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LIFE HISTORIES OF
NORTH AMERICAN GALLINACEOUS
BIRDS

ORDERS GALLIFORMES AND COLUMBIFORMES

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been brought about in part by some hereditary influence, but it is certain that this condition was aggravated by the fires that ravaged the island during the breeding season. At such times the females were destroyed on the nests, whereas the males escaped the conflagration. Furthermore, a female with young was subject to more danger of being killed than the male, which never cared for the young.

Other factors that played their part were the excessive interbreeding, which was destined to occur after the heath hen was restricted in range and to exceedingly small numbers of individuals. It was also found upon examination of dissected specimens that many of the birds were sterile.

TYMPANUCHUS PALLIDICINCTUS (Ridgway)

LESSER PRAIRIE CHICKEN

HABITS

Comparatively little seems to be known and still less has been published on the habits and distribution of the small, light-colored, lesser prairie chicken, which is found in the Upper Sonoran Zone of the Great Plains from Kansas and Colorado to central Texas and eastern New Mexico. It has disappeared from many sections where it was once abundant; too much grazing on, and extensive cultivation of, the grassy plains have driven it out. But it is still to be found in fair numbers in its restricted range, where it is protected, or not disturbed.

We are greatly indebted to Walter Colvin for the information that follows regarding this fine bird, which I have gathered from his published article (1914) and from the full notes and photographs he has sent to me. Writing of its distribution and haunts in 1914, he says:

The natural habitat of this beautiful grouse is far remote from the habitat of its allied cousin, the heath hen, and still less remote from its nearer cousin the common prairie hen of the Middle States. Its present confine is the southwestern counties in Kansas, extending west from Meade, through Seward, Stevens, and Morton and north into Stanton, Grant, and Haskell counties, crossing the line into Colorado some fifty miles, extending south through Beaver, Texas, and Cimarron counties of Oklahoma, into the panhandle of Texas, but how far south and east I haven't sufficient data at hand to determine, although I believe it is safe to assert that they do not extend farther south into Texas than two degrees by air line. In northwestern Oklahoma I have seen the chickens within a few miles of the New Mexico line.

Formerly this variety of chickens was common in Woodward County, Oklahoma, and Captain Bendire, in his Life Histories, mentions securing their eggs near Fort Cobb, Indian Territory, in 1870. At that time reliable information goes to show that they were far more plentiful south of the great Indian highway than north. The pan-handle is a typical bunch-grass country, and during the early eighties a great prairie fire broke out in its southern extremity, sweep

ing north to the narrow strip of short grass land in "No Man's Land," where it died. The chickens that were driven north found an ideal home in the rolling, sandy bunch-grass country that abounded just across the line.

Their range in its entirety would probably cover no greater area than a fourth of the State of Kansas, and the most abundant nucleus is in Stevens and Morton counties. Here they are quite plentiful in its sandhill and bunch-grass fastness, where, in the fall of the year they sometimes gather in flocks of several hundred birds, roaming where they will, a typical bird of the long-grass country.

Courtship.—Concerning the courtship of this species, Colvin says:

The nuptial performances of the cocks are similar to those of the common variety, but the ventriloquial drumming sound does not appear to be quite so rolling or voluminous. In May, 1907, I put up in the heart of the nesting-ground, where I had an excellent opportunity to study their habits. The cocks generally select for drumming-ground a slight rise covered with buffalo grass, where they gather each spring for the nuptial performance. They are very partial to their drumming-grounds, and even though disturbed will return to their old haunts year after year. I saw one drumming-ground that had been used for many years.

Here the cocks would gather sometimes as high as fifty birds to perform their antics. The drumming of so many cocks would be of such volume as to sound like distant thunder. Hens attracted by the drumming would cause disturbance. Cock fights and a general all-around rumpus would begin. A great deal of strutting and clucking would be done by the males. Finally, when, with lowered head and wings and air-sacks full, a successful cock would drive his hen from the bunch, peace would reign again, and the drumming would be resumed.

Nesting.—A nest that Colvin found near Liberal, Kans., on May 28, 1920, was "located in a bunch of sage, growing in a swale just below a brow of a hill;" it consisted of "a hollow scooped out in the sand and lined with grasses. So well concealed was the nest that one could observe only a small portion of the female as she sat upon the nest. Disturbing the sage brush she left the nest, disappearing over the hill. The nest contained 12 eggs on the point of hatching."

Another set of eggs, which he kindly presented to me, was taken in the same general region on June 2, 1920; these eggs were only slightly incubated. He says in his notes:

On John Napier's farm I was shown a nest of the lesser prairie hen. It was placed under the south side of a bunch of sage, and was a mere hollow in the sand lined with grasses. When I saw the nest it had been exposed by a corn lister. The nest originally contained 12 eggs, but one had been broken by the lister, leaving 11. Mr. Napier informed me that the team had passed over the nest and sitting hen twice before she was finally raked off by the doubletree.

Of a third nest he writes:

Through the efforts of an old-time trapper, Ed. Ward, I was successful in securing a set of 13 straw-buff-colored eggs. The nest, a mere hollow in the sand, was lined with a few grasses, and was situated under a tumbleweed, which had lodged between two tufts of grass on the north side of a sloping

hillock. The sitting hen allowed us to approach quite close before taking wing.

Mr. Ward informed me that the nests were almost invariably placed on the top of a rise, or on its sloping sides. The nests, though usually placed in open situations, are extremely difficult to find, owing to the dichromatic arrangement of the feathers, which so harmoniously blends with the surrounding of the sitting bird. A far greater protection to the sitting hens is their nesting powers during the nesting season, which was fully demonstrated the following spring, when I again visited that vicinity in order to secure a series of photographs.

In company with one of the best-known chicken dogs, I thrashed over several sections of bunch grass land where chickens were common and known to nest each year, but without success. I found no hens off the nests during the heat of the day, but quite frequently saw them flying to the feeding grounds after twilight. Several times while hunting their nests I felt sure that I was within a few feet of the sitting birds, but was compelled to give up the search. The hens are close, hard sitters, and very few nests are found. Prairie chickens expose many nests and are the nesting hen's worst enemy.

Eggs.—The full set seems to consist of 11 to 13 eggs, so far as we know. The eggs are ovate in shape, smooth, and rather glossy. The colors vary from "cream color" to "ivory yellow" in my set; most of the eggs are sprinkled with very fine dots of pale brown or olive, but some are nearly or quite immaculate. Mr. Colvin calls them straw color or straw buff. Bendire (1892) says: "The ground color varies from pale creamy white to buff. The markings, which are all very fine, not larger than pin-points, are lavender colored. More than two-thirds of the eggs are unspotted, and all look so till closely examined."

The measurements of 47 eggs average 41.9 by 32 millimeters; the eggs showing the four extremes measure 43.5 by 33.5, 40.5 by 33, and 40.7 by 30.4 millimeters.

Plumages.—I have never seen a downy young of the lesser prairie chicken, but probably it is much like the chick of its northern relative. The sequence of molts and plumages is doubtless similar to those of the prairie chicken. A young bird, about one-third grown but in full juvenal plumage, has the crown and occiput mottled with "tawny" and black; the chin and throat are white; the feathers of the back and scapulars are variously patterned with transverse bars of "ochraceous-tawny," "tawny-olive," "cinnamon-buff," and black, with median white stripes or tips; the central tail feathers are similarly barred and tipped, the pattern diminishing on lateral rectrices; the underparts are dull whitish, heavily spotted or barred on the breast and flanks with black, sepia, and pale dusky, darkest on the chest, and more or less heavily tinged on the flanks and breast with "ochraceous-buff."

Food.—Colvin (1914) says that "during the summer months they feed largely on grasshoppers, but in the fall and winter they feed

almost entirely on kaffir corn and maize, cane seed, and other varieties of semi-arid cereals. As to the palatableness of the meat I much prefer duck."

Behavior.—The same observer says:

In general characteristics and makeup the lesser prairie hen is of a sturdy, robust nature, being some two-thirds the size of the common prairie hen. They are veritable dynamos of "git up" and energy. Such vivacity and activity I have never seen displayed in any other game bird. On a cold, snappy day they have the life and energy of half a dozen quails, and for speed they put their first cousin to shame. A full-grown cock, well fattened, will weigh from a pound eleven ounces to a pound fourteen ounces.

Game.—Judged from Mr. Colvin's published accounts (1914 and 1927) the lesser prairie chicken must be a fine game bird, sufficiently wild and swift of wing to make sporty shooting, and large and plump enough to make a desirable table bird. These birds were wonderfully abundant in earlier days, as a few quotations from Mr. Colvin's writings will show. "In a cane field near the State Line," he says, "we saw a flock of 500 or more, and when they arose it seemed that a hole had been rent in the earth." He wanted to stop and shoot a few, but his companion urged him on, saying, "Those are only rovers. I'll show you some chickens when we get up in the State." Evidently he made good, for Mr. Colvin (1914) writes:

"Two miles farther along we came to Ed Ward's. He informed us that there were a "few" chickens in a cane and kaffir corn field a quarter of a mile east. We flushed several birds from the tall bunch grass just before we reached the field, which were promptly despatched; however, in the field things became more lively. Such a sight I have never seen before nor since. Chickens were flushing everywhere, and droves of fifty to a hundred would take down the corn rows, sounding like a moving avalanche as they touched the blades of corn. Still birds were quite wary, and the only good shots were to be had over the dog.

"As we thrashed back and forth across the grain field, the chickens arose in flocks of fifty to five hundred, and generally sixty to eighty yards distant, making shooting difficult. The majority of the birds, after being flushed, would fly back into the field, while some would go to the bunch-grass covered hills half a mile away. Mr. Ward and I estimated that there were from thirty-five hundred to four thousand chickens in this one field, a sight never to be forgotten.

A few years later, hunting over the same ground, he found the chickens much diminished in numbers; his thoughts are expressed as follows:

Gathering our duds together, we started for our long journey home. A few clouds, fringed with gold, freckled the western sky, and over all a red mantle was cast while the sun slowly lowered to the horizon. My mind went back to the events of the day and to the time when the chickens were more plentiful, and I realized with a shudder that we were nearing the sunset life of the king of upland game birds. But the decrease in their numbers is not due so much to

the gunners, as gunners are few per capita in those parts, but is due largely to the cutting up of this vast wilderness into small farms. The bunch-grass land can not be mowed for hay; therefore, in such land the chickens have found an ideal home in which to rear their young and harbor themselves during the winter. Such land is soon destroyed by cultivation and small pastures. With the advancement of civilization the flocks scatter and become depleted.

He wrote to me in December, 1927:

The saving of the lesser prairie hen for future time is assured, as some recent laws were enacted in Kansas that gave the game commission the power that enables them to close and open seasons without any special legislation from the State. After visiting the nesting grounds this summer and noticing that many of the birds had been destroyed, I took it up with the State game warden J. B. Doze, and Lee Larabee of the commission, and they established the close season this year. We are therefore assured of a good crop of birds next year.

Winter.—Of their winter habits, Colvin says:

Though naturally lovers of the free range, during the winter they rely largely upon the farmer and rancher for their food. A large amount of grain is consumed by the flocks as they roam from one grain field to another. In the eighties a man by the name of Hatch settled in the sandhills just inside the Kansas line in Seward County. Here he planted a grove of black locust trees and spread out his broad fields of maize and kaffir corn. The Texas bobwhites, mountain quail, and lesser prairie hens soon learned that this man was a friend of the birds, and straightway made it their rendezvous. Here, each fall, the chickens gathered by the thousands, and each spring spread out over the vast prairies, nesting and rearing their young. In the fall of 1904 my brother estimated that he saw in a single day, 15,000 to 20,000 chickens in and around this one grain field. Though timid if persecuted, if unmolested they become quite tame, coming to the barn lots to feed, and will put as much confidence in man as quails when protected.

DISTRIBUTION

Range.—The Great Plains region, from southeastern Colorado and Kansas south to west-central Texas and probably southeastern New Mexico.

Breeding range.—The breeding range of the lesser prairie chicken extends north to southeastern Colorado (Gaumes Ranch and Holly) and southwestern Kansas (Cimarron). East to southwestern Kansas (Cimarron) and Oklahoma (Ivanhoe Lake, Fort Reno, and Fort Cobb). South to southwestern Oklahoma (Fort Cobb); northern Texas (Mobeetie and Alanreed); and east-central New Mexico (Portales). West to east-central New Mexico (Portales); and southeastern Colorado (Cimarron River and Gaumes Ranch).

Winter range.—Confined chiefly to central Texas. North to Monahans, Midland, and Colorado City. East to Colorado City, Middle Concho River, and Bandera. South to Bandera, Fort Clark, and the Davis Mountains. West to the Davis Mountains.

and Monahans. Casual in winter at Lipscomb in the Panhandle area, and it appears probable that some winter in southeastern New Mexico (vicinity of Carlsbad).

No information is available relative to the movements of this species between breeding and wintering areas.

Casual records.—Widmann (1907) reports a specimen in the Hurter collection said to have come from southwestern Missouri, and that in January, 1877, large numbers were shipped to Fulton market, New York City, from Pierce County. Neff (1923) states the species was noted in Lawrence County, Mo., in 1887. A specimen in the collection of the Academy of Natural Sciences of Philadelphia was taken between January 24 and 28, 1894, near Garneth, Kans., while another was collected at Oakley, Kans., January 1, 1921. The exploring party of Capt. John Pope collected two specimens (later made the types of the species) on the Staked Plains, N. Mex., on March 3 and March 11, 1854.

Lesser prairie chickens also have been reported from Nebraska, but in the lack of specimen evidence it is thought that the records refer to *T. c. americanus*. At the present time the Arkansas River appears to be a very definite northern boundary to their range.

Egg dates.—Colorado to Texas: 12 records, May 5 to June 12; 6 records, May 20 to June 1.

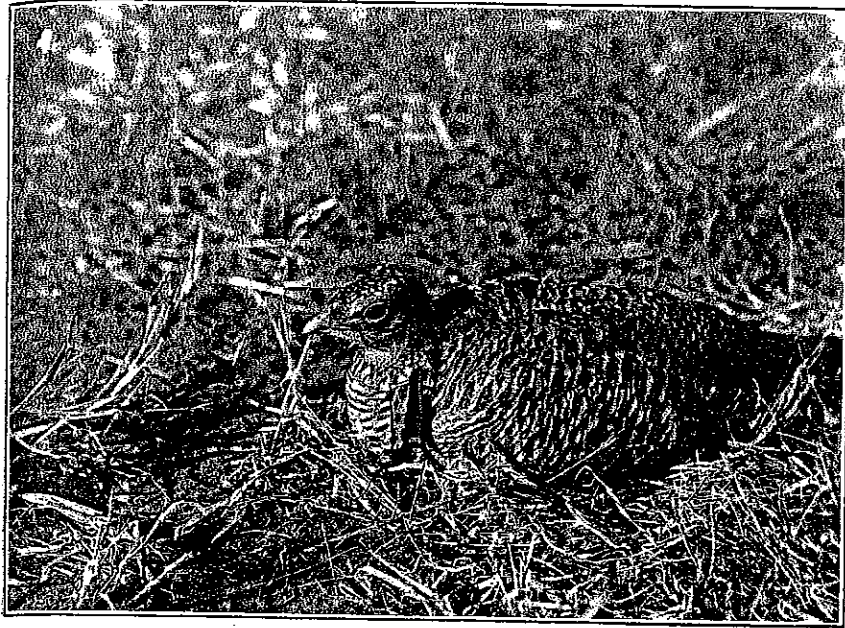
PEDIOECETES PHASIANELLUS PHASIANELLUS (Linnaeus)

NORTHERN SHARP-TAILED GROUSE

HABITS

As the specimen on which Linnaeus bestowed the type name of the species came from the Hudson Bay region, the name *P. p. phasianellus* is now restricted to the dark-colored race, which ranges through the forested regions of northern Canada to central Alaska. Its center of abundance seems to be in the vicinity of Great Slave Lake, Mackenzie. Swainson and Richardson (1831) say that "it is found throughout the woody districts of the fur-countries, haunting open glades or low thickets on the borders of lakes, particularly in the neighbourhood of the trading-posts, where the forests have been partially cleared." According to Major Bendire (1892) it was found breeding at Fort Rae, in latitude 63° N., and at Fort Good Hope, in the Mackenzie River Basin. MacFarlane (1908) found it breeding in the valley of the Lockhart and Anderson Rivers, where two nests were found, but the eggs were afterwards lost. Herbert W. Brandt says in his Alaska notes:

The sharp-tailed grouse proved to be the most common gallinaceous bird we encountered during the early stages of our dog-sled trip to Hooper Bay. We first collected it on March 22, when two handsome males were taken, but small



MALE LESSER PRAIRIE CHICKEN
October, 1925.



NEST OF LESSER PRAIRIE CHICKEN

June 2, 1920. Referred to on page 281. Both photographs taken by Walter Colvin in Seward County, Kans., and presented by him.