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## THE SAGE HEN IN WASHINGTON STATE

## BY CHARLES F. YOCOM

History.—Ballou (1938) mentions a sage cock shot at the head of Pine Creek, Klickitat County, probably in May of 1872. He also mentions that the Sage Hen (*Centrocercus urophasianus*) was in the Alder Creek country and Horse Heaven sand hills (p. 171) from 1840 to 1900.

Lewis and Clark party on October 17, 1805, saw a great number of grouse that were larger than Heath Hens near the mouth of the Snake River and several were shot (Quaife, 1916). Douglas (Royal Historical Society, 1914) also mentions seeing this bird on the sagebrush plains of eastern Washington.

Apparently Sage Hens were common from October to April along the Columbia River from the junction of the Spokane River to the mouth of the Walla Walla River. Douglas (Royal Historical Society, 1914) saw large numbers of these birds at Priest Rapids. He indicated that these birds moved back from the lowlands along the rivers to nest in the arid highlands.

Range of the Sage Hen.—This interesting grouse of the semi-desert lands of eastern Washington formerly ranged from the lower section of the Columbia River Valley that was covered with the Artemisia-Agropyron vegetative complex, north along the Columbia River to the Big Bend Country and still northward along the Okanogan River Valley to the Boundary of Canada at Oroville. Sage Hens also were known to have inhabited the dry sage brush flats of the Okanogan Valley in British Columbia. This species also was common in the Yakima Valley and the vast sage-covered lands that lay between this watershed and the Columbia River. Probably the range of this bird did not extend much farther northeastward along the Columbia River than Miles, near the mouth of the Spokane River. It is also unlikely that many Sage Hens formerly were present in Spokane County, except along the west side. Jewett et al. (1953) present information showing that Sage Grouse were formerly hunted in Spokane County. Accounts of early days in western Whitman County indicate that these birds were occasionally abundant in some areas. Areas bordering the Walla Walla and Touchet rivers supported these birds, and Jewett et al. (1953) point out that these birds formerly were in Columbia County. The lands along the lower Palouse River and the Snake River southwest from its confluence with the Palouse formerly supported Sage Grouse.

The bulk of the populations, however, must have been confined

to the vast sagebrush lands of the Big Bend, Moses Coulee, Grand Coulee, and Crab Creek drainage southward to the Snake and Columbia rivers. This large area includes Douglas, Grant, Lincoln, Adams, and Franklin counties. Also many Sage Hens must have lived along the dry east slopes of the Cascade Mountains and the sage flats bordering the Yakima River, its tributaries, and the Columbia River in the counties of Kittitas, Yakima, Benton, and Klickitat (Figure 1).

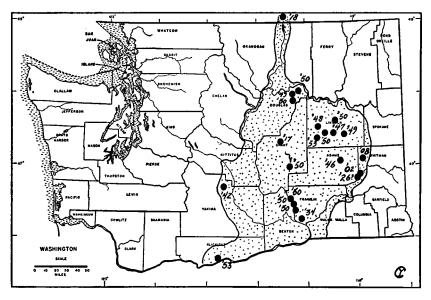


FIGURE 1.—Range of Sage Hen in Washington State; dots represent records of grouse seen in the year indicated.

According to the vegetative zones established by Daubenmire (1942) for southeastern Washington and adjacent Idaho, Sage Hens formerly were restricted to the Artemisia-Agropyron zone for the most part. Some birds lived in the lands classified as formerly in the Agropyron-Poa climax zone in western Whitman, southeastern Adams, eastern Franklin and Walla Walla counties, and part of Columbia County. This classification does not mean that Artemisia was entirely lacking in this zone; formerly some valleys in the counties mentioned had considerable sage in them, thus Sage Hens could have done well in some areas included in this Agropyron-Poa zone. For example, large sage plants still persist along the Palouse River in Whitman County approximately three miles northeast of Palouse Falls.

Land Changes.—Obviously land-use has had much to do with the gradual elimination of Sage Hens from their former ranges. Overgrazing of grasslands during the cattle and sheep era may have had a depressive effect on population levels, but the greatest changes started with the plowing of the range lands and burning of sagebrush lands. In many areas Sage Hens were eliminated in a similar manner to Sharp-tailed Grouse (Pedioecetes phasianellus) because the space requirement could not be met (Yocom, 1952). Scabland channels remained relatively untouched for many years and some of them are still about as they must have been many years ago. The development of the Columbia Basin Project, however, eliminated thousands of acres of sage flats in the Grand Coulee and now much of it is flooded by irrigation waters.

Since World War II, large machinery has made it physically possible and high prices for wheat has made it economically possible for land to be cleared and put under cultivation that was range land only a few years ago in Douglas and Lincoln counties. Some of these changes have happened within the last year or two, and it will be noteworthy to see what effects this will have on populations of grouse that are in those areas. Most of the former sagebrush-covered valleys of western Adams and southern Grant counties are being leveled and planted to irrigated crops. Obviously Sage Hens are eliminated from most of these areas at the present time.

Hunting in the State of Washington.—The first open season for Sage Hen in the Badger Pocket Area, Kittitas County, for many years was established on October 8 and 9, 1950. The limit consisted of one bird per day and one bird per season. The bag limit has remained the same. The area has been increased for the hunting of this species as indicated by the following table concerning dates of seasons and areas open to hunting:

	TAB	LE 1	l			
SAGE HEN HUNTING	Seasons	AND A	AREAS	OPEN	то	HUNTING

Year Dates		Area open to hunting by counties	Number killed		
1950	October 8 and 9	Badger Pocket, Kittitas County	1,500-2,000		
1952	October 7 and 8	Badger Pocket, Kittitas County Grant and Douglas counties	2,400		
1952	October 7 and 8	Kittitas, Grant, and Douglas counties	3,900		
1953*	October	Kittitas, Grant, Douglas, and Yakima counties	4,000		

<sup>\*</sup>Season was opened on Sharp-tailed Grouse in Douglas, Lincoln, and Okanogan counties, the first hunting season on this species for many years.

The number of birds harvested the first season was estimated to have been from 1,500 to 2,000 birds. Returns from hunter kill questionnaires sent out by the State of Washington Department of Game indicated that approximately 2,400 Sage Grouse were harvested in 1951; 3,900 in 1952; and 4,000 in 1953 (data furnished by Raleigh Moreland, Assistant Chief Game Management Division).

Many people might consider a season on a species that was being eliminated from its former range as undesirable, but we must remember that most species of upland game are usually at a population level commensurate with the range that they are in; in other words, they are at a population level that is compatible with the existing environmental factors that control the carrying capacity of the range.

Obviously the yearly production of these grouse results in a surplus population in the fall that should be harvested by the hunters and not left for other decimating factors to reduce to the normal level of the breeding stock on the range as it now exists. Closed seasons will not assure populations of Sage Hen for future gunners and students of nature; what should be done is to assure proper environments for these birds for future years. The danger in losing this attractive native grouse is related to the elimination of the large sections of sage and grasslands. Land-use practices more than any other development will determine the fate of this bird in Washington; and these, of course, are fundamentally tied in with the economics of the State. We know that the range lands are gradually being reduced, and we know that the Sage Hen will fade from our western scene as the large communities of sagebrush and other plant associates are eliminated. There is a good chance that the sagebrush lands controlled by General Electric along the Columbia River in Benton County will act as a refuge for this species for some time to come. Also there may be relatively undisturbed range lands in the channeled scablands of Lincoln, Grant, and Douglas counties that will be extensive enough to hold this species in future years. However, human populations are growing rapidly in central Washington as a result of the Columbia River Basin Development Program, and future demands for land will become greater, so it is difficult to say what may be the fate of this grouse in Washington.

Raleigh Moreland, Assistant Chief of the Game Management Division of the State of Washington Department of Game, feels that Sage Hen populations will increase as the Columbia Basin is developed in response to increased water and food supplies. Apparently farming increased Sage Hen populations in the Badger Pocket area, and there are indications that other populations have

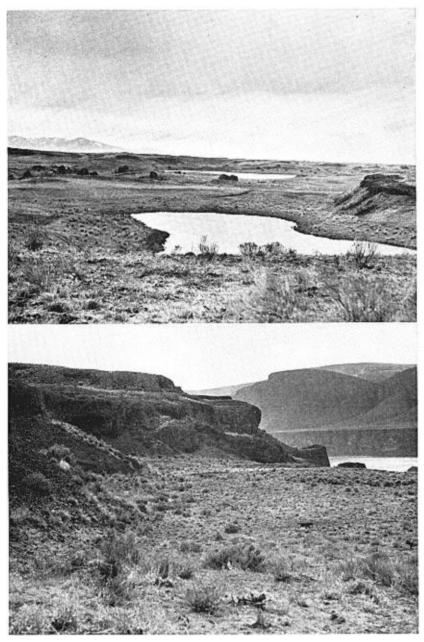
spread into habitat that was void of grouse twenty-five to forty years ago.

Breaking of some of the sagebrush lands for agricultural use may actually increase Sage Hen populations to a certain point. However, continued elimination of native range lands undoubtedly have a depressive effect after a certain ratio of "wild" land to crop land is reached.

Population Levels.—From all indications, population levels in Washington have increased markedly on the better range for this species within recent years. On the other hand, we know that other populations on marginal areas have been reduced or entirely eliminated since 1900 owing to land use. In the Badger Pocket Area of Kittitas County, the Sage Hen increased to the point that they were causing damage to alfalfa and potatoes prior to the first open season. In this case the lands in the valley are used to produce agricultural crops and are surrounded by extensive sagebrush range lands on the highlands which make ideal conditions for Sage Grouse. The first season in Badger Pocket produced about 2,000 birds, so it is obvious that many birds were in this relatively small area of about ten town-The kill for this restricted area for the succeeding years is not available since other areas were opened for hunting of Sage Hens and the hunter's take is on the basis of total kill for the State. populations appear to be holding up well under the present hunting pressure, however.

Migration.—Studies by Patterson (1952: 198) show that Sage Hens migrate considerable distances in the intermountain areas of western Wyoming; birds move from 50 to 100 miles from their breeding ranges to winter ranges at lower elevations. Batterson and Morse (1948) felt that Sage Hens were semi-migratory in Oregon, moving to lower elevations to breed and nest, and then moving to higher elevations during the summer months to return to lower elevations with the advent of winter.

Apparently Sage Hens in Washington do not migrate long distances at the present time. Writings by Douglas (Royal Historical Society, 1914) in 1827, however, indicate that these birds congregated in large flocks along the Columbia River between the junctions of the Spokane and the Walla Walla rivers from October to April. They were apparently abundant near Priest Rapids where he saw them in groups displaying. In August he mentions flushing large flocks of young birds near Grand Coulee, but he mentions that Sage Hens are seldom seen near the banks of the river at this time of year. Such remarks indicate that there was noticeable movement of the birds to the lower country during the winter months.



SAGE HEN RANGE IN WASHINGTON: Upper picture is of Douglas County northeast of Delrio; Lower picture is of range along the Grand Coulee.

In 1947 Ralph King, rancher near Sylvan Lake, Lincoln County, stated that he saw Sage Hens on his ranch during the winter but did not see them during the summer. Records for this county indicate that birds in his area move north towards Crescent Butte during the summer.

Ben Starkel, a rancher near Delrio, Douglas County, in an interview, states that he believed that Sage Hens in the high country of this county migrated south to the Moses Coulee area during the winter months. He has lived in this area for many years so he would notice the absence of these birds during winter months. Migration from the high range lands near Delrio to the Moses Coulee area would involve movements of as much as 30 miles.

Former and Present Status by Counties.—Thanks to the encouragement of Stanley Jewett, I have attempted to evaluate the present status of this grouse throughout its range in eastern Washington. Many of the records presented here are those of other people and are indicated in each case. Waterfowl surveys financed by the State of Washington Department of Game and research funds furnished by the State College of Washington have made it possible for me to cover all of the former range of the Sage Hen many times from 1940 to 1953. The records are presented by counties as a matter of convenience; some of the more important observations are indicated on a map by means of a dot with corresponding date by year (Figure 1).

Formerly the range of the Sage Hen closely followed the sagebrush associations in Washington and extended from the lowlands of the Columbia River Valley bordering on Oregon northward to the Canadian line via the Okanogan Valley. Counties included from north to south and from west to east were: Okanogan, Douglas, Grant, Lincoln, Chelan bordering the Columbia River, possibly the south edge of Ferry and Stevens counties along the Columbia River, western edge of Spokane, Kittitas, Adams, western edge of Whitman, east of Yakima, Benton, Franklin, western part of Walla Walla, and parts of Klickitat. Figure 1 shows the approximate former boundary of the Sage Hen range and indicates records for this species by years.

Okanogan County.—Old timers in the Oroville area mention shooting Sage Grouse in the sage covered terraces along the Okanogan River soon after the turn of the century. W. J. Ripley, a prospector who worked extensively in mountains bordering the Okanogan Valley in Washington and British Columbia, Canada, claims to have shot the last Sage Hen that he saw in that area in 1918 near Oliver, British Columbia, a town 14 miles north of the International Border. No recent records are available from this area.

Ferry and Steven counties.—I have no recent records for this species in these counties, but accounts by Douglas (Royal Historical Society, 1914) indicate that Sage

Grouse were found along the shores of the Columbia River in the southern parts of these counties in the early days.

Chelan County.—Suitable areas for these birds existed along the south shore of Lake Chelan, hillsides bordering the Columbia, and the southeastern corner of this county, so it is assumed these birds were found here in the early days although there are no available records for the specific areas.

Douglas County.—Much sage still remains in this county; many small lakes and potholes provide plenty of water and it is on these range lands where Sage Hens, Sharp-tailed Grouse (Yocom, 1952) and waterfowl (Yocom, 1951) breed in considerable numbers. Some of the records for Sage Hens are as follows: Three adult grouse flushed from a sagebrush hillside about six miles northeast of Delrio at 6:45 A.M. (Yocom and H. A. Hansen) July 26, 1950. According to W. W. Stevenson, local rancher in this area, two flocks of Sage Hens (consisting of about 80 birds in each flock) were seen on the Rice and Stevenson ranches during the fall of 1949. There is a high ridge running through this area and much of it was unbroken sagebrush-grassland association; the land that was farmed was in wheat and fallow. Stevenson mentioned that the grouse do not winter in this high country.

On July 26, 1950, six were seen six miles southeast of Delrio by Hansen. Early the next morning a female and three young birds that could fly flushed from sagebrush range land seven miles northeast of Leahy; nearly a mile north of this location a female with one young about half grown flushed from the road; three large males flew from sagebrush land near the road (Yocom).

The large expanses of sage associations in this county in the higher ranges that are used in the summer and the lower areas in the southern part of the county that are used possibly at all times of the year by some of the population and more in the winter by birds from the northern part of the range make this one of the more important centers in the state for this species. Unless the sage communities are destroyed soon there should be huntable populations of Sage Hens in this county for some time.

Grant County.—Formerly this county supported many grouse; the Columbia Basin Reclamation Project, however, caused the destruction of much of the original sage lands. The upper Grand Coulee was cleared then flooded by the formation of the 27-mile-long equalizing reservoir and thousands of fertile sage-covered lands have been cleared for agricultural use under the irrigation type of farming.

Much sage land still occurs in the "scablands" bordering both sides of the Grand Coulee; many grouse are found locally in the Beezely Hills northwest of Ephrata (Hudson and Yocom, 1954), and grouse have been reported on the east side of the Grand Coulee in range lands. Harris and Yocom (1952) have two records for the potholes south of Moses Lake; two seen on June 8, and one seen August 22, 1950. Much of the potholes area has been flooded by O'Sullivan Dam.

According to Charles Swanson (Swanson, 1946) Sage Grouse were very common in 1915, 1916, and 1917 near Adrion. He estimated that there were about seven or eight nesting females on his 80 acres. He states that these birds feed exclusively on wild sunflowers from midsummer on.

Because of changes in agricultural use of the land, Grant County may never support many Sage Hens except in localized areas.

Lincoln County.—Nearly half of the land in Lincoln County was classified as range land as late as 1950. The headwaters of Crab Creek and its tributaries, for the most part, are located in this county; glaciers and glacial waters in the past cut many channels and exposed much basalt which makes much of the land unsuitable for

tilling. Dry wheat ranches are restricted to the fertile windblown soils that lie between the channeled areas. This creates edge effects between sage-grass associations and farm lands. The richer, more accessible lands, of course, have been exploited, and this factor may account for reductions in populations for the area as a whole for rich soils produce more game birds per acre.

Andrew and Joe Long have lived on a ranch in Lake Creek Channel located west of Herrington since 1926. Many Sharp-tailed Grouse winter on their property in severe winters and they feel that this species has increased. They feel, however, that Sage Hen populations in their area have decreased within recent years. Fifteen Sage Hens were seen in one flock on their range during the fall of 1949. The neighboring ranch to the west also supports these birds (Ralph King).

Areas that support Sage Hens at present are: Hawk Creek, breaks of Bachelor Prairie, North Telford Area, Lake Creek Area, and Connawa Area (C. V. Fisher, former game protector of Lincoln County). All of these areas support sagebrush and are well watered. The North Telford area is a plateau of sagebrush and some yellow pine, dissected by a few draws; potholes are scattered over the area. The Connawa Area probably has the most Sage Hens of any area in the county.

Other records are: Two adults and four young over one-fourth grown near "H" Lake south of Wilbur, July 27, 1948 (H. A. Hansen); ten south of Creston Butte, July 23, 1949 (Hansen and Don Galbreath); two adults and one young flushed from road south of Creston Butte, July 25, 1950 (Yocom); two flushed from road south of Milan Hollow, Section 26T24N, August 2, 1950 (Yocom); four adults two miles southwest of Will's Lake, August 2, 1950 (Hansen); nest successfully hatched (9 egg caps) under *Artemisia tridentata* 25 feet from fence in a pastured area about ten miles northeast of Marlin, June 17, 1953 (Paul Johnsgard and Yocom).

Spokane County.—There are no recent records from this county, but Jewett, et al. (1953) and accounts of old hunters indicate that Sage Hens were hunted along the western border south of the Spokane River and in the southwest corner. Most of the land that formerly supported this species has been plowed for many years.

Kittitas County.—The first open season on this species for many years was in the Badger Pocket area in 1950. Nearly 2,000 birds were harvested from the southeast corner of this county in an area consisting of approximately ten townships. For hunting purposes the area was defined as that part of Kittitas County south of the Ellensburg-Vantage Highway and east of the Ellensburg-Yakima Highway. Actually Badger Pocket area is a large flat formed by the foothills of the Wenatchee Mountains to the north, northeast, and east, and by the Umtanum Ridge to the southwest and south; the high country is utilized as grazing land and the lowlands are farmed. Elevations are under 4,000 feet for the most part and the vegetative associations include sage (Artemisia tridentata), thus furnishing the requirements of good Sage Hen range. Other small populations of Sage Hens may be found in other parts of this country.

Yakima County.—Approximately the eastern half of this large county was formerly suitable for Sage Hens; the Artemisia-Agropyron associations developed under minimum rainfall owing to the rainshadow effect of the Cascade Mountains directly to the west; several large ridges cross the county from northwest to southeast such as the Ahtanum, Yakima, and Rattle Snake ridges east of the Yakima Valley. Large sagebrush valleys were abundant; now some of them including the Yakima Valley are highly agriculturalized as a result of reclamation projects. John B. Hurley, ornithologist from Yakima, has summarized Sage Grouse conditions in this county (some of his information was obtained from Wallace Kramer).

"The Sage Grouse shows all indications, in this county, of holding its own, and perhaps even showing a slight increase, though not as numerous as 20 years ago. For the past 10 years these birds have remained about the same. They are partial to certain areas, and a small flock can usually be noted if one takes the time and energy to look for them.

"Last year (1953), there was an open season on these grouse in this county, with a daily bag and a season limit of one (1) bird, which the State Game Department felt was justified, as there were sufficient birds for such an open season. The kill was not heavy during this open season, as most hunters prefer to hunt other, and easier to find, game birds. Hunting with dogs is not extensive in this country, which is another factor that cuts down the number of hunters looking for them.

"There has been very little change in the range of the Sage Grouse in this county and what change has occurred has not affected the grouse population in the least. Some of the sagebrush land has come under marginal irrigation, while some sections have been cleared for dry farming, but the percentage of such has been too small to even consider. There still remain extensive sections of miles of sage brush where these grouse live and as there seems to be little chance that there will be any change in such habitats, there is good reason to believe that with proper protection these grouse will continue to hold their own.

"Loss by predators is a small factor—Road kills by autos are so very rare that they do not warrant consideration."

On December 15, 1942, four birds were flushed from a broad, sagebrush-covered valley high upon a ridge facing the southeast, between the Naches and Tieton River Valley on what is now the Oak Creek State Game Range (Yocom). Seven Chukar Partridges and Hungarian Partridges were also flushed from the top of this same ridge.

Comments for hunters interested in Sage Hens in District 4 which includes Kittitas, Yakima, and western Benton counties (Anon., 1953: 5) point out some of the population centers:

"A good population (of Sage Grouse) in Yakima and Kittitas counties where areas are open. Best areas are Yakima Firing Center, Badger Pocket, Quilomene, Brushy cannon, Whiskey Dick, and Skookumchuck canyon regions."

Klickitat County.—Present status of Sage Hens in this county has been summarized by Raymond W. Meyer, District Conservationist at Goldendale (letter, 1954):

"Sage Grouse are regularly seen in that portion of Klickitat County east of Rock Creek (approximately eastern one-third of the county) and south of the timbered slopes of the Simcoe Mountains. This area is a wheat-range country. Sage Grouse are quite common in the eastern portion which is predominantly bunch grass and sage brush. The species occurs in lesser numbers in the western portion.

"This species is also seen occasionally along the area between the Columbia River and the cropland at the lower edge of the Columbia Hills. They are also seen in the Goodnoe area occasionally.

"Two birds of the species were seen in April of this year approximately eight miles southeast of Goldendale along the north slope of the Columbia Hills.

"Sage Grouse do not occur abundantly in Klickitat County but are not uncommon in sage-bunchgrass areas where a relatively small portion of the land is tilled. They seem to occur in an inverse proportion to the percentage of land under cultivation."

Benton County.—My records include the following: Seven Sage Hens flushed from an island in the Columbia River near the old town site of Hanford, June 26, 1950 (H. A. Hansen); five flushed from another island in the same area, June 27, 1950 (Yocom); fourteen Sage Hens flushed in one group from the west side of the Columbia

River in a sage-brush flat three miles south of the old town site of Hanford; three flushed upstream in this same area, June 27, 1950 (Hansen and Yocom).

Considerable suitable range for this bird still occurs in this county.

Franklin County.—Carl V. Swanson, Game Biologist, states the following in his August, 1946, report to the state of Washington Department of Game:

"A. F. Swanson, Assistant to Resident Engineer—South Columbia Basin Project, reports seeing in July, 1946, a brood of Sage Hens in Franklin County. . . . The location was in T10N, R29E. In the late 1920's and the early 30's the Sage Hen was not uncommon in this area. . . . However, since 1934 or 1935 none had been seen or reported in that area. It is possible that they flew into the area from the west side of the river (Columbia River), a flight that has been personally observed. In 1934 (?) a pair of Sage Hens hatched out a brood of nine (9) young in Section 24, T9N, R29E, in Franklin County just north of the Charles Swanson farm, roughly two miles northwest from Pasco."

Adams County.—Sage Hens may still be found in the sagebrush areas in the western part of the county in the vicinity of Frenchmen Hills and the Saddle Mountains. Information for central and eastern part of the county includes a single recent record; During the summer of 1946, C. H. Henning, a rancher, who lived at that time on a ranch located on the west side of the channeled scablands through which Cow Creek runs after it leaves Sprague Lake, had a group of seven Sage Grouse on his place. Apparently this small group was a brood that was produced in that area and subsequently disappeared after that year (Robert Jeffrey and Yocom). Formerly, this county produced many Sage Hens, but the homesteaders and those who followed soon converted a large per cent of the vast sagebrush areas to wheat fields. John Harder, one of the Harder Ranchers who control nearly 100,000 acres of scabland and wheat land extending southwest of Sprague Lake along the Cow Creek Drainage, stated that Sage Hens were in this area in the early days but that he had seen only a single bird on two occasions in his lifetime on their property.

Whitman County.—Much of this rich land known as the Palouse Country was formerly covered with bunchgrass, which developed under a belt of increased rainfall owing to an increase in elevation, and only along the western edge were there any sage areas.

Pleistocene glaciation left barren areas of exposed basalt, known as the scablands, where deep coulees were cut along the western border of this county. Thin soils have developed in these areas since glacial activity terminated and the grasslands support grazing; sagebrush communities invaded some of these valleys and channels creating suitable limited range for grouse.

Sage Hens have been eliminated from this peripheral range for over twenty-five years according to accounts from reliable sources.

There were many Sage Hens on the Wiedrich Ranch in the early nineteen hundreds according to S. Wiedrich, who settled on the Palouse River a mile below the confluence of Rock Creek in 1902. The last grouse seen by the Wiedrich family consisted of five or six birds that wintered in a willow thicket on Rock Creek about one-half mile from its mouth. Fay Wiedrich was going to grade school at the time so he assumes that it was about 1926 (Fay Wiedrich).

William Hegler, former Whitman County Game Commissioner, told me in March, 1949, that Sage Hens were abundant in Cherry Creek Channel and Rock Lake Area in 1908 but not as numerous as the "prairie chicken" (Sharp-tailed Grouse). At that time Sage Hens provided considerable hunting.

Walla Walla County.—There are no recent records available for this county although accounts by early travelers through this area indicated that Sage Hens were

present in large numbers along the Snake, Columbia, and Walla Walla rivers (See above).

Columbia County.—Formerly Sage Hens were found in Columbia County (Jewett et al., 1953); however, there are no recent records.

The purpose of this report is to get on record what is known about some of the history of the Sage Hen in the State of Washington so that it will be available for future workers in game management. The distributional information presented here is only fragmentary. It is hoped that others that have pertinent information on this species will record it. Management and population studies should be made on the remaining areas in Washington that are suitable for this species so that the Sage Hen will remain one of our harvestable game birds for many years to come on managed lands.

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