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- 1st, Grand Island, Nebraska September 25, 26, 27, 1957
- 2nd, Emporia, Kansas March 16, 17, 18, 1959
- 3rd, Stevens Point, Wisconsin September 8, 9, 10, 1960
- 4th, Pierre, South Dakota September 21, 22, 1961
- 5th, Nevada, Missouri September 18, 19, 20, 1963
- 6th, Warroad, Minnesota September 14, 15, 16, 1965
- 7th, Effingham, Illinois September 12, 13, 14, 1967
- 8th, Woodward, Oklahoma September 9, 10, 11, 1969
- 9th, Dickinson, North Dakota September 14, 15, 16, 1971
- 10th, Lamar, Colorado September 5, 6, 7, 1973
- 11th, Victoria, Texas September 9, 10, 11, 1975
- 12th, Pierre, South Dakota September 13, 14, 15, 1977

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Proceedings of

Thirteenth Conference

PRAIRIE GROUSE TECHNICAL COUNCIL



September 26, 27, 28, 1979

Wisconsin Rapids, Wisconsin

Host

University of Wisconsin-Stevens Point

and

Wisconsin Department of Natural Resources



PROCEEDINGS OF THIRTEENTH CONFERENCE
PRAIRIE GROUSE TECHNICAL COUNCIL

26, 27, 28 September 1979

Wisconsin Rapids, Wisconsin

HOST

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Abstracts are presented as they were submitted by the authors. They are not for publication without the consent of the contributing author.

Raymond K. Anderson,
Compiler

WELCOME - D.O. Trainer, Dean, College of Natural Resources, University of
Wisconsin-Stevens Point

K.E. Klepinger, Deputy Director, Bureau of Wildlife Management,
Wisconsin Department of Natural Resources

INTRODUCTION - R.K. Anderson, College of Natural Resources, University of
Wisconsin-Stevens Point (Conference Coordinator)

PRAIRIE GROUSE SYMPOSIUM

By
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Oklahoma State University

A symposium on prairie grouse will be held at Oklahoma State University on 17-18 September 1980. Solicited and volunteered papers will cover major topics of interest related to any of the species and subspecies of prairie grouse. Abstracts are due now and a draft of a completed paper is due on 1 January 1980. Objectives of the meeting are to provide management biologists, research biologists, administrators, sportsmen's organizations, and interested lay public an opportunity to interchange information useful to management of prairie chickens and sharp-tailed grouse; focus national attention of these birds through release of information to the general public in symposium proceedings, news releases, and feature articles; bring together available information concerning status, research programs, management activities, and land use trends affecting prairie grouse; and provide a forum to discuss interstate and interagency planning for the management of prairie grouse.

THIRTY YEARS AMONG THE BOOMING GROUNDS

By
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Missouri had 2,500 square miles of greater prairie chicken range in 1940. A booming ground census of about 1,580 square miles of this range in 1945 revealed that 69% of the booming grounds (162) were on grassland and 29% on cultivated land. The south Missouri range (900 square miles) had a ratio 71% on grassland and 26% on cultivated.

A census of 619 grounds of 185 square miles of the south Missouri range for the period 1950-1961 indicated that 65% of the sites were grassland and 33% cultivated. A census of 1,289 booming grounds for 170 square miles of this same range in the period 1962-1979 showed only 48% of the booming grounds on grass but 50% on cultivated land.

The declining use of grassland for booming ground sites, from 71% to 48%, would seem to reflect changes in land-use rather than a change in preference by the birds.

The average number of cocks on grassland sites was 11.6 and on cultivated sites, 13.9 based on 1,146 booming grounds and 14,514 cocks for the period 1962-1979.

THE LESSER PRAIRIE CHICKENS OF KANSAS

By

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Concerned for the welfare of the lesser prairie chicken, the Kansas Fish and Game Commission realized the need for more precise information on their population status and distribution, resulting in the initiation of a study during the spring of 1976. The catalyst was the increasing conversion of sandsage prairie to center-pivot irrigated cropland. This area was the largest block of known lesser prairie chicken habitat in Kansas.

Twenty-one southwestern Kansas counties were selected for study. Rangeland was identified using LUDA (Land Use Data and Analysis) maps and classified following Keechler Classifications (1974). Gobbling ground locations were the primary method utilized to determine the occupied range of lesser prairie chickens.

STATUS OF OKLAHOMA'S PRAIRIE CHICKEN STUDIES

By

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Stillwater, Oklahoma

In 1977, the Oklahoma Department of Wildlife Conservation and Oklahoma State University commenced investigations through the Cooperative Wildlife Research Unit of the status and habitat of lesser and greater prairie chickens. Based upon land-owner surveys and contacts with professionals, both species have experienced population reductions. Displaying cocks were counted during the 1978-79 breeding seasons on 15 16-section intensive study areas. Vegetative conditions on these areas were inventoried using the "Robel Pole Technique." Initial findings indicate a dramatic differential response of lesser prairie chickens to shinnery oak and sandsage rangelands. Land-use determinations are currently underway using LANDSAT satellite imagery.

FACTORS AFFECTING NEST SUCCESS BY PRAIRIE CHICKENS IN ILLINOIS

By

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The nest ecology of prairie chickens in Illinois has been studied inten-

-3-

sively for 17 consecutive years beginning in 1963. This project has resulted in detailed information on some 750 prairie chicken nests. Primary losses of prairie chicken nests on the Bogota Study Area has shifted from destruction by farming activities, mostly spring plowing, on private land in the 1960's to predation on nest sanctuaries beginning in 1973. Nest success in 6 of the past 7 years has been well below the critical level of 50%. The current low rates of nest success are in contrast to a mean success of 67%, and never less than 50%, on the sanctuaries from 1963 through 1972. The striped skunk is currently the primary nest predator, although opossum, raccoon, and mink were considered as important egg eaters some years. An important secondary factor in reduced nest success among prairie chickens involves competition, harassment and nest parasitism by pheasants.

Factors correlated with predation on prairie chicken nests include population density, nest density, buffer species that compose the food base for predators, cover dominants, cover management, cover structure (height and density) and weather that precluded adequate prescribed habitat management.

CHARACTERISTICS OF ATTWATER'S PRAIRIE CHICKEN NEST SITES

By

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Between 1976 and 1979, 61 Attwater's prairie chicken nests (51 first nests and 10 renests) were located. All of the nests were within 1.6 km of a booming ground and 85% were in the clumped midgrass vegetation type. Nests were in bunchgrass species (Andropogon sp., Sorghastrum sp., Schizachyrium sp.) which had been grazed. Bunchgrass nest sites were characterized by a mean obstruction of vision (OV) index of 2.1 and a mean vegetation height (VH) of 54 cm. There were no significant differences in OV or VH at successful and unsuccessful nests. Thirty-one percent of the first nesting attempts were successful each year ($r = 17-40\%$). Nests averaged 216 m from disturbance (primarily pipelines and roads). Successful nests were closer to disturbance (39 m) than were unsuccessful nests (847 m); this difference was significant ($P < 0.05$).

-4-

NESTING HABITAT OF LESSER PRAIRIE CHICKENS
IN EASTERN NEW MEXICO

By
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Lesser prairie chicken (Tympanuchus pallidicinctus) nesting habitat was studied in 1976-78 on public lands in eastern Chaves County, New Mexico. Study area vegetation included the Shinnery Oak-Tallgrass type on the dune, sandy soils occupying most of the area, and the Mesquite-Shortgrass type on flat expanses of tighter soils. The Shinnery Oak-Tallgrass type included 3 subtypes: subtypes 1 and 2 were dominated by grasses, especially sand bluestem (Andropogon hallii) and little bluestem (Schizachyrium scoparium); subtype 3 was dominated by shinnery oak (Quercus havardii), and bluestems were scarce. The three subtypes represented three stages in deterioration of tallgrass prairie under grazing, with subtype 1 nearest climax and subtype 3 most deteriorated.

Prairie chickens nested only in the Shinnery Oak-Tallgrass Type. Subtype 1 (with most bluestem cover) had greatest nest density, and preferred nest cover was bluestem grasses. Subtype 2 (with second most bluestem cover) had second greatest nest density, and preferred nest cover again included bluestems but with smaller preference indices; three-awn (Aristida spp.) and sand sagebrush (Artemisia filifolia) also were preferred in this heavier grazed subtype. In subtype 3 (where bluestems were sparse and very heavily grazed), three-awn and sagebrush were highly preferred, and no nests were found under cover of bluestems. Shinnery oak (the most abundant plant in all 3 subtypes) was used sparingly for nest cover in all subtypes, and was not preferred. In all 3 subtypes, mean height of vegetation above nests was significantly greater than mean height of all vegetation within a 30 m radius of nests.

Nesting success was 63 percent in subtype 1, 19 percent in subtype 2, and 14 percent in subtype 3. These differences corresponded closely with differences in the percent of sand bluestem present in the vegetation of the three subtypes. Also, successful nests usually were (1) placed directly in cover of sand bluestem, (2) surrounded (within 3 m) by more sand bluestem than were unsuccessful nests, and (3) located in areas of little or no livestock grazing utilization. Presumably, these conditions provided greater security from weather, predators, and other disturbances.

Habitat management schemes for lesser prairie chickens in eastern New Mexico should include plans to protect and restore stands of bluestems, especially sand bluestem, for use as nesting habitat. This objective can be achieved readily through livestock management; establishment of relatively large livestock exclosures interspersed within the Shinnery Oak-Tallgrass community, combined with substantial reductions in grazing and spot brush control, is recommended in order to insure the growth of vigorous stands of sand bluestem.

-5-

NESTING HABITAT OF SHARP-TAILED GROUSE
IN SOUTHWESTERN NORTH DAKOTA

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The plains sharp-tailed grouse has been and is a favorite game bird of North Dakota hunters. Populations have been drastically reduced in the eastern one-half of North Dakota. Numbers have also declined in the western one-half of the State due to conversion of grassland to cropland and more intensive use of remaining grasslands by domestic livestock.

This study concentrated on quality and quantity of vegetation at nest sites to aid in multiple use management of grasslands in western North Dakota.

Dispersal of female sharptails from breeding ground to nest site generally depended upon the closeness of good quantity and quality of nesting cover. About 75 percent of all nests were within 1.2 km of breeding grounds. Over 60 percent were found in tame or regrowth vegetation and 88 percent were in rolling grassland range sites.

Average VOR was greater than 2.0 at 40 of 43 nests and 2.5 or higher at 30 nest sites. VOR readings at nests were significantly higher than the average pasture VOR and the average range site VOR in the pasture where nests were found. Average VOR declined as distance from nests increased up to 7 m. Hens selected woody cover only when grass cover in pastures was insufficient in height for nesting.

Plant height was more important than plant species to nesting hens. Grassland management that would leave a minimum average VOR of 1.5 for a pasture in spring would leave sufficient habitat for sharptails to nest.

SHARP-TAILED GROUSE USE OF STRIP-MINED RECLAMATION
LANDS IN SOUTHEASTERN MONTANA

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ECON Inc. has been conducting research on sharp-tailed grouse (Pedioetes phasianellus) in the coal fields of southeastern Montana since 1973. On a 160 square mile study area, 25 sharptail display arenas were located of which 21 were still active in the spring of 1979. Average male attendance during the past 7 years was 13. Arenas were distributed on knolls, ridges, and flat open areas of shrub-grasslands near stands of ponderosa pine (Pinus ponderosa).

-6-

Skunkbush sumac (*Rhus trilobata*), rose (*Rosa* spp.) and snowberry (*Symphoricarpos* spp.) were important autumn food items. Three years of trapping and banding indicated very little inter-arena movement by males. An artificial display arena was created within a reclamation area with some success, but more important was the natural creation of two arenas immediately adjacent to the reclamation area. This occurrence of new arenas was similar to the soil bank program years in South Dakota where arenas were more numerous in and around soil bank programs. Abundant food and cover is provided by the reclamation. Use of the reclamation by brood-rearing female sharp-tails was verified by use of radio telemetry.

FALL-WINTER MOVEMENTS, RANGES, AND HABITAT USE OF LESSER PRAIRIE CHICKENS IN WEST TEXAS

By
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Based on 860 radio-fixes of 19 lesser prairie chickens, minimum home ranges were between 160-786 ha (November), 94-1,946 ha (December), 85-331 ha (January), and 72 ha (February). Mean day-to-day movements reflected a similar trend, i.e., increasing November through December and decreasing January through February. In December, a juvenile male began long-distance, unidirectional movements away from the lek where banded. He traversed 12.8 km in less than 5 days, with a maximum movement of 2.9 km/day. Birds preferred shinnery oak (*Quercus havardii*)-little bluestem (*Schizachyrium scoparium*) and shinnery oak-sand sagebrush (*Artemisia filifolia*) vegetation types over shinnery oak and mesquite (*Prosopis glandulosa*)-blue grama (*Bouteloua gracilis*) types from November to February. Use of a sunflower field was heavy during December and January. Movement data suggested a minimum management unit of approximately 32 km².

MOQUAH BARRENS WILDLIFE MANAGEMENT AREA: PAST AND FUTURE MANAGEMENT

By
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History. The Moquah Pine Barrens has been maintained in an open condition by natural fires and poor soil conditions for many years. This open condition contributed to high populations of sharp-tailed grouse and greater prairie chickens prior to 1940.

-7-

Protection from fire caused the Barrens to gradually revegetate. By 1950, extensive stands of jack pine, aspen and oak contributed to the disappearance of the greater prairie chicken from the area.

On May 10, 1953, the State of Wisconsin and the Chequamegon National Forest, U.S. Forest Service, entered into an agreement to reserve more than 3000 acres in scattered tracts to assure the continuation of habitat for sharp-tailed grouse and other prairie type communities. By 1960, the decline in the sharp-tailed grouse population had appeared to slow. Some controlled burning and food patch work had been conducted on the area. Being as scattered as the areas were, the population of sharp-tailed grouse failed to respond.

In April of 1965, the Cooperative Agreement between the Forest Service and the State was revised to consolidate tracts as well as add new areas. A total of 8,0004 continuous acres were set aside for wildlife management within the Chequamegon National Forest.

Limited controlled burning was conducted on the area in the late sixties and seventies. The sharp-tailed grouse population remained at a low level on the area. In 1973, the Chequamegon National Forest personnel began to prepare a Management Plan to manage the area more effectively. Delays prevented the completion of the plan until the spring of 1979.

The Management Plan. Presently, only about 10 percent of the area is in an open or brushy condition. The Management Plan calls to convert 60 percent of the area to an open or savannah type. Dominant grasses in the open areas are big and little bluestems. Brush species are young oak, junberry, and aspen. The areas will be maintained by an active schedule of controlled burning.

All aspen, jack pine, and oak on the better growing sites will be maintained for old growth and eventual timber harvest. These areas will be kept in timber production. Some stands of red pine, white pine, paper birch, and maple will be maintained for diversity and aesthetic old growth.

Food patches will be developed to help local populations of sharp-tailed grouse during severe winters as well as drawing birds from other populations nearby. Dancing grounds will be maintained by prescribed fire, discing and seeding to short grasses and clover. Many grounds have grown up to oak and aspen brush, obscuring the view in all directions.

Surveys of the dancing grounds will continue to be conducted each spring. Presently, there are two known dancing grounds on the area. During the spring of 1979, six males were observed on one ground and two males on the other.

-8-

OPTIONS FOR SHARP-TAILED GROUSE MANAGEMENT
IN NORTHWESTERN WISCONSIN

By
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Daily movements and habitat use by sharp-tailed grouse (Pedioecetes phasianellus campestris) were investigated from April 1977 through June 1979 at three wildlife management areas in northwestern Wisconsin. Crex Meadows, the Namekagon Barrens, and the Douglas County Area vary in size, habitat types, and spring dancing ground counts. Forty (27 male, 13 female) radio-tagged sharp-tails provided over 160 monthly home ranges and 3500 habitat type locations analyzed to date. The purpose of this paper is to: (1) present a preliminary analysis of seasonal changes in home range size and habitat type use, and to (2) discuss management options based upon this information.

Monthly range size was generally less than 60 ha during the summer period. Smallest ranges occurred during August. Grass/shrub habitat type accounted for 80-100 percent of habitat use during these months. Ranges increased during fall months with the addition of agriculture, shrub, wooded, and lowland habitat type use. Monthly ranges approached or surpassed 400 ha during the late fall period. High use of lowland habitat by radio-tagged sharp-tails at Crex Meadows is contrasted by little and no use at the Douglas County Area and Namekagon Barrens respectively. Movement away from the Douglas County and Namekagon Barrens Areas proper occurred during late December and mid-January, 1977-78, respectively. Wooded and lowland habitat type was used thereafter. All radio-tagged sharp-tails at Crex Meadows used lowland habitat during the winter period. Daily use of corn feeders by most birds accounted for the high use of agriculture type during this period. Range size decreased from November-December and March peaks. High use of shrub and grass/shrub habitat was shown during the spring display and reproductive period.

Differences between habitat use at Crex Meadows, the Namekagon Barrens, and the Douglas County Area during late fall, winter, and early spring, present management agencies with a variety of options for both extensive acquisition effort and intensive improvement of present sharp-tail management areas.

FOODS OF THE GREATER PRAIRIE CHICKEN/MANAGEMENT
OF A NATIVE PRAIRIE IN SOUTHWEST MISSOURI

By
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The lack of observations of the prairie chicken, on the Taberville Prairie Refuge, at the onset of the 1978 winter created concern about population levels. It was decided in late November (78) to set up counts of birds coming off the

-9-

roost and to carry out a food habit study. Roost counts covering one-half of the area in early December resulted in 288 birds. Principal foods during December, January, February, and March were:

FOOD ITEM	Per Cent By	
	Occurrence	Volume
Roses, Wild	61	22.8
Wheat	45	20.8
Corn	37	19.8
Green Grass	36.5	12.0
Cane (<i>Sorghum vulgare</i>)	25.3	11.8
Soybean	20.3	4.7
Ladies-Tobacco (<i>Antennaria</i>)	14.6	3.2
Smooth Sumac	10.8	1.5
		96.6

Taberville Prairie Wildlife Refuge (1,680 acres), located in southwest Missouri, was purchased in 1959 for preservation of the Greater Prairie Chicken. Management from 1959 to 1972 consisted primarily of a hay/rest rotation system. Since 1972, haying has been reduced over much of the area with an increased use of control burning. Prior to 1972, haying was carried out on 49% of the area - control burning 0%. In 1978, haying was carried out on 12% - control burning 36%.

AN EVALUATION OF GRASSLAND MANAGEMENT TECHNIQUES IN CENTRAL WISCONSIN

By
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and
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Controlled burning, rotary mowing, herbiciding and plowing are methods used to control plant succession on the 13,000 acre prairie chicken (Tympanuchus cupido pinnatus) management area in the Buena Vista Marsh located in southwestern Portage County, WI. An evaluation of these grassland management activities was initiated to: (1) determine the impact of controlled burning on herbaceous vegetation and its nutrient content, and on resident populations of birds, insects and small mammals, (2) compare the effects of management practices on herbaceous vegetation which is representative of prairie chicken nest-brood habitat.

Plant and animal populations were inventoried before and after treatments in 1977 and 1978. Importance values (sum of relative density, relative frequency, and relative cover) are used to describe response of selected plant species to management. Spring burning (late March-early April) had no effect on plant species composition. Approximately 96 percent of the light surface fuels were eliminated by burning; scattered patches of snow prevented complete fuel reduction. Mulch depths decreased an average of 2.2 cm on burned plots. Burning had little effect on Importance Values (IV) and height on: Agropyron repens, Poa pratensis, Solidago spp., Linaria vulgaris, and Spiraea alba.

-10-

Most of the wild hens made extensive wandering movements away from Crex, making daily moves that at times exceeded 10 miles. Two of seven and three of ten of the respective radio-tagged Wisconsin and Minnesota hens established at Crex. The other six Wisconsin hens ended up 3.6, 8.2, 10, 15 and 35 miles away. Radio signals were lost from two of the radio-tagged Minnesota hens. The remaining five hens ended up 9.6, 9.8, 10.6, 11 and 35.3 miles from Crex. All ten of the radio-tagged summer transplants remained within two miles of their release sites. Four of the Wisconsin hens and three of the Minnesota hens established 6 (one hatched) and 4 (two hatched) nests respectively. There were 4 (26 chicks) and 7 (27 chicks) broods observed respectively in 1976 and 1977.

The establishment of the Wisconsin April transplants was 79 percent (15 of 19) for cocks and 42 percent (5 of 12) for hens. The respective establishment of the Minnesota April transplant hens and summer transplants was 32 percent (6 of 19) and 80 percent (8 of 10).

Annual survival of the Wisconsin April transplants was 33 percent (6 of 19) for cocks and 8 percent (1 of 12) for hens. Annual survival of the Minnesota April transplant hens was 26 percent (5 of 19) and 40 percent (4 of 10) for the summer transplants. Second year annual survival for established cocks was at least 50 percent (5 of 10). The annual survival of pen-reared birds was 0 percent in 1975 and 2 percent (1 of 50) for cocks and .7 percent (1 of 137) overall in 1976.

Spring censuses of displaying cocks produced: 0 prairie chickens and 17 sharptails in 1975, 15 prairie chickens (0 unbanded) and 22 sharptails in 1976, 16 prairie chickens (6 unbanded) and 36 sharptails in 1977, 25 prairie chickens (19 unbanded) and 43 sharptails and one hybrid in 1978, and 21 prairie chickens (18 unbanded), 53 sharptails and one hybrid in 1979.

Other than one display ground with two regular prairie chickens and seven sharptails in 1976 the two species generally remained segregated while displaying. During the other seasons, particularly winter, prairie chickens and sharptails were observed feeding and moving in mixed flocks. Feeding activities were concentrated in buckwheat and standing corn in the fall and in standing corn and on elevated corn feeding platforms in winter. Fall and winter night roosting occurred in the wetland grass, sedge-willow habitat.

The minimum cost of maintaining and releasing the pen-reared birds and capturing and transplanting wild birds was \$60 and \$180 respectively. The respective value of each of the pen-reared birds and wild transplants birds to the Crex population was \$12,906 and \$675.

Future prairie chicken reintroduction projects should consider the following criteria:

The release area should have: (1) a history of a prairie chicken population, (2) at least 2.5 x 2.5 mile treeless area, (3) 1,000 or more acres of undisturbed grass in nothing less than 150 acre blocks, (4) agriculture in form of documented seasonal prairie chicken foods and, (5) in regions with heavy snows, food patches and roosting habitat in the form of wetland grass-sedges and or mixed shrub, grass and forb, habitat.

I suggest to those interested in reestablishing prairie chickens that they

consider transplanting wild birds using one or a combination of the following release procedures:

- (1) For an April/Spring release construct on the release site a small holding pen for a flock of 10-15 pen-reared birds. The flock should contain twice as many hens as cocks. Capture on booming grounds 20-25 cocks and 20-25 hens and release within 24 hours at the holding pen. Supplement the population with 20-25 hens during the second spring. It is possible that tape recordings of booming "whooping" cocks and decoys could be used in place of the penned birds to attract and hold the transplanted cocks.
- (2) The second approach would not require a flock of penned birds or recordings. Capture 25-30 cocks and 25-30 hens, radio-tagged and release in place. Recapture these birds by nightlighting during the summer molt (July, August or September) and transplant to the release area. A variation of this method would be to capture birds during the molt by nightlighting or helicopters and nets ala Nova Silvy in Texas. This later method would be the cheapest and quickest as the radios are eliminated and the birds would be captured and handled only once.

If (when) pen-reared birds are used again, I recommend that: (1) an effort should be made to improve the wariness and physical condition of the birds and (2) gently release 250-300 birds at 10-12 weeks of age with predator suppression conducted by trained personnel two months before and after the release.

The summer transplanting of prairie grouse during the molt holds the greatest promise for success relative to time and cost. The advantages are: (1) birds may be relocated north or south after the breeding season, when they can adjust gradually to the change in phenology, (2) birds are transplanted under conditions when individuals have the highest survival and the lowest mobility, and (3) it allows the transplanted birds to adjust gradually and normally to a new area. This approach is in contrast with most unsuccessful transplant projects, which capture and move animals when they are easiest to catch - usually when conditions are the poorest for the survival and establishment of the transplanted individuals.

THE ATTWATER'S GREATER PRAIRIE CHICKEN:
ENDANGERED GROUSE OF THE TEXAS COASTAL PRAIRIE

By
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Populations of the Attwater's greater prairie chicken (Tympanuchus cupido attwateri) of Texas are endangered due to loss or inadequate management of critical coastal prairie habitat. Fire and grazing served important ecological roles in the pristine coastal prairie environment. These roles may be simulated by judicious use of prescribed burning and systematic livestock grazing.

Beneficial effects of burning in Attwater's prairie chicken habitat include increased food quality and availability, reduced litter accumulations, and increased cover diversity. Important habitat characteristics affected by grazing are reduced litter accumulations, provision of cover openings, enhanced cover heterogeneity, control of succession to woody species, and creation of booming grounds. Grain fields, in close proximity to properly managed grassland, can benefit Attwater's prairie chickens by providing summer cover, supplementing available food sources, and increasing ecological edge and habitat diversity. These agricultural and range management practices should be incorporated into comprehensive management plans for remaining areas of critical Attwater's prairie chicken habitat.

THE ROLE OF THE PRIVATE SECTOR IN
PRAIRIE GROUSE CONSERVATION

by
Paul Olson, Chairman, Prairie
Chicken Foundation of Wisconsin
Madison, Wisconsin

(As recalled by Ray Anderson and presented here)

Paul presented an informal, historical, and enlightening account of his role in the organization and guidance of the private sector to secure lands for prairie chicken management in Central Wisconsin. He related the value of: (1) single-purpose objectives, (2) a newsletter to keep a membership informed, (3) small radio station announcements, (4) tax exempt status, (5) a "catchy" organization name, (6) judiciously applied subtle pressures, and (7) having fun in the process of being philanthropic and altruistic. An additional item that Paul modestly did not mention, but which was soon very obvious, was the value of having a dedicated, talented, and competent person to lead the charge; characteristics which are exemplified in Paul.

CENTRAL WISCONSIN WILDLIFE TOUR

Wisconsin Prairie Grouse Management on the Buena Vista Marsh
Portage County, Wisconsin

By
Bruce Gruthoff, Wildlife Manager
Wisconsin Department of Natural Resources
Wisconsin Rapids, Wisconsin

Wisconsin Ruffed Grouse Management
Sandhill Wildlife Area
Babcock, Wisconsin

By
Joe Haug and John Kubisiak
Wisconsin Department of Natural Resources
Sandhill Wildlife Management Demonstration Area
Babcock, Wisconsin

Golden Hour Dinner in the Field at the Sandhill
Wildlife Management Demonstration Area

By
John Kubisiak and Joe Haug
Wisconsin Department of Natural Resources
Sandhill Wildlife Management Demonstration Area
Babcock, Wisconsin

PRAIRIE GROUSE STATUS REPORTS

-1979-

The following written status reports were contributed by the indicated authors for publication in The Proceedings of the Thirteenth Prairie Grouse Technical Council. Oral reports on the status of prairie grouse in New Mexico and North Dakota were given by Mike Wisdom and Terry Kobriger respectively.

ILLINOIS

by Ron Westemeier, Illinois Natural History Survey

The count on prairie chickens in Illinois in spring of 1979 totaled 112 cocks, down 10% from the 124 cocks censused in 1978. Ninety-six percent of Illinois' remnant flocks are now on the two sanctuary systems in Jasper and Marion counties, 1,001 acres and 640 acres, respectively. There is little doubt that the prairie chicken in Illinois would be beyond saving from extinction had these two sanctuary systems not been established.

However, the problems of predation on prairie chicken nests and competition, harassment, and nest parasitism by pheasants are currently of paramount concern in efforts to preserve prairie chickens, particularly in Jasper County. Nest success at Bogota has been below the critical level of 50% during 5 of the past 6 summers, due primarily to these two factors. Preliminary data for the current season indicate a continuation of the high level of predation, by skunks primarily, on prairie chicken nests. The flock at Bogota was 27% below the long-term mean (1963-78) in the spring of 1979 and 67% below the phenomenal population level of 205 cocks present in the spring of 1973.

In contrast, in Marion County where pheasants are not present, chickens have maintained a relatively stable average of 45.2 cocks since 1963.

Illinois' effort to preserve native prairie chickens continues to be a cooperative program involving The Nature Conservancy, the Illinois Department of Conservation, the Illinois Natural History Survey, the U.S. Fish and Wildlife Service, and many other agencies and individuals.

IOWA

by Ronnie R. George, Wildlife Research Biologist, Iowa Conservation Commission.

According to Stempel and Rodgers, 1961, History of Prairie Chickens in Iowa. Iowa Acad. of Sci. 68:314-322, the last breeding flock of greater prairie chickens was observed in Appanoose County (south central part of the state near the Missouri border) in 1955. Since this article was published, there have been

a very small number of additional prairie chicken sightings in southern Iowa (presumably birds that have wandered in from Nebraska or Missouri). The most recent of these was a single bird sighted in southwestern Iowa in 1978.

The Iowa Conservation Commission is currently planning to reintroduce prairie chickens into some isolated prairie habitat in the Loess Hills in western Iowa and some newly-established switchgrass pastures in southern Iowa. Hopefully these introductions may take place as soon as the spring of 1980.

KANSAS

by J. Horak, Kansas Fish and Game

Lesser Prairie Chickens

The status of lesser prairie chickens in the southwestern part of Kansas is on questionable ground. Approximately 6 percent of the sand and sadsage grasslands, home of the lesser prairie chicken, is being plowed up each year and converted to center-pivot irrigation. At this rate, by the late 1980's the remaining lesser prairie chicken habitat will be critically low, endangering the existence of the remaining populations in Kansas.

Greater Prairie Chickens

The greater prairie chicken is faring much better. Their range is expanding in the northcentral part of the State and moving west. The Flint Hill's population in east-central Kansas is holding its own with higher than normal numbers. The harvest of birds has increased due to increased number of birds and increased hunting pressure.

MICHIGAN

by Herb Johnson, Michigan Dept. Natural Resources

Approximately 24 Greater Prairie Chickens, a threatened species in Michigan, occur in scattered locations near the juncture of Missaukee, Oceaola and Clare Counties in the Lower Peninsula.

Sharptailed Grouse (between 1 and 2000) occur in scattered locations within all but Keweenaw and Menominee Counties in the Upper Peninsula; in, and immediately adjacent to, Antina, Otsego, Kalkaska, and Crawford Counties in the Lower Peninsula.

MINNESOTA

by Terry Wolfe (P.C) and Wm. E. Berg (ST). Minnesota Department of Natural Resources

In recent years an average of approximately 830 prairie chickens per year have been counted on about 75 booming grounds in northwestern Minnesota.

The 1979 count no doubt would be comparable but personnel changes, lack of time and manpower, etc. prevented complete counts in many areas.

There is also a substantial population of prairie chickens in central Minnesota - at least 30 booming grounds in one county alone estimated by one wildlife manager. These are nearly impossible to count as they are in a predominantly forested area with numerous small farms, many abandoned, and large marshes and grass swales. Occasional fires set back the jack pine and aspen giving new vigor to prairie chicken numbers.

A few cage reared prairie chickens were released at the Lac Qui Parle Wildlife Management Area in southwestern Minnesota in the fall of 1977. Some chickens are still being seen and it is believed there has been some reproduction.

Prairie chickens are holding their own on the public lands of Minnesota though private grasslands are still succumbing to plows, cows and gravel operations.

Sharptail census during spring 1979 in Minnesota was nearly impossible due to flood and road washout conditions. Two township size census blocks in the Lake of the Woods area on northwestern Minnesota were adequately censused, however, and both increased about 10 percent from 1978. Sharptails in this area have been relatively stable for 3 years, despite accelerated land clearing operations. Sharptails in Aitkin County in east-central Minnesota (our lesser known sharptail range) declined 30 percent from 1978, but are near their 1977 levels. Nesting conditions during June, 1979 appear to be nearly ideal. Minnesota no longer conducts opening week-end sharptailed grouse hunter bagchecks. A study partially sponsored by the Department of Natural Resources began this spring in the Red Lake bog area of northwestern Minnesota, where Doug Wells, University of Minnesota, is investigating the ecology of sharptails in the bog environment.

MISSOURI

by Donald M. Christisen, Missouri Department of Conservation

The annual booming ground census of 169.5 square miles of the 900-square miles of Missouri range showed a rise of 4.1% in the cock prairie chicken population. Extrapolation of the sample tally set the 1979 population of cocks at 4,827. The average density was 5.4 cocks per square mile for the range. The male population was up 7.8% on Osage soils, up 1.8% on Cherokee soils but down 4.9% on Summit soil types.

The census of 16.5 square miles of St. Clair County range, including Taberville Prairie, showed 220 cocks present on 13 booming grounds, a 32.5% increase over 1978, the most cocks since 1967, the top year. Taberville Prairie had 4 booming grounds and a total of 77 cocks; there were 6 more booming grounds with 102 cocks within a 1/2 mile of the area boundaries.

The 15 public prairies censused of the 20 preserved, showed 32 booming grounds and 435 cocks on the prairies and within 1/2 mile of the areas boundaries. Three prairies had booming grounds, 10 prairies had grounds within a 1/2 mile radius.

NEBRASKA

by Ken Robertson, Nebraska Game and Parks Commission

Prairie grouse populations have increased dramatically in the two years since the 1977 meeting at Pierre, South Dakota. The spring breeding population index for 1979 was up 3 percent above 1978 which was 35 percent above 1977.

The 1979 season is expected to be as good or better than 1978 which was a super year, especially for prairie chickens. Check station data for the opening weekend of 1978 showed only an 8 percent increase in hunters over 1977 but a 34 percent increase in total harvest. Age ratios for sharptails were 2.6 young per adult and 4.4 young per adult hen. Prairie chickens showed 4.0 and 5.6. Both species showed good increases over 1977.

Prairie grouse habitat that hasn't been plowed up and planted to "center pivot" corn is in excellent shape. The winter of '78-'79 blessed us with heavy snowfall from late November to mid March which prevented the grazing of much winter range. This in turn gave an abnormally large amount of residual grass available for nesting cover this spring. The spring was late and cool and the hatching period was about normal temperature and a little dry. June and July precipitation were above normal which delayed haying operations which enhanced brood cover conditions. There is a real abundance of grasshoppers and crickets which provide high class food for the young birds.

To sum it up, the grouse population in Nebraska is at a high level compared to the past several years. However, there is a continued loss of habitat to center pivot irrigation which in some areas has become so intensive as to cause large areas of former grouse range to be nearly devoid of the birds.

OKLAHOMA

by Mark E. Byard, Oklahoma Dept. of Wildlife Conservation

Greater Prairie Chicken - 1978

The overall \bar{x} cocks/booming ground (n=12 grounds) fell from 12.0 in 1977 to 11.5 in 1978. This compares to a high of 26.1 \bar{x} cocks/booming ground in 1968 and a low of 9.3 \bar{x} cocks/booming ground in 1971. Since 1971 trend estimates have oscillated slightly around a grand mean of 12.8 \bar{x} cocks/booming ground.

Greater Prairie Chicken - 1979

The overall \bar{x} cocks/booming ground (n=11 grounds) remained stable at 11.5 in 1979. This compares to a high of 26.1 in 1968 and a low of 9.3 in 1971. Since 1971 trend estimates have oscillated slightly around a grand mean of 12.7 \bar{x} cocks/booming ground.

Lesser Prairie Chicken - 1978

The overall \bar{x} cocks/booming ground (n=10 grounds) fell from 15.3 in 1977 to 11.0 in 1978. The high was 16.5 in 1975 and the low was 8.1 in 1972.

Lesser Prairie Chicken - 1979

The overall \bar{X} cocks/booming ground (n=10 grounds) fell from 11.0 in 1978 to an all-time low of 7.8 in 1979. Oklahoma's Lesser Prairie Chicken population has been falling steadily since 1977.

In 1980 Oklahoma is scheduled to drop cocks/ground counts in favor of total # of booming ground counts. Study areas will be 16 mi² and will be surveyed by low flying aircraft on 0.25 mi wide transects.

Prairie Chicken hunters in Oklahoma will be required to obtain a free permit for fall 1979 hunting. A follow-up questionnaire will estimate hunting pressure, harvest and parameters.

SOUTH DAKOTA

by Larry Fredrickson, South Dakota Dept. of Wildlife, Parks, and Forestry

<u>Sharptail Grouse</u>			<u>Prairie Chicken</u>		
Males/Mi. ²			Males/Mi. ²		
<u>1978</u>	<u>1979</u>	<u>Change</u>	<u>1978</u>	<u>1979</u>	<u>Change</u>
.89	1.78	(+100%)	.43	.98	+128%

Census over 399 square miles	Census over 175 square miles
56 grounds	21 grounds
N=710 ♂'s	N=171 ♂'s

TEXAS

by Wayne Schifflett, Texas Parks and Wildlife Dept.

Attwater's Prairie Chicken 1979 Helicopter Census	1,704 birds
Lesser Prairie Chicken, 1979 April booming ground Census (2,043 in Permian Basin and 7,469 in Panhandle)	9,412 birds
Lesser Prairie Chicken Harvest, October 1978 720 hunters (2 day hunt)	669 birds

WISCONSIN

by Bruce Gruthoff, Wisconsin Department of Natural Resources and Ray Anderson, University of Wisconsin-Stevens Point

Wisconsin's Greater Prairie Chicken populations continue to increase on the main management areas. Chickens are present in 4 distinct but related areas, approximately 20 air miles from each other, in Portage, Wood, and Wau-shara Counties. The booming cock count for each area is presented below.

<u>Management Area</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Buena Vista Marsh	213	365	438
Leola Marsh	75	82	53
Carson-Sherry	145	186	178
Mead Wildlife Area	<u>180</u>	<u>227</u>	<u>217</u>
Totals	613	860	886

This does not include approximately 15 additional cocks which were booming in peripheral areas.

BUSINESS MEETING 28 September 1979

Prairie Grouse progress reports were presented and discussed (see above).

Al Grewe, St. Cloud State University, Minnesota, distributed prints of the Greater Prairie Chicken, courtesy of the Minnesota Prairie Chicken Society.

The status of the Prairie Grouse Bibliography was discussed.

Ken Robertson, Nebraska Game and Parks Commission, distributed the latest prairie grouse Range Map AND invited the Prairie Grouse Technical Council to meet in Nebraska in 1981. His invitation was accepted. Ken was also elected Chairman of The Prairie Grouse Technical Council for 1980 and 1981.

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