct spring censuses using vehicles. Censusing will be conducted with the use of airplanes, helicopters and ground observations. Surveys, using airplanes will be made to locate display areas. Helicopters and ground observations will be used to count breeding males on these areas.

*Texas Parks and Wildlife Department, Victoria,
Texas

EFFECT ON LESSER PRAIRIE CHICKEN OF BRUSH CONTROL IN WESTERN OKLAHOMA

By
Douglas Duane Donaldson*

ABSTRACT

Shinnery oak and sand-sagebrush occupy large areas of the Southern Great Plains. Both species have been subjected to eradication or suppressive measures. These two range plants, in their respective areas of distribution, are considered to be vital to the welfare of lesser prairie chickens.

The objectives of this study were to: (1) determine whether lesser prairie chickens are present or absent in selected areas of treated and untreated shinnery oak and sand-sagebrush grasslands; (2) measure the effects of brush control on the characteristics and composition of the representative vegetational association; and (3) determine if brush control practices have affected the distribution and numbers of lesser prairie chickens.

The vegetation in selected areas of treated and untreated shinnery oak and sand-sagebrush grasslands was sampled by the point-centered quarter method. Important values and indices of stand similarity were calculated

The basic approach of this study was to evaluate the quality of the habitat in representative treated and untreated study plots. Habitat quality was based on the actual use of environmental elements by lesser prairie chickens.

Habitat was analyzed primarily on the basis of structure or plant life-form. Plant species were also considered.

Display grounds were censused in the spring and fall of 1966 and the spring of 1967.

Distinct differences were evident in the response of shinnery oak and sand-sagebrush grasslands to brush control operations. Woody species were not eradicated but merely suppressed in treated plots.

Treated areas in the shinnery oak grasslands appeared to be affected to a lesser extent than treated areas in the sand-sagebrush grasslands. Treated areas of both grassland types consistently supported more prairie chickens suggesting that treatment created a more favorable habitat for the birds.

It was concluded that brush controls may be considered as a feasible tool for habitat manipulation, favoring both the rancher and the lesser prairie chicken. The practice appears to be sound economically and ecologically.

Future investigations along the lines of tolerable and optimum degrees of brush management should prove rewarding.

*Oklahoma State University, Stillwater, Oklahoma, present address, California State Polytech College, San Luis Obispo, California

POPULATION TRENDS OF LESSER PRAIRIE CHICKEN IN THE TEXAS PANHANDLE

By
Richard DeArment*

ABSTRACT

Twenty years (18 continuous) of lesser prairie chicken census was conducted on two sites in the Texas Panhandle under Pittman-Robertson Projects W-11-D and W-45-R. The resulting population trend data (1941-1942), (1952-1969) showed a 2-year high, followed by a 13-year low, and finally five years of increasing numbers. The increasing population over the last five years made it possible for the Department to allow limited harvest in 1967 and 1968 and probably another in 1969.

Two study sites (No's 1 and 2), having 100,000 and 6,560 acres respectively, were selected in Hemphill and Wheeler Counties in 1942. The Hemphill County site is primarily tight, heavy soil with a sage brush-mixed grass complex. The Wheeler County site is primarily deep sand with a shinnery oak grass mixed complex. Site I is located in ranchland having very little cultivation; whereas Site II is surrounded by cultivation to the north and east. Males were censused on courtship grounds during the early morning hours each April. A total population was computed by doubling site counts and expanding the data for the total range. Factors which influenced the trends in population, such as agricultural practices and weather

conditions were recorded. Food habit studies were related to land-use practices and population trends.

Approximately 13 years of downward trends reflected the drouth on both study areas. The population on Site I dropped from 7.6 birds per square mile in 1942 to 2.0 birds per square mile in 1957. Spraying the pesticide Aldrin for grasshopper control was responsible for some of this drop. Site II declined from 60.0 birds per square mile in 1942 to 8.6 birds per square mile in 1954. The population remained low on both sites for five years following the drouth for the following reasons: Increased brush control which eliminated or decreased food and cover; and severe blizzards in the spring of 1960 and 1964.

Upward trends in population began in 1965 and have continued through 1969. A total population of 10,000 birds was estimated for the Texas Panhandle in 1957. This was partly verified by the sight reports (duplicate sightings omitted) by 200 hunters of 5,000 birds during the 1967 harvest. The following year 85 hunters reported seeing 3,000 birds.

The following factors are responsible for the increasing numbers of chickens:

Favorable weather which, not only stimulated nesting success and production, but also increased recovery of grass and woody vegetation.

The Soil Bank Program in the surrounding farmland which increased the nesting cover.

Brush control, which initially depressed the population, contributed to its increase only because it was associated with favorable weather, moderate grazing and some regrowth of brush and forbs. This was particularly true of Site II.

Good production of cultivated crops occurred during the last five years throughout the chicken range. With the loss of brush and forbs, chickens are depending more and more on cultivated crops for food. Food habits as determined from 404 crops, taken during the two October harvests, indicated that 50 percent of the diet was

cultivated crops. Brush and forb species make up 30 percent of the diet; while insects make up the remaining 20 percent.

*Texas Parks and Wildlife Department, Wheeler,
Texas

CORVID DEPREDACTIONS ON DUMMY LESSER PRAIRIE CHICKEN NESTS IN WESTERN OKLAHOMA

By
Bud Exendine*

ABSTRACT

Common crows and white necked ravens destroyed four of six lesser prairie chicken nests found in 1967. Nine dummy nests were also destroyed in the same area by one pair of common crows this same year. In 1968 fifty-nine dummy nests were put out and 54 were destroyed by skunks, snakes and corvids within 32 days. Strychnine "baited" eggs were put out following the 1968 dummy nest destruction and only 13 of 22 poisoned eggs were taken. Additional dummy nests made in 1968 were not taken in the same percentage as those prior to the poisoning experiment. Less than 12 percent were destroyed and most of them were probably eaten by skunks and snakes. Crows and ravens ate many of the eggs but many were destroyed for no reason at all. The birds were observed to carry an egg 30 to 40 meters above the ground then drop it only to go get another one.

*Oklahoma Department of Wildlife Conservation
Elk City, Oklahoma

PRAIRIE GROUSE POPULATIONS ON NATIONAL WILDLIFE REFUGES IN NEBRASKA

By
Ralph H. Town*

ABSTRACT

Three National Wildlife Refuges, Valentine, Crescent Lake and Fort Niobrara, provide 131,000 acres of prairie grouse habitat in the sandhills of Nebraska. Grouse surveys have been conducted since 1956. A summary and review of the data has been made to improve surveys and management. Complete surveys of each area were made annually allowing various comparisons to be made. A comparison of annual trends of prairie grouse populations in North Dakota, South Dakota and Nebraska with refuge populations had shown similar patterns. This similarity has complicated the evaluation of management practices implemented in 1956 for grouse. A comparison of the average number of male grouse at display grounds and the total populations gave correlation coefficients (r) of .77, .73, and .52. A comparison of the average number of males per square mile from a sample area and the total population on Valentine National Wildlife Refuge gave an " r " value of .98. The method was not applicable at the other two refuges however. The relationship of the total grouse (male and female) at display grounds, corrected by a factor of 1.6, and the populations estimated from the male count doubled, indicated an " r " of .99. On the average, 20 per cent of the grouse present at display grounds were females. The distance between display grounds ranged from 0.3 to 3.5 miles with 65 per cent being within one mile of another. Of the 145 display grounds located over the ten year period, 41 (28%) had both species of grouse present at one time or another. The percentage (49%) of these grounds that remained sharptail has been nearly constant (45%). The percentage of prairie chicken grounds has declined from 34 to 12 percent. Of the sharptail grounds that changed, one became a prairie chicken ground while two of the prairie chicken grounds became sharptail grounds. An average of 0.3 per cent of the male prairie grouse observed at display grounds have been noted as hybrids.

Preliminary analysis indicates that of the 264 wintering grouse banded at Fort Niobrara, four have been recovered by hunters while retrap data suggest that annual mortality is approximately 70 per cent. Various color marking attempts indicated that 65 per cent of the marked males were observed at display grounds with 80 per cent of the marked grouse observed within two miles of their respective trap sites.

*Bureau of Sport Fisheries and Wildlife, Lake Andes, South Dakota

GREATER PRAIRIE CHICKEN, OSAGE COUNTY, OKLAHOMA

By
Dale Curry*

ABSTRACT

Osage County in North Central Oklahoma contains 60 percent of the greater prairie chickens in the State. The greater chicken area is controlled by a small number of landowners who allow limited public hunting. It is estimated that less than 10 percent of the greater chickens in this area are harvested. Approximately 90 percent of the annual harvest is bagged around fields of maize, soybeans and corn.

Osage County is composed of 94 percent tallgrass prairie, 5 percent post oak-blackjack timber and 1 percent cropland. Observations in this area indicate that a prairie chicken will fly up to five miles to feed in grain fields. On this basis the Oklahoma Department of Wildlife Conservation proposed to purchase eight tracts of land in Osage County for public hunting. The proposed tracts varied from 40 acres to 160 acres and were to be located about 10 miles apart. They were to be planted to crops for prairie chicken food. This plan would attract prairie chickens from an 874 square mile area for public hunting and greatly increase the annual harvest.

farmland in Osage County. Immediate opposition by local landowners, the cattlemen's associations and various elected public officials appeared. Subsequently, landowners promised to open more of their lands for public hunting if the Department would not purchase additional land. There are no plans for additional land acquisition, providing the landowners allow public hunting.

*Oklahoma Department of Wildlife Conservation

BUSINESS SESSION

The delegates voted to hold the next meeting in North Dakota. As provided in the by laws of the Council the new chairman of the Council is to be a delegate of the Host Agency. Mr. Jerry Kobriger of North Dakota Game and Fish Department was selected as the new chairman.

Chairman Kobriger appointed a committee to make a mail survey of all states and provinces to ascertain how much land has been purchased or leased for prairie grouse management

Robert E. Jones of Delaware was selected as recording secretary, a new position.

PANEL DISCUSSION

G. A. Ammann, Discussion Leader

Five delegates were conscripted from the floor and a lively discussion with questions from the entire council followed. The consensus was that both fire and herbicides are useful management tools but each soil and vegetative type requires a different prescription. It was brought out that the amount of fuel and moisture varied greatly within one small vegetation type.

Thursday -- September 11

Tour of the Sand Sage Habitat Type near Fort Supply and the shinnery oak habitat type at Arnett in northwestern Oklahoma.

ATTENDANCE LIST

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