

A REPORT ON DAMAGE TO RICE BY BIRDS IN COLORADO, WHARTON,  
AND MATAGORDA COUNTIES, TEXAS.

In accordance with letter of authority 212-B1 and written instructions, after completing an investigation of damage by birds to rice in Arkansas I left Little Rock, Arkansas, on Sunday December 23, and proceeded to Eagle Lake, Texas, arriving there on Christmas day. Field work was carried on in this region as follows: Eagle Lake, December 25 to 27; Wharton, December 28; El Camp<sup>o</sup>, December 29; Bay City, December 30 to January 2. From Bay City, Wadsworth and Matagorda were visited on January 1 and a trip made by automobile on January 2 covered regions devoted to rice culture near Markham, El Maton, Ashby, Citrus Grove, Simpsonville and Wadsworth. On January 3 some information regarding bird damage was secured in Houston at the office of the Southern Rice Growers Association. This last area lies outside the region assigned at the head of this report.

GENERAL INFORMATION.

In the counties under consideration rice is one of the most important crops. The land surface is level and formerly was mainly open prairie with occasional oak motts scattered through it. Rice is grown by irrigation, mainly by means of water drawn by pumping stations from the Colorado River. At Eagle Lake water is pumped from the river into Eagle Lake and then drawn out again on the opposite side into raised irrigation canals. At the time of my visit Eagle Lake, normally a body of water three miles long by one mile broad was dry save for a narrow canal through the center that connected two pumping stations on opposite sides of the



lake bed. Elsewhere water is drawn from the Colorado River into lateral canals that carry it directly to the rice fields. Near El Campo much rice was irrigated by means of water taken from wells and this practice is followed to some extent in other parts of the area under discussion.

There had been very little rain in this region for the past two seasons and everywhere the soil and the vegetation appeared abnormally dry. The small amount of precipitation had been followed as a natural consequence by a marked decrease in the volume of stream flow in the Colorado River, so that the supply of water available for irrigation has not sufficed for the needs of the rice growers. Because of this the areas devoted to rice in 1917 covered only about one-third of the acreage in normal years, and extensive tracts formerly devoted to rice culture are now given over to cotton and corn grown by dry farming methods.

Plowing begins here in January and rice is planted from the end of February on into April. Normally the rice harvest is over by the middle of October. Occasionally heavy rains set in <sup>in</sup> and some instances it is said that it was not possible to get the rice out of the fields until January. In 1917 the harvest was completed early and there was no shocked rice in the fields at the time of my visit.

Investigation of bird damage was limited to securing information from rice growers who seemed reliable, and to the identification in the field of the species of birds implicated. Whenever opportunity permitted any time available was devoted to study and observation of the habits of species that were said to be injurious. Twenty-seven blackbirds belonging to four species that had been feeding in rice stubble were collected and their stomachs preserved for examination in the laboratory.



DAMAGE BY BLACKBIRDS.

Rice growers in this region almost without exception made complaint of damage by blackbirds in the rice fields. Details of the more important claims ~~that seemed to be~~ given by trustworthy individuals follow.

Complaint of damage near Eagle Lake had been made to the Biological Survey in a letter written by O. J. Winterman, manager of the Lakeside Irrigation Company. Mr. Winterman stated that the greatest destruction from these birds came at the time when the rice was in the "milk" and from then on until the grains were fully formed. This period began at the end of July and extended through August into the early part of the month of September. Blackbirds began to flock in this region during the closing days of July and by the end of August were present in large bands. These birds had roosts in the reed beds of Eagle Lake that they resorted to at night and from here they spread out during the day in all directions to feed in the rice fields. Apparently most of the damage here was due to Red-winged Blackbirds and (to a less extent) Great-tailed Grackles. Men were stationed in the fields to drive the birds out by shooting but without much effect as the blackbirds when alarmed would fly only a short distance before alighting again. These birds continued to feed upon rice until it was fully threshed. In wet years when it was necessary to leave the grain in the field for some time because of inability to get it out, birds frequently ate all of the rice exposed, or even stripped some sheaves completely. Some damage in addition was done by the Great-tailed Grackles when the rice was sprouting in spring. These birds pulled the grain when it was an inch or so high and ate both the sprout and the kernel from which it had sprung. It was said that blackbirds were present in abundance at plowing time,



especially during February and March and at this time they fed in large numbers in the newly turned soil. Many of these birds were poisoned by means of rice that had been steeped in a solution of strychnine.

No definite estimate of the actual damage done by blackbirds could be given as rice was taken over such an extended period. Blackbirds fed in the fields in such numbers however that the loss from this source must be considerable each season.

At the office of the Southern Rice Growers' Association in Eagle Lake I met Mr. B. McIlhenny, local manager for the association, who made similar statements to those detailed above. C. H. Banning, Mr. Sinclair, and Dr. Denton had had similar trouble. C. W. D. Terrell of Lissie, six miles east of Eagle Lake had not had much trouble with birds this season but had suffered serious damage during preceding years. This season he stated that he had poisoned the birds feeding in his fields during April and he attributed his freedom from damage to this fact.

At Eagle Lake Mr. Winterman and Mr. McIlhenny showed me samples of rice in which were a small percentage of kernels that apparently had been pinched or injured by birds while the grain was still soft. This produced a malformation in the matured grain that rendered it worthless. In addition many rice grains showed a brown spot on the glume varying in size from a minute point barely visible to the naked eye to an area nearly a millimeter in diameter. These were believed <sup>by these gentlemen</sup> to be caused by minor bruising by birds' bills as they fed on adjacent kernels. In one average sample of 200 rice grains 68 or 34 per cent were thus affected. This spot is restricted wholly to the glume and in no way injures the grain beneath. Careful examination however showed that these spots were caused by a fungus growth and that birds had nothing to do with it. Subsequent examination



in the laboratory verified this.

Dr. W. W. Duson and H. W. Carver of the Southern Rice Growers' Association in El Campo made little complaint against blackbirds in their fields this past year. Dr. Duson stated that this season Red-winged Blackbirds had fed in an area of four or five acres of rice about a low willow bordered slough while the rice was in the milk stage, but that he had had no other experience with similar damage from these birds.

F. F. Wilson at El Campo, a prominent rice-grower, estimated his loss from blackbirds during the past season at about \$3,000. Injury in his fields had been much more severe this year than usual. The damage was done by Red-wings that had gathered in his fields in great flocks, at the time that the grain was in the milk. He considered the Great-tailed Grackle as less injurious. Some grain was also destroyed this year when the rice was still in the shock.

R. H. Hancock, manager of the rice mill at El Campo corroborated these statements and said that this season he had lost about five acres of rice in one field near town belonging to him. We visited this field and I found the rice in the area in question still uncut though cattle had been turned in here and had trampled it down. This rice grew in a low spot in the field and I considered that part of it had been killed out by stagnant standing water or for some other reason. About half however had produced rice and the frayed out heads and scattered rice hulls remaining were evidence that it had been damaged by birds. This productive area extended as a band around the barren central portion. The latter was overgrown with tall weeds that furnished convenient perches to the birds after feeding.

Mr. Vick also complained of damage by blackbirds to rice in the



milk and Mr. Harfts of the firm of Harfts Brothers made similar statements.

In Bay City additional information was secured from M. G. Marshall, assistant to the manager at the office of the Southern Rice Growers' Association. He stated that the worst damage came from the Red-winged Blackbirds which are known locally as "Rice-birds" or "Reed-birds". These birds attacked the rice as soon as the grain began to fill and continued to feed in the rice fields until the crop was finally threshed. This past season complaints of damage had been numerous but the activities of the birds seemed somewhat local. Some fields were badly hurt, while others were practically untouched. Where certain fields had ripened earlier than others nearby damage in them had been severe. In other cases severe loss to rice in the shock came when threshing in certain fields had been postponed until late. Mr. Marshall showed me a number of rice samples containing so-called "pecky" grain where kernels seemingly had been injured by birds. The grains had been compressed or injured while still soft, this resulting in malformation or shriveling in the spot affected. It was believed that this was done by the blackbirds as they fed on the soft rice in late summer. Grains that were squeezed or pecked but not destroyed developed into these deformed kernels. Where these are abundant in the threshed rice they reduce the value of the grain.

Mr. J. F. Foster stated that Great-tailed Grackles did considerable damage by pulling sprouting rice in spring but that they did little harm later in the season. Red-winged Blackbirds were more serious pests. Damage commences as soon as the rice kernels begin to form; usually this occurs about the first of August. Injury by these birds continues on through the fall until the grain is finally threshed. The inroads of blackbirds are



best prevented by shooting. This past season Mr. Foster hired a man to keep the blackbirds from feeding in one field of 76 acres. The ammunition used in this attempt cost in all about \$50.00. The effort was successful and the birds were unable to do much harm. He stated that poisoning is sometimes successful and at others not. At times blackbirds refuse to take poisoned grain or again after a number have been poisoned their companions leave these fields and feed elsewhere.

W. H. Ramsay of Bay City claimed damage from "Jackdaws" (Great-tailed Grackles), "Blackbirds" (Brewers Blackbirds) and "Rice-birds" (Red-winged Blackbirds). Damage is inflicted in the same way as described by other men in preceding paragraphs. Mr. Ramsay stated that in 1917 because of shortage of water only about 800 acres of rice had been planted in a region where formerly from 4,000 to 6,000 acres had been grown. He believed that greater damage from blackbirds than usual had resulted as the attacks that formerly had been distributed over a wide area had this year been concentrated on a comparatively small acreage. No attempts were made to drive the birds out. The amount of rice destroyed by the birds on the basis of the yield on other years for ~~the~~<sup>a</sup> similar area was given at about 20 per cent of the total.

G. W. Kelly of Bay City had raised no rice in 1917 because of shortage of water but had grown about 700 acres in 1916 and varying amounts on previous years. He reported much damage from blackbirds. Mr. Kelly stated that in land that had been devoted to rice culture for a number of seasons it was usually necessary to plant the seed grain as shallow as possible. In some cases the seed was only partly covered and this was liable to be eaten by blackbirds. These birds also pulled the sprouting grain



especially when the ground was soft. As soon as the rice kernels began to form blackbirds gathered in great flocks to feed on the grain and continued to frequent the fields as long as any of the crop was exposed. Before the rice was cut it was difficult to drive the blackbirds out as damage resulted from trampling the grain. After the rice had been cut and shocked Mr. Kelly stated that he had employed as many as fifteen men to keep the blackbirds out. Two or three of these were given guns and ammunition. The others were mounted on mules and rode about after the birds cracking whips loudly to frighten them out. This method was at times very successful. Considerable damage is caused by blackbirds in fields that stand for some time after the grain has ripened. The mature heads weight the stems down and when blackbirds alight on them to feed the stalks break down. Where large flocks of the birds are feeding this frequently flattens down considerable areas of grain so that it cannot be cut.

O. A. Ulland of Markham, manager of the Blue Creek<sup>K</sup> Canal Company, stated he had had 6,000 acres planted in rice this year. He stated that damage from blackbirds this season had been considerable. The birds began feeding in the fields when the grain was in the milk but the worst damage had been done to the grain after it had been shocked. In one field of Early Prolific Rice part was threshed soon after it was cut while the rest was left until a month later. Blackbirds had been feeding in the field in the meantime and had stripped much of the grain exposed on the shocks. The difference in yield in the two parts of the field amounted to  $3\frac{1}{2}$  bags to the acre. (A bag of unhulled rice weighs from 185 to 190 pounds; it contains approximately 4 bushels).

H. H. Foster, a rice-grower below Markham, stated that he had had



much trouble with blackbirds and that they had been especially bad this year. Shooting and poisoning was resorted to but these measures brought only moderate success.

Mrs. E. W. Turner above Citrus Grove stated that blackbirds had been much worse this past year than in 1916. In the spring of 1916 all of the farmers in that region by agreement had poisoned the blackbirds at sowing time in the spring. This so reduced the numbers of the birds that there was little trouble the following fall. In 1917 these measures were not adopted and the birds had again become abundant. Blackbirds had been so bad this past season that it had been necessary to protect certain shocks of choice rice desired for seed by throwing sacking over them.

A. F. Johnson, a merchant in Citrus Grove, stated that his customers had made many complaints of damage by blackbirds this past year and that he had sold more ammunition to be used against them than usual. One man had purchased shells to the amount of \$40.00.

I. C. Roberts of Wadsworth stated that in that vicinity the destruction of the nests of blackbirds was a common practice in order to aid in keeping down the numbers of these birds.

Similar statements were made by a number of other rice-growers but need not be incorporated here as if this were done it would lead to needless <sup>et</sup> repetition.

From all accounts it seemed that slight damage was done to the rice crop at planting and after the grain had sprouted. Serious damage began when the rice reached the milk stage in its development and continued until the grain was finally harvested. Except in a few cases no detailed estimates of the amount of damage inflicted by blackbirds could be made as the birds were working in the fields over such an extended period of time.



At the time of this investigation the following species of blackbirds were found in this area:

Great-tailed Grackle (Megascopus major macrourus)

Red-winged Blackbird (Agelaius phoeniceus)

Brewer's Blackbird (Euphagus cyanocephalus)

Cowbird (Molothrus ater).

From descriptions furnished by the rice growers it seemed that the Red-winged Blackbird known locally as the "Rice-bird" or "Reed-bird", was the most destructive. It is possible that the Cowbird was confused with this species also as I found Cowbirds abundant, yet no mention was made of them in discussing bird damage to rice. Complaints against the Great-Tailed Grackle which was known as the "Jackdaw" or "Crow-jack" varied but it seemed that it was in general injurious. Compared with the Redwings however there are comparatively few individuals of this species present. The status of Brewer's Blackbird was uncertain as in only a few instances was it charged directly with doing harm. As it is an abundant breeding species it seems probable that the flocks do feed in the rice fields during late summer and early fall; this however is mere supposition and needs <sup>to be</sup> ~~to~~ substantiated by observations at the proper season.

As the greater part of the damage takes place from the time that the rice is in the milk until it is threshed a period extending from the end of July to the first part of October, the harm must be accomplished by native birds. The Red-wings have about completed nesting at the beginning of this period and old and young gather in large flocks. It is probable these bands ~~that~~ do the major part of the damage. During fall and winter large flocks of other Red-wings and many Cowbirds come in here from the



North. The resident form of the Red-winged Blackbird is the Vera Cruz Red-wing (Agelaius phoeniceus richmondi). This form is represented among the birds that I collected and in addition specimens of the Eastern Red-wing (Agelaius p. predatorius) and Thick-billed Red-wing (Agelaius p. fortis) were taken. The two latter forms are migrants that had come in from the North.

Large flocks of Blackbirds were feeding in rice stubble in the region under consideration. Many were seen near Eagle Lake, El Campo and Wharton but on the whole the birds seemed more abundant in Matagorda County. These birds were feeding upon waste rice and upon various seeds that were found in the rice stubble. In cleaning up the red rice and waste rice Blackbirds must do a certain amount of good as this aids in preventing growths of volunteer rice (which are always worthless) in the following year. As the fields are dry here save when irrigated it is a common practice to turn hogs in on the stubble to feed on the waste grain. Some growers complained that the blackbirds destroyed waste grain that otherwise would have been eaten by hogs and so turned to profit. This complaint however does not seem valid as there is enough waste grain for both, and hogs are not able to clean up the rice thoroughly where it is widely scattered. The practice of feeding hogs in this manner is not universal and destruction of blackbirds to prevent their feeding in the stubble ~~in this manner~~ seemingly would not be justified.

To ascertain in a general way to what extent blackbirds were feeding on waste rice 27 blackbirds of four species were collected and their stomachs and crops preserved. On subsequent examination it was found that rice had been eaten by twenty-four of the individuals taken. In the



following table the amount of rice taken by each bird in proportion to the other food eaten is given in the form of estimated percentages by bulk.

The amounts of red rice also are indicated.

Agelaius phoeniceus.

#146455,	5 grains of rice, remains of others	92%
146456,	31 " " " " " " (1 red rice)	97%
146467,	21 " " " " " "	55%
146468,	4 " " " " " "	20%
146486,	72 " " " " " " (60 red rice)	100%

Megascopus major macrourus.

#146461,	Remains of rice grains	92%
146462,	" " " "	90%
146465,	50 grains of rice, remains of others	99%

Molothrus ater.

#146473,	16 grains of rice, remains of others (1 red rice)	80%
146474,	35 " " " " " " (34 " " )	95%
146475,	15 " " " " " " (7 " " )	65%
146476,	10 " " " " " " (	85%
146477,	27 " " " " " " (17 " " )	70%
146478,	15 " " " " " " (14 " " )	56%
146479,	3 " " " " " " (2 " " )	8%
146480,	9 " " " " remains of others (3 " " )	40%
146481,	14 " " " " " " (13 " " )	80%
146482,	Remains of rice grains (all red)	25%
146483,	10 grains of rice, remains of others (6 red rice)	92%
146484,	30 " " " " " " (20 " " )	65%
146485,	54 " " " " " " (53 " " )	70%
146487,	45 " " " " remains of others (9 red rice)	92%
146488,	Remains of rice grains	70%
146454,	54 grains of rice	83%

The other seeds eaten by these birds consisted largely of weed seeds picked up in the stubble. A few had eaten Kaffir corn, probably waste grain picked up where cattle had been fed.

Near the town of Eagle Lake considerable numbers of Red-winged Blackbirds, Brewer's Blackbirds, Cowbirds and Great-tailed Grackles gathered to



roost in the rushes (Scirpus validus) covering the dry bed of Eagle Lake. These birds were observed in morning and evening as they passed to or from their feeding grounds. It is probable that they spread out from this center to considerable distances during the day. Larger gatherings of these birds might be expected on years when the lake bed was filled with water, and shelter in the rushes more secure. During the day flocks of blackbirds were observed feeding in the fields and along the roads. Many Brewer's Blackbirds frequented the streets of the town and others were seen feeding under the trees in the Live Oak motts. Small pools of water were attractive through the day and a number of the birds shot were taken as they came in to drink. Some of the Great-tailed Grackles seemed rather slow in spreading out to feed in the morning. One female shot about ten in the morning near the canal running through Eagle Lake had the stomach entirely empty. The bird seemed healthy and was in good condition.

At Wharton, on the afternoon of December 28, flocks of blackbirds were coming into drink at a large sand bar in the Colorado River. When first observed between 400 and 500 birds were gathered in the tops of three or four trees standing in a clump on the river bank. Red-wings, Cowbirds, Brewer's Blackbirds and Great-tailed Grackles were represented, the relative abundance of the species being represented by the order in which they are named. From the resting flocks small parties circled down to drink and bask for two or three minutes and then rose and rejoined their fellows. Small flocks numbering from 30 to 50 individuals left at short intervals following two regular lines of flight and other parties similar in size came in to join the main flock so that though the individual birds were changing continually the number present remained about the same.



During an hour I estimated that approximately 2000 birds had come in here to drink and birds were still watering here three hours later.

Near El Campo scattered flocks of Red-wings, and Brewer's Blackbirds were seen in the fields and with them a few great-tailed Grackles were feeding. The day spent here was very windy with the thermometer at 30° or lower all day so that birds were moving about very little. Because of this no estimate of their abundance could be made.

Blackbirds of all the species mentioned were much more abundant in Matagorda County than in the other regions visited. On January 2, great flocks of Redwings were seen in the cut-over rice stubble. One such band contained between 10,000 and 15,000 birds and at least 30,000 were seen during the day. One flock of Cowbirds found below Markham contained about 5,000 birds. Brewer's Blackbirds were common and Great-tailed Grackles were present in fair numbers.

#### DAMAGE BY BLACKBIRDS BELOW HOUSTON, TEXAS.

R. Hoffpauir of the Southern Rice Growers' Association in Houston said that the only serious complaints of depredations by blackbirds had come from near the Old River Canal below Moore's Bluff. Here blackbirds had done much damage to rice after it had ripened. One farmer lost so much of his crop that he had decided to give up the culture of rice and others nearby <sup>made</sup> had many serious complaints. These were the only instances in which damage from this source had been brought to attention .



DAMAGE TO RICE BY WILD DUCKS.

From reports received it seemed that considerable damage was done in the ricefields by ducks during wet seasons. When the fall months were dry the crop was threshed soon after it was cut and shocked. On some years however excessive rainfall had made access to the fields difficult or even impossible and at times rice was exposed in the fields until January. Under such circumstances wild ducks feeding in the fields destroyed a large part of the crop, especially where the ricefields were partly flooded. Where rice has remained long in the field it must however be considered a total loss as it would be of no value when threshed even if not molested by birds. The fall of 1913 was exceptionally wet and high water had flooded many of the fields. Ducks then were said to have eaten much rice but since had done little damage except in a few local instances. In the course of ordinary years the entire rice crop would be under shelter before ducks came in in any numbers from the North and any depredations would be restricted to local birds.

Some growers stated that Blue-winged Teal and "Summer Ducks" lived in the ricefields during late summer and that in some instances they did some damage to rice. (The "Summer Duck" is apparently Anas fulvigula maculosa though in part this name may refer to an undescribed <sup>form of</sup> Mallard of which there are specimens in the National Museum taken near Fort Clark, Texas.) Such damage is however apparently slight and amounts to little. Most of the rice growers questioned did not consider it of importance. Areas in the lowlands along the Colorado River were reported as more subject to such damage than fields located farther inland.



One or two men made complaint of ducks feeding in the stubble after the rice had been cut, thus securing waste rice that otherwise would have served as food for hogs but such complaints seemed rather far fetched. One man stated that the waste grain composed of shattered rice that gathered at each stand of the separator in threshing was sufficient to furnish feed for 50 to 100 hogs during a period of ten days to two weeks. He claimed that large flocks of ducks frequently came in at night and cleaned up this entire amount in a short period. Such claims for damage however can hardly be considered seriously.

At the time of my visit large numbers of Geese were feeding in the rice stubble in Matagorda County. Below Markham 500 geese belonging to 5 species or subspecies, viz., Canada, Hutchins, White-fronted, Blue and Snow Geese, were seen feeding in one field. One Snow Goose that was taken had eaten 61 grains of rice, while in the gizzard of a Canada Goose shot in an open pasture remains of grass made 99 per cent and rice hulls composed the other one percent. No complaint was made against these birds.

#### DAMAGE BY BLACKBIRDS TO OTHER CROPS.

The Great-tailed Grackle was reported to be very destructive to sprouting corn in regions where corn was grown extensively. (With reference to destruction of corn by this bird see Biol. Survey Bull. 29, p. 8). There was almost universal complaint of the corn-eating habit of this bird in the farming region about Wharton and El Campo and it was mentioned elsewhere.

Blackbirds of various species were said to destroy the seed heads of various varieties of Kaffir Corn that were grown for cattle feed.



"Egyptian Wheat" a form of this plant was being successfully introduced near Bay City and it was said that blackbirds were feeding in it extensively, at times doing considerable damage.



A REPORT ON DAMAGE TO RICE BY BIRDS IN THE

STATE OF ARKANSAS

In accordance with letter of authority 212-B1, I left Washington, D. C. on December 13 and proceeded to Little Rock, Arkansas, for the purpose of gathering information on damage by birds to rice in the State of Arkansas. It was desired to know the species of birds implicated in such damage, the period or periods at which harm was done and extent and consequences of such damage as definitely as possible. Little Rock, Arkansas, was reached on December 15. In Little Rock I visited Mr. E. V. Visart, Inspector in Interstate Commerce and Game for the Biological Survey, who had forwarded reports of damage in fields of rice by wild ducks and secured information as to areas from which complaints had come. These were all in Arkansas County, Arkansas, and came from areas adjacent to the towns of Stuttgart, DeWitt and Gillet. I worked at Stuttgart from December 16 to 18, and at DeWitt from December 19 to 20. Gillet was visited on December 21 and further investigations were made at De Witt on December 22. The return journey to Little Rock was made on December 23, and after further conference with Mr. Visart I proceeded to Southern Texas as directed in my letters of authority and instructions.

In carrying on this investigation leading rice growers and men interested in the rice industry were visited and interrogated and areas in which rice was still standing in shocks in the fields were examined and the condition of the grain noted. Samples of grain showing damage by birds were secured and although weather conditions during most of the period were such as to militate against successful photography a few views were taken in damaged fields near De Witt. In addition observations and notes were made of the appearance and movements of birds in the areas



under consideration and particular attention was given to the specific identification of such species as were implicated in damage to rice.

#### GENERAL INFORMATION

Arkansas County, from which complaints of damage to rice by birds had come is located in southeastern Arkansas near the Mississippi River. The greater part of the entire county is level though the southern portion near De Witt and Gillett is somewhat undulating. In its original condition the County was about equally divided between extensive areas of open prairie and belts of hardwood timber. Rice culture was begun here first about fourteen years ago. Serious development of the industry began about eight years ago and since then there has been great increase in the acreage devoted to this crop. Water necessary for irrigation of the fields is secured from wells from 150 to 900 feet deep which furnish an abundant supply. During the harvest rice is handled in much the same manner as wheat. The fields are drained, the grain is cut and bound into sheaves with binding machines and then these sheaves are placed in shocks to await threshing. At the present time a large part of the original prairie land has been given to the growing of rice and in addition tracts of timber are being cut in order to make more arable land available. Some cotton and corn are grown near and below De Witt but rice is at present the staple crop for the entire County. The crop for 1917 was estimated at about two million bushels. The increase in acreage devoted to rice has been steady until <sup>in</sup> 1917 the land in this crop had reached a point where it had progressed more rapidly than means for



threshing had <sup>been</sup> provided. The spring of 1917 was somewhat late and farmers were hindered ~~by~~ <sup>further</sup> by unfavorable weather at the time of cutting. These delays with the lack of sufficient threshing facilities threw the time of threshing late in many cases. This was especially true near Stuttgart and De Witt where there was considerable shocked rice in the fields as late as November 10. Gillett though only a short distance further south is reported to have a somewhat earlier season and the greater part of the rice there had been threshed by the end of October.

Rice is also grown in Lonoke and Prairie Counties north of Arkansas County but no reports of serious damage by birds have come from these areas as yet.

#### DAMAGE BY DUCKS.

It was reported that a cold wave with unfavorable weather coming shortly before Thanksgiving made it necessary to postpone the completion of the rice harvest while at the same time many ducks came into this region and began at once to feed in the fields. Accounts varied some as to the actual date on which damage from this source began but it appears from the meteorological report for Arkansas for the month of November that there was a marked fall in temperature and general cold throughout the State from November 23 to 25 and it seems probable that the ducks began to come at this time.

The first reports of damage to the shocked rice by ducks came from a field about ten miles below Stuttgart, belonging to E. J. Basye. On the following nights ducks fed in other fields nearby and at the same



*time* began to work in fields where rice was still in the shock near De Witt.

Fields near Stuttgart where damage by ducks had been reported were visited on December 17. The field belonging to E. J. Basye mentioned above as the one where ducks first began to work had an area of 80 acres and rice in the shock was still present on about 60 acres. This rice was cut and shocked about November 15 according to local reports. Shortly after ducks began to come in to feed here at night arriving about dusk and leaving before daylight. On about the third night recourse was had to night shooting to keep the birds out but in this particular case it did little good. Men who were present stated that the birds came literally in hordes. So eager were they for food that only those within a few yards would rise at a shot and all would alight immediately. Effort was made to thresh this rice as soon as possible but so little of the grain remained that after half a day the attempt was abandoned.

On examining this field critically I found that in the upper fourth the grain had been somewhat injured by frost while it was maturing so that about half of the rice kernels in each head had failed to mature. In the remainder of the field however the yield, as nearly as could be judged, had been heavy and the rice, of the variety known as Honduras, was of excellent quality. The ducks had come in here while the ground was still soft and from one-sixth to one-fifth of the shocks in the field had been pulled down or trampled down by the birds in feeding, while in some instances in low spots the straw had actually been trampled into the mud. Other shocks had had the cap sheaves pulled off and in all practically the entire yield of rice had been destroyed. What remained was not worth threshing. The heads had been entirely stripped (see fig. 7)



by the ducks and it required some search to discover a bundle that had been protected so that samples of uninjured heads might be secured. The damage was attributed entirely to Mallards and feathers still scattered about in the field belonged to this species. The birds in feeding had pulled out the sheaves or had clambered over the shocks until they were flattened down so that all of the grain had been exposed. In many cases paths had been worn about the flattened bases of the shocks as the birds had worked about them. In some places the ducks seemed to have rested for considerable periods after feeding as feathers were scattered about on piles of ordure. Samples of duck dung were collected at different points in the fields. Under the microscope these were found to be made up almost entirely of the rough hulls of rice ground up during the process of digestion. As this field was new land the yield of rice had been very heavy. A conservative estimate placed the loss in this field at 6000 bushels of rice valued at a few cents more than \$2.00 per bushel.

On this same day I examined a ricefield belonging to Henry Jensen that had also been damaged seriously by Mallards. This field contained about fifty acres of Blue Rose rice which was still in the shock. Ten acres of this was near a farm house and bordered a well-traveled road. The damage by ducks in this tract had been slight, but ducks had fed extensively in the remaining 40 acres, and were still working there as I flushed a few Mallards in crossing the field and several flocks were seen circling about waiting for an opportunity to alight. In this field there had been considerable water which had frozen holding the shocks of rice firmly in place. Ducks had fed all about these shocks and had clambered over them eating every grain of rice that was exposed or could be reached.



(see fig. 2) In some cases the cap sheaves had been pulled off and paths were trodden about many of the shocks. The rice inside which the ducks had not been able to get at indicated that the yield of grain had been heavy. There was some indication of injury from frost along the lower border of this field but this was comparatively slight. Where the kernels had been touched by frost the grain had not developed and this the ducks had not touched as the hulls were empty. A few shocks had been pulled down but this was restricted to a small area when there was no ice. The loss here was estimated at about two-thirds of the crop. The damage was due in part to blackbirds but the greater proportion, probably nine-tenths, had been done by wild ducks. Mallard feathers were scattered about in the fields and much duck dung composed almost entirely of rice hulls was found.

According to authentic statements, Ralph Rhodes had lost about 1200 bushels of rice through wild ducks in a field one and one-half miles from the Basye place noted above. More damage would have resulted here but threshing started soon after the ducks came in so that part of the crop was saved.

Ducks came in to another field nearby according to Otto Jensen and destroyed ten shocks of rice in one night while threshing was going on. The harvest was completed in this field the following day or more harm probably would have resulted on the following night.

Charles Spicer stated that Mallards had attacked rice in two fields belonging to him located not far from the Basye place. Damage resulted to 30 acres in one strip and 18 acres in another. Mr. Spicer said that he did not see these fields personally but that the incident had been



reported to him by his son. He believed that the damage compared to that inflicted on the Basye place was slight as his grain was threshed immediately before the ducks had opportunity to complete the destruction.

In studying this damage it was of some interest to note that in the Stuttgart region damage by ducks was reported from fields in an area not more than three miles across. Reports of harm did not come from outside this section though this may be ascribed probably to threshing being completed in the areas before the ducks began to work in them.

Other ricefields where damage by ducks was reported were visited in the section about De Witt on December 19.

At the farm of Park Moses a mile from De Witt a field of 110 acres of Blue Rose rice in the shock was examined. This rice had been slow in development and the harvest consequently had been late. Mallards had fed here in large numbers, coming at night and leaving for some roosting place at the approach of day. As the shocks were frozen solidly to the ground they were torn down in only a few instances but in many cases I found that the cap sheaf had been displaced. In all of the shocks much of the grain exposed outside had been eaten and in one section comprising about one-third of the field the exposed sheaves had been completely stripped (see figs. 3-4). In addition the ducks had burrowed in between the bases of the sheaves in many shocks in order to get at the inside grain. Much straw had been pulled down by the birds in feeding and was trampled in around the bases of the shocks. Mallard feathers and considerable amounts of excrement were scattered about. The yield in this field as shown by undamaged sheaves had been very heavy. Mr. Moses estimated his loss at approximately 2,000 bushels and this considering the



size of the field and the condition of the grain at the time of examination seemed conservative. Some damage here had been done by blackbirds but the major part was to be ascribed to ducks. Several pictures were taken in this field.

At the farm of R. I. Alters nearby Mallards had been working in about 40 acres of shocked rice but the damage in this and another field estimated at about 1200 bushels was due in large part to blackbirds as was shown by the large quantities of rice hulls scattered about. The outer sheaves in the shocks were stripped as described above in the field belonging to Mr. Moses.

William Simpson below De Witt claimed that Mallards had destroyed one field containing between 100 and 125 acres of rice in the shock with a resultant loss of about 5,000 bushels of grain. As soon as possible an effort was made to thresh the rice in this field but as only eight or ten bushels of rice were secured from fifteen loads the attempt was abandoned, and the remaining grain was left in the field. At Mr. Simpson's invitation a dozen or fifteen men came down here to shoot at night in order to keep the ducks out but had little success. The birds began to come in here about nine each evening and left before dawn. I visited this field and found the remains of the rice shocks scattered about and the seed heads entirely stripped. As hogs had been turned in here to feed I was not able to arrive at the original condition after the ducks were through. The shocks examined all showed evidence of damage by birds and Mallards were still feeding here. About 500 Mallards were working in this field at the time of my visit.

J. McMillan who was farming rice on a field of 100 acres belonging



to H. P. Brown claimed that birds had caused damage here amounting to 2000 bushels. This apparently was to be charged equally to Mallards and to blackbirds. Threshing was going on at the time of my visit but I was able to examine about 40 acres of rice still in the shock. The shocks of rice in this field had been frozen in before ducks began to work in them so that only a very few had been torn down. There were many signs of where the ducks had been working around and clambering over the shocks and many Mallard feathers and much duck dung composed almost entirely of rice hulls was scattered about. In some cases the cap sheaves on the shocks had been much flattened, while straw had been pulled out and trampled down all around the shocks. Practically all of the exposed grain had been taken. Mr. McMillan stated that ducks began to work in here about ten days previous (i. e. Dec. 7-10) and that Mallards came in hordes both during day and at night. They were accompanied by great flocks of blackbirds. Men were stationed in the fields to shoot and did some good in driving the birds out but still the loss was severe. On December 16, twelve men had shot in this field and since then ducks had given little trouble.

R. A. Scott claimed loss from Mallards in shocked rice but this grain had all been threshed so that the fields were bare. No estimate was placed on the amount of damage here.

The Walton Rice and Land Company had lost considerable grain in a field of 40 acres the damage being attributed equally to Mallards and blackbirds. This grain was still in the field but I was unable to get in to it as it was beginning to thaw, and the ground was too soft.

Besides those mentioned the following are said to have lost more



or less rice from Mallards, viz, J. W. Burnett, John Mattox, J. Perdy, Schaeffer and a Frenchman named Mouton. These seemed to be the main cases in which damage was inflicted by ducks.

In Gillett, H. E. Crill of the Stilwell Mercantile Company said that they had experienced slight damage from ducks. The damage was comparatively light however as the birds did not come in until threshing had begun and the harvest was completed at once. Some damage was also attributed to these birds in fields belonging to W. C. Butcher, W. Langham, and C. A. Franzen. As has been stated above the season about Gillett was earlier than farther north and practically all of the rice crop had been threshed by November 15. There was little reliance to be placed upon reports of damage by ducks here as I learned that there has been much violation of the law prohibiting night shooting in this region and men put forth the excuse that they were doing it to protect their crops. As a matter of fact the only reports of damage heard in Gillett that seemed bona fide related to the fields destroyed near De Witt and Stuttgart that have been described above.

At Stuttgart I heard somewhat indefinite reports of damage by ducks to rice on the farms of W. H. Norsworthy and W. G. Walton near St. Charles, but these were so vague that little could be learned regarding the situation there. as the area was remote and rather difficult of access it was not visited as it was considered that these rumors were too indefinite to warrant the expense incident to further investigations.

From the account given above it appears that Mallards inflicted more or less serious damage in four fields near Stuttgart, and in about twelve near De Witt. It was estimated that in these fields wild ducks



with some aid from blackbirds had destroyed about 20,000 bushels of rice which at the prevailing price of \$2.00 per bushel was worth \$40,000. Of this damage it would seem that at least \$35,000 was to be ascribed to ducks, mainly to Mallards.

Attempts made to keep the ducks out by night shooting were successful in some cases and in others were without effect. ~~Others~~<sup>Some</sup> drove the birds out by frightening them with lanterns and by setting dogs on them. When resort was had to night shooting on the Basye place a local game warden in Stuttgart was much incensed and secured the names of most of the men participating in order to prosecute them for violation of the game laws. Before proceeding however it was said that he examined the field in company with Mr. Basye and that when he saw the damage that had been done he carried the matter no further. It was reported that he was requested to make a report to the State Game Commission and that he did so, but no further action was taken. The matter of the damage in this particular field was given considerable publicity in the local press and it was even stated that the State Game Commission had sanctioned night shooting in order that the farmers might protect their crops, a statement that this body is said by Mr. Visart to have neither affirmed or denied. This led to considerable infraction of the game law, in particular near Gillett, a section which devoted to hunting where it was reported that many hundreds of ducks were thus killed illegally though the farmers of that area were suffering no losses. No prosecutions however had been made.

As a preventive measure against loss to rice by ducks it may be recommended that rice growers make every effort to complete the harvest of their crop before the middle of November. A small number of ducks



breed in this region but these are so few that they would be capable of doing practically no harm and serious inroads are to be feared only from the attacks of migrant and wintering birds. These ~~will~~<sup>should</sup> not begin to arrive here until about November 20 when cold weather ~~will~~ drives them from their northern feeding grounds. Any rice that remains in shocks at this time will be subject to attack and from the experience of this year it would seem that in some cases it may be lost completely. Rather than chance this contingency the intelligent rice grower should make every effort to get his crop harvested and under shelter as early as possible. Otherwise he runs chances of sustaining serious loss.

In some cases it might be possible to save late rice when it was in danger of being attacked by ducks by stacking the sheaves in round stacks with the heads toward the center. This would effectually prevent any injury from birds. Such a method would entail handling the rice a second time after it had once been shocked and so would add to the expense of labor used in production. There would be some additional loss of rice in handling as the grain "shatters" or rattles off from the heads when dry but such losses would be small compared with the destruction of the entire yield. It might be possible to stack the grain in centralized areas where it could be threshed without necessity of hauling which would aid in reducing the expense of labor and loss by shattering.

Damage by ducks has been experienced here in slight amount on other years previous to 1917 but has been so slight as to attract little attention from all accounts. Such damage has always come in very wet years when shocked rice was left out for a long time. Water standing in the rice stubble attracted ducks and these did more or less damage to the



grain that had been cut. In other instances it was said that fields had been flooded before they were cut and these were largely destroyed.

In connection with this damage to rice in Arkansas County it is of interest to know that Mallards have been common in this region for many years. Their accustomed food here is mainly acorns and it is only in recent years since the development of the country that stubblefields have been available for feeding grounds. Their normal food does not seem to have been very abundant as in January 1899, N. Hollister recorded (Wilson Bulletin, 1902, pp. 11-12) that Mallards near Stuttgart "were all very thin--so much so that they were really unfit to shoot. \* \* \* \* I noted a bunch, on the depot platform, of fourteen dozen birds, the result of one and one-half days' shooting by two market hunters, and not one bird in the bunch but would be called a 'crip' by a Northern or Western sportsman, so emaciated was their condition. In November, however, they are in most excellent shape and equal in weight to a Minnesota or Wisconsin 'corn-fed' Mallard." This would seem to indicate that the birds are in good condition when they arrive in November but that if dependent upon normal food supplies that they lose in weight and become thin.

It seems probable that the Mallard population of this area is constantly shifting, from the time when the birds arrive in fall or through the winter, as weather conditions locally and farther north vary. Flocks of ducks were seen constantly during the field work in this region and save for two male Pintails all were Mallards. About 5000 were seen on December 17 below Stuttgart and on this day those seen, save for a few birds that were feeding on rice stubble were flying north as the weather was beginning to moderate after a prolonged cold spell. On December 22 with



colder weather threatening flocks of Mallards were travelling South nearly all day. Flocks of Mallards were observed in many places feeding in rice stubble and in fields where rice was still in the shocks. The greater part of the damage to the rice crops had been done before December 10 and the birds seen seemed to be feeding largely on waste grain save in a few localities where they were still attacking shocked rice. Many of the birds were being killed by hunters.

#### DAMAGE BY BLACKBIRDS.

Rice growers in the region under discussion almost universally made complaint of damage by blackbirds in their fields. The species of <sup>Ic</sup> ~~C~~eteridae implicated as nearly as could be made out were the Red-winged Blackbird, Cowbird, Bronzed Grackle and Rusty Blackbird. Complaint against these birds began in spring at the time of seeding. Rice is planted mainly by seeders that distribute the grain while drags follow to cover it up. In some cases where it was necessary for some reason to leave part of the grain uncovered for a few hours, blackbirds came in great flocks and cleaned up almost the entire quantity of seed that had been planted. It was stated also that Redwings sometimes inflicted serious damage by pulling and eating the newly sprouted rice. Seeding took place from the end of March or the first of April on into the first week in May. Migrant blackbirds of all the species mentioned above <sup>should pass.</sup> in great flocks through this region until April 10 or 15. After this time any damage must be attributed in large part to the Redwings with perhaps some aid from Bronzed Grackles as these two species in the group under consideration are the most common as breeding birds. Cowbirds also occur during the nesting season in fair numbers



and may aid in such damage. It was generally agreed that the worst damage resulted in the early plantings in April, probably because of the hordes of migrants passing through which turned to the rice because of scarcity of other food supplies. Injury to the rice at this time however seemed to be somewhat local as only a part of the rice growers questioned made complaint and in many cases these complaints were based, not upon personal experience but upon information gained from others.

The greatest complaints of damage by blackbirds stated that the birds were very destructive to rice grains when they were in the milk and from that time on until the heads were fully formed and ripened. This period extended from the first week in August on into September the exact date in each case depending upon the variety of rice and the date of planting. Blackbirds at this time have finished nesting and are gathering in flocks. This flocking continues on through the winter until time for the nesting season again. Fields of rice that happened to begin to mature early were more subject to severe attack as blackbirds congregated in them and continued to feed in them for considerable periods. Later when more extensive feeding grounds were available in the rice fields the damage was more distributed and therefore less noticed. Damage to the forming rice was almost certainly due to the resident Red-winged Blackbirds and Bronzed Grackles. The species first named was stated to be especially destructive. It was said that Blackbirds continued to feed in the rice until it was cut. About November 1 great flocks of migrants augmented the numbers of resident birds and at this time hordes of Rusty Blackbirds and Cowbirds were added to the greatly increased flocks of Redwings and Grackles. These birds fed in great flocks in the rice stubble and where rice was still in



the shock frequently stripped the exposed grain.

Instances of damage to shocked rice came under personal observation in some of the fields examined. The work of blackbirds in mature rice may be readily distinguished from that of ducks as while the latter swallow the grain entire the blackbirds crack off the rough more or less spinosely pubescent hulls and eat only the rice grain itself. Damage from this source was especially evident in fields examined near De Witt. In the field belonging to J. McMillan described above it was estimated that about half of the damage inflicted was done by blackbirds. Rice hulls were scattered in heaps about the bases of many of the shocks and could be scraped up in handfuls. Mixed with these hulls were quantities of bird droppings of the size and general appearance of blackbird excreta. It would seem that the blackbirdserattled off much grain in feeding as considerable amounts of good rice were mixed through the samples of hulls examined. This loose grain was of course lost to the producer even though it was not eaten.

Alfred Cummings of Hagler who has a threshing outfit stated that he had noticed many instances in fields where he had threshed of injury by blackbirds. In some instances whole sheaves would have the heads entirely frayed out where the birds had been working on them. In certain cases he estimated from the subsequent yield in threshing that the losses from blackbirds had run as high as ten bushels to the acre.

T. F. Gibbs living near Hagler estimated that Bronzed Grackles during the first week in December had eaten about 300 bushels of rice in one field belonging to him while the grain was still in the shock. He attributed loss in this particular instance in part to the fact that the field was bordered by trees which gave the birds convenient resting places when they were not feeding.



R. I. Alters near De Witt claimed loss of about 1200 bushels of rice largely from Blackbirds though part of this grain was eaten by ducks.

In general damage by blackbirds at one season or another was claimed by practically all of the rice growers interviewed and was so general that it was accepted by most as a necessary evil to be endured during the raising of their crop. This damage seemingly was so spread through season that it was not practicable to make a definite estimate as to its extent. There is no question however but that in the aggregate the grain consumed is of much more importance than the amounts destroyed this season in a few fields by Mallards. It seems probable too that the most serious damage is to be attributed to the individual birds resident in the immediate vicinity.

At the present time but little attempt is made by rice growers to control the depredations of blackbirds. Some said that occasionally they spread corn chop soaked in a solution of strychnine in the fields in spring. Others did some shooting particularly in badly infested fields where the rice was in the milk but otherwise the depredations of these birds were disregarded.

During my field work in this region some observations of interest were made in regard to the presence and movements of blackbirds. When I arrived at Stuttgart the ground was covered by an inch or more of snow that covered the rice stubble. This curtailed the feeding grounds of the large numbers of birds present as it covered any food that had lain on the ground. At this time many of the rice growers were hauling rice to the mills so that wagons loaded with rice were constantly traversing the roads. As jute sacks were valued this year at twenty-one cents each most of the farmers were hauling rice loose in specially constructed wagon boxes. Though these wagons were of tight construction much rice was scattered along the roads



and great flocks of Rusty Blackbirds and Bronzed Grackles gathered to feed on this waste grain. With them were many meadowlarks that seemed to be in search of the same food. At De Witt and Gillett the fields were bare of snow and although many blackbirds were observed feeding in the roads this habit was not so universal as at Stuttgart. However it was noted that the meadowlarks still frequented the roadways in large numbers. Save in one instance no complaint was made against the meadowlark as a destroyer of rice during the present inquiry, and in that one case evidence was not certain.

On December 17 the Rusty Blackbird was found near Stuttgart in large flocks. It was estimated that between 30,000 and 40,000 of these birds were seen on this date. The birds were very common farther south also and large numbers were seen each day. Near Stuttgart between 10,000 and 15,000 Bronzed Grackles were seen also on December 17 and large numbers were present near De Witt. The Cowbird was less abundant but large numbers of Redwings were noted. At Dewitt it was noted that the Blackbirds seemed to have a roost somewhere east of town as on December 20 and 22 ~~It was noticed that~~ flocks were passing constantly toward the west and southwest between seven thirty and eleven in the morning. The greater <sup>part</sup> of the birds observed were Rusty Blackbirds with many Bronzed Grackles and a few Redwings accompanying them. All were flying steadily at an altitude varying from 100 to 300 feet above the earth. Many congregated about the stacks where the rice had been threshed. After midday flocks gathered in willows and other tree growth growing about pools where the birds rested during digestion of the food contained in their crops.

Some of the farmers questioned stated that it was a decided advan-



tage to have the Blackbirds feed in the rice stubble as they cleaned out a large part of the waste rice that had fallen<sup>n</sup> during the harvest and also ate the red rice that grew along the levees and elsewhere. This did away with the growth of volunteer rice during the following year a matter of importance as volunteer rice is in nearly all cases inferior in quality and where it is abundant lowers the average grade of the rice produced so that it brings a much lower price. Red Rice is a serious pest as the grains are small and when abundant in the harvested output of rice they interfere markedly with the proper milling of the better varieties with which they are mixed. Other rice growers stated that the waste rice and red rice could be cleaned out by hogs pastured in the fields and the grain turned to advantage that otherwise would be wasted. It was generally admitted however that hogs were not entirely effective and most men conceded that the work of the blackbirds in winter was beneficial. This point should be borne in mind as it would seem that serious damage to rice is caused in large part by resident birds and that save in seasons when the rice is late migrants and wintering birds do little harm. These statements would need careful verification as they are based almost entirely upon information given by men not wholly familiar with differences between species of birds or with the migratory movements of individuals.

Specimens of Blackbirds that were collected during the work in Arkansas belonged to four species, viz., Bronzed Grackle (Quiscalus a. aeneas), Cowbird (Molothrus a. ater), Rusty Blackbird (Euphagus carolinus), and Red-winged Blackbird (Agelaius p. predicatorius). The four specimens of the Red-winged Blackbird taken were all shot from one flock and belonged to the form that breeds in Arkansas. It should be noted however that two



northern subspecies of this wide-ranging bird, the Thick-billed Redwing (Agelaius p. fortis) and the Northern Redwing (Agelaius p. arctolegus) have been taken near Van Buren in western Arkansas (cf Howell, A. H., Birds of Arkansas, Biol. Survey Bull. 38, 1911, pp. 57-58) so that these forms may occur in Arkansas County also, during late fall and through the winter. Specimens taken near Van Buren in 1910 were collected between December 10 and 17.

Twelve Blackbirds among which were represented specimens of the four species enumerated at the beginning of the previous paragraph were collected from flocks feeding in rice stubble near De Witt, on December 19. These birds had all eaten rice to a considerable amount as shown in the following tabulation in which the number of rice kernels found with the percentage by bulk of rice contained in stomach and crop as compared with other food are given:

<u>Agelaius p. predatorius</u>			
#146438,	56 grains of rice,	remains of others	89 %
#146439,	42 " " "	" " "	95 %
#146440,	130 " " "	" " "	84 %
#146442,	20 " " "	" " "	90 %

<u>Euphagus carolinus</u>			
#146446,	6 grains of rice		25%
#146447,	20 " " "	remains of others	65 %
#146448,	13 " " "	" " "	40 %
#146449,	Fragmentary rice grains		85 %

<u>Molothrus a. ater.</u>			
#146443,	115 grains of rice		85 %
#146444,	55 " " "		70 %
#146445,	12 " " "	remains of others	70%

<u>Quiscalus q. senes.</u>			
#146441,	67 grains of rice,	remains of others	59 %

The rice eaten was all without question waste grain but it is of interest to note that only one grain of red rice was identified in the



considerable number of kernels examined. Though more red rice may have been represented in the ground up fragments in these stomachs there was nothing present to indicate that this was really the case.

The other food formed in the stomachs of these blackbirds was made up largely of grass and sedge seeds with a very small percentage of animal matter. The Bronzed Grackle had taken 80 seeds of Poison Ivy. Two of the Rusty Blackbirds had eaten oats in addition to rice but this may possibly have been waste grain from horse droppings. All of the rice eaten had been hulled, though many bits of hulls had been swallowed by the Rusty Blackbirds and the Bronzed Grackle. Seemingly these two species were not so expert at handling these seeds as the Red-winged Blackbirds and Cowbirds as in the stomachs of these latter species very few remains of the rough hulls covering the rice kernels were found.

#### DAMAGE FROM OTHER SOURCES.

English Sparrows (Passer domesticus) were common about the towns visited and many were found about farm houses scattered through the country. Some complaint was directed against these birds but most of the rice growers had paid little attention to them. He E. Crill of Gillett said that this year English Sparrows had destroyed the rice in an area of about five acres in a field farmed by him. This small area matured more rapidly than the surrounding grain and the sparrows fed on it while it was in the milk destroying the entire yield.

Some stated that the common rat did damage to stored rice and frequently was a serious pest. The greatest damage came when the rats attacked grain in sacks and cut the sacks so that the leakage interfered with handling.



Texas, Colorado, Wharton and Matagorda Counties.

Dec. 25, 1917 - Jan. 2, 1918.

Eagle Lake, Dec. 25-27  
Wharton Dec. 28, El Campo Dec. 29-30.  
Bay City to Matagorda Dec. 31- Jan. 2

Birds.

A. Wetmore.

Larus argentatus.

One seen at Matagorda Jan. 1.

Larus delawarensis.

One seen at Matagorda Jan. 1.

Phalacrocorax v. mexicanus (?).

A small cormorant seen at Matagorda Jan. 1 may have been an individual of this species.

Anas platyrhynchos.

A few seen along the Colorado River near Bay City, Jan. 1.

Nettion carolinense.

Fairly common on a canal at Eagle Lake Dec. 27. Several seen along the Colorado River near Bay City Jan. 1.

Spatula clypeata.

Two seen at a small pool below Bay City, Jan. 1.

Marila americana.

An adult male seen on an irrigation canal near Simpsonville Jan. 2.

Chen h. hyperboreus.

Several flocks seen flying below Bay City Jan. 1. On Jan. 2 many were seen feeding in bands in rice stubble near Markham, Ashby, Simpsonville and Matagorda. The birds were very tame and permitted close approach.

Chen caerulescens.

One examined in Bay City that had been killed by a hunter Dec. 30. Five were seen with flocks of White Geese on Jan. 1 below Bay City and on Jan. 2 a dozen more



were seen feeding with Snow Geese in rice stubble. E. C. Krause reported them as common at the mouth of the San Bernard River in Brazoria County. These birds were known locally as "Brant."

Anser albifrons gambeli.

Four seen feeding in rice stubble near Markham Jan. 2.

Branta canadensis.

Seen near Bay City Jan. 1. Fairly common near Markham and Simpsonville Jan. 2. Flocks were feeding in pastures and in rice stubble.

Branta c. hutchinsi.

A few were seen near Bay City Jan. 1 and below Markham Jan. 2.

Ardea herodias.

Seen near Matagorda on Jan. 1 and 2.

Grus americana.

Reported as fairly common at this season in the coast region from Matagorda east to the mouth of the San Bernard River in Brazoria County. None seen.

Grus mexicana.

One seen at Eagle Lake Dec. 25, two observed near Bay City Jan. 1.

Fulica americana.

A dozen seen in a canal at Eagle Lake Dec. 27.

Gallinago delicata.

Seen at Eagle Lake on Dec. 25 and 27. On the latter day birds were seen feeding in the open on soft mud exposed along a canal. When frightened they ran ashore and hid in vegetation but soon came back again to their feeding station.

Pisobia minutilla.

Two seen at Eagle Lake Dec. 27.



Pelidna a. sakhalina.

Several feeding on mudflats near Matagorda Jan. 1. Others seen in a pond near Simpsonville Jan. 2.

Actitis macularia.

Two or three seen along the Colorado River near Wharton Dec. 28. One observed near Bay City Jan. 1.

Numenius americanus.

Two examined in Bay City that had been killed by a hunter on Dec. 30. Several seen near the Colorado River at Matagorda Jan. 2.

Squatarola squatarola.

Several feeding on mudflats at Matagorda Jan. 1.

Oxyechus vociferus.

Common. Seen at Eagle Lake Dec. 25 and 27; Wharton Dec. 28; Bay City Jan. 1 and 2.

Colinus y. texanus.

A flock of a dozen seen at Eagle Lake Dec. 27.

Zenaidura m. marginella.

Fairly common. Seen at Eagle Lake Dec. 25 and 27; Wharton Dec. 28 and near Bay City Jan. 2.

Cathartes a. septentrionalis.

Common. Seen at Eagle Lake Dec. 25 and 27; Wharton Dec. 28; Bay City Jan. 1 and 2.

Catharista uruba.

Common. Seen at Eagle Lake Dec. 25 and 27; Wharton Dec. 28 and Bay City Jan. 1 and 2.

Circus hudsonius.

Seen at El Campo Dec. 29 and near Bay City on Jan. 1 and 2.



Buteo borealis.

Fairly common. Seen at Eagle Lake Dec. 25 and 27, and near Bay City on Jan. 1 and 2.

Buteo lineatus.

Common. Seen near Eagle Lake Dec. 25 and 27; near Bay City Jan. 1 and in the vicinity of Ashby and Citrus Grove on Jan. 2.

Buteo albicaudatus sennetti.

A fine adult in light phase seen circling over a stubble field near Bay City Jan. 1.

Falco sparverius.

Fairly common. Seen near Eagle Lake Dec. 27. and in the vicinity of Bay City Jan. 1 and 2.

Strix varia.

One seen near Eagle Lake Dec. 25. Near Bay City on Jan. 1 I found one of these birds asleep in the sun on a low limb in open woods and came up within thirty feet of it before it awakened.

Speotyto c. hypugaea.

One seen near Matagorda Jan. 1.

Ceryle a. alcyon.

Several seen along the Colorado River near Wharton on Dec. 28; one observed along the same stream near Bay City on Jan. 1.

Dryobates p. pubescens.

One seen at Eagle Lake Dec. 27; one at Wharton Dec. 28 and one at Bay City Jan. 1.

Sphyrapicus v. varius.

One observed at Eagle Lake Dec. 27, another at Bay City Jan. 1.

Melanerpes erythrocephalus.

Several seen along the Colorado River near Wharton, Dec. 28.



Centurus carolinus.

Common in timbered areas. Seen at Eagle Lake Dec. 25 and 27; Wharton Dec. 28; and Bay City Jan. 1.

Colaptes auratus.

Fairly common. Seen at Eagle Lake Dec. 25 and 27, several at Bay City Jan. 1.

Sayornis phoebe.

Common. Noted as follows: Eagle Lake Dec. 25 and 27; Wharton Dec. 28; Bay City and Matagorda Jan. 1 and 2.

Otocoris a. giraudi.

Common in a restricted area above Matagorda where the birds were seen Jan. 1 and 2. A female bird taken had had the bill injured in some way so that both upper and lower mandibles had been torn away. The bird was in good condition but had been unable to free the long dorsal feathers from their sheaths developed at the last molt, save at the tips. This bird was at least one year old as shown by the progress of ossification in the diploe of the skull and the development of the ovaries. (specimen)

Cyanocitta cristata.

Fairly common at Eagle Lake on Dec. 25 and 27.

Corvus brachyrhynchos.

Two seen at Eagle Lake Dec. 27 and others observed below Wharton Dec. 28.

Melothrus ater.

Fairly common at Eagle Lake Dec. 25 and 27; a number observed near Wharton Dec. 28; near Markham on Jan. 2 a flock containing nearly 5000 of these cowbirds was feeding in a field of rice stubble. Fifteen that were killed for their stomachs from this flock all belonged to the subspecies ater. (specimen)



Agelaius phoeniceus.

Abundant. Seen at Eagle Lake Dec. 25 and 27, Wharton Dec. 28, El Campo Dec. 29 and in the region between Bay City, Citrus Grove and Matagorda on Jan. 1 and 2. Near El Maton on Jan. 2 flocks containing thousands of these birds were feeding in rice stubble. The subspecies predatorius, richmondi and fortis are represented in small series of skins that were preserved. (specimens).

Sturnella magna.

Abundant. Meadowlarks were recorded at Eagle Lake Dec. 25 and 27, Wharton Dec. 28, El Campo Dec. 29 and 30, and Bay City and elsewhere in Matagorda County on Jan. 1 and 2. All that I was able to examine at close range with binoculars belonged to the eastern species, but it is probable that neglecta was represented among them. The birds were entirely silent at this time and though I was out constantly I heard none calling so that no aid in their identification was to be derived from this source. From the pale coloration of many of the birds it would seem that many belonged to the form hoopesi.

Icterus melanocephalus auduboni.

One of these orioles was "squeaked up" from a dense growth of Cherokee Rose near Eagle Lake on Dec. 27 and I was able to watch it for several minutes as it worked through vines and low live oaks before it disappeared. Though times the bird would not allow me to approach within cane gun range.

Muphagus cyanocephalus.

Abundant. Recorded at Eagle Lake Dec. 25, 26 and 27, Wharton Dec. 28, El Campo Dec. 29 and 30 and Bay City and vicinity Jan. 1 and 2. A specimen showing albinistic tendencies was collected. (specimen).

Megascopus m. macrourus.

Common. Recorded at Eagle Lake Dec. 25, 26 and 27, Wharton Dec. 28, El Campo Dec. 29, <sup>and</sup> 30 and in Matagorda County between Bay City, Citrus Grove and



Matagorda on Jan. 1 and 2. (specimens).

Astragalinus tristis.

Goldfinches were seen at Eagle Lake Dec. 27 and near Bay City on Jan. 1.

Poocetes gramineus.

Fairly common. Seen at Eagle Lake Dec. 27, El Campo Dec. 29 and near Bay City Jan. 1 and 2.

Passerculus sandwichensis.

Savanna Sparrows were seen at Eagle Lake Dec. 25 and near Bay City Jan. 1 and 2. In the latter locality I found them abundant west of town on New Years Day.

Zonotrichia querula.

One seen at Eagle Lake Dec. 27.

Zonotrichia l. leucophrys.

Common at Eagle Lake Dec. 25 and 27. All observed closely belonged to true leucophrys. These birds fed in little flocks in dense brush, especially under the thorny cover of the Cherokee Rose. At dusk I found them coming out more into the open.

Zonotrichia albicollis.

Common at Eagle Lake Dec. 25 and 27.

Melospiza melodia.

Seen at Eagle Lake Dec. 25 and 27 and near Bay City on Jan. 1.

Melospiza georgiana.

A few seen at Eagle Lake Dec. 25 and 27.

Passerella l. iliaca.

Fairly common near Eagle Lake Dec. 27. A few near Bay City on Jan. 1

Pipilo maculatus.

Striped-back Towhees were fairly common in dense brush near Eagle Lake Dec. 25 and 27.



Oberholseria chlorura.

One seen several times at close range in dense brush near Eagle Lake on Dec. 27.

Cardinalis cardinalis canicaudus.

Abundant in suitable localities. Seen at Eagle Lake Dec. 25 and 27; Wharton Dec. 28; and near Bay City Jan. 1 and 2, also at Ashby Jan. 2.

Passer domesticus.

Common at Eagle Lake Dec. 25 and 27 and Bay City Jan. 1 and 2.

Bombycilla cedrorum.

A flock seen at Eagle Lake Dec. 27.

Lanius ludovicianus.

Common. Seen at Eagle Lake Dec. 25 and 27, Wharton Dec. 28 and Bay City Jan. 1 and 2.

Dendroica coronata.

Fairly common. Seen at Eagle Lake Dec. 25 and 27; Wharton Dec. 28, El Campo Dec. 29 and Bay City Jan. 1.

Geothlypis trichas.

Fairly common near Eagle Lake Dec. 25 and 27. Many along the Colorado River near Bay City Jan. 1.

Anthus rubescens.

Common. Seen in flocks. Recorded at Eagle Lake Dec. 25 and 27, Wharton Dec. 28, El Campo Dec. 29, Bay City and Matagorda Jan. 1 and 2.

Anthus spraguei.

This pipit was fairly common on the level prairie above Matagorda on Jan. 1 and 2. The birds were feeding here in company with the common pipit but when startled the two species separated. In its habits Sprague's Pipit resembled the longspurs as it crept about crouching close to the ground and



taking advantage of every clod and irregularity in the ground surface to shield it against the force of the wind. It was quieter than the common pipit and did not keep the tail vibrating so noticeably as that species. The flight was irregular and somewhat erratic. The call note was similar to that of Anthus rubescens but was given in a louder harsher tone. One bird collected was preserved as an alcoholic. (Specimen)

Mimus polyglottos.

Abundant. Seen at Eagle Lake Dec. 25 and 27, Wharton Dec. 28 and Bay City Jan. 1 and 2.

Toxostoma rufum.

Brown Thrashers were very abundant at Eagle Lake on Dec. 25 and 27. They were found feeding in the shelter of the dense growths of Cherokee roses. Frequently a dozen responded at once to prolonged "squeaking." A few were seen at Bay City Jan. 1.

Thryothorus ludovicianus.

Common. Seen at Eagle Lake Dec. 25 and 27, Wharton Dec. 28 and Bay City Jan. 1.

Troglodytes aedon.

One seen at Eagle Lake Dec. 27 and one at Matagorda Jan. 1.

Basolophus bicolor.

Common. Seen at Eagle Lake Dec. 25 and 27, Wharton Dec. 28 and Bay City Jan. 1.

Penthestes carolinensis agilis.

Common. Seen at Eagle Lake Dec. 25 and 27, Wharton Dec. 28 and Bay City Jan. 1.

Regulus calendula.

Common at Eagle Lake Dec. 25 and 27, several seen at Wharton Dec. 28



and one at Matagorda Jan. 1.

Polioptila caerulea.

Several seen in woods along the Colorado River near Wharton Dec. 28.

Hylocichla guttata.

Hermit Thrushes were seen at Eagle Lake Dec. 25 and 27 and near Bay City Jan. 1.

Planesticus migratorius.

A few robins were seen near Eagle Lake Dec. 25 and 27.

Sialia sialis.

Bluebirds were seen at Wharton Dec. 28 and Bay City Jan. 1.



Arkansas, Stuttgart and Dewitt.

December 16-22, 1917.  
(Stuttgart Dec. 16-18, Dewitt Dec. 19-22).

Birds.

A. Wetmore.

Anas platyrhynchos.

Abundant. Mallards were seen constantly while in the field. At Stuttgart one single bird and a flock of 50 were seen from the hotel window in town on Dec. 16. On the following day in the country about 5000 birds were seen, most of them in small flocks flying north. One flock of about 800 individuals was found feeding in rice stubble. Near Dewitt on December 19 about 2000 were seen during the afternoon, part flying high in the air and part feeding in the rice fields. On Dec. 20 a few were flushed along Little Lagrue Bayou. December 22 in the morning it turned colder and for an hour (between 7 and 8) there was a steady flight of Mallards passing south over the town. Mallards have done considerable damage to rice in the shock here in the past month. Many birds that had been killed by hunters were examined.

Asio scops.

One seen near Stuttgart December 17 and another at Dewitt Dec. 19. In both cases the birds were males and were feeding in rice fields, in company with Mallards.

Branta canadensis.

Fairly common. Flocks seen near Stuttgart Dec. 17 and 18.

Colinus virginianus.

Many killed by hunters. One small flock seen near Stuttgart, Dec. 17. Birds killed at both Stuttgart and Dewitt were examined.

Tympanuchus americanus.

A few are said to occur in favorable localities near Dewitt. None seen.



Zenaidura m. carolinensis.

One seen near Dewitt Dec. 19. Fourteen were seen in the same locality on Dec. 22 resting in the sun perched in the tops of tall trees bordering a corn field.

Cathartes a. Septentrionalis.

Common. Seen at Stuttgart Dec. 17, and at Dewitt Dec. 19, 20 and 22. Birds were very tame and often sat on fence posts at the side of the road while the car passed.

Circus hudsonius.

Seen at Stuttgart Dec. 16 and 17 and near Dewitt Dec. 19. On Dec. 16 one was quartering a field located within the town of Stuttgart.

Buteo borealis.

Common. Seen at Stuttgart Dec. 17 and near Dewitt on Dec. 19 and 22.

Buteo lineatus.

Fairly common. Seen at Stuttgart Dec. 16 and 17 and near Dewitt on Dec. 19. At Stuttgart one was observed in a grove immediately adjacent to houses at one edge of town.

Buteo platypterus.

One near Dewitt on Dec. 19.

Falco sparverius.

Common. Seen near Stuttgart on Dec. 17 and near Dewitt on Dec. 19, 20 and 22.

Asio flammeus.

One near Dewitt Dec. 19.

Strix varia.

Seen at Stuttgart Dec. 16 and 18 and in the heavy bottom timber along



Little Lagrue Bayou above Dewitt Dec. 22. In the latter locality these birds were readily attracted by "squeaking." One was seen in a grove on the outskirts of Stuttgart on Dec. 16 within 8 blocks of the hotel.

Dryobates villosus.

Seen near Stuttgart Dec. 17 and in the vicinity of Dewitt Dec. 19, 20 and 22.

Dryobates pubescens.

Seen at Stuttgart on Dec. 16 and 18. Fairly common near Dewitt Dec. 19, 20 and 22.

Sphyrapicus v. varius.

Fairly common in the heavy bottom woods along Little Lagrue Bayou above Dewitt on Dec. 20 and 22.

Phloeotomus p. pileatus.

Fairly common in heavy timber near Dewitt, where the birds bore the local name of "Great, Good God," a name taken perhaps from the natural exclamation of the countryman on seeing these magnificent woodpeckers for the first time. In the heavy bottom timber found along the meandering course of Little Lagrue Bayou the Pileated Woodpecker was seen on December 20 and again on December 22. The first one noted was seen at a distance as it flew above the trees. Later others were observed feeding at close range and the peculiar call note was heard several times. In feeding they worked about the trunks and larger limbs of the taller trees frequently at a considerable distance from the ground. Their tapping in search for food was slow and measured and could be readily distinguished from that of other woodpeckers when it had been once identified. The birds were wary and took care to keep 150 or 200 yards ahead of me as I passed through the woods but were readily followed as they nearly



always called loudly while flying. I found that these woodpeckers had considerable curiosity and that they responded readily to "squeaking" provided that I remained motionless and that the birds had not seen me approach. I called one bird up to a perch not more than seventy yards away and shot it, to the great consternation of a Barred Owl that had dropped in on a limb thirty feet away to learn what the commotion was about. This woodpecker came down with a broken leg and a broken wing, screaming loudly. As I approached it attempted to scramble up a tree trunk, but unable to do this hung to the rough bark calling in tones that alarmed the bird population of the entire grove. As it called it jerked its head in characteristic woodpecker fashion and at intervals struck the tree trunk before it a heavy blow with its chisel like bill. Because of this last action I hesitated an instant before seizing it as the strong bill driven by the powerful neck and back muscles made a formidable weapon, but when captured the bird made no attempt at defense. This specimen was preserved entire in formaldehyde.

(Specimen)

Centurus carolinus.

Common. Seen at Stuttgart December 16, 17 and 18 and near Dewitt on Dec. 19, 20 and 22.

Colaptes auratus.

Fairly common. Seen at Stuttgart December 16 and 18 and near Dewitt on Dec. 19, 20 and 22.

Cyanocitta cristata.

Common. Recorded at Stuttgart December 18 and near Dewitt on December 19, 20 and 22. In Dewitt Jays were fairly common in shade trees about town.

Molothrus a. ater.

Ten Cowbirds were observed with a flock of Redwings near Dewitt on December 19. Two females and one male were shot and their stomachs preserved



but the birds were not skinned. No others seen.

Agelaius p. predatorius.

This species was common near Dewitt on December 19, 20 and 22 but was not seen near Stuttgart. Four females that were taken from a flock on December 19 all belonged to this form. Many were observed flying during the early morning apparently coming from some roost located east of Dewitt. (4 specimens)

Sturnella magna.

Abundant in the prairie region and fairly common in fields elsewhere. Near Stuttgart on December 16 and 17 the ground was covered with snow and many meadowlarks were feeding in the roads, apparently on waste rice and other grain that had fallen from wagons transporting it to the mills. Recorded at Dewitt Dec. 19 and 20.

Euphagus carolinus.

Very abundant. It seemed probable that at this season the Rusty Blackbirds present here outnumbered all of the other ~~Asteridae~~ Asteridae combined. At Stuttgart the species was noted on December 16, 17 and 18 and small flocks were observed feeding in the streets and vacant lots in the outskirts of the town. On December 17 in driving through the country it was estimated that between 30,000 and 40,000 of these birds were seen. Two flocks supposed to contain between 8,000 and 10,000 birds were observed and scattered bands of smaller size ranged everywhere through the open country. The birds were feeding in the rice stubble and also gathered in the bare roads to feed on scattered rice and grain that had dropped from passing wagons. At Dewitt the Rusty Blackbird was less abundant but was observed commonly on December 19, 20 and 22. Several were shot in order that their stomachs might be secured but no specimens were preserved.



Quiscalus g. aeneas.

Common. Observed at Stuttgart Dec. 16, 17 and 18 and near Dewitt on December 19, 20 and 22. At Stuttgart these grackles were feeding on acorns of a pin oak. These acorns the birds cut neatly in two at the center by holding them in the bill and pressing them against the angular compressed <sup>ee</sup> ~~nut~~ projecting from the palate (peculiar to this genus). From examining the nuts it appeared that the acorn was cut through clear around when the shell was discarded and the meat swallowed.

Astragalinus t. tristis.

Fairly common. Seen at Stuttgart Dec. 18 and near Dewitt on Dec. 19, 20 and 22.

Calcarius lapponicus.

A dozen seen below Stuttgart in one place and twenty or more in another, Dec. 17.

Passerculus s. savanna.

Fairly common at Stuttgart Dec. 17. Seen near Dewitt, Dec. 19.

Zonotrichia albicollis.

Common. Seen at Stuttgart Dec. 16 and 18. Common at Dewitt Dec. 20 and 22. In the Little Lagne Bottoms near Dewitt small flocks frequented growths of cane (Arundinaria tecta).

Spizella pusilla.

A few seen near Dewitt on Dec. 18 and 20.

Junco hyemalis.

Common. Seen at Stuttgart Dec. 16, 17 and 18 and near Dewitt on Dec. 19, 20 and 22.



Melospiza melodia.

Fairly Common.

One seen at Stuttgart on Dec. 16<sup>17</sup> and ~~again on Dec. 18.~~ ~~Several~~ ob-  
served near Dewitt on Dec. 20.  
19 and.

Melospiza georgiana. One seen at Stuttgart on Dec. 16 and again on Dec. 18. Several observed near Dewitt on Dec. 20.

Passerella iliaca.

Fairly common. Seen near Stuttgart on Dec. 16, 17 and 18, and at Dewitt Dec. 19, 20 and 22. Singing.

Pipilo erythrophthalmus.

Fairly common. Seen at Stuttgart Dec. 16, 17 and 18. A few at Dewitt Dec. 20.

Cardinalis c. cardinalis.

Common. Recorded near Stuttgart Dec. 16, 17 and 18, and at Dewitt Dec. 19, 20 and 22. On Dec. 17 about 30 were seen in one small area of brush.

Passer domesticus.

Common. Seen at Stuttgart Dec. 16, 17 and 18 and at Dewitt Dec. 19, 20, 21 and 22. Distributed through the country side.

Boobylla cedrorum.

Small flocks were seen feeding on persimmons in the town of Dewitt Dec. 19 and 20.

Lanius l. migrans.

Fairly common. Dec. 16 in Stuttgart I found a House mouse, that probably had been suspended by this shrike, hung in a china-berry tree (Melia azedarach). Several were seen below Stuttgart Dec. 17 and others were observed near Dewitt Dec. 19 and 20.

Dendroica coronata.

Common in heavy bottom woods near Dewitt Dec. 19, 20 and 22.



Anthus rubescens.

Fairly common. Six were seen in a field of rice stubble near Stuttgart on Dec. 17. About 30 were observed in a similar situation near Dewitt on Dec. 19 and four were noted near the same place on Dec. 20.

Mimus p. polyglottos.

Fairly common. Seen at Stuttgart Dec. 17 and near Dewitt on Dec. 19 and 20.

Toxostoma rufum.

One seen near Dewitt Dec. 20.

Thryothorus l. ludovicianus.

Common. Seen at Stuttgart Dec. 16, 17 and 18 and near Dewitt on Dec. 19, 20 and 22.

Thryomanes b. bewicki.

One near Dewitt Dec. 20.

Certhia f. americana.

Five seen in bottom woods near Dewitt Dec. 20.

Sitta carolinensis.

Fairly common in bottom woods near Dewitt. Seen Dec. 19, 20 and 22.

Baeolophus bicolor.

Common. Seen at Stuttgart Dec. 16 and 18 and near Dewitt Dec. 19, 20 and 22.

Penthestes c. carolinensis.

Common. Seen at Stuttgart Dec. 16, 17 and 18 and near Dewitt on Dec. 19, 20 and 22.

Regulus s. satrapa.

Two seen at Stuttgart Dec. 16. Fairly common along Little Lagrue Bayou above Dewitt Dec. 20.



Regulus c. calendula.

One near Stuttgart Dec. 18.

Hylocichla g. pallasii.

Several in bottom timber near Dewitt Dec. 20 and 22.

Planesticus migratorius.

A few in heavy bottom timber near Dewitt on Dec. 20 and 22.

Sialia s. sialis.

Fairly common. Seen at Stuttgart Dec. 18 and near Dewitt on Dec. 19, 20 and 22.

55 species.



UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF BIOLOGICAL SURVEY  
WASHINGTON, D. C.

ADDRESS REPLY TO  
CHIEF, BUREAU OF BIOLOGICAL SURVEY,  
AND REFER TO

January 10, 1918.

Mr. Alex Wetmore,

Bureau of Biological Survey.

Dear Sir:

In the examination of your reimbursement account for the period December 12, 1917, to January 6, 1918, it has been necessary to suspend the following:

December 13, waiter fee, supper. — 10 cts.

December 13, Pullman porter fee. — 25 cts.

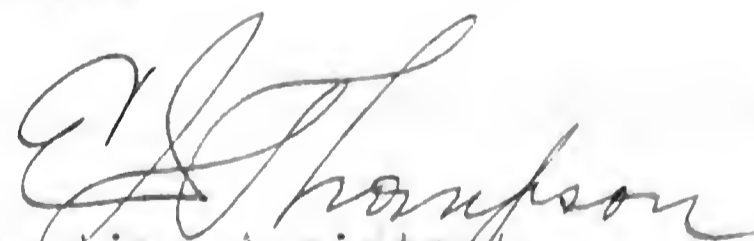
December 14, Pullman porter fee. — 25 cts.

December 14, waiter fee, supper. — 10 cts.

These expenses were incurred in Tennessee, or enroute to that point and, therefore, can not be allowed. (See paragraph 86-c of the fiscal regulations.)

Amount claimed	\$112.29
Amount suspended	<u>.70</u>
Approved for	\$111.59

Very truly yours,

  
Executive Assistant,  
In Charge of Accounts.



12-19-17

Form 170

# WESTERN UNION TELEGRAM

CLASS OF SERVICE	Symbol
Day Message	
Day Letter	
Night Message	
Night Letter	

If none of these symbols appears after the word "TELEGRAM" use the character "N" for night and "D" for day, and the symbol appearing after the

NEWCOMB CARLTON, PRESIDENT      GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

RECEIVED AT

39A H15 GOV

A WASHINGTON DC DEC 18TH 1917 155P

22

ALEX WETMORE

STUTTGART ARKANSAS

LOST TRANSPORTATION REQUESTS SHOULD BE RETURNED TO BUREAU FOR CANCELLATION

NELSON

147P



DOLLARS

CENTS

1 3 4 5 6 7

1 2 3 4 5 10 15 20 25 30 35 40

8 9 10 20 30 40 50

45 50 55 65 70 75 80 85 90 95

THE PULLMAN COMPANY

PASSENGER'S CASH FARE CHECK.

8-17 EC

88976

CAR *330* LINE

FROM

TO

Amount Collected  
\$ *7* <sup>c</sup> *00*

Conductor

No. Passengers

Date

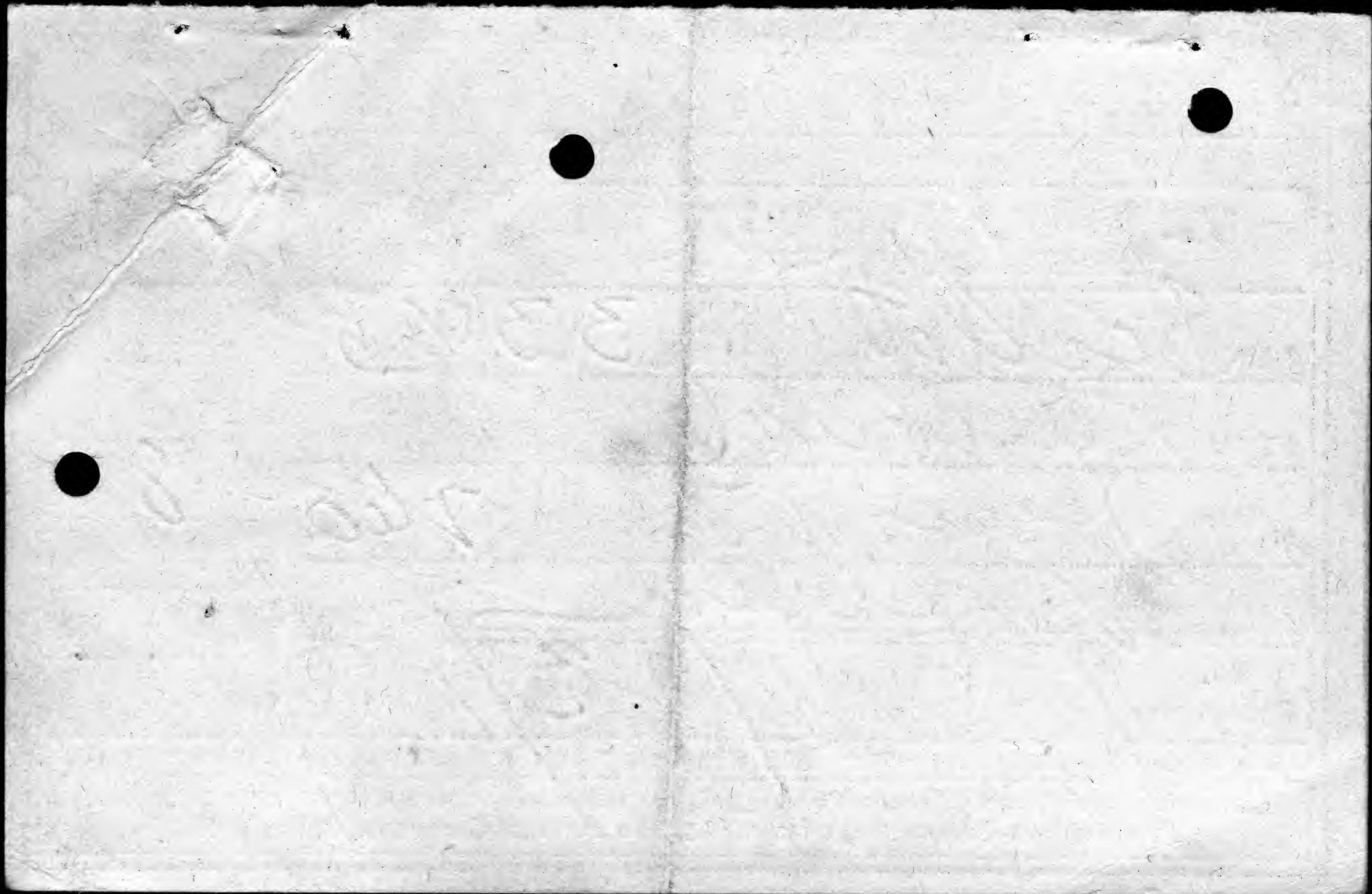
191

- Changed Accom. ★
- Lower Berth No. ★
- Upper Berth No. *8* ●
- Compartment ★
- Drawing Room ★
- Seat No. ★

Accommodations not transferable. Property taken into car will be at owner's risk.

Complaints, criticisms of service, or suggestions will receive prompt attention if addressed to Assistant General Superintendent, The Pullman Company, Chicago, Ill.







**DOLLARS**

**CENTS**

1 2 4 5 6 7

1 2 3 4 5 10 15 20 25 30 35 40

8 9 10 20 30 40 50

45 50 55 60 65 70 75 85 90 95

**THE PULLMAN COMPANY**  
**PASSENGER'S CASH FARE CHECK.**

8-17  
E  
A

**72024**

**CAR**

**LINE**

Changed  
Accom. ★

**FROM**

**Amount  
Collected**

Lower  
Berth  
No. ★

**TO**

\$ C

Upper  
Berth  
No. ★

**Conductor**

Compart-  
ment ★

**No.**

**Passengers**

**Date**

**191**

Drawing  
Room ★

Seat  
No. ★

**Accommodations not transferable. Property taken into car will be at owner's risk.**

**Complaints, criticisms of service, or suggestions will receive prompt attention if addressed to Assistant General Superintendent, The Pullman Company, Chicago, Ill.**



WAR

TAX

COLLECTED

*Wm. H. ... 1966/3*

~~*[Handwritten signature]*~~



Laundry

12/18/17

2 shirts  
5 collars  
4 handkerchiefs  
1 soap  
1 underwear

---

65



CHARACTER OF WORK PERFORMED.

10 sets, 6 scent sets, and 6  
sets - 48 traps in all. Trap line  
along Beaver Creek for 5 miles.  
to ranch in evening.

line, 12 traps sprung by stock.  
male, trapped, S.C. sheep meat  
bobcat, female, shot, S.C. cottontail.  
to ranch, cared for skins.

female, S.C. mice.  
male, trapped, S.C. empty. Saved  
- animal mangy.  
to ranch, cared for skins.

line - 2 traps sprung by rabbits



Art. 892. <sup>Texas</sup> The English or European House sparrows, hawks, Crows, buzzards, black birds, rice birds, and owls are not included among the birds protected by this chapter. Nothing herein contained shall be construed to prevent any person or persons from killing birds that are at the time destroying his growing crop.



The ~~Biological Survey~~ Department of Agriculture has had many reports this season of damage to the rice crops by blackbirds and other birds in <sup>various</sup> ~~the State~~ of Texas, and I have been directed to proceed to the areas in which complaints have come and to get what information I can ~~as to the extent of the damage~~ <sup>species of</sup> and to the birds that are doing the harm and the extent of the damage that has been accomplished. In getting this information it will probably be necessary for me to shoot a certain number of blackbirds and others in the rice fields in order to examine their crops and stomachs. Though it is probable that rice has by this time all been harvested, the ~~the~~ examination of birds feeding on waste grain in the stubble will have a direct bearing on the investigation. We ask your cooperation in this work in

~~For this purpose~~ <sup>that</sup> therefore I desire a letter from you stating that I have permission to shoot blackbirds and other birds in the State of Texas in order to investigate their relation to the culture of rice, and ~~am authorized now to take a law~~ so that I may do this without the semblance of violating your local game laws.

Such permission may be mailed to me at Eagle Lake, Texas and I shall consider it a favor if you will give this matter immediate attention ~~as my time is~~ that I may lose no time in the work I expect to reach Eagle Lake in about 24 ~~hours~~ and desire to start the work immediately. Sincerely,  
W. H. Wetmore



UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF BIOLOGICAL SURVEY  
WASHINGTON, D. C.

ADDRESS REPLY TO  
CHIEF, BUREAU OF BIOLOGICAL SURVEY,  
AND REFER TO

December 12th, 1917.

Mr. Alexander Wetmore,  
Bureau of Biological Survey.

Dear Mr. Wetmore:

In accordance with letter of authority No. 212-Bi. you are instructed to proceed on or about December 12th, 1917, to points in Arkansas and Texas to learn the extent of damage inflicted by birds on the rice crop.

In Arkansas, you will get in touch with Mr. E. V. Visart, a representative of this Bureau located at Little Rock, and from him learn the localities where damage is being done in his vicinity. Ducks are reported to be tearing down the shocks in this region and in some cases are ruining entire fields. It is important that we verify these reports in order that we may know whether the waterfowl are actually to blame or whether there may be in some cases ulterior motives prompting the circulation of such reports. In Texas you will meet Mr. O. J. Winterman of the Lakeside Irrigation Company at Eagle Lake. Mr. Winterman has reported damage to rice by red winged black birds and jackdaws.

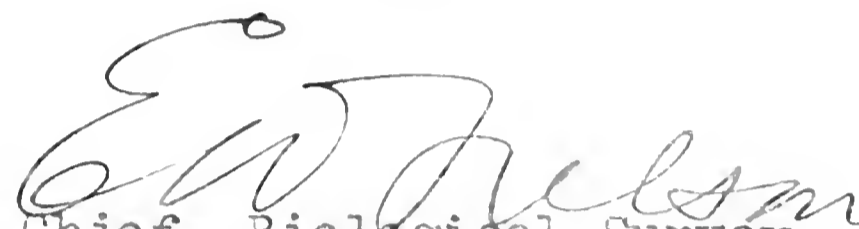
The principle object in conducting this investigation is to familiarize ourselves with the conditions in these localities in order that at such time when the passage of the Enabling Act will allow us to take aggressive measures against these birds, we will be in a position to do it intelligently. While in the field you will, of course, use



every opportunity for collecting specimens of insects and seeds to fill up our reference collections which are lacking in material from these sections.

Should additional instructions be required, you can secure these from Mr. McAtee when occasion arises.

Very truly yours,

  
Chief, Biological Survey.



Bi-120

APR. 17.

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF BIOLOGICAL SURVEY

LETTER OF AUTHORIZATION

No. 212-B1

Washington, D. C., December 11, 1917.

Alex Wetmore,

Biological Assistant

Under authority contained in the Secretary's letter, No. 8 Sec., dated July 1, 1917, you are hereby authorized to incur such expenses as may be necessary, in strict accordance with law, the Fiscal Regulations of the Department, and the decisions of the Comptroller of the Treasury, for the purpose stated and during the period named below, not to exceed \$ **300.00** , to be paid from the appropriation "General Expenses, Bureau of Biological Survey, 1918." (**Food Habits of Birds and Mammals.**)

Proceed from Washington, D. C., on or about December 12, 1917, to Little Rock, Arkansas, and perform necessary travel within the States of Arkansas and Texas for the purpose of investigating the extent of damage done by birds to the rice crop.

You are further authorized to hire temporary assistants, subject to the rules and regulations of the Civil Service Commission, hire special conveyance and purchase necessary field supplies. Upon completion of this work you should return to Washington, D. C., your official station.

No expense for freight charges to be incurred hereunder.

Your permanent headquarters will be **Washington, D. C.**

*W. C. Henderson*  
Chief Clerk and Director of Records.

*W. C. Henderson*  
Acting Chief, Biological Survey.



7-17-18  
returned miss by mail, from.

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF BIOLOGICAL SURVEY  
WASHINGTON, D. C.

ADDRESS REPLY TO  
CHIEF, BUREAU OF BIOLOGICAL SURVEY,  
AND REFER TO

July 11, 1918.

Mr. Alexander Wetmore,  
Williams, Arizona.

Dear Mr. Wetmore:

I am sending you herewith the edited copy of your paper entitled "Lead Poisoning in Waterfowl," together with a corrected carbon copy as prepared for the printer. If, by comparison, where necessary, with the original, you find any change should be made in the new copy, will you please return it marked as desired? In case it is in satisfactory shape for the printer you may so advise me, and need not return either copy unless you wish it cared for here. I have had an extra carbon made as well as the original for the printer, so that if the Department is unable to use it you will have copies for submission elsewhere.

I trust you are having a pleasant summer's work. It is unusually cool here.

Very truly yours,



In Charge, Editorial Work.







Samples of Rice from field belonging to  
E. J. Baayc. Stuttgart, Ark., Dec. 17, 1917;  
That on left shows normal yield. That  
on right shows how grain was stripped  
by ducks. Mallards destroyed about  
6000 bushels of rice in this field,  
valued at \$12,000.







Samples of Rice from field belonging  
to Henry Jensen, Stuttgart, Ark., Dec. 17,  
1917; Sample on left shows normal field,  
that on right extent of damage by  
Mallards.







Shock of rice pulled down by feeding  
Mallards. (Park Moses farm, Wellbitt  
Ark., Dec. 19, 1917)

CORRESPONDENCE HERE

NAME AND ADDRESS HERE



Suzanne Fald

Horned larks 1/2 way West of Lynchburg

Meadowlark

crow

Quail abundant

Dec 14

Sparrowhawk

Monticello, Ala

Mockingbird

Shrike

Fox Sparrow

Horned lark?

Crow

just at Town Creek

Zenaidura

Many Meadowlarks

more crows

Red-tail

Several Shrikes

West of heighton

Crows

gd junction

Quail's wren

Meadowlark

Horned lark tracks

Blackbirds

Goldeneye

Memphis



bag lbs.			35
carfare			5
left Wash	4:10	a.m.	
breakfast	90	Jun 10	190
lunch	1.00	Jun 10	110
dinner	1.25	Jun 10	135
breakfast	1.00	Jun 10	1118
lunch	1.05	Jun 10	1115
arr Memphis	4:00	p.m.	

From Mr. [unclear] head office  
 Federal Bldg.

From Mr. Little's Game Commission

Wingover He will see that state laws  
 after pass atty to not enforced

Berry crop lost completely.  
 \$10,000 - Adj. crops yielded 2/00. 1500

Dr. house at Gillet



J. W. Burnett - damage betw. Devitt  
& Gillett

W. M. Duckitt  
Hayes & Baker Wall Co.

Clyde Pettit  
Wingo  
W. E. Michan

Dr. Morehead

below Basy's

still  
seen  
in  
field

John Mattox

along Milligan Canal

Birch Plantation

Alfred Cummings, Hagler



Savanna Sparrow

Song Sparrow

Meadow Lark

Rusty Blackbird

Bronzed Grackle

English Sparrow

Mallard

Migrant Shrike

Hapland Kingfisher

Baldpate

Red-tail

Marsh Hawk

Canada Goose

Hairy Woodpecker

Red-bellied

Carolina Wren

Mockingbird

Pipit b.

Cardinal

Fox Sparrow

Sparrow Hawk

Red-shouldered Hawk

Chickadee

Junco

Chewink



Charles Francis 12 min south  
E. J. Benson

F. M. Querteaus  
Humphrey  
Ark.



Cardinal

English Sparrows

Song Sp

Swamp Sp

Chickadee

Tufted Tit

Downy Woodpecker

Red billed

Junco

Red-shinned Hawk

Fox sparrow

Rusty Blackbird

Meadowlark

Mallard

Golden-crowned Kinglet

Barn Owl

Chewink - towhee

White-throated Sparrow

Carolina Wren

Marsh Hawk

Flicker

Walter Handy, Rice Co

Crawford - near. 7 mi from Hildreth

Ducks / ~~damaging~~ now.

A. Moran  
Spicer

(Galt) Jensen Bros.

mud island section -

W. H. Mearns at St. Charles  
W. G. Walter

} Ducks



500 Mallards feeding in rice stubble  
12 inches tall • Birds ~~same~~

Rusty & Crow Blackbirds, Meadowlark &  
English Sparrows feeding in tracks on  
side dropped from wagons

Basys place - 10 miles South Stuttgart.  
80-100 acres Honduras rice total loss  
from damage by ducks. The rice was  
cut & put in shocks. About Nov. 15. 20  
ducks began to come in and in 3-7 days  
had cleaned out the field. Attempt  
was made to thresh some but was failure  
yield being less than gallon to shock.  
Birds shot out at night without effect.  
Examination of field - upper 1/4 had been  
touched by frost so that lower  
half of grain heads had not filled out.  
Lower portion of field showed good  
yield. About 1/5 - 1/6 of the shocks had  
been pulled down by the birds or feeding  
& in a few instances the straw had  
actually been trampled in the mud.  
Approximately all shocks heads had been  
entirely eaten out. Found a few heads  
remaining in upper shocks. Much  
dung scattered about. Samples collected  
& sample rice heads taken.

W. J. Dem no damage



R. Y. Young 770  
no damage by blackbirds, or ducks,  
Damage reported by Redwings in  
spring & possibly by yellowheads  
especially when grain is down broadcast

J. F. Gibbs - Hager, (place in lumber  
2600 damage by quackles in rice stacks  
Dec 17. no damage by ducks  
no damage in spring  
John Schroeder  
no damage.

Mr Ralph Rhodes,

1500 bu lost to ducks on 65-70 acres in  
field of 160 acres. 1 1/2 miles from Range place.  
Damage by ducks claimed on previous years  
now by blackbirds.

Alto Jensen -

2000 bu loss shortly before Thanksgiving  
this is same as Rhodes claim and  
rice was ground in shares with some  
Saltwater rice taken for seed.

Rice stacks torn down in another  
field. Birds kept out by night  
shooting.

no damage by Blackbirds

Amory Jensen. also interested in rice  
reported by Alto Jensen. Ralph Rhodes  
estimated loss at 3500 bushels.

Mr. Jensen has about 50 acres of  
Blue Rose Rice still in stock. In



Acres near road are not matted.  
70 acres before have rice nearly  
cleaned out entirely on outside of  
shocks. The shocks are frozen so  
so that the ducks could not tear  
them down. Mallard ducks & hung  
off over tops of shocks. No person  
estimated loss but at  $\frac{3}{4}$  of crop certainly  
one half is gone. promises to send me  
in field when rice is threshed. bundles  
~~shocks~~ pulled out in some place &  
straw brooder down around stack.  
Part of damage due to Blackbirds  
as helped by rice mills left a  
abundance of Duck dung seen  
composed almost entirely of rice hulls.  
Part of lower field damaged mainly  
by frost.  $\frac{1}{4}$  of estimated loss to  
be attributed to this factor.  
A large blow 105 acres out and  
because caught by frost.

a few shocks completely torn down  
sample from interior & exterior of  
different shock taken.

E. A. Cigness

Secy. - Texas Southern Rice Growers  
Beaumont, Tex.



Charles Spicer - 5

Had 30 acres in use strip & 15  
in another across from Baye  
field. Had some loss from ducks  
but did not know how much as  
he did not see it himself. Could give  
no estimate but thought loss was  
comparatively light.

Loss to Baye came a short time  
after middle of November. Loss estimated  
at 6000 bushels of grain valued at  
\$12000. (This is O.K.) according to  
Baye mallards came in in overwhelming  
numbers so that he almost felt  
oppressed by the multitude as  
though something was weighting  
him down. Thirty men in a  
hundred acre field were unable to  
keep the birds out by shooting and  
gelling. 60 acres entirely ruined.  
Attempt was made to trap but  
after half a day was given up as  
not worth while.

Mr. Spicer has been here 8 years.  
about 6 years ago heavy rains set in  
before any rice was cut and continued  
until winter. Ducks damaged  
much rice near River (east) at that  
time.

No other damage by ducks known.  
Generally conceded that blackbirds  
in winter do service by cleaning up  
rot rice. The red rice is more  
persistent than other grains which



it is small and causes larger  
grains of more value to be broken in  
grinding. Though a pile may  
contain only 10% of rice at  
harvest fully 99% of volunteer  
rice that comes up next year will  
be not rice.

Blackbirds, Redwings & grackles,  
English Sparrows and a small  
brown "ground bird" pick up rice  
when sown so that care has  
to be taken to cover over grain when  
sown. Meadowlarks also suspected  
but nothing proven on them.

1200 acres - \$100,000 per year,  
140 \$40,000, offered \$900 loan

Sparks Hotel - Duluth



Stuttgart Dec. 19, 1917

Purty Blackbird 3  
Bronzed Grackle 10-12-23  
English Sparrow 10  
Cardinal 11  
White-throated Sparrow  
Blue Jay 11  
Barn Swallow 1  
Red-bellied Woodpecker 1  
Chimney Swift 11  
Chimney Swift 11  
Mallard 12  
Downy Woodpecker 2  
Tufted Tit 11  
Carolina Wren 1  
Goldfinch 1  
Chickadee  
Junco  
Fox Sparrow  
Swamp Sparrow  
Bluebird  
Canada Jay  
Ruby-crowned Kinglet  
Field Sparrow  
Song Sparrow



✓ indicates skin used

- |        |                                   |   |                  |          |
|--------|-----------------------------------|---|------------------|----------|
| ✓ #1   | <i>Penthestes c. carolinensis</i> | ♀ | Stuttgart, Ark.  | 12-18-17 |
| ✓ #2   | <i>Agelaius</i>                   | ♀ | Wentz            | 12-19-17 |
| ✓ 3    | "                                 | ♀ | "                | "        |
| ✓ 4    | "                                 | ♀ | "                | "        |
| ✓ 5    | "                                 | ♀ | "                | "        |
| 6      | <i>Onychophanes g. aeneus</i>     | ♂ | "                | "        |
| 7      | <i>Penthestes c. carolinensis</i> | ♂ | "                | 12-20-17 |
| 8      | <i>Phloeostomus p.</i>            | ♂ | "                | 12-22-17 |
| also 9 | "                                 | " | "                | "        |
| 10     | <i>Cardinalis</i>                 | ♂ | Eagle Lake, Tex. | 12-25-17 |
| 11     | <i>Pipilo m.</i>                  | ♂ | "                | "        |
| ✓ 12   | <i>Euphagus cyanocephalus</i>     | ♀ | "                | 12-26-17 |
| ✓ 13   | <i>Agelaius p.</i>                | " | "                | "        |
| ✓ 14   | "                                 | " | "                | "        |
| 15     | <i>Penthestes c. agilis</i>       | ♂ | "                | 12-27-17 |
| 16     | "                                 | ♀ | "                | "        |
| 17     | <i>Thryothorus l.</i>             | ♀ | "                | "        |
| 18     | <i>Zonotrichia l. leucophrys</i>  | ♂ | "                | "        |
| 19     | <i>Megascops asio</i>             | ♀ | "                | tail 136 |
| 20     | "                                 | " | "                | " 145    |
| ✓ 21   | "                                 | " | "                | "        |
| ✓ 22   | "                                 | " | "                | "        |
| ✓ 23   | "                                 | " | "                | "        |
| ✓ 24   | <i>Agelaius p.</i>                | ♂ | "                | "        |
| ✓ 25   | "                                 | ♂ | "                | "        |
| ✓ 26   | "                                 | ♀ | El Campo, Tex.   | 12-29-17 |
| 27     | <i>Eumeces s. lineatus</i>        | " | Bay City         | 1-1-18   |
| 28     | <i>Hyposoma laterale</i>          | " | "                | "        |
| 29     | "                                 | " | "                | "        |
| 30     | <i>Anolis carolinensis</i>        | " | "                | "        |
| 31     | various centipeds & millipeds     | " | "                | "        |
| 32     | <i>Geothlypis t.</i>              | ♂ | "                | "        |

wing

tail



Tom McMillan 1/2 mi south  
woods but not yet - damage began Monday

{ F.V. Brown  
} H.P. Brown

Tom Simpson 1/2 mi south

R. d. Alters

R. A. Scott.

Park Moses -

W.C. Woodson rice threshed before  
ducks come in

---

F.V. Brown - son H.P. Brown.  
damage by Blackbirds, while rice  
is still in milk. Also after  
grain is in shock. Damage in  
Spring when rice is down.

W.C. Woodson reported some damage  
by ducks this year ago. This year  
he was able to complete his threshing  
before the ducks began to come in  
on him.

Reported damage by Blackbirds  
mopping at sowing, when grain  
was in the milk and later when it was  
in the shock.

English Sparrows also do some  
damage when rice is in granaries  
and storage places are tight -



Mr Wm Simpson, lost at least  
5000 bushels. Was 100-125 acres.  
Mallards came in myriads and  
destroyed entire crop. I started in  
to check it but got only 8 bushels  
from 15 loads so quit. A neighbor  
or two men came in at his  
invitation to shoot at night and  
killed many but without much  
effect. Birds came in about 9 in evening  
and left by dawn. Has had no  
trouble at previous years.

Has had very heavy in this  
field and could not get away about  
Sept. 40-60 pieces in shocks scattered  
about. Shocks all down & show  
evidence of bird damage. About  
500 mallards in field.



English Sparrows	50		
Bluejay	12	Redwing	10
Red-shouldered Woodpecker	6	Cowbird	10
Bluejay		Bronzed Grackle	10
Acad. Wren	37	Mourning Dove	1
Myrtle Warbler	2		
Carolina Wren	3		
Short-eared Owl	1		
Downy Woodpecker	5		
Carolina Chickadee	4		
Rusty Blackbird	500		
Flicker	18		
Indigo Bunting	3		
Hairy Woodpecker	1		
White-throated Nuthatch	1		
Song Sparrow	3		
Bluebird	3		
Blackbird	2		
Junco	75		
Mockingbird	4		
Goldfinch	1		
Marsh Hawk	3		
Red-tail	4		
Broadwing	1		
Pipit	30		
Chimney Sparrow	50		
Rusty Blackbird	110	1:45	1:45
Red-shouldered Hawk	1		4:01
Mallard	2000		109.6
Pintail	1		109.6
Skuik	3		
Sparrowhawk	3		
Cardinal	8		
Fox Sparrow	1		

- 1. Farm 1
- 2. Moses place stock trampled by ducks
- 3. " " stock trampled
- 4. " " typical rice field
- 5. " " "
- 6. " " "

Carl Moses place 110 acres 2000 lbs loss about. That's giving. Damage mostly done in one night. All done in two week. Field of Blue Pose. Shocks frozen in. A few torn down. Ducks were in in shocks. trampling around shocks & a few trampled down. Some blackbird damage.

R.D. Alter claims 2500 damage largely from blackbirds. Ducks working in about 40 acres of fields.

Mr. J. McMillan is farming. Mr. Brown place. States that birds mainly ducks have destroyed 2000 bushels of rice. This seems to be conservative estimate. Men were busy threshing but was able to save 40 acres that had not been touched. In this the shocks had been frozen in so that more seen were torn down though I was told that some had been. I saw mallard feathers scattered about and many signs of where ducks had been feeding and chambering over shocks. Also some cases

The caps sheet had been pulled off  
and many shocks were much  
flattened. Straw was pulled out  
and trampled down all around  
the shocks.

Practically all grain exposed on  
the outside of the shocks was  
gone.

I should say that this damage  
was to be charged equally to  
blackbirds & ducks. About  
nearly every shock was quite  
of white mulls and shreds like  
that of blackbirds was mixed all  
through this.

Mr. Macmillan said that birds  
began working here the middle  
of November and had been at it  
ever since.

$\frac{1}{4}$  to  $\frac{1}{3}$  way gone possibly more  
Ducks come in about 10 days  
ago & with blackbirds started  
the shocks much of land in  
fields to shoot 12 seen here last  
Sunday & ~~some~~ ducks have not  
stopped.

Frenchman mention some vouth  
others not

dogs & lanterns.



D. Smith 12-20-1917

- ✓ Myrtle Warbler 3-10-2-2-2
- ✓ Carolina Wren H H H H
- ✓ Robin 10-2-1
- ✓ Red-bellied Woodpecker H H H H H
- ✓ Rusty Blackbird 200-100-150
- ✓ Bronzed Grackle 50-1-25
- ✓ Hairy Woodpecker H
- ✓ Mockingbird H H H
- ✓ Chickadee H H H 11.15  
~~10.15~~
- ✓ Blue Jay 1-3-3-2-2-2-2
- ✓ White-throat 1-10-25-30-30
- ✓ Flicker H H
- ✓ Gold-crowned Kinglet H H H
- ✓ Junco 50-10-10-40-15-15-10
- ✓ Downy Woodpecker H H H
- ✓ Carolina 2-1-1-1-1
- ✓ Brown Creeper H H
- ✓ Yellow-bellied Woodpecker H H
- ✓ Goldfinch 2-4-1-15-7
- ✓ Tufted Tit H H H H H H H H
- ✓ Redwing 50-10
- ✓ House Wren H H
- ✓ Oriole 1
- ✓ Song Sparrow 1-15-10-5
- ✓ Meadowlark 14
- ✓ Sparrowhawk 1
- ✓ Bluebird H H H
- ✓ Nighthawk 100-75-25
- ✓ Swamp Sparrow 1-5-1
- ✓ Kingbird 8-1
- ✓ Mourning Dove 14
- ✓ Pileated Woodpecker 3
- ✓ Fox Sparrow 1
- ✓ Field Sparrow 10-10

- ✓ Pipit 4
- ✓ White-b. Nuthatch 2-1
- ✓ Brown Thrasher 1
- ✓ Blue Jay 1
- ✓ Cedar Waxwing 50
- ✓ Migratory Thrush 1

Stittwell Mire Co. Little Passaic

Red House - no loss by ducks - some by blackbirds

C. A. Franzens - 4 miles out

J. M. Satchfield - Tichnor, Ark. ~~English Sparrows~~  
much damage by blackbirds apparently little by ducks  
A. B. Youngblood

H. E. Cridl } Stittwell Mire Co.  
C. H. Morgan } some loss by ducks in my field  
5 acres Pasaic  
Moll

W. C. Butcher Tichnor 11 miles

F. B. Hoover in town

Wade Langham 6 miles out



Dewitt 12-22-17

Red-tailed Hawk

Common Owl

Song Sparrow

Downy Woodpecker

Warbler

Red-bellied "

Redstart

11:00  
~~107.0~~ 106.9

Flcker

Carolina Chickadee

Leasted Tit

White-throated Sparrow

Junco

White Warbler

Mocker

Cardinal

Bluejay

Yellow-billed Woodpecker

Scrubwren

Robin

Park Blackbird

Bronzed Grackle

Redwing

Tree Sparrow

English Sparrow

Carolina Wren

Hermit Thrush

Baybreast

White br. Nuthatch

*Phaethon p.*

Saliva quite abundant, recess  
 three raised ridges rounded in front  
 more sclerous behind, may aid in  
 feeding on ants. First is midway  
 between external nostril & tip of bill, is  
 higher than others. Second behind this  
 lower. Third is lower still. The  
 first two would serve as scraper to  
 rake ants from tips of tongue, allow  
 them to adhere as the tongue  
 was turned forward and so draw them  
 back & while they could be swallowed.  
 Bird had one leg broken, in clinging with  
 other foot did not bleed, bark  
 nipple of oil gland present, heavily tufted,  
 lobes of gland not developed and  
 gland not functional as no oil exuded  
 & feather tuft on nipple was entirely dry.  
 Tuft shits with feathers tipped  
 with gray.

Rectrices 12. First set pair short  
 & nonfunctional

Wing anterior  
 after shaft present.

Tensor palatii brevis tendon passerine  
 attaches to extensor palatii rad. longus  
 some from latipinnular process  
 so that the returning portion is short  
 compared to size of bird. muscle itself  
 is small, tendon strong. The tendon  
 lies outside the extensor met. rad. long.  
 and attaches to the acetabular process  
 at the inner side of the base as



The process is low the tension part basis  
is superior on the other  
at this point.

Left Carotid only present - enters  
sub-sutural canal

no carca

length of intestine . 500 mm

~~E. V. V. want~~

~~Birds of Arkansas~~

~~2719 Gaines St.  
Little Rock.~~

R. C. Eft

Putkin

all

} duck call.

Camphor phenique for chiggers.

F. R. Sessions

Longview Tex

12-24-17

~~Bluejay~~

~~Red-wax~~

Longview, Tex 12-24-17

Bluejay

Red breasted Woodpecker

Cardinal

Chipping Sparrow

Junco

English Sparrow

Robin

Bluebird

Shrike

Pocket gopher very bad in sandy fields  
west of Jacksonville  
Palmetto near Trinity.



Eagle Lake Tex. 12-25-17

- ✓ Rusty Blackbird 50-40-110
- ✓ Long-tailed Grackle 25-15
- ✓ House Finch III
- ✓ Cowbird 10
- ✓ Mockingbird 2-10-10-2-10-5-2-5- 65
- ✓ Nuthatch III III III
- ✓ English Sparrow ✓ Song sp 1
- ✓ Black Vulture 11-25 ✓ Swamp sp 11
- ✓ Turkey Buzzard III III (Mourning Dove)
- ✓ Cardinal 11-10-2-2-2-2 (40) ✓ Wilson Wren
- ✓ Brown Thrasher 1-5-10-10-3-4
- ✓ White-crown III (100)
- ✓ Bluejay 2-1-2
- ✓ Indigo Bunting 1
- ✓ Robin 1
- ✓ Texas Chickadee III
- ✓ Ruby-crowned Kinglet III
- ✓ White-throated Sp. III III
- ✓ Yellow-rumped Flicker III II
- ✓ Killdeer III
- ✓ Red-bellied Woodpecker III III
- ✓ Phoebe III
- ✓ Barn Swallow 1
- ✓ Arctic Towhee III III
- ✓ Carolina Wren III III
- ✓ Yellowthroat 1
- ✓ Savannah Sparrow 11
- ✓ Pipit 11
- ✓ Meadowlark 1
- ✓ Redstart 11
- ✓ Red-shouldered Hawk 11
- ✓ Shrike
- ✓ Redwing 5-8-5
- ✓ Savannah Sparrow 1

1913 dry summer  
Aug 31 - Dec 30 rain  
rice crop lost

Wharton  
Pierce estate - A. P. Borden manager  
2 miles out.

<sup>Gowwood</sup>  
Goward 10000 acres

Bay City 10000 acres

Eagle Lake 9,000 }  
Goward in this district } 15,000

Beaumont - Houston

Rosenberg }  
Preston }  
~~Preston~~ } mg  
Angleton }  
~~Holt~~  
Beaumont

- Al Campo - S. R. G. Aggie - Dr. Ousem  
V. Pres

- Bay City

- Dayton -



Winters  
rice damage in mill & in stalk  
end of July & early August into September.  
Some sprouted grain pulled in spring  
Buds formed Feb. & March.

C. H. Bunnig

B. McHenry

Species	Count	Time	Species	Count	Time
✓ Redwing	10:15	<del>10:15</del>	✓ English Sparrow	150	11:00
✓ Great-tailed grackle	9	<del>10:15</del>	✓ North Warbler	8	
✓ Texas Chickadee	11:30	<del>10:15</del>	✓ Ruby-cr. Kinglet	3	
✓ Green-winged Teal		<del>10:15</del>	✓ Golden	7	
✓ Spoonbill	12		✓ Hermit Thrush	3	
✓ Coot	8		✓ Bluejay	10	
✓ Black Vulture	30		✓ White-cr. Sparrow	100	2:45
✓ Turkey Buzzard	15		✓ Killdeer	8	
✓ Texas Quail	12		✓ Phoebe	5	
✓ Tufted Tit	3		✓ Red-tailed Hawk	4	
✓ Carolina Wren	11:30	<del>10:15</del>	✓ Red-shouldered "	3	
✓ House Wren	1		✓ Sparrowhawk	2	
✓ Flicker	10		✓ Arctic Towhee	5	
✓ Red-bellied Woodpecker	8		✓ Audubon's Oriole	1	
✓ Cowbird "	1		✓ Green-tailed Towhee	1	
✓ Yellow Bellied "	3		✓ Cedar Waxwing	40	
✓ Yellowthroat	7		✓ White-throated Sp.	5	
✓ Brown Thrasher	30		✓ Harris Sparrow	1	
✓ Cardinal	40		✓ Long-billed Marsh Wren	1	
✓ Mockingbird	50				
✓ Crow	2				
✓ Shrike	2				
✓ Meadowlark	12				
✓ P. 14	75				
✓ Brewer's Blackbird	300				
✓ Cowbird	15				
✓ Wilson's Snipe	6				
✓ Least Sandpiper	2				
✓ Mourning Dove	1				
✓ Song Sparrow	5				
✓ Fox "	2				
✓ Vesper "	4				
✓ Swamp "	2				
✓ Goldfinch	30				

51



Wharton, Tex

12-28-17

Killdeer

Spotted Sandpiper

Cardinal

Pipit

Red-headed Woodpecker

Ruby crowned Kinglet

Phoebe

Redwing

Turkey Buzzard

Myrtle Warbler

Mockingbird

Red-bellied Woodpecker

Redwing

Rusty Blackbird

Cowbird

Great-tailed Grackle

Texas Chickadee

Tufted Tit

Downy Woodpecker

Bluegray Gnatcatcher

Kingfisher

Black Vulture

Shrike

Mourning Dove

Crow

Carolina Wren

Bluebird

Meadowlark

✓ J. F. Wilson

✓ Harfle Brown

Citrus grove

Home  
fields field eaten by ducks.  
Ed Turner

Ed Turner  
Euland - Blue Creek Canal Co

✓ Mr. Hardy - Bay City - Miss Douglas.  
✓ S. Foster - " "

✓ M. G. Marshall.

✓ W. H. Ramsey - dept. decline Co  
Vol. Kettle - Bay City Hardware Co

Mr. Horn, Bay City

Huloner 3 out

Yes. "  
Taylor

M. G. Marshall - S. P. G. A.  
brown spots on rice mills due to sweat &  
"du' juddy" wheat damage to rice to birds  
Rice birds - Redwing. The worst damage  
to rice - Oats damage.  
Stacking rice may burn it if weather  
is wet.

Mr. Hardy - B. C. 1/2 crop.

Mr. J. F. 717 Robt Damage by Jackdaws  
pulling up grain in spring. Not much  
trouble from later on in season. Also  
damage corn.

Redwings begin to average crops in  
fall as well as rice goes into mill  
about first of August. Damage continues  
in through fall until grain is finally threshed.  
Birds in the woods. Mr. Foster had  
No acres this past fall, tried mean  
to shoot birds out of it, and expended  
about \$10 for ammunition.

Damage by ducks in some years.  
Consistent tried sometimes with  
success sometimes without.

Mr. W. H. Ramsey - large in grown.  
Claims damage by Jackdaws, Blackbirds  
and Redbirds. Birds do some damage by  
picking up grain at planting. Blackbirds  
& Rice birds begin to get in when rice is  
in mill and damage by them continues  
until grain is finally threshed and stored away.  
Estimated loss from Blackbirds at 1 bag per  
acre 2000 acres with average yield of 11 bags  
135 to 190 lbs 1/2 bags. 54 lbs to bushel.  
3000 acres 4000 - 6000 acres of rice



in that neighborhood. This year  
only 200. Birds for this reason were  
particularly bad. No attempt made  
to keep them out but believed that  
shortage would pay.

Some damage by ducks but not  
so much this year. Ducks cause  
loss by cleaning up long corn along  
leaves & the birds used for hog feed  
estimated that each setting of  
separate in threshing will furnish  
feed for 50-100 hogs for 10 days to 2 weeks.  
Ducks frequently clean up this rice in  
two or three days <sup>ducks eat grain blown down</sup>

Blackbirds & especially Brewers  
& Jacksnipe have done much damage  
in Kaffir corn Egyptian corn & millets.  
Jacksnipe eat better while it is still  
soft stripping back ears & picking on  
grains. Fields of Egyptian wheat  
entirely stripped by blackbirds.

Mr. Foster thinks ducks do damage in  
fields when it is wet but do not do much  
damage while it is dry.

G. W. Kelly has raised no rice  
this year because of water  
shortage but had 700 acres year  
previous. On old stand in Nag  
to be planted shallow and sometimes  
was not covered up. Birds get this.  
Sometimes necessary to flood rice  
to give it a start. Birds this

corn in and pull of water grain  
so that off shoots and eat them.  
Bunch also swim in fields  
when there is a mill and  
contain water as long as  
grain is exposed. Damage to  
corn. Mr. Kelly has employed  
for many years 5 men to  
protect stored corn. Two or  
three of these are armed with  
guns, to shoot birds out. Others  
had whips which they  
used to scare the birds  
out. This method not usually  
effective is not however as  
grain is broken down.

Ducks do much damage if  
it is unprofitable to cut rice  
immediately when it is ripe as  
they fight on the filled beds  
to feed and break down the  
plants thus causing the loss  
of these plants in cutting. A  
large flock would cause much  
damage thus.

Ducks do much harm in  
wet weather. In 1913 destroyed  
entire fields in many places as  
that was an exceptionally wet  
season. All species of water ducks  
that occur here cause wood ducks  
are implicated, with mallards &  
 Pintails doing the most harm.  
Duck damage does not begin  
until first part of November so



That only late fields are  
affected.

W. B. R. Report here usually over  
by middle of November, but 1913  
was not completed until first part  
of January.

1111

E. M. Krause  
Bay City, ~~Braxton~~  
Texas } ~~F. B. no birds.~~

B. E. Merrill of Houston Texas says  
at Bay City 2/30 with two long billed  
Curlews that he had killed

1. Damage due to resident or migrant blackbird or both
2. species involved in damage
3. seasons at which damage is inflicted
4. Habits of birds.
5. Whether or not Brewer's Blackbird is implicated



Bay City - Michigan Jan 1

Puffin

Arctic Skua

Sparrow Puffin

Mourning Dove

Rocky Mountain

Great Blue Heron

Savanna Sparrow

Common Nighthawk

Red Tail

Swainson's Thrush

Snow Goose

Blue Jay

Canada Goose

Killdeer

Red-backed Sandpiper

Black-bellied Plover

Savanna Sparrow

Vesper Sparrow

English Sparrow

Myrtle Warbler

Mockingbird

Phoebe

Buzzard

Shrike

Mourning Dove

Common Nighthawk

Pink-bellied Plover

Swainson's Thrush

Common Nighthawk

Great Blue Heron

House Wren

Robin and Kinglet

White-lane Sparrow

Mallard Duck

Swainson's Thrush

Indigo Bunting

Blue Jay

Towhee

Blue Jay

Yellow-bellied Sapsucker

Red-bellied Sapsucker

Downy Woodpecker

Brown Towhee

Spotted Sandpiper

Green-winged Teal

Kingbird

Barred Owl

Fox Sparrow

Red-tailed Hawk

Blue Jay

Red-golden Plover

Goldfinch

Sandhill Crane

Spoonbill

Ring-necked Pheasant

Cardinal

Marsh Hawk

O. A. Ulland - Mgr. Blue Oak Canal Co  
6000 acres in all. Damage by  
Blackbirds more by ducks during past  
two years because of dry weather. Damage  
from that cause in previous year  
In cat grain when in shock.

Blackbirds especially bad this year  
On one lot of early purple part was  
struck at once & part a month  
later. Last yielded  $3\frac{1}{2}$  bags to acre  
less than first

H. H. Foster trouble with blackbirds

Ducks do some damage

"Summer Duck" does harm to sprouting  
grain in wet fields

Jack Bawson's damage by blackbirds  
at seeding in harvest. 10 years in  
area, shown by ducks  
Shooting drives them out

Mrs E. W. Swind Damage by Blackbirds  
worse this year than last. All farmers had  
smiting at Collyer & signed to pass  
at planting time. Much wheat was sown  
in Sept. This depleted numbers of birds.  
This not done this year & damage worse.  
Ducks very bad came in in Sept. & Oct.  
Some shocks of Chico were parched  
by socks and together. Damage  
worse now than ever back here



Snow goose 107.1

Canada 102.0

Fulcrum

Blue

White fronted

Pipit

V. Sp

Black Vulture

Sparrow Pipit

Horned Lark

Savanna Sparrow

Vesper

Pipit

Brewer's Blackbird

Richwing

Condor

Meadowlark

Great-tailed Grackle

Redhead

Red-backed Sandpiper

Pelican

Long-billed Curlew

Sparrowhawk

Red-tail

Marsh Hawk

Red-shouldered Hawk

Phoebe

Chickadee

Blue Jay

Black Vulture

Turkey Buzzard

Mourning Dove

Great Blue Heron

Cardinal

V. Towser

Bradens

Miller

Armstrong

2 30

3.00

100.00

108.00

~~108.00~~

from year and no damage this year  
Crop in new location near Palacios

G. F. Johnson no more gloves, hardware  
sold many shells this year Sept. to  
the farmer \$10 to see man

<sup>Wednesday</sup>  
J. C. Roberts claimed 100 bags of  
from blackbirds on 50 acres planted too high  
loss many however. Protection measures  
proving as spring and getting out

Blue Woods, Wednesday loss of blackbirds  
and considerable by ducks. A number  
ducks trample down grain. Blackbirds  
frequently but do not ripen grain  
over large areas.

E. B. Redlock



- 33 *Chen hypoborea* ♀ Markham, Tex, 1-2-18
- 34 *Anthus spreguer* ♂ Wadsworth " " no 2.
- alc 35 " " " " "
- 36 *Colaptes a. strigata* ♀ " " "
- ✓ 37 *Aglais* ♀ Markham " " "
- ✓ 38 *Melospiza atr* " " " "

" R Hoffmann  
Saw Rice Growers S  
Houston

Jan / white tailed Hawk  
Dec. 27 Archibuteo

Horned Lark Brandy Va Jan 6



