

AN ABSTRACT OF THE THESIS OF

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Robert G. Clarke

Species distribution, habitat preference, status and abundance of the summer avian fauna were determined for Stanton, Grant, Haskell, and Stevens Counties of southwestern Kansas. Data were collected from July 1 to September 31, 1981. Observations were made by two different methods. First, two 25-mile routes were located in each county. Each route contained as many different habitats as possible. Stops were made every 0.5 miles, where a three-minute observation took place. Secondly, as many species as possible were located by observation at unique habitat types. A total of 95 species was observed. Thirty-six county records were identified: eight in Stanton County, thirteen in Grant County, eight in Haskell County, and seven in Stevens County.

SUMMER BIRDS OF FOUR
SOUTHWESTERN KANSAS COUNTIES

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Robert Y. Clarke
Approved for Major Department

Harold E. Durst
Approved for Graduate Council

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INTRODUCTION

There has been little research on the avian fauna in most of southwestern Kansas, particularly in Stanton, Grant, Haskell, and Stevens Counties. Changes in the land use over the last 20 years indicate that changes in the biota must be occurring. In order to monitor future changes of the avian fauna, base-line data must be gathered. The present study investigated the location, habitat, and general abundance of the birds in the above counties. The study was conducted from July 1 to September 31, 1981. The present study is intended to help fill gaps in the information concerning the summer birdlife of southwestern Kansas, for only one past study has been located in this area and it was visited only five days over a three year period and covered only one habitat type.

Previous research on birds in southwestern Kansas consists of studies of areas surrounding Stanton, Grant, Haskell, and Stevens Counties. Linsdale (1927) conducted a study of birds in southwestern Kansas in which data were collected from June to August, 1921. The area covered included Pratt, Finney, Kearney, Hamilton, and Gove Counties. These study areas were located north and east of the counties of the present study. The data consisted of the number of species that were seen and the habitat in which each species was identified. A similar study was conducted covering Hamilton, Meade, Kearney, and Morton Counties (Graber and Graber, 1951). These counties border the counties presently studied on practically all sides. Hamilton and Kearney Counties are north, Meade is southeast, and Morton is southwest of the four county area. This study was conducted from the middle of February to the end of May. Again, the number of species observed and the type of area where each was found were recorded.

Several small amounts of information have been obtained from specimens taken from southwestern Kansas. Rising and Kilgore (1964) recorded specimens taken in the southwestern part of the state. Of the birds collected, four specimens, all of the same species, were taken from Stanton County; most animals collected were from areas surrounding the counties of the present study. Rising (1965) reported two species from Stevens County and one from Grant County by either sightings or a collected individual. One other small amount of information on the birds of the southwestern corner of the state was obtained by Ely and Thompson (1971). Almost all the specimens were taken from two counties which border Stanton County on the north and south and not one summer specimen was taken from the four county area.

Rising (1974) conducted a study on 18 widespread sites covering much of western Kansas. All study sites were located in woodland or riparian habitat and only one station was located in Stevens County. The study site was visited two days in 1965 and three days in 1967. A total of 31 species was seen at the study site in Stevens County.

Land use practices have changed extensively over the last 20-25 years. From 1960 to 1982, the percent of cropland has increased from 52% to 86% in Stanton, Grant, Haskell, and Stevens Counties (Kansas State Board of Agriculture, 1960; Personal communication with county Soil Conservation Service offices). Irrigation methods have progressed rapidly. In the earlier years, only the land that was fairly flat was irrigated using the ditch system. The land with too much slope for ditch irrigation was left either to be dry land cropped or in short-grass prairie to be used as rangeland. Through the development of large land leveling equipment, more land was available for successful cropland by using ditch irrigation. Then the central pivot irrigation

systems became popular, with no land leveling needed. Therefore, the central pivot made land accessible to irrigation which before was not economically feasible (Hintz, 1982). Because of these systems, more land has been broken and turned into irrigated fields.

There is now a growing concern about how long the water supply will last. "The Ogallala Aquifer, the vast underground reservoir of water that transformed much of the Great Plains into one of the richest agricultural areas in the world, is being sucked dry." (Stengel, 1982). The irrigation systems are mining a limited resource in that they are taking the water out in a fraction of the million years it took to build up the aquifer. In another 40 years, the territory could backslide into the dust bowl days.

In southwestern Kansas, the Arkansas River (just north of the four county area in the present study) has lost 50% of the riparian stands due to a falling water table. As gallons of water are being used for irrigation, the water table drops below the roots of the trees (Hintz, 1982). The trees along the Cimarron River (which resembles the Arkansas River in habitat and surrounding irrigation development) are also beginning to die. As irrigation expands, more of the shortgrass prairie is being destroyed, the water level of the Ogallala Aquifer continues to drop, and the main source of riparian habitat is dying due to lack of water.

METHODS AND MATERIALS

Observations were first made by the use of breeding bird survey routes (U. S. Fish and Wildlife Service, 1979). Two 25-mile routes were run in each county. Fifty observations were made, one every 0.5 mile. The vehicle was stopped and the ignition was turned off at each observation point. The duration of observation at each station lasted for three minutes and the data were collected outside of the automobile. All birds that were recognized by song or sight were recorded. Each survey was started one-half hour before sunrise and generally took about 3.5 hours. Binoculars and a spotting scope were used to aid in bird identification. Three field guides were used for reference in identifying the species: "Birds of North America" (Robbins et al., 1966); "A Field Guide to Western Birds" (Peterson, 1961); and "A Field Guide to the Birds East of the Rockies" (Peterson, 1980).

The routes were run under the best weather conditions possible. Days were chosen with an attempt at the best possible visibility, with little or no precipitation. An attempt was also made to cover the routes on days with fairly light winds. The winds in southwestern Kansas are seldom calm.

The area studied was composed of about 86% cropland, 9% shortgrass prairie (rangeland), and 3% woodland, according to the county Soil Conservation Service offices (personal communication). The breeding bird survey was used, even though some birds were not breeding, because it gave the best representation of overall abundance of most species. Each route was chosen in such a way that it would run through as many different habitat types as possible, thus obtaining species from the riparian and rangeland, in order to compare them with the species found in the croplands.

After the eight breeding-bird survey routes were completed, 24 additional days were spent trying to locate as many species as possible. Due to the limited amount of time spent in a riparian habitat during the breeding bird surveys, many species that normally occur there were missed. Thirteen days were spent in this type of habitat in order to obtain the best possible representation of the total number of species present. The riparian habitat was walked and every bird seen or heard was recorded. Five days were spent walking rangeland habitat, also. On six days observations were made of ponds, irrigation tail-water pits, and flooded areas (from excess irrigation water).

The data are presented, using a variation of the Latilong system of mapping wildlife distribution. Each species is described by recording in which counties it was observed and the type of habitat where each was found most often. The general abundance of each species was also estimated. Genus, species, and common names of the bird species are taken from "A Field Guide to the Birds East of the Rockies" (Peterson, 1980).

RESULTS

The Latilong system of mapping wildlife distribution (Bissell and Graul, 1981) was modified slightly for use in data presentation. Instead of using areas bordered by degrees latitude and longitude, the political counties were used as the areas for mapping distributions. Stanton, Grant, and Haskell Counties occur, respectively, in a straight west-east line, with the western border of Stanton County being the Kansas-Colorado border. Stevens County (with its southern border being the Kansas-Oklahoma border) is located directly south of Grant County (Fig. 1).

Each bird species' distribution, habitat, status, and abundance are described. The four county area is represented by a matrix of dashes corresponding to the position of the counties (Table 1). Descriptive parameters are coded by one or two letter symbols. Status symbols are: B - definite breeder, b - likely breeder, M - migrant (birds that are just moving through), and A - accidental (straggler). Status symbols are placed on the appropriate dash, thus showing distribution and status within the various counties. Habitat symbols are: R - riparian (Cottonwood, Salt Cedar, and Willow Woodlands), P - shortgrass prairie (Buffalo Grass, Blue Grama Grass, Yucca, Prickly Pear Cactus, and Sagebrush), Cr - cropland (broken ground that is now used for raising agricultural crops), Ur - urban (towns and farmsteads), and W - water (irrigation tail-water pits, farm ponds, and flood irrigation overflow) (Table 1). Symbols characterizing the abundance of each species are: Ab - abundant (counts of at least 25/day while in the species preferred habitat), C - common (at least one bird can generally be found in appropriate habitat), U - unusual (3-10 birds seen in entire survey), and r - rare (1-2 birds seen in entire survey) (Table 1).

Figure 1. Map of counties surveyed.

Colorado	Stanton	Grant	Haskell
		Stevens	
	Oklahoma		

Table 1. Distribution, habitat, status, and abundance for birds of Stanton, Grant, Haskell, and Stevens Counties.

Mallard	<u>B</u> <u>B</u> <u>B</u>	Habitat	W
<u>Anas platyrhynchos</u> Linnaeus	<u>B</u>	Abundance	C
Common Pintail	<u>—</u> <u>M</u> <u>—</u>	Habitat	W
<u>Anas acuta</u> Linnaeus	<u>—</u>	Abundance	r
Northern Shoveler	<u>—</u> <u>M</u> <u>—</u>	Habitat	W
<u>Anas clypeata</u> (Linnaeus)	<u>—</u>	Abundance	U
Blue-winged Teal	<u>M</u> <u>M</u> <u>M</u>	Habitat	W
<u>Anas discors</u> Linnaeus	<u>M</u>	Abundance	C
American Coot	<u>—</u> <u>—</u> <u>—</u>	Habitat	W
<u>Fulica americana</u> Gmelin	<u>M</u>	Abundance	r
Black Tern	<u>M</u> <u>M</u> <u>M</u>	Habitat	W
<u>Chlidonias niger</u> (Linnaeus)	<u>M</u>	Abundance	C
Great Blue Heron	<u>M</u> <u>M</u> <u>M</u>	Habitat	W
<u>Ardea herodias</u> Linnaeus	<u>—</u>	Abundance	C
Great Egret	<u>—</u> <u>M</u> <u>—</u>	Habitat	W
<u>Casmerodius albus</u> (Linnaeus)	<u>—</u>	Abundance	r
Black-crowned Night Heron	<u>b</u> <u>B</u> <u>B</u>	Habitat	W, R
<u>Nycticorax nycticorax</u> (Linnaeus)	<u>b</u>	Abundance	C
Green Heron	<u>—</u> <u>M</u> <u>—</u>	Habitat	W
<u>Butorides striatus</u> (Linnaeus)	<u>—</u>	Abundance	r
American Avocet	<u>M</u> <u>b</u> <u>M</u>	Habitat	W
<u>Recurvirostra americana</u> Gmelin	<u>M</u>	Abundance	C

Killdeer	<u>B</u> <u>B</u> <u>B</u>	Habitat	Cr, P, W
<u>Charadrius vociferus</u> Linnaeus	<u>B</u>	Abundance	Ab
Short-billed Dowitcher	<u>—</u> <u>M</u> <u>—</u>	Habitat	W
<u>Limnodromus griseus</u> (Gmelin)	<u>M</u>	Abundance	U
Long-billed Dowitcher	<u>M</u> <u>M</u> <u>M</u>	Habitat	W
<u>Limnodromus scolopaceus</u> (Say)	<u>—</u>	Abundance	C
Long-billed Curlew	<u>b</u> <u>b</u> <u>—</u>	Habitat	Cr, P
<u>Numenius americanus</u> Bechstein	<u>—</u>	Abundance	U
Greater Yellowlegs	<u>M</u> <u>M</u> <u>M</u>	Habitat	W
<u>Tringa melanoleuca</u> (Gmelin)	<u>—</u>	Abundance	C
Lesser Yellowlegs	<u>M</u> <u>M</u> <u>M</u>	Habitat	W
<u>Tringa flavipes</u> (Gmelin)	<u>M</u>	Abundance	C
Upland Sandpiper	<u>—</u> <u>—</u> <u>M</u>	Habitat	Cr, P
<u>Bartramia longicauda</u> (Bechstein)	<u>—</u>	Abundance	U
Spotted Sandpiper	<u>b</u> <u>b</u> <u>b</u>	Habitat	W
<u>Actitis macularia</u> Linnaeus	<u>b</u>	Abundance	C
Least Sandpiper	<u>—</u> <u>—</u> <u>M</u>	Habitat	W
<u>Calidris minutilla</u> (Vieillot)	<u>—</u>	Abundance	U
Western Sandpiper	<u>—</u> <u>M</u> <u>M</u>	Habitat	W
<u>Calidris mauri</u> Cabanis	<u>M</u>	Abundance	U
Baird's Sandpiper	<u>—</u> <u>M</u> <u>M</u>	Habitat	W
<u>Calidris bairdii</u> (Coues)	<u>M</u>	Abundance	U
Wilson's Phalarope	<u>—</u> <u>M</u> <u>M</u>	Habitat	W
<u>Steganopus tricolor</u> Vieillot	<u>—</u>	Abundance	C

Wild Turkey	— — —	Habitat	R
<u>Meleagris gallopavo</u> Linnaeus	<u>B</u>	Abundance	U
Ring-necked Pheasant	<u>B</u> <u>B</u> <u>B</u>	Habitat	Cr
<u>Phasianus colchicus</u> Linnaeus	<u>B</u>	Abundance	Ab
Common Bobwhite	<u>B</u> <u>B</u> <u>B</u>	Habitat	R, P
<u>Colinus virginianus</u> (Linnaeus)	<u>B</u>	Abundance	Ab
Scaled Quail	<u>b</u> — —	Habitat	P
<u>Callipepla squamata</u> (Vigors)	—	Abundance	U
Mississippi Kite	— <u>B</u> —	Habitat	R, Ur
<u>Ictinia mississippiensis</u> (Wilson)	<u>B</u>	Abundance	C
Northern Harrier	<u>b</u> <u>b</u> —	Habitat	Cr, P
<u>Circus cyaneus</u> (Linnaeus)	—	Abundance	U
Red-tailed Hawk	— — <u>M</u>	Habitat	Cr, P
<u>Buteo jamaicensis</u> (Gmelin)	—	Abundance	r
Swainson's Hawk	<u>B</u> <u>B</u> <u>B</u>	Habitat	P, Cr
<u>Buteo swainsoni</u> Bonaparte	<u>B</u>	Abundance	C
Ferruginous Hawk	<u>M</u> <u>M</u> —	Habitat	P
<u>Buteo regalis</u> (Gray)	—	Abundance	r
Golden Eagle	<u>b</u> — —	Habitat	P
<u>Aquila chrysaetos</u> (Linnaeus)	—	Abundance	U
American Kestrel	<u>b</u> <u>b</u> —	Habitat	P, Cr
<u>Falco sparverius</u> Linnaeus	<u>b</u>	Abundance	C
Peregrine Falcon	<u>M</u> — —	Habitat	P
<u>Falco peregrinus</u> Tunstall	—	Abundance	r

Great Horned Owl	<u>B</u> <u>B</u> <u>B</u>	Habitat	R
<u>Bubo virginianus</u> (Gmelin)	—	Abundance	C
Barn Owl	<u>b</u> — <u>b</u>	Habitat	R, Ur
<u>Tyto alba</u> (Scopoli)	—	Abundance	U
Burrowing Owl	<u>B</u> <u>B</u> <u>B</u>	Habitat	P
<u>Athene cunicularia</u> (Molina)	<u>B</u>	Abundance	C
Morning Dove	<u>B</u> <u>B</u> <u>B</u>	Habitat	R, P, Cr
<u>Zenaida macroura</u> (Linnaeus)	<u>B</u>	Abundance	Ab
Rock Dove	<u>B</u> <u>B</u> <u>B</u>	Habitat	Ur
<u>Columbia livia</u> Gmelin	—	Abundance	C
Yellow-billed Cuckoo	<u>b</u> <u>b</u> —	Habitat	R
<u>Coccyzus americanus</u> (Linnaeus)	—	Abundance	U
Roadrunner	<u>A</u> — —	Habitat	P
<u>Geococcyz californianus</u> (Lesson)	—	Abundance	r
Common Nighthawk	<u>B</u> <u>B</u> <u>B</u>	Habitat	P, R
<u>Chordeiles minor</u> (Forster)	<u>B</u>	Abundance	C
Red-headed Woodpecker	<u>B</u> <u>B</u> <u>B</u>	Habitat	R
<u>Melanerpes erythrocephalus</u> (Linnaeus)	<u>B</u>	Abundance	C
Common Flicker	<u>b</u> <u>b</u> —	Habitat	R
<u>Colaptes auratus</u> (Linnaeus)	<u>b</u>	Abundance	C
Downy Woodpecker	<u>b</u> <u>b</u> —	Habitat	R
<u>Picoides pubescens</u> (Linnaeus)	—	Abundance	U
Hairy Woodpecker	<u>b</u> <u>b</u> —	Habitat	R
<u>Picoides villosus</u> (Linnaeus)	—	Abundance	U

Scissor-tailed Flycatcher	<u> </u> <u> </u> <u> </u>	Habitat	P
<u>Muscivora forficata</u> (Gmelin)	<u> </u>	Abundance	U
Eastern Kingbird	<u> </u> <u> </u> <u> </u>	Habitat	R
<u>Tyrannus tyrannus</u> (Linnaeus)	<u> </u>	Abundance	C
Western Kingbird	<u> </u> <u> </u> <u> </u>	Habitat	All
<u>Tyrannus verticalis</u> Say	<u> </u>	Abundance	Ab
Western Wood Pewee	<u> </u> <u> </u> <u> </u>	Habitat	R
<u>Contopus sordidulus</u> Sclater	<u> </u>	Abundance	U
Willow Flycatcher	<u> </u> <u> </u> <u> </u>	Habitat	R
<u>Empidonax traillii</u> (Audubon)	<u> </u>	Abundance	U
Horned Lark	<u> </u> <u> </u> <u> </u>	Habitat	Cr, P
<u>Eremophila alpestris</u> (Linnaeus)	<u> </u>	Abundance	Ab
Cliff Swallow	<u> </u> <u> </u> <u> </u>	Habitat	Cr, P
<u>Petrochelidon pyrrhonota</u> (Vieillot)	<u> </u>	Abundance	C
Barn Swallow	<u> </u> <u> </u> <u> </u>	Habitat	Ur
<u>Hirundo rustica</u> Linnaeus	<u> </u>	Abundance	C
Rough-winged Swallow	<u> </u> <u> </u> <u> </u>	Habitat	W
<u>Stelgidopteryx ruficollis</u> (Vieillot)	<u> </u>	Abundance	r
Chimney Swift	<u> </u> <u> </u> <u> </u>	Habitat	Ur
<u>Chaetura pelagica</u> (Linnaeus)	<u> </u>	Abundance	U
American Crow	<u> </u> <u> </u> <u> </u>	Habitat	R, P, Cr
<u>Corvus brachyrhynchos</u> Brehm	<u> </u>	Abundance	C
White-necked Raven	<u> </u> <u> </u> <u> </u>	Habitat	P, Cr
<u>Corvus cryptoleucus</u> Couch	<u> </u>	Abundance	U

Blue Jay	<u>B</u> <u>B</u> <u>B</u>	Habitat	R
<u>Cyanocitta cristata</u> (Linnaeus)	—	Abundance	C
Black-billed Magpie	<u>B</u> <u>B</u> <u>B</u>	Habitat	R
<u>Pica pica</u> (Linnaeus)	—	Abundance	C
House Wren	<u>B</u> <u>B</u> —	Habitat	R
<u>Troglodytes aedon</u> Vieillot	<u>b</u>	Abundance	C
Rock Wren	<u>b</u> — —	Habitat	P
<u>Salpinctes obsoletus</u> (Say)	—	Abundance	U
Blue-gray Gnatcatcher	— — —	Habitat	R
<u>Polioptila caerulea</u> (Linnaeus)	<u>M</u>	Abundance	U
Brown Thrasher	<u>b</u> <u>b</u> <u>b</u>	Habitat	R
<u>Toxostoma refum</u> (Linnaeus)	<u>b</u>	Abundance	U
Mockingbird	<u>B</u> <u>B</u> <u>B</u>	Habitat	R, Ur
<u>Mimus polyglottos</u> (Linnaeus)	<u>B</u>	Abundance	C
American Robin	— <u>B</u> <u>b</u>	Habitat	Ur
<u>Turdus migratorius</u> Linnaeus	—	Abundance	U
Loggerhead Shrike	<u>b</u> — <u>b</u>	Habitat	P
<u>Lanius ludovicianus</u> Linnaeus	<u>b</u>	Abundance	U
Warbling Vireo	— — —	Habitat	R
<u>Vireo gilvus</u> Vieillot	<u>b</u>	Abundance	r
Bell's Vireo	— <u>M</u> —	Habitat	R
<u>Vireo bellii</u> Audubon	—	Abundance	r
Yellow Warbler	<u>B</u> <u>B</u> <u>B</u>	Habitat	R
<u>Dendroica petechia</u> (Linnaeus)	<u>B</u>	Abundance	C

Wilson's Warbler	<u>—</u> <u>M</u> <u>M</u>	Habitat	R
<u>Wilsonia pusilla</u> (Wilson)	<u>—</u>	Abundance	U
Common Yellowthroat	<u>—</u> <u>B</u> <u>b</u>	Habitat	R, W
<u>Geothlypis trichas</u> (Linnaeus)	<u>b</u>	Abundance	C
Yellow-breasted Chat	<u>—</u> <u>—</u> <u>—</u>	Habitat	R
<u>Icteria virens</u> (Linnaeus)	<u>M</u>	Abundance	r
Red-winged Blackbird	<u>B</u> <u>B</u> <u>B</u>	Habitat	W, Cr, P
<u>Agelaius phoeniceus</u> (Linnaeus)	<u>B</u>	Abundance	Ab
Yellow-headed Blackbird	<u>—</u> <u>M</u> <u>M</u>	Habitat	W, Cr
<u>Xanthocephalus xanthocephalus</u> (Bonaparte)	<u>M</u>	Abundance	C
Brown-headed Cowbird	<u>B</u> <u>B</u> <u>B</u>	Habitat	Cr, Ur
<u>Molothrus ater</u> (Boddaert)	<u>B</u>	Abundance	C
Common Grackle	<u>B</u> <u>B</u> <u>B</u>	Habitat	Ur, R
<u>Quiscalus quiscula</u> (Linnaeus)	<u>B</u>	Abundance	Ab
Great-tailed Grackle	<u>—</u> <u>—</u> <u>b</u>	Habitat	R, Ur
<u>Quiscalus mexicanus</u> (Gmelin)	<u>—</u>	Abundance	U
Western Meadowlark	<u>B</u> <u>B</u> <u>B</u>	Habitat	P, Cr
<u>Sturnella neglecta</u> Audubon	<u>B</u>	Abundance	Ab
European Starling	<u>B</u> <u>B</u> <u>B</u>	Habitat	R, Ur
<u>Sturnus vulgaris</u> Linnaeus	<u>B</u>	Abundance	C
Orchard Oriole	<u>b</u> <u>B</u> <u>—</u>	Habitat	R
<u>Icterus spurius</u> (Linnaeus)	<u>B</u>	Abundance	C
Northern Oriole	<u>B</u> <u>B</u> <u>B</u>	Habitat	R
<u>Icterus galbula</u> (Linnaeus)	<u>B</u>	Abundance	C

House Sparrow	<u>B</u> <u>B</u> <u>B</u>	Habitat	Ur
<u>Passer domesticus</u> (Linnaeus)	<u>B</u>	Abundance	Ab
Dickcissel	<u>_</u> <u>b</u> <u>b</u>	Habitat	Cr, P
<u>Spiza americana</u> (Gmelin)	<u>b</u>	Abundance	C
Lark Bunting	<u>B</u> <u>B</u> <u>B</u>	Habitat	P
<u>Calamospiza melanocorys</u> Stejneger	<u>B</u>	Abundance	Ab
House Finch	<u>_</u> <u>b</u> <u>_</u>	Habitat	Ur
<u>Carpodacus mexicanus</u> (Muller)	<u>_</u>	Abundance	U
American Goldfinch	<u>_</u> <u>_</u> <u>b</u>	Habitat	R
<u>Carduelis tristis</u> (Linnaeus)	<u>_</u>	Abundance	U
Blue Grosbeak	<u>b</u> <u>B</u> <u>b</u>	Habitat	P
<u>Guiraca caerulea</u> (Linnaeus)	<u>b</u>	Abundance	C
Lazuli Bunting	<u>b</u> <u>b</u> <u>_</u>	Habitat	R
<u>Passerina amoena</u> (Say)	<u>b</u>	Abundance	U
Rufous-sided Towhee	<u>_</u> <u>M</u> <u>_</u>	Habitat	R
<u>Pipilo erythrophthalmus</u> (Linnaeus)	<u>_</u>	Abundance	r
Chipping Sparrow	<u>_</u> <u>_</u> <u>_</u>	Habitat	R
<u>Spizella passerina</u> (Bechstein)	<u>M</u>	Abundance	U
Lark Sparrow	<u>B</u> <u>B</u> <u>B</u>	Habitat	P, R
<u>Chondestes grammacus</u> (Say)	<u>B</u>	Abundance	C
Cassin's Sparrow	<u>b</u> <u>b</u> <u>_</u>	Habitat	P
<u>Aimophila cassinii</u> (Woodhouse)	<u>b</u>	Abundance	C
Grasshopper Sparrow	<u>B</u> <u>B</u> <u>B</u>	Habitat	P, R
<u>Ammodramus savannarum</u> (Gmelin)	<u>B</u>	Abundance	C

The data were then classified to indicate the number of species that were found primarily in one habitat type (Table 2). Only one species was found strictly in cropland habitat, six species were found almost entirely in urban or around farmland habitats, ten species were found restricted mainly to areas around standing water, shortgrass prairie contained 13 species that were confined mostly to this habitat type, and 26 species were found a majority of the time in riparian habitat.

While conducting the survey, a total of 36 species was identified that were new county records. The number of county records found in Stanton, Grant, Haskell, and Stevens Counties were 8, 13, 8, and 7, respectively (Table 3).

Table 2. Number of species found a majority of the time in one habitat type.

Habitat type	Number of species
Cropland- - - - -	1
Urban - - - - -	6
Standing Water- - - - -	10
Shortgrass prairie- - - - -	13
Riparian- - - - -	26

Table 3. First records of species for each county.

Stanton County	Grant County	Haskell County	Stevens County
Greater Yellowlegs	Green Heron	Great Blue Heron	Black-crowned Night Heron
Long-billed Dowitcher	Great Egret	Upland Sandpiper	Short-billed Dowitcher
Peregrine Falcon	Greater Yellowlegs	Greater Yellowlegs	Spotted Sandpiper
Roadrunner	Western Sandpiper	Spotted Sandpiper	Baird's Sandpiper
Hairy Woodpecker	Hairy Woodpecker	Baird's Sandpiper	Willow Flycatcher
Willow Flycatcher	Willow Flycatcher	Least Sandpiper	Yellow-breasted Chat
Brown-headed Cowbird	Western Wood Pewee	Western Sandpiper	Lazuli Bunting
Lazuli Bunting	Common Crow	Great-tailed Grackle	
	Bell's Vireo		
	Wilson's Warbler		
	Blue Grosbeak		
	Lazuli Bunting		
	House Finch		

DISCUSSION

The results shown in Table 1 from Stanton, Grant, Haskell, and Stevens Counties, tend to correspond with a study by Ports (1978) in which birds were surveyed in Morton County. This correspondence occurs because Morton County is in the very southwestern corner of Kansas, and is bordered on two sides by the present study area.

Ports stated that Great Blue Herons are rare migrants in Morton County. This species was found to be common in Haskell and Grant Counties. However, not one was found in Stevens County (bordering Morton County to the east) and they were recorded only in a couple of locations in Stanton County (bordering Morton County to the north). Ports also stated that the Yellow-crowned Night Heron is rare in Morton County but breeds with the Black-crowned Night Heron at the city lake southeast of Ulysses. In this survey, no Yellow-crowned Night Heron was observed.

Great Crested Flycatchers were observed by Ports, but not recorded from this four county area. Ports reported Least Flycatchers as a common migrant through Morton County in June and again in August. He had no record of the Willow Flycatcher (formerly Traill's Flycatcher), which was observed in the present study, but no Least Flycatcher was identified.

The Rock Wren was observed only in Stanton County around rocky cliffs along the Sandy Arroyo Creek in the present study. There were no individuals observed along the Cimarron River as it goes through Stevens, Grant, and Haskell Counties. Ports (1978) stated that the Rock Wren was fairly common along the Cimarron River in Morton County.

Ports also observed Black-headed Grosbeaks in Stanton and Stevens Counties and reported them as fairly common. In the present study, no

no individual was observed. This may be due to the late spring start of this study, and the birds may have already moved through.

It is interesting that cropland makes up about 86% of the total area of the total area of the four county study site and only one species was found to occur mainly in that habitat. Prairie rangeland makes up approximately 9% of the total area and 13 species were found primarily in this habitat type. Riparian, urban, and farmsteads, and standing water combined only make up about 5% of the total area. Six species were found to occur mainly in urban or farm homestead habitat. Ten species were found primarily in standing water, and 26 species were almost exclusively located in riparian habitat.

The above information indicates that the riparian habitat is the most critical, for here the birds are most diverse. However, the riparian habitat is already in trouble in southwestern Kansas. The trees are dying due to the lack of water. If the trees die, then the habitat that supports twice as many species as any other habitat type will be eliminated. The shortgrass prairie species are also in trouble if the farmers continue to break the ground to cropland at the present rate. Soon, the prairie species may be drastically reduced. Table 2 shows that the two most threatened habitat types support the most diverse avian populations.

SUMMARY

Species distribution, habitat preference, status, and abundance of the summer avian fauna were determined for Stanton, Grant, Haskell, and Stevens Counties of southwestern Kansas. Data were collected from July 1 to September 31, 1981. Observations were made by two different methods. First, two 25-mile routes were located in each county. Each route contained as many different habitats as possible. Stops were made every 0.5 miles, where a three-minute observation took place. Secondly, as many species as possible were located by observation at unique habitat types. A total of 95 species was observed. Thirty-six county records were identified: eight in Stanton County, thirteen in Grant County, eight in Haskell County, and seven in Stevens County.

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