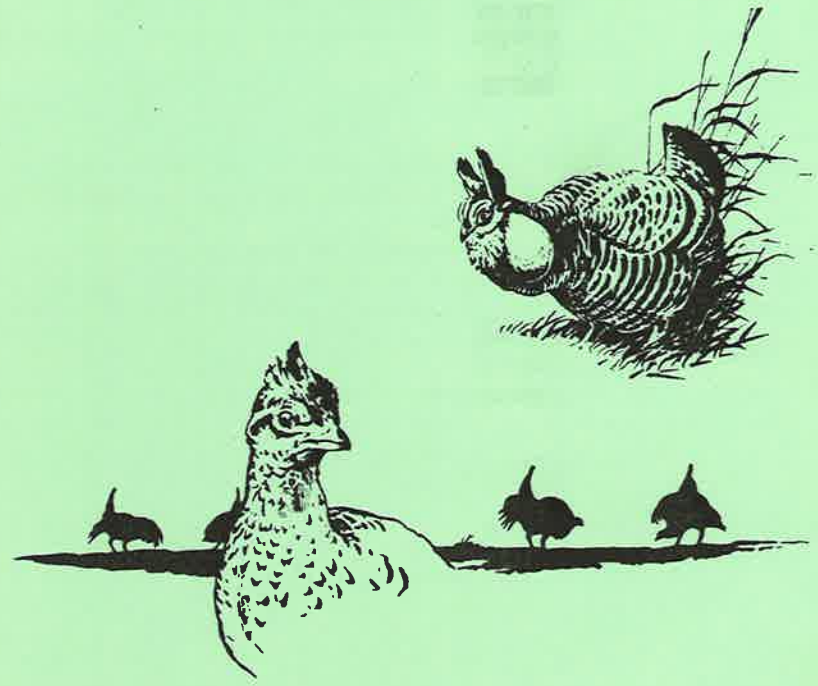
Proceedings of the
16th Conference

PRAIRIE GROUSE TECHNICAL COUNCIL



September 24-26, 1985
Sedalia, Missouri

Host
Missouri Department of Conservation

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 They are not for publication or reference without consent of the contributing author.

Donald M. Christisen
Compiler

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INTRODUCTION—Ollie Torgerson, Superintendent of Wildlife Research, Missouri Department of Conservation, Columbia.

WELCOME—Kenneth M. Babcock, Chief of Wildlife Division, Missouri Department of Conservation, Jefferson City.

SEASONAL MOVEMENTS AND HABITAT USE BY COLUMBIAN SHARP-TAILED GROUSE IN COLORADO

By
Kenneth M. Giesen
Colorado Division of Wildlife

Home ranges, seasonal movements, and habitat use by Columbian sharp-tailed grouse were ascertained in northwestern Colorado using radio-telemetry techniques. Males averaged smaller summer-fall home ranges than females (51.7 ha vs. 75.9 ha). After mating females dispersed up to 8 km to nest sites although most (>75%) nested within 2 km of the lek where trapped. Dispersion from leks increased from May to September for males but not females. Male fidelity to leks appeared to restrict both their home ranges and dispersion. Both sexes dispersed farthest from lek of capture with onset of winter weather. Native mountain shrub communities were used by both sexes throughout the year but males preferred alfalfa-hay fields in summer. Wheat fields, although structurally similar to hay fields, were used only during the period following harvest and prior to permanent snow cover.

THE NESTING ECOLOGY OF SHARP-TAILED GROUSE IN RELATION TO SPECIALIZED GRAZING SYSTEMS

By
Kevin L. Grosz
North Dakota State University

A study was conducted to compare the effects of short-duration, twice-over deferred rotation grazing systems, and season-long grazing on the movements, nest locations, and productivity of sharp-tailed grouse. In 1982, these grazing treatments were established at the Central Grasslands Research Station, located in south-central North Dakota. Sharp-tailed grouse hens were trapped from dancing grounds located on or near the grazing treatments. The hens were fitted with radio transmitters to monitor movements and to locate nests. Nest searching was also conducted to locate nests. Twenty nests were located from the 25 hens fitted with the radio transmitters. One nest in the season-long, three in the short-duration, five in the twice-over deferred rotation, and seven in the idle areas. Four nests were scattered around the grazing treatments off the Station. Visual obstruction readings (VOR) were taken at the nest sites and along permanent transects established in each of the grazing treatments and the idle area to compare vegetation available to that used. The birds nested in vegetation with an average VOR of 1.6 and a range of 0.5 to 3.5. Some 70% of the nests were located in vegetation with a VOR of 1.5 or greater. The twice-over deferred rotation had 60% of the vegetation in VOR's of 1.5 or greater. In both the season-long and short-duration treatments over 70% of the vegetation had a VOR of less than 1.5.

REPLACEMENT LEKS FOR DISPLACED SHARP-TAILED GROUSE

By
Richard K. Baydack
The University of Manitoba

Sharp-tailed grouse (*Tympanuchus phasianellus*) use of replacement leks during anthropogenic disturbance was studied during spring and fall seasons from 1983 to 1985 in the Carberry Sand Hills, southwestern Manitoba. Grouse were monitored by means of band and radio transmitter relocations for the 3-hour morning and 2-hour evening peak display periods. Male sharptails were tolerant of all tested lek disturbances except visible human presence. Males displaced by human presence generally remained in prairie habitat and were 400 m from the traditional lek. They often returned to the lek within 5 minutes of cessation of disturbance. Female sharptails were displaced from leks by all tested disturbances.

Replacement leks attracted some displaced male sharp-tailed grouse. Successful replacements were those designed to approximate the traditional lek at the most appropriate 200 or 400 m location. As well, male and precopulatory position female decoys and tape-recorded vocalizations were necessary on replacements to induce males to attend. Use of some replacements was regular but limited in time (<40% of disturbance time). Males tended to select replacements more often during morning than evening display periods. Female sharptails were rarely observed at replacements, but their attendance would incite increased male display activity.

EFFORTS TO RE-ESTABLISH SHARP-TAILED GROUSE IN NORTHWESTERN KANSAS

By
Randy Rodgers
Kansas Fish and Game Commission

Improvements in the gentle release technique described at the 15th PGTC conference have resulted in dancing activity immediately following release. Prospects for establishing a lek at or near the release site appear good. This release operation was described.

A MISSOURI HABITAT APPRAISAL PROCEDURE FOR THE PRAIRIE CHICKEN

By
David L. Urich
Missouri Department of Conservation
John P. Graham
USDA, Soil Conservation Service

The Missouri Department of Conservation (MDC) and USDA Soil Conservation Service (SCS) embarked on expanded private land programs to improve soil and water conservation and wildlife habitat. Because both agencies cooperate with natural resource management on private lands sustaining remnant populations of prairie chickens (*Tympanuchus cupido pinnatus*), a coordinated approach to the analysis of management alternatives and their impacts on wildlife habitat was necessary. A procedure was developed to: (1) evaluate habitat on private land in a consistent and repeatable fashion as a basis for making consistent management recommendations; (2) predict the effect of planned management recommendations on habitat quality; (3) display in graphic form to landowners the impact of land management on habitat; and (4) document implemented conditions. To meet these requirements, MDC and SCS developed the Wildlife Habitat Appraisal Guide (WHAG) for the prairie chicken.

WHAG, a species capability model, is a field evaluation procedure for measuring habitat quality and is based on the assumption that habitat can be described by a habitat suitability index (HSI) ranging from a low of 0.1 to a high of 1.0. Word descriptions of important habitat characteristics are scored on a 1 to 5 or 1 to 10 scale. Habitat quality is evaluated by scoring all habitat characteristics, summing the scores and dividing by the maximum possible score. Critical limiting factors are identified that must be present at a minimum level regardless of how other characteristics score.

WHAG was applied to state-owned and private lands with estimates of prairie chicken abundance to serve as a standard of comparison and to ensure reasonable projections of habitat quality. The procedure was also applied to private farmland throughout the state's remaining prairie chicken range to evaluate performance under a variety of conditions. Revisions were made in WHAG until biologists were confident with habitat quality projections. Prairie chicken density associated with optimum conditions was estimated and a linear relationship between density and prairie chicken numbers was assumed.

Training was provided to personnel of both agencies to ensure the consistent and accurate evaluation of prairie chicken habitat. Management recommendations for private landowners can be determined by examining low scoring habitat characteristics on the appraisal guide. WHAG permits both agencies to establish quantitative prairie chicken habitat improvement objectives for private and public lands and monitor progress in achieving those objectives. The procedure is rapid and easily incorporated into existing field inventory and planning procedures of both agencies.

IMPLICATIONS OF THE NATIVE WARM-SEASON GRASS PROGRAM FOR SURVIVAL OF GREATER PRAIRIE CHICKENS IN MISSOURI

By
Steve E. Clubine
Missouri Department of Conservation

Missouri's historical 15 million acres of prairie have largely been converted to crop and cool-season grass pasture. Cool-season grass pastures, dominantly tall fescue, are managed either by year-round grazing or by seed harvest, followed by haying, followed by intensive grazing. This leaves little cover for greater prairie chickens or any other wildlife species.

Native warm-season grasses (NWSG's) when properly managed, provide suitable food sources and cover for nesting, brood rearing and winter roosting prairie chicken. When used in conjunction with cool-season grasses, both forage types can be valuable to the prairie chicken. The Missouri Department of Conservation has increased its emphasis on assisting private landowners with establishing NWSG's on their farms by providing grass drills, technical assistance in planting and management, training personnel of other agencies to assist landowners in establishment and management, and providing funds to agricultural institutions to develop needed research on the grasses.

Between 1,000 and 2,500 acres of NWSG's are planted on private land each year, mostly in the original prairie (prairie chicken) regions of the state. If interest in NWSG establishment continues the present range of the greater prairie chicken in Missouri could be stabilized, or even expanded. A prescribed fire program has been developed as a part of the NWSG and prairie program for private land. Prescribed fire may help restore hundreds of acres of cedar infested prairie in central Missouri to productive prairie chicken habitat. The potential exists, through NWSG establishment, prairie management and prescribed fire management, for re-establishing the greater prairie chicken in some of its historic range.

COMPREHENSIVE MANAGEMENT PLAN FOR E GREATER PRAIRIE CHICKEN IN MISSOUR.

By
Richard W. Cannon
Missouri Department of Conservation

The remaining breeding range of the greater prairie chicken in Missouri is only 4% of its original size. Over 80% of the remaining populations are associated with the remaining 1% of Missouri's native prairie that has not been converted to other land-uses. The breeding range of these remnant populations are divided into 65-70 distinct segments and are almost exclusively (97%) on privately-owned land. Projections from population trend and habitat information indicate that unless positive actions are taken, Missouri's prairie chicken populations will drop below the level necessary for sustained viability within the next 10 years.

In response to the current status of greater prairie chickens in Missouri, the Department of Conservation approved a comprehensive management plan in July, 1984. The plan, based on the most current information available, calls for an aggressive land acquisition (10,900 acres) of key nesting habitat on the basis of ecological patterning. The acquisition plan is designed to preserve 80% of the remaining flocks of prairie chickens in Missouri. The plan also calls for increased efforts on private land to enhance the effects of land acquisition. Field service agents will target their efforts towards landowners with native prairies and/or prairie chickens. The goal of the management plan is to increase numbers to levels that can support a limited, trophy-type hunt.

GREATER PRAIRIE CHICKENS AND PUBLIC PRAIRIES

By
Thomas E. Toney
Missouri Department of Conservation

Prairies covered a minimum of 29% of the state of Missouri in presettlement times. The native grasslands, once the home of the prairie chicken have been reduced to less than half of one percent in total area. Starting with Taberville and Milo Prairies in 1959, the Missouri Department of Conservation with the Missouri Prairie Foundation and the Nature Conservancy have to date set aside 38 native prairies. Seventeen of the 38 preserves are important chicken units.

The prairies are multiple use areas with over a dozen objectives to preserve the natural flora and fauna. The objective most related to the chicken is to "maintain designated areas for nesting, brood, and roost cover for the Greater Prairie Chicken." To meet this objective three management techniques are utilized: burning, grazing and haying.

Control burning is used from late March through April 15 to control alien grasses and forbs; to set back woody encroachment; and for litter removal. Grazing is carried out on portions of the larger prairies. The use of livestock is carried out on the rotation two-pasture system from May through September. The average stocking rate would be three acres per animal unit.

Haying is the base technique used for management of the public prairies. The cutting date is the single most important factor in maintaining forb diversity and plant vigor. Haying in early July favors grass vigor, while cutting in late July to early August stimulates forbs. The sedges are favored by haying providing excellent green browse in spring, fall and winter. A one to two year cut-rest rotation is used that allows half to two-thirds of the area to be rested in a given year. The rested units provide ideal cover as well as a smorgasbord of foods including the rose hips that provides one of the most important items in the winter diet. Haying allows greater protection to shrub communities that provide brood raising units as well as selected fruits and twigs in the fall and winter diets. Insect diversity and density is highest in association with the hay rotations than with grazing or burning according to some entomologists.

Do the birds like the habitat? According to surveys around the hay cut-rest rotations birds have selected the rested hay units over other habitat types.

ATTWATER'S PRAIRIE CHICKEN NEST-BROOD HABITAT

By
Michael E. Morrow
Nova J. Silvy
Texas A&M University

Habitat used by Attwater's prairie chickens (*Typanuchus cupido attwateri*) for nesting and brooding of young was investigated during 1983-85 on the Attwater Prairie Chicken National Wildlife Refuge using radio telemetry techniques. Of 26 nests found during the study, 35% were successful. Skunks (*Mephitis mephitis* or *Spilogale putorius*) were held responsible for 41% of the nest losses, coyotes (*Canis latrans*) or opossums (*Didelphis virginianus*) for 24%, while unknown causes accounted for 35% of nest loses. Some 85% of all nests were located in third year or older burns, the majority of which were on loamy range sites. Analysis of habitat used by hens with broods during the study indicated that first and second year burned loamy areas were used more than expected, while unburned sandy areas were used less than expected. Median brood movements observed between consecutive day's locations were 290m.

MODIFIED DROP NET FOR CAPTURING PRAIRIE CHICKENS

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A modified version of drop nets previously used by others on prairie chickens, turkeys, and deer was developed to allow easier set up and operation for capture of Attwater's prairie chickens. Construction and use of this net was described.

RESPONSES OF LESSER PRAIRIE CHICKEN POPULATIONS ON SAND AND SANDSAGE PRAIRIE TO ROW-CROP AGRICULTURE

By
Roger W. Wells
Kansas Fish and Game Commission

Significant habitat loss and conversion of prairie to row-crop agriculture continues to occur in portions of the lesser prairie chicken (*Tympanuchus pallidicinctus*) range of southwest Kansas. The majority of this loss is taking place on the sand and sandsage prairies which also contain the majority of the lesser prairie chickens in Kansas. In Kearny, Hamilton, and Finney counties, there has been an over 60% increase in the acres of cropland since the late 1960s. Monitoring prairie chicken populations in

these areas has proven to be exceedingly difficult when utilizing traditional 16 km long transect listening routes. The numbers of birds observed along the routes and numbers of leks found fluctuate widely from year to year depending upon the degree and intensity of agricultural activity along the route and on lands adjacent to the route. We have also observed radical changes in lek locations from one year to the next due to agricultural disturbance. Sometimes these new lek sites are 2 km or more distant from sites used the previous year.

The obvious demise of one local population in Kearny County is being monitored closely. In 1979 and 1980 the survey area of 20 1.6 km2 sections contained 7 leks and an estimated maximum breeding population of 460 prairie chickens. In 1980 approximately 3000 hectares (59%) of this area were converted to row-crop agriculture. Habitat loss has continued and lek numbers have declined to the point that in April 1984, the area was nearly 100% row crop with no large units of prairie remaining. The 1984 and 1985 lek surveys indicated only 1 lek remaining with an estimated breeding population of 18 lesser prairie chickens.

THE PRAIRIE CHICKEN IN MINNESOTA: AN AUDIO-VISUAL PROJECT

By
W. Daniel Svedarsky
University of Minnesota-Crookston

One of the goals of the Minnesota Prairie Chicken Society is to promote educational activities which will better inform Minnesotans about prairie chickens. A slide-tape cassette program was conceived as a way to contribute towards this goal. A working topical outline was circulated to Society members for suggestions along with solicitation of slides. An 80-slide program has been prepared with narration containing audible and inaudible cues to allow for flexibility in viewing equipment.

The focal group was 6-7 grade science classes with the notion that a production geared towards this level would be understandable by a broad cross-section of the general public. An instructor's guide has also been prepared which contains the narration, an overview of prairie chicken life history, glossary of terms, and suggested discussion questions. A brochure announcing the $85.00 program is being circulated to schools, sportsmen's clubs, and conservation organizations so to obtain orders before copies are made. It is hoped that some sportsmen's clubs will then donate the program to their area school system's library. The program has also been shown to a number of conservation organizations at their annual meeting.

PARASITISM OF PRAIRIE-CHICKEN NESTS BY PHEASANTS IN ILLINOIS

By
Ronald L. Westemeier
Illinois Natural History Survey

Parasitism of greater prairie-chicken (*Tympanuchus cupido pinnatus*) nests by ring-necked pheasants (*Phasianus colchicus*) increased from 2% to 43% between 1970 and 1985 on sanctuaries managed to preserve a remnant population of prairie-chickens in Jasper County, Illinois. The study area is on the southern edge of the contiguous pheasant range. Both species were concentrated on the relatively small scattered sanctuaries totaling 405 ha. Success of 53 parasitized prairie-chicken nests did not differ overall from 236 unparasitized nests, but success of prairie-chicken nests with >3 pheasant eggs per nest (17%) was significantly lower than that for nests with <3 parasitic eggs (54%). Hatching success of prairie-chicken eggs was also lower in nests parasitized by pheasants (48%) than in unparasitized nests (87%), because of asynchronous hatching, increased embryonic mortality, abandonment, or some combination of these factors.

Clutch size and egg fertility of prairie-chickens were unaffected by parasitism. Pheasants were hatched from at least 47% of the parasitized prairie-chicken nests and from 79% of the pheasant eggs in successful parasitized nests; these rates were similar to the rates of regular pheasant nests and eggs, 42% and 85%, respectively, on the study area. Thus, nest parasitism of suitable hosts by pheasants may be as productive for pheasants as nonparasitic nesting. Factors related to rates of nest parasitism included numbers of pheasant nests found each year, chronology of egg laying, similarities in cover preference by pheasants and prairie-chickens, and inter-nest distances. By 1983-85, losses of prairie-chicken chicks due to parasitism increased to an estimated 18-19% of the potential production; conversely by 1985, a similar percentage of the known production of pheasant chicks came from parasitized nests. The survival of isolated, remnant flocks of prairie-chickens may depend upon a moderate level of pheasant control where nest parasitism is a potential problem.

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A study conducted from 1978 to 1985 examined habitat relationships between the prairie-chicken and the pheasant. Land-use within 400m of a nest, cover type the nest was found in, and vegetative structure measurements at the nest site were recorded for active nest sites of 40 pheasant hens and 42 prairie-chicken hens to evaluate the extent the two species overlap in habitat requirements. Results showed extensive overlap of habitat requirements at all levels of resolution. Ring-necked pheasants showed a broad tolerance of various habitat continuums for nesting, while prairie-chickens were considerably more specialized in habitat requirements. None of the parameters showed the prairie-chicken utilizing a different aspect of the habitat than the ring-necked pheasant.

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PRAIRIE DANCER: AN AUDIO-SLIDE REVIEW OF MISSOURI'S PLAN FOR RESTORATION AND MANAGEMENT OF THE GREATER PRAIRIE CHICKEN WAS PRESENTED BY CARL CONWAY, MISSOURI DEPARTMENT OF CONSERVATION.

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STATUS REPORTS

COLORADO - Kenneth M. Giesen

Numbers of Columbian sharp-tailed grouse counted on dancing grounds in 1985 increased nearly 20% from 1984 (10.6 vs. 8.9 birds/active lek) although many historic leks were inactive or had only sporadic attendance by males. Efforts to document presence of Columbian sharp-tailed grouse throughout their historic range in western Colorado resulted in locating sharptails in Routt, Moffat and Mesa counties although potentially suitable habitat exists in Dolores, San Miguel, Rio Blanco and Ouray counties. Previous sight records of sharp-tailed grouse in Gunnison and Saguache counties may have resulted from misidentification of blue or sage grouse or white-tailed ptarmigan.

Preliminary analysis of 1985 sharptail harvest data indicates that harvest increased 15 percent from 1984 although still well below harvest levels of 1982 and 1983.

ILLINOIS - Ron Westemeier

In the spring of 1985, the 23rd consecutive censuses in Jasper and Marion counties indicated 153 greater prairie-chicken cocks, or about 300 total birds. To the best of our knowledge, those two flocks in Illinois represent the only native prairie-chickens surviving on native range east of the Mississippi River.

At Bogota in Jasper County, the 1985 count of 61 cocks was 30% of the highest count of 206 cocks achieved in 1972, (2) 69% of the mean count of 88.9 cocks for the 22-year period of 1963-1984, and (3) 51% of the mean goal of 120 cocks that is considered realistic for the present area (486 ha) of sanctuaries. Considering similar stages in the 10-year cycle, the 1985 count was 60% of the 102 prairie-chicken cocks present in 1975 when pheasants were a relatively minor presence on the sanctuaries.

In contrast to the status of prairie-chickens at Bogota, at Kinmundy in Marion County where pheasants have never established, the 1985 count of 92 cocks was (1) 79% of the count of 116 cocks achieved at the 1982 cyclic high, (2) 169% of the mean count of 54.8 cocks for the 22-year period of 1963-1984, and 121% of the mean goal of 76 cocks that is considered realistic for the 259 ha of developed sanctuary land (49 ha have been too newly acquired to be considered developed).

Prairie-chicken numbers were near or above goal on or near each of the five established sanctuaries near Kinmundy where 10-12 booming grounds have extended over linear distances of 11-14 km in recent years. The booming grounds at Bogota have become less well dispersed than those near Kinmundy, as the Bogota flock has been concentrated on three grounds on the three central sanctuaries, forming a triangle with about 1.6 km on each side connecting the grounds. Such a concentration does not allow full use by prairie-chickens of available nest cover on all eight sanctuary units at Bogota. The distribution at Bogota would involve a triangle with about 6.4 km on each side if all sanctuaries were used by prairie-chickens. Since pheasants have become common at Bogota, prairie-chickens have essentially ceased using four sanctuary units. Exclusion of prairie-chickens from potential nest habitat by pheasants is a strong possibility at Bogota.

KANSAS - Roger Wells

During the 1984-85 hunting season an estimated 30,000 greater prairie chicken hunters harvested approximately 41,000 greater prairie chickens at an average bag per day of 0.45 birds. The total harvest was the lowest since 1977 and 47% below the past 5-year average of 77,000. Approximately 16% of all licensed hunters pursued greater prairie chickens during the 1984-85 season.

Lesser prairie chicken harvest was estimated at 1,600 birds with an estimated 1,300 sportsmen averaging 0.51 birds per day during the 1984-85 season. The sample size of hunters on the annual Small Game Harvest Survey who indicate having hunted lesser prairie chickens is typically very small. Therefore, estimates of harvest and total use may be subject to large error.

Prairie chicken display ground surveys were performed along 33 standardized 10-mile routes during April, 1985. Eight of these routes were in the lesser prairie chicken range.

Spring densities of lesser prairie chickens were not significantly changed ($p>.20$) from last year in either of the indices of birds/sq. mile or grounds/sq. mile. Only slightly fewer prairie chickens were seen (-6%) on the 8 routes which translates into an average decline of less than 0.5 birds/sq. mile. Four of the routes had no change in the number of grounds, 2 had more grounds and 1 was down slightly.

The number of lesser prairie chickens seen was down 42% from both the 5 and 10 year averages, however. It should be noted that the Kearny County route, which no longer has any prairie in the 20 sq. miles surveyed, due to encroachment of center-pivot irrigation, still has one remaining ground but the number of birds using the ground was one-half of last year.

At one time the Kearny County route had six gobbling grounds and an estimated 460 birds along the route. Now there is one ground and an estimated 16 birds on the 20 sq. miles. We will continue to monitor the demise of this population.

Spring densities of greater prairie chickens (birds/sq. mile) was not significantly changed ($p>.20$) (-8%) from last year (down only 0.5 birds/sq. mile). The number of booming grounds was down 12% ($p<.20$) or an average of 0.038 grounds/sq. mile.

The number of birds reported was 37% and 35% below the 5- and 10-year averages, respectively, while the number of booming grounds was 20% below both the 5- and 10-year averages.

Kansas greater prairie chicken populations appear to be cyclical in nature as has been shown for prairie chickens in Illinois (Westemeier, pers. comm.). Kansas populations have been slowly declining for the past 5 years. Hopefully we are now at our cyclic low and will start to rebound next year.

Weather conditions during the 1985 breeding season have been excellent with abundant, well-timed rainfall and moderate temperatures. Rangeland condition is much improved over previous years with a tremendous amount of native forb seed production.

MINNESOTA - Dan Svedarsky

The Minnesota Prairie Chicken Society continued to coordinate the spring census of the prairie chicken range and has recorded the following number of males and booming grounds ( ) since 1980: 1980 - 1258 males (117 grounds), 1981 - 1410 (144), 1982 - 1648 (146), 1983 - 1420 (139), 1984 - 776 (94) and 1985 - 817 (97). Numbers appear to be generally increasing since the low during 1984 but cool temperatures during the primary hatching months may have reduced reproduction in 1985. Mean monthly temperatures recorded at Crookston for June and July and 90-year averages ( ) were 57.3°F (64.4) and 66.4 (69.6, respectively.

Habitat acquisition within the chicken range by the Minnesota Department of Natural Resources, U.S. Fish and Wildlife Service and The Nature Conservancy continues but without a concurrent increase in management capability. To manage prairie tracts on a 4-year burning, mowing or grazing rotation, necessitates disturbing 25% of the acreage each year. Currently, less than 10% is annually disturbed and trembling aspen (*Populus tremuloides*) and willow (*Salix*) patches continue to expand and trees get larger. June clearcutting and girdling of aspen was initiated on a test basis by The Nature Conservancy and Minnesota D.N.R. in 1985 with possibly more to follow in 1986. It becomes difficult to top-kill aspen by fire after they exceed 4 in. d.b.h. due to their size and the shading out of understory fine fuels. The removal of larger trees should also reduce raptor ambush perches as well.

Land use surrounding prairie habitat tracts continues to intensify creating habitat islands. This probably increases mammalian predation pressure and coupled with very high fox populations (due to low to moderate fur prices), contributes to lower chicken numbers.

The loss of smaller family farms due to the depressed farm economy is viewed as detrimental to chicken welfare as these are absorbed by larger operations with an increase in field size and farming intensity. Low-intensity, diversified farming operations are commonly quite productive of chicken brood habitat and winter food resources.

- Dick Kimmel

Sharp-tailed grouse continued their downward population trend. Dancing ground surveys (coordinated by Bill Berg) have indicated a steady decrease in sharptail numbers since 1982. In 1985 a survey of 143 dancing grounds indicated a 20% population decline, which we attribute to increased habitat destruction (mainly agricultural) and wet weather during the brood period.

In 1981 northwestern counties containing sharptails were added to our August Roadside Survey. Since 1939 the August Roadside Survey has provided population information on a variety of species, although directed mainly at ring-necked pheasant. Sharptail observations have been low, but this survey will be continued.

Minnesota's hunting season for sharp-tailed grouse is from mid-September through the end of November with a limit of three birds daily and a possession limit of six birds. (The sharptail season is closed in a portion of northwestern Minnesota where their range overlaps prairie chicken range.) In 1984 an estimated 7,000 sharptail were harvested by 9,000 hunters. There has been a steady decline since 1980 when 56,000 birds were harvested. Minnesota experienced a similar decline in sharptail harvest in the mid-1960s with a low of 3,600 birds harvested in 1965.

Management activities are primarily maintaining the public lands we own as well as limited land acquisition. A plan for restoring prairie grouse into unoccupied habitat is being developed by Al Berner.

MISSOURI - Donald M. Christisen

A lek survey of about 21% of the prairie chicken range showed a decline of 4% in the cock population for 1985. The population of males was estimated to be 2,725. A census of 18 public prairies averaged 1.9 leks and 18.4 cocks per area, down about 8% in number of leks and 16% in the number of males. The Taberville Prairie Wildlife Area showed a decline of 42% in number of males and one-third fewer leks.

The species management plan for the greater prairie chicken was implemented this year. One phase of the plan includes the acquisition of 10,900 acres of land in scattered tracts of 60 to 240 acres spaced one-half to 2 miles apart in 10 regional management zones. Priority will be given native prairie. Another segment of the plan is designed to promote the use of warm season native grasses for a balanced forage system on Missouri farms.

NEBRASKA - Bill Vodehnal

The 1985 prairie grouse display ground survey indicated a 7% increase in the breeding population from 1984 and a 7% decrease from the preceding 5-year average. Prairie chicken males (1214) attending leks increased 8% and sharptail males (780) increased 5% from 1984. Prairie chickens were 8% above and sharptails 23% below the preceding 5-year average. There were 193 leks (113 PC + 80 ST) on 16 routes.

During the hunting seasons, an estimated 20,000 hunters harvest approximately 100,000 prairie grouse annually.

The 1985 opening weekend results are not final, but preliminary results indicate success comparable to 1984. Success in 1984 opening week about equalled 1983 with hunters averaging 1.6 birds/day (up 7%) and 3.3 hours/bird (up 2%). When compared to the preceding 5-year average, birds bagged per hunter day was up 23% and the time it took to bag a bird was down 11%.

Nebraska personnel have been working with Kansas and the Crescent Lake NWR people near Ellsworth, NE, trapping and transplanting sharptails and prairie chickens. Kansas received 107 sharptails from the Valentine area this past winter.

Mark Heizinger and the Crescent Lake NWR staff have been trying to reintroduce prairie chickens onto the refuge and hopefully in two years will report to the PGTC. They are using three transplanting techniques - winter trapping, display ground trapping, and removing clutches from nesting hens. This past winter I trapped 23 birds which were released on the refuge. Booming ground trapping was successful with 109 birds (56 females and 53 males) captured in 1985 from the Burwell area and Valentine NWR. Eggs were removed from nesting hens in the Bassett area and put under sharptail hens on the refuge. Forty-nine of the 51 eggs hatched. The refuge staff has been pleased with the initial efforts.

The Nebraska Sandhills have provided good sharptail and prairie chicken hunting for many years and hopefully this trend will continue. 1983 and 1984 brought above normal precipitation which stimulated good vegetative growth and improved prairie grouse habitat. This year precipitation is slightly below normal but the range still is in good condition.

The greatest concern with respect to prairie grouse management and habitat in the Sandhills the past 15 years has been irrigation. The boom in the development of the irrigation in the 1970s has slowed immensely. The irrigation boom was stimulated by the low land values, tax incentives and increased farm exports, which encouraged people to buy and speculate in land. Conditions have changed drastically the past few years with a reduced farm economy, higher interest rates, and higher production cost. This has led to farm foreclosures and bank failures. Irrigation has become a casualty. Pivots were idle this past summer; 141 of the 2,956 pivots were turned off. Erosion problems of blowing sand have developed. Some efforts have been made to reseed these areas to native grass. The 1985 Farm Bill (Sodbuster Bill, Conservation Reserve Bill) if it passes Congress, may help to reseed these areas.

NORTH DAKOTA - Jerry D. Kobriger

The spring census in 1985 indicated a statewide decrease of 20% in sharptail males on dancing grounds (not leks). The census covered 21 areas of over 715 square miles. Male densities dropped from 6.6 per square mile to 5.2. Decreases were pretty general over the entire state but the western one-third, still plagued by drought conditions, had the highest decreases. Drought conditions continued through the summer of 1985 and reproduction was poor over most of the State. Brood routes in southwestern North Dakota showed a drop of 22% in birds per mile in 1985 and a drop of 36% in broods per mile. The south central portion of the state was down 12 and 27%, respectively, while the north central portion showed slight increases in both categories.

We anticipated a fair to poor season for sharptails in 1985. A survey of hunters and wing samples from opening weekend (Sept. 14-15) indicates poor success in the western part of the state, with gradually improving success toward the east up to the Missouri River. We anticipate a lower harvest in 1985 compared to 1984.

Limited data are available on prairie chickens in North Dakota. None have been seen on the "Prairie Chicken Wildlife Management Area" near Grand Forks for 2-3 years. The North Dakota Chapter of the Wildlife Society has appointed a committee to attempt propagation and restocking in appropriate areas. Although counts have shown decreases the past 2 years, the Sheyenne National Grasslands appears to be maintaining a viable population. In 1985, 262 males were counted compared to 313 in 1984, 399 in 1983, 222 in 1982. A study funded primarily by the USFS and conducted by Montana State University was recently completed and we are awaiting a written report.

OKLAHOMA - Dennis P. Geary

Lesser prairie chicken populations appear to have rebounded from the severe 1983-84 winter, and the overall population appears static. Density of leks/area surveyed changed little from the previous years' ratios. The 1985 total was 20 leks/120 square miles surveyed. Land use changes continued to be the primary threat to lesser populations. Conversion of rangeland to cropland at the locations of the 2 census leks in Roger Mills County caused the loss of these leks. No other leks could be detected in the county during the 1985 census.

Also noteworthy was the new lek/area census route established in Texas County. This area in Texas County, where lesser chickens are found, is very small with fragmented habitat. The area selected for survey was the one described by Richard Cannon in 1980. It was noted by field personnel that three sections (1,920 acres) of what Cannon described as sand sagebrush rangeland has since been changed to agricultural land.

Greater prairie chicken populations are on a slightly downward trend. The 1985 spring census revealed a 9% reduction in total cocks observed. Mean leks/area were .37 leks/square mile in 1985, little change from the .39 leks/square mile in 1984.

The 1984 hunting season was fair to poor with little interest expressed by sportsmen. Wings and retrices collected through mail-in-cards revealed a greater chicken age ratio of .6 adult/1 juvenile, and sex ratio of .82 cocks/1 hen. Some 68% of the greater chicken harvest occurred over cropland and 32% over rangeland. Only one lesser prairie chicken wing was received in 1984.

At this time, the establishment of a tall grass prairie reserve in Osage County appears to have a very good chance of becoming a reality. It will be located in the heart of the greater chicken range in Oklahoma.

SOUTH DAKOTA - Larry Fredrickson and Barth Crouch

The 1985 spring sharp-tailed grouse grounds survey showed the same 1.8 males per square mile as in 1984. The 1985 prairie chicken spring grounds survey showed a 20% increase over 1984 and was 0.54 males per square mile.

The 1985 summer brood survey indicated poor reproduction for both species because of the drought and especially in the north one-half of the range. Average brood size was 5.83 for sharptails and 4.44 for prairie chickens.

The 1985 hunting season opened on the weekend of September 21 with bad weather including wind and rain. The age ratio was about two young per old in the south one-half of the range and less than this in the north half of the range where poorer moisture and cover conditions occurred. Hunting success was from one to two birds per man each day but hunters hunted 6 to 8 hours in the south to all day in the north to get them. More grouse were old and tended to be wilder, especially in the north part of the range due to the weather and poorer overall conditions.

TEXAS - Philip K. Evans

The 1985 census of Attwater's Prairie Chicken revealed a total of 1,430 chickens. The census is primarily an aerial census with a few follow-up ground counts. Males are counted and doubled to arrive at a total population. A ratio of 1:1 has been determined by total trap-outs to remove chicken populations from inappropriate areas.

The 1985 harvest of Lesser Prairie Chickens was 469 compared to 272 in 1984. During the two day hunt in 12 Panhandle counties, 263 hunters observed 13,790 chickens in 1985 and 179 hunters saw 3,041 chickens in 1984. Hunters averaged 1.78 birds which were brought through seven mandatory check stations.

WISCONSIN - James R. Keir

The chickens in Wisconsin are doing fine. Booming counts this past spring showed a 15% increase over 1983 counts - perhaps an indication that our population is already recovering from the cyclic low point. If so, we are a year or two ahead of schedule. The low point (1983 count) remained significantly higher than any previous low since the onset of the management program.

An all-out effort utilizing a combination of radio telemetry and cable-chain dragging resulted in location of approximately three dozen chicken nests this past spring. This was the first successful effort at locating any number of nests, and data collected from these nest sites will give us a better understanding of nesting habitat in Wisconsin. Additional information will be collected next season.

The grazing study designed to assess impact on aspen and willow encroachment is in its second year and will continue at least one additional year. Preliminary results indicate some positive impact on controlling brush.

Forty acres of switchgrass were grazed in 1984 in an attempt to demonstrate the benefits of utilizing a warm season grass in rotation with the typical cool season grass pastures. Ranchers in the area are watching this program with interest. The opportunity exists for a significant amount of nesting habitat on private lands should the program prove successful.

BUFFET DINNER

September 24, 1985

Charles W. Schwartz, former prairie chicken biologist in Missouri and long-time advocate of the Prairie Grouse Technical Council, was guest of honor with his spouse Elizabeth. Fred and Frances Hamerstrom of Wisconsin were recognized for their long and faithful support of the Prairie Grouse Technical Council.

BUSINESS MEETING

The 16th Prairie Grouse Technical Council Meeting was called to order by co-chairman Richard Cannon at 7:44 p.m., September 24, 1985 at the Quality Inn, Sedalia, Missouri.

Steve Clubine read the minutes from the previous meeting in Emporia, Kansas. Minutes were accepted as read.

The main topic of the 1983 meeting was the development of an informational book or booklet on prairie grouse. Winnie Kessler (University of Idaho) had been assigned to coordinate development of the book but due to job assignment changes, she was unable to continue. Nova Silvy (Texas A&M) accepted the responsibility. Nova reported that the publication will be in book form with species chapters and state segments on status. Nova has set a deadline for contributions and has received 13 chapters (one-third) so far; one-third are in the making and last third aren't written. Nova stated that he needed contacts for Canadian input; several names were mentioned which should help.

Chapters are on computer but not yet edited. Nova hopes to have a completed manuscript by next year. Nova would like a bibliography in the back of the book. He asked authors for additional material, e.g. P.R. reports, to be included in the bibliography list. Jerry Kobriger (North Dakota) reminded Nova that the Council has a bibliography committee. Fred Hamerstrom (Wisconsin) reported that the committee had over 2,000 entries for prairie chicken alone. A lot were on cards but further development collapsed due to a lack of funds. Nova said he would like to see what they had.

Cannon proposed a change in prairie grouse population status reporting procedure. Rather than a verbal report at the meeting, he suggested that they be printed in the Proceedings because few members had their status reports with them. The proposal was made into a motion. The motion was seconded and passed.

Larry Frederickson (South Dakota) proposed that future meetings of the PGTC be moved back two weeks to reduce conflict with prairie grouse hunting seasons. Fran Hamerstrom (Wisconsin) suggested a return to the old custom of holding the meeting to coincide with prairie grouse hunting seasons and for the host state to give complimentary hunting permits to Council members. A discussion followed that only about half of the states still had prairie grouse seasons and this would not help solve the problem of season conflict for these states having difficulty getting time to attend during their season. Ron Westemeier (Illinois) indicated a preference for late September because of cooler weather but before winter storms jeopardized travel. A motion was made for the host state to select three consecutive days during the first three weeks of September at the discretion of the host state. Motion was seconded and passed.

The next order of business dealt with the plight of the Attwater's prairie chicken. Nova Silvy reported that since the Emporia meeting, the population in five counties had been declared endangered. Most of the remaining habitat off the Refuge was either in rice or fallow rice. Subdivisions continue to gobble up the range near Galveston and hurricane Alecia eliminated the birds in one entire county.

The Attwater's prairie chicken preservation plan calls for two 15,000 acre refuges to reduce the vulnerability of the present refuge to natural calamities such as hurricanes. Nova proposed that a resolution be submitted by the PGTC to the Federal government to develop leverage for putting more emphasis on preserving the Attwater's. A motion was made, seconded and passed for Nova to develop a resolution, and Cannon and Christisen to sign as co-chairmen of the 16th Prairie Grouse Council Meeting.

An invitation was made by Dan Svedarsky to host the next meeting at Crookston, Minnesota in 1987. A motion was made, seconded and passed for the meeting to be the three days prior to the Minnesota ruffed grouse season so that members can stay over to hunt.

Meeting adjourned at 8:34 p.m.

Steve Clubine
Acting Secretary

Executive Board 1983-1985:

Richard W. Cannon, Co-chairman
Donald M. Christisen, Co-chairman
Roger Wells, Member
William L. Vodehnal, Member
Ken Robertson, In Memoriam

Executive board 1985-1987:

W. Daniel Svedarsky, Chairman
Richard W. Cannon, Member
Roger Wells, Member

ACKNOWLEDGMENTS

To Steve Clubine, Tom Toney, Jim Gebhart, Charlie Jordan, Diana Hallett, Jim Auckley and B.J. Lindsey for pre-conference assistance with a host of details necessary for holding the conference.

To S.S. Sapp and R.M. Scheidt for typing copy, and Mitzi Crump for typesetting.

To the field tour leaders Rich Cannon, Steve Clubine, Tom Toney, Jim Gebhart, Dave Fox and Dan Philbrick.

To the Osage cookout crew: John B. Lewis, Chief Chef, Bill T. Crawford, Richard W. Vaught and Jack Shatford, Chefs, and Buck Caldwell, Chief Forager. To Larry Mechlin, Jim Gebhart and Richard W. Vaught for home-grown Missouri produce and Dan Shepherd, buffalo market hunter.

To Rich Schroeder, alias the old time drover from Texas, for entertainment.

To Jimmy Pyland, Larry Abraham, Larry Heggemann and Bill Bergh for assistance with transportation.

To the speakers for their thoughtful presentations which made the conference possible and the session chairmen, Steve Clubine, Tom Toney and Rich Cannon.

To the Quality Inn hosts, Martina Jones and Joanne Cummings.

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PAST CONFERENCES

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
13th, Wisconsin Rapids, Wisconsin	September 26, 27, 28, 1979
14th, Halsey, Nebraska	September 23, 24, 25, 1981
15th, Emporia, Kansas	September 20, 21, 22, 1983

Thursday — September 26, 1985

Session No. 3
Chairman — Richard W. Cannon
Missouri Department of Conservation

8:00 a.m. Nest-brood habitat of Attwater's prairie chicken on the Attwater's Prairie Chicken National Wildlife Refuge — Michael E. Morrow and Nova J. Silvy, Texas A&M University

8:30 a.m. Modified drop-net for capturing prairie chickens — Nova J. Silvy and Michael E. Morrow, Texas A&M University

9:00 a.m. Responses of lesser prairie chicken populations of sand and sandsage prairie to row-crop agriculture — Roger Wells, Kansas Fish and Game Commission.

9:30 a.m. Break for refreshments

10:00 a.m. Status report on the greater prairie chicken in Minnesota —W. Daniel Svedarsky and Terry J. Wolfe, University of Minnesota.

10:30 a.m. Parasitism of prairie chicken nests by pheasants in Illinois — Ronald L. Westemeier, Illinois Natural History Survey.

11:00 a.m. A comparison of greater prairie chicken and ring-necked pheasant nest sites in Illinois — John E. Buhnerkempe, Illinois Natural History Survey.

11:30 a.m. Movements and behavior of sharp-tailed grouse in Southeastern Montana—Hans Landel, Purdue University.

Adjourn

Past Conferences

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September 9-11, 1975

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September 13-15, 1977

13th - Wisconsin Rapids, Wisconsin
September 26-28, 1979

14th - Halsey, Nebraska
September 23-25, 1981

15th - Emporia, Kansas
September 20-23, 1983

Program
16th Conference
of the
Prairie Grouse
Technical Council

September 24 - 26, 1985
Quality Inn
Sedalia, Missouri

Registration and Reception
Monday, September 23, 1985
5-8 p.m. Hospitality Room — Cash Bar

Tuesday Morning, September 24, 1985

8:00-10:00 a.m. Registration

8:00 a.m.-5:00 p.m. Papers and reprints available

Program

Colonial Room

8:30 a.m. Hello! Ollie Torgerson, Superintendent of Wildlife Research, Missouri Department of Conservation

8:40 a.m. Welcome - Kenneth M. Babcock, Chief of Wildlife Division, Missouri Department of Conservation

Session No. 1
Chairman — Steve Clubine
Missouri Department of Conservation

9:00 a.m. Female prairie grouse nesting strategies in relation to the lek mating system — Michael W. Gratson, University of British Columbia.

9:30 a.m. Break for refreshments

10:00 a.m. Ecological relationships of Columbian sharp-tailed grouse leks in Curlew National Grasslands, Idaho with special emphasis on effects of visibility — Donnel J. Ward, U.S. Forest Service and Gar W. Workman, Utah State University.

10:30 a.m. Seasonal movements and habitat use by Columbian sharp-tailed grouse in Colorado — Kenneth M. Giesen, Colorado Division of Wildlife.

11:00 a.m. The nesting ecology of sharp-tailed grouse in relation to specialized grazing systems — Kevin L. Grosz, North Dakota State University.

11:30 a.m. Replacement leks for displaced sharp-tailed grouse — R. K. Baydack, University of Manitoba.

12:00 noon Lunch break

Tuesday Afternoon, September 24, 1985

Session No. 2
Chairman — Thomas E. Toney
Missouri Department of Conservation

1:30 p.m. A management plan for sharptails in Northwestern Wisconsin — Larry Gregg, Wisconsin Department of Natural Resources.

2:00 p.m. Efforts to re-establish sharp-tailed grouse in Northwestern Kansas — Randy Rodgers, Kansas Fish and Game Commission.

2:30 p.m. Management plan for greater prairie chickens in Missouri — Richard W. Cannon, Missouri Department of Conservation.

3:00 p.m. Break for refreshments

3:30 p.m. A Missouri habitat appraisal procedure for greater prairie chicken — David L. Urich, Missouri Department of Conservation and John P. Graham, Soil Conservation Service.

4:00 p.m. Implications of warm season native grass program for survival of greater prairie chicken in Missouri — Steve Clubine, Missouri Department of Conservation.

4:30 p.m. Greater prairie chickens and public prairies — Thomas E. Toney, Missouri Department of Conservation.

6:30 p.m. Dinner and business meeting of Prairie Grouse Technical Council. Colonial Room.

Business Chairman — Richard W. Cannon

Wednesday, September 25, 1985

Field Tour
Tour Leader — Richard W. Cannon
Missouri Department of Conservation

8:30 a.m. Leave Sedalia via chartered bus to Cooper, Moniteau, Morgan, Benton and Pettis counties to view prairie chicken habitat — farmland and native prairie.

12 noon Arrive back in Sedalia for a sandwich, soup and salad lunch.

1:30 p.m. Continue field tour in Pettis County to view prairie chicken habitat — native prairie and warm season native grass plantings.

5:00 p.m. Arrive at Knob Noster State Park, Camp Shawnee, for cook-out.

5:30 p.m. Osage cook-out. Chief Master Chef, John B. Lewis, Missouri Department of Conservation.

7:00 p.m. "When the grass grew tall" — reflections of old time drover.

8:00 p.m. Board bus for return to Sedalia.