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Breeding Birds of Wooded Draws in Western North Dakota

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Wooded draws represent a unique vegetative community within the northern Great Plains. Because of their limited extent over broad areas of grasslands, wooded draws offer potentially diverse breeding areas for a large array of birds and mammals. Seabloom et al. (1978) reported that although wooded habitats made up only 8.6% of their area sampled in southwestern North Dakota, nearly 33% of the observed vertebrate fauna occupied wooded habitats.

Little information is available on vertebrate communities in wooded vegetation of western North Dakota. Hopkins (1980) studied the breeding avifaunas of several habitat types in Theodore Roosevelt National Park. Hiemenz and Cassel (1980) reported on bird and mammal communities in west-central North Dakota in 1979 and 1980. Grosz et al. (1981) studied wildlife use of draws in the same general area. Gaines and Kohn (1982) found that wooded draws in western North Dakota surrounded by upland native prairie provided important habitat for nesting Swainson's and red-tailed hawks (scientific names are presented in the Annotated Species Accounts).

One series drawback of these previous investigations has been the lack of integration of plant ecological data with avian population data. Knowledge of the plant and bird data should prove valuable for making predictive estimates of avian use based on plant community physiognomy.

From May to July 1982, I determined the species composition and relative abundance of birds occupying wooded draws in a five-county area of western North Dakota (Fig. 1). My study area was within the Fort Union Coal Planning region administered by the U.S. Bureau of Land Management.

METHODS

Census Plot Selection

Thirty-three plots were originally selected but only 30 were logistically suitable for censusing breeding birds. Site selection involved choosing three draws in each of 11 areas. This selection process included draws set at different aspects and with various slopes and grazing intensities. Attempts were made to select sites with many tree species. However, variation in tree species composition was limited within the study area.

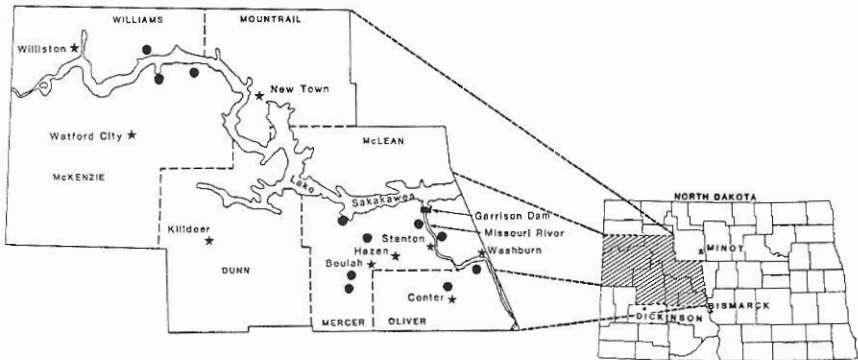


Figure 1. Geographic location of wooded draw study sites in western North Dakota. Each dot represents the location of 1-3 census plots.

Avian Census Methods

I censused breeding bird populations during 2-30 June 1982 using a modified Emlen line transect (Emlen 1971, 1977). Each of the 30 draws was visited three times during this count period. Count times were from local sunrise to 1100. During each count, data were recorded on the location of each male bird of a species encountered (except that for brown-headed cowbirds only females were counted). These locations were marked on field maps and used for later analyses. Each census plot except one was 50 x 400 m in size, covering an area of 2.0 ha. The other census plot was 1.7 ha. The centerline and adjacent edges of each plot were marked with colored plastic surveyor's tape.

In addition to census plots, occasional investigations of habitats adjacent to the wooded draws were made throughout the study area. These data were used to supplement observations made in each area, and to provide further information on the numbers and kinds of birds occupying wooded draws and adjacent habitats.

Vegetation Analysis

The method used for this investigation was a modification of the James and Shugart (1970) circular plot method described by Noon (1981). Vegetation within each draw was sampled in five 0.04-ha circular plots. This allowed me to analyze the vegetation on 0.2 ha of each bird census plot. Vegetation within the draws was sampled beginning at the top of the draw, and then proceeding downslope. Vegetation sample plots were at 0, 50, 150, 250, and 350 m along the bird census transect.

RESULTS AND DISCUSSION

Analysis of the vegetation within each of 30 wooded draws revealed that 17 species made up the plant community. Green ash (*Fraxinus pennsylvanica*) was predominant, occurring in all wooded draws studied, and at 96% of the 150 vegetation sample points. American elm (*Ulmus americana*) was the second most frequently occurring species, found in 92% of the draws studied and at 61% of the vegetation sample points.

Among the typical shrub species, chokecherry (*Prunus virginiana*) and juneberry (*Amelanchier alnifolia*) were the most frequent. In combination, these species were recorded at one-third of the vegetation sample points. The importance values (Curtis and McIntosh 1951) suggest that chokecherry and hawthorn (*Crataegus* sp.) were surprisingly similar in importance. Chokecherry exhibited the greatest importance value in 12 wooded draws, hawthorn in 9 draws, juneberry in 7, and bullberry (*Shepherdia argentea*) in 1. Greatest values were identical for juneberry and hawthorn in one draw.

Forty-seven bird species were recorded from the 30 wooded draws. Twenty-three additional bird species were recorded in adjacent draws or in native or man-made habitats near the censused draws. The observed total of bird species was about 34% of the known nesting avifauna of North Dakota (Faanes and Stewart 1982). The most frequently occurring species were rufous-sided towhee, brown-headed cowbird, house wren, and American goldfinch.

The richness of the avifauna of western North Dakota wooded draws is exemplified by the diverse mixture of typically eastern and western bird species nesting in proximity to each other. Of particular interest to the avian ecologist are the patterns of distribution of wooded draw breeding bird species during the non-nesting season. Among the 47 species occupying wooded draws, 22 (47%) are neotropical migrants, 20 (43%) migrate to warmer climates in the southern United States and Mexico, and 5 are permanent residents or winter vagrants on the northern Great Plains.

Much useful information remains to be gathered on breeding bird populations and their interactions with vegetation features of wooded draws in western North Dakota and adjacent eastern Montana.

ANNOTATED SPECIES ACCOUNTS

In the following annotated list, the taxonomic order, nomenclature, and terminology follow that of Faanes and Stewart (1982). The status of 70 bird species recorded within the study area is briefly summarized. Included are data on maximum population densities, dates of observations, limited data on clutch or brood size, and habitat occupancy.

FAMILY CATHARTIDAE

Turkey Vulture (*Cathartes aura*):

An uncommon and local nesting species across the study area; apparently oc-

curing in largest numbers in northern McKenzie and southern Williams counties. Turkey vultures were recorded in five wooded draw study sites. A nest containing three half-grown young was found 28 June in Sec. 11, T. 154 N., R. 98 W., Williams County. Stewart (1975) showed no nesting season records for Williams County.

FAMILY ACCIPITRIDAE

Northern Harrier (*Circus cyaneus*):

A regularly encountered nesting species of lightly grazed native prairie habitats associated with several wooded draws.

Sharp-shinned Hawk (*Accipiter striatus*):

One adult was observed hunting in a wooded draw in Sec. 12, T. 153 N., R. 96 W., McKenzie County on 2 June. Stewart (1975) considered this raptor an uncommon nesting species along the Little Missouri River, about 80 km from this site.

Cooper's Hawk (*Accipiter cooperii*):

I recorded one adult at the edge of a wooded draw in Sec. 9, T. 145 N., R. 88 W., McKenzie County, on 23 June. This was the only Cooper's hawk I observed in western North Dakota during the breeding season. Stewart (1975) stated that the Cooper's hawk was an uncommon nesting species along the Little Missouri River, and rare elsewhere in western North Dakota.

Swainson's Hawk (*Buteo swainsoni*):

A fairly common nesting species on native prairie tracts associated with wooded draws. Although not recorded in any of my wooded draw census plots, this species was observed occupying native habitats associated with six draws censused for breeding birds. No active nests were found.

Red-tailed Hawk (*Buteo jamaicensis*):

An uncommon and locally distributed nesting raptor throughout the study area. Red-tailed hawks were recorded in one censused draw, and associated with five additional draw ecosystems. Two nests were found, each containing three young.

FAMILY PHASIANIDAE

Ring-necked Pheasant (*Phasianus colchicus*):

An uncommon nesting species, most regularly encountered in habitats adjacent to wooded draws. Most ring-necked pheasants were found in the eastern portion of the study area, primarily near Beulah-Hazen, and near Center.

Sharp-tailed Grouse (*Tympanuchus phasianellus*):

A fairly common resident of native grasslands adjacent to the wooded draws. One large lek was found 2 June in Sec. 7, T. 153 N., R. 96 W., McKenzie County.

ty. This species was encountered less frequently in the eastern half of the study area where cereal grain farming was the predominant land use.

Wild Turkey (*Meleagris gallopavo*):

A fairly common resident, especially adjacent to the Missouri River in the eastern half of the study area. Wild turkeys appeared to be most frequent in large sinuous draws, intermittently connected to extensive lowland forest communities. Turkeys were recorded in two wooded draw census plots, and were found associated with three additional draws.

FAMILY CHARADRIIDAE

Killdeer (*Charadrius vociferus*):

A fairly common nesting species of upland native grasslands and cropland adjacent to wooded draws. No killdeer were recorded in wooded vegetation.

FAMILY SCOLOPACIDAE

Upland Sandpiper (*Bartramia longicauda*):

A fairly common nesting species of upland native grasslands associated with wooded vegetation. No upland sandpipers were recorded in wooded draws.

FAMILY COLUMBIDAE

Mourning Dove (*Zenaida macroura*):

An abundant nesting species in the eastern half of the study area, less common although widespread in the western half. Mourning doves and their nests were usually found at the brushy edge of the wooded draws. The highest breeding density (267 prs/km²) was recorded in a wooded draw near Zap, Mercer County. Mourning doves were recorded in over 75% of the wooded draws censused.

FAMILY CUCULIDAE

Black-billed Cuckoo (*Coccyzus erythrophthalmus*):

An uncommon and locally distributed nesting species on the study area. Most black-billed cuckoos were found in the upper reaches of the wooded draws where the vegetation was made up of dense shrub growth. A breeding density of 50 prs/km² was recorded from five draws in Mercer County.

FAMILY STRIGIDAE

Great Horned Owl (*Bubo virginianus*):

A fairly common nesting species throughout the study area. This species was found in one censused draw, and was associated with four additional draws. Great horned owls were found most regularly in small (< 1 ha) draws adjacent to larger draws.

Long-eared Owl (*Asio otus*):

An uncommon and local nesting species of native woodlands throughout the study area. One nest containing three young was found 18 June in a wooded draw in Sec. 18, T. 146 N., R. 88 W., Mercer County.

FAMILY CAPRIMULGIDAE

Common Nighthawk (*Chordeiles minor*):

A fairly common nesting species of xeric native grasslands adjacent to wooded draws on the study area. This species was most frequently encountered on native prairie characterized by exposed rocky areas.

FAMILY PICIDAE

Northern Flicker (*Colaptes auratus*):

A fairly common and well-distributed nesting species throughout the study area. Northern flickers were recorded in 20% of the draws censused. The highest breeding density (50 prs/km²) was recorded from a wooded draw near Hannover, Oliver County. No records were kept of flicker subspecies; however, apparent hybrids were encountered in McKenzie and Williams counties.

FAMILY TYRANNIDAE

Eastern Wood-pewee (*Contopus virens*):

An uncommon and local nesting species occurring primarily in areas adjacent to the extensive riparian forests along the Missouri River. The highest breeding density (50 prs/km²) was recorded near Hannover, Oliver County.

Willow Flycatcher (*Empidonax traillii*):

An uncommon and local nesting species, most frequently encountered in the eastern half of the study area. The highest breeding density (50 prs/km²) was recorded from the Ft. Clark area of Oliver County.

Least Flycatcher (*Empidonax minimus*):

A fairly common although locally distributed nesting species, occurring primarily in the eastern half of the study area. The highest breeding density (167 prs/km²) was recorded from a wooded draw near Zap, Mercer County. Least flycatchers were recorded in nearly 25% of the wooded draws censused.

Great Crested Flycatcher (*Myiarchus crinitus*):

One male great crested flycatcher was found 30 June in a wooded draw in Sec. 15, T. 146 N., R. 85 W., Mercer County, an area adjacent to the Missouri River. Stewart (1975) reported that nesting great crested flycatchers in North Dakota occurred only east of the Missouri River.

Western Kingbird (*Tyrannus verticalis*):

A fairly common nesting species throughout the study area. The highest breeding density (133 prs/km²) was recorded from a wooded draw near Zap, Mercer Coun-

ty. Most western kingbirds were associated with the drier upper reaches of wooded draws where shrub densities were highest.

Eastern Kingbird (*Tyrannus tyrannus*):

A common and well-distributed nesting species throughout the study area. Largest densities were associated with dense shrub growth in wooded draws, and those with smaller total area. Eastern kingbirds were recorded in 50% of the wooded draws censused. The highest breeding density (100 prs/km²) was recorded from four draws south of Zap, Mercer County.

FAMILY ALAUDIDAE

Horned Lark (*Eremophila alpestris*):

A common nesting species of moderately to heavily grazed native grasslands and fallow cropland adjacent to wooded draws. No horned larks were recorded in wooded vegetation.

FAMILY HIRUNDINIDAE

Tree Swallow (*Tachycineta bicolor*):

Individuals and small groups were regularly encountered flying over wooded draws. Although dead trees with natural cavities suitable for nest sites were available in most of the wooded draws investigated, I obtained no evidence of nesting.

Barn Swallow (*Hirundo rustica*):

Individual barn swallows were frequently observed as they foraged over native and man-made habitats adjacent to wooded draws. I obtained no evidence that this species used any wooded vegetation.

FAMILY CORVIDAE

Blue Jay (*Cyanocitta cristata*):

A fairly common nesting species throughout the study area. The highest breeding density recorded was 50 prs/km². No vegetative characteristics were consistently associated with the presence of blue jays. Blue jays were recorded in nearly 50% of the wooded draws censused. One nest containing three young was found in a Mercer County wooded draw on 23 July.

Black-billed Magpie (*Pica pica*):

An uncommon and local nesting species, most numerous in the western half of the study area. Black-billed magpies occurred in largest numbers in areas supporting many small draws. One black-billed magpie was recorded on a wooded draw census plot.

American Crow (*Corvus brachyrhynchos*):

A fairly common nesting species throughout the study area. Although no

American crows were recorded from censused wooded draws, they were regularly associated with complexes of draws adjacent to study sites.

FAMILY PARIDAE

Black-capped Chickadee (*Parus articipillus*):

A fairly common nesting species throughout the study area. The highest breeding density (100 prs/km²) was recorded from a wooded draw in Williams County. Black-capped chickadees were recorded in one-third of the wooded draws censused.

FAMILY TROGLODYTIDAE

Rock Wren (*Salpinctes obsoletus*):

Individual rock wrens were found in arroyos at the end of three wooded draws in McKenzie County. Arroyo habitat consisted of exposed sedimentary rocks and scoria, interspersed with scattered shrubs. Rock wrens were not found occupying wooded vegetation.

House Wren (*Troglodytes aedon*):

An abundant and well-distributed nesting species in wooded draws throughout the study area. The highest breeding density (233/km²) was recorded from near Hannover, Oliver County. This species was associated with brushy undergrowth along the margins of wooded draws. House wrens were recorded in 87% of the censused wooded draws.

FAMILY MUSCIPIDAE

Mountain Bluebird (*Sialia currucoides*):

An uncommon and local nesting species in the western half of the study area. Two singing males were recorded during early June from wooded draws near Tobacco Garden Bay, McKenzie County. This species was most frequently encountered in habitats similar to the Little Missouri badlands, where the topography consists of deeply eroded arroyos supporting sparse shrub growth.

Veery (*Catharus fuscescens*):

One male veery was recorded in early June from a wooded draw near Tobacco Garden Bay, McKenzie County. This was the only breeding season record obtained, although Stewart (1975) suggested that the veery was fairly common in similar wooded habitats of the nearby Little Missouri River badlands.

American Robin (*Turdus migratorius*):

A locally common nesting species throughout the study area. The highest breeding density (100 prs/km²) was recorded near Hannover, Oliver County. This species was associated with wooded draws supporting low shrub density with a high percentage of canopy cover. American robins were recorded in 57% of the wooded draws censused.

FAMILY MIMIDAE

Gray Catbird (*Dumetella carolinensis*):

A fairly common although locally distributed nesting species throughout the study area. The largest breeding density was recorded from a wooded draw near Cussick Springs, Williams County. Wooded draws supporting high shrub density and high tree density were most attractive to this species.

Northern Mockingbird (*Mimus polyglottos*):

One singing male was found 22 July adjacent to a wooded draw in Sec. 27, T. 144 N., R. 89 W., Mercer County. Although singing and displaying within an apparent territory, it appeared to be an unmated, wandering male. Johnsgard (1979) considered northern Nebraska to be the limit of the nesting range of northern mockingbirds on the Great Plains.

Brown Thrasher (*Toxostoma rufum*):

A fairly common nesting species throughout the study area. The largest numbers of brown thrashers occurred in wooded draws supporting high numbers of young trees, high shrub density, and low percent canopy cover. Maximum density (83 prs/km²) was recorded from a wooded draw near Hannover, Oliver County. Brown thrashers were recorded in one-third of the wooded draws censused.

FAMILY MOTACILLIDAE

Sprague's Pipit (*Anthus spraguei*):

A fairly common nesting species of lightly to moderately grazed native grasslands adjacent to wooded draws. This species was most frequently encountered in the western half of the study area, and in the area near Zap, Mercer County. These two study units supported the largest expanses of undisturbed native grasslands within the study area. No Sprague's pipits were recorded in wooded vegetation.

FAMILY BOMBYCILLIDAE

Cedar Waxwing (*Bombycilla cedrorum*):

A fairly common nesting species throughout the study area. This species appeared to be most numerous in vegetation supporting high shrub densities, usually near the upper reaches of the draws. Cedar waxwings were recorded in 17% of the wooded draws censused. The highest breeding density (50 prs/km²) was recorded from five draws; three in the eastern and two in the western half of the study area.

FAMILY LANIIDAE

Loggerhead Shrike (*Lanius ludovicianus*):

An uncommon and local nesting species throughout the study area. No loggerhead shrikes were recorded on census plots, but this species occupied habitats adjacent to three wooded draws that I censused.

Red-eyed Vireo (*Vireo olivaceus*):

A common nesting species throughout the study area. The largest numbers of breeding red-eyed vireos were associated with wooded draws supporting large trees, a closed canopy, dense herbaceous cover and low shrub density. This species was most numerous in McKenzie and Williams counties; highest density (167 prs/km²) was recorded near Cussick Springs, Williams County. Red-eyed vireos were recorded in 50% of the wooded draws censused.

FAMILY EMBERIZIDAE

Yellow Warbler (*Dendroica petechia*):

A common nesting species throughout the study area. The largest numbers of yellow warblers were associated with wooded draws supporting high shrub densities and low canopy cover. Yellow warblers were usually most numerous in the upper 100 m of a draw, becoming scarce as the number of shrub stems decreased and the basal area of individual trees increased in lower reaches of the draw. The highest breeding density (150 prs/km²) was recorded from a wooded draw near Zap, Mercer County. Yellow warblers were recorded in 57% of the wooded draws censused.

Black-and-white Warbler (*Mniotilta varia*):

A common nesting species throughout the study area, with the largest numbers recorded in McKenzie and Williams counties. The highest breeding density (150 prs/km²) was recorded from three draws near Charleson, McKenzie County, and Cussick Springs, Williams County. Black-and-white warblers occurred in largest breeding densities in wooded draws supporting large trees, a closed canopy, and low shrub density. This species was recorded in 40% of the wooded draws censused.

American Redstart (*Setophaga ruticilla*):

A fairly common nesting species of wooded draws in McKenzie and Williams counties. The highest breeding density (217 prs/km²) was recorded from a wooded draw near Tobacco Garden Bay, McKenzie County. Their largest numbers were associated with high tree density, moderate shrub density, and moderate canopy cover. American redstarts were recorded in 27% of the wooded draws censused.

Ovenbird (*Seiurus aurocapillus*):

A fairly common and well-distributed nesting species in the western half of the study area; local in the eastern half. The highest breeding density (200 prs/km²) was recorded from two draws in McKenzie and Williams counties. Their largest numbers were recorded in wooded draws supporting low tree and shrub density and high canopy cover. These conditions are indicative of mature forest. Ovenbirds were recorded in one-third of the wooded draws censused.

MacGillivray's Warbler (*Oporornis tolmiei*):

One male was seen daily 2 to 4 June in a McKenzie County wooded draw in Sec. 8, T. 153 N., R. 95 W. There are no breeding records for this occasional species in North Dakota (Faanes and Stewart 1982).

Common Yellowthroat (*Geothlypis trichas*):

A fairly common nesting species; most numerous in the eastern half of the study area. The highest breeding density (100 prs/km²) was recorded from a wooded draw near Zap, Mercer County. This warbler was most numerous in mature wooded draws supporting lush herbaceous ground cover and sparse shrub density. This contrasts somewhat with common yellowthroat habitat in eastern North Dakota. Johnson (1974) found high densities in idle grasslands and Stewart (1975) reported that dense stands of *Symphoricarpos occidentalis* and *Artemisia cana* provided suitable upland nesting habitat in North Dakota. Kantrud and Kologiski (1982) reported highest common yellowthroat densities from stands supporting the shrubs *Rosa woodsii*, *Amorpha canescens*, and *Symphoricarpos occidentalis*.

Yellow-breasted Chat (*Icteria virens*):

A fairly common nesting species; most numerous in the western half of the study area. The highest breeding density (75 prs/km²) was recorded from a wooded draw near Tobacco Garden Bay, McKenzie County. Yellow-breasted chats were most frequently found in wooded draws supporting high shrub density, few mature trees, and low canopy cover.

Black-headed Grosbeak (*Pheucticus melancephalus*):

A common and well-distributed nesting species throughout the study area. This species was most frequent in central Mercer County, and in wooded draws near the Missouri River. The highest breeding density (200 prs/km²) was recorded from a wooded draw near Hannover, Oliver County. Their largest numbers were associated with a high percentage of canopy cover, low shrub density, and high basal area density. Black-headed grosbeaks were recorded in 40% of the wooded draws censused.

Lazuli Bunting (*Passerina amoena*):

A common and well-distributed nesting species of wooded draws throughout the study area. The highest breeding density (217 prs/km²) was recorded from a draw near Charleson, McKenzie County. Their largest numbers were associated with wooded draws supporting an open canopy, high shrub density, and a high number of trees in the 6-15 cm dbh class. These conditions are indicative of young growth wooded draws. Most territorial male lazuli buntings observed were along the edges of wooded draws.

Rufous-sided Towhee (*Pipilo erythrophthalmus*):

An abundant and well-distributed nesting species throughout the study area. The highest breeding density (383 prs/km²) was recorded from a wooded draw near Cussick Springs, Williams County. Their largest numbers were associated with young growth wooded draws. Vegetation of these draws was characterized

by low percentage canopy cover, high ground cover and shrub density, and low basal area densities. Rufous-sided towhees were strongly attracted to patches of bullberry (*Shepherdia argentea*) shrubs along the periphery of the draws. Rufous-sided towhees were recorded in 90% of the wooded draws censuses.

Chipping Sparrow (*Spizella passerina*):

An uncommon and local nesting species, recorded only from wooded draws in McKenzie and Williams counties. The highest breeding density (83 prs/km²) was recorded from near Charlson, McKenzie County. Chipping sparrows were recorded in 7% of the wooded draws censused.

Clay-colored Sparrow (*Spizella pallida*):

An uncommon and local nesting species, most frequent on the Coteau Slope physiographic region east of the Missouri River. The highest breeding density (100 prs/km²) was recorded from a wooded draw near Cussick Springs, Williams County. Their largest numbers were associated with the upper reaches of the draws where the shrub wolfberry (*Symphoricarpos occidentalis*) was most prevalent. Clay-colored sparrows were recorded in 13% of the wooded draws censused.

Field Sparrow (*Spizella pusilla*):

A common and well-distributed nesting species, most frequent in the western half of the study area. The highest breeding density (150 prs/km²) was recorded from a wooded draw near Cussick Springs, Williams County. Their highest numbers were in associated draws supporting high shrub density and low percentage canopy cover. Field sparrows were recorded in 53% of the draws censused.

Vesper Sparrow (*Pooecetes gramineus*):

A common nesting species of wooded draws and adjacent habitats throughout the study area. The highest breeding density (100 prs/km²) was recorded from a wooded draw near Beulah, Mercer County. This species is well-known for its use of cropland and edge habitats (Stewart 1975, Faanes 1982). I found two vesper sparrow nests in upland native prairie adjacent to a wooded draw. Vesper sparrows may have only been using the wooded vegetation for song perches.

Lark Sparrow (*Chondestes grammacus*):

An uncommon and local nesting species occurring most frequently in the western half of the study area. The highest breeding density (50 prs/km²) was recorded from three draws, two in Mercer County and one in Williams County. Lark sparrows were usually found near the upper reaches of the wooded draws, in areas supporting young growth vegetation. This species was recorded in 10% of the draws censused.

Lark Bunting (*Calamospiza melanocorys*):

A common to abundant nesting species of upland native prairie adjacent to wooded draws. Their largest numbers were found in the Beulah-Hazen-Zap region of Mercer County. No lark buntings were recorded in wooded vegetation.

Baird's Sparrow (*Ammodramus bairdii*):

An uncommon and local nesting species of lightly to moderately grazed upland native prairie adjacent to wooded draws. No Baird's sparrows occupied wooded vegetation.

Grasshopper Sparrow (*Ammodramus savannarum*):

A fairly common nesting species of lightly to moderately grazed upland native prairie adjacent to wooded draws. No grasshopper sparrows were recorded in wooded vegetation.

Chestnut-collared Longspur (*Calcarius ornatus*):

A fairly common, although locally occurring, nesting species of moderately to heavily grazed upland native prairie adjacent to wooded draws. No chestnut-collared longspurs were recorded in wooded vegetation.

Bobolink (*Dolichonyx oryzivorus*):

An uncommon and local nesting species of lightly grazed upland native prairie adjacent to wooded draws. No bobolinks were recorded in wooded vegetation.

Red-winged Blackbird (*Agelaius phoeniceus*):

A fairly common nesting species of upland and wet habitats associated with wooded draws. Red-winged blackbirds were recorded from four wooded draws censused. Although this species is common throughout much of the study area (Stewart 1975), it appears that wooded draws provide less than optimal nesting habitat for red-winged blackbirds.

Western Meadowlark (*Sturnella neglecta*):

A common and well-distributed nesting species throughout the study area. Western meadowlarks were found occupying native prairie, cropland, and summer fallow fields adjacent to wooded draws. One singing male was recorded in a wooded draw near Zap, Mercer County. This bird was probably using the wooded vegetation for a song perch at the edge of its territory, rather than occupying the draw for nesting.

Common Grackle (*Quiscalus quiscula*):

An uncommon and local nesting species of wooded draws in the eastern half of the study area. The highest breeding density recorded was 50 prs/km². Common grackles were recorded breeding in 7% of the wooded draws censused.

Brown-headed Cowbird (*Molothrus ater*):

An abundant and well-distributed nesting species throughout the study area. The highest breeding density (150 females/km²) was recorded from two draws in northern Mercer County. No particular vegetation was consistently associated with brown-headed cowbird habitat. This species was recorded in 90% of the wooded draws censused.

Orchard Oriole (*Icterus spurius*):

An uncommon and local nesting species occurring with greatest frequency in

the eastern half of the study area. The highest breeding density recorded was 50 prs/km². Orchard orioles were usually associated with young growth wooded draws. This species was recorded in 7% of the wooded draws censused.

Northern Oriole (*Icterus galbula*):

An uncommon and local nesting species of wooded draws in the eastern half of the study area. The highest breeding density recorded was 50 prs/km². Most northern orioles were associated with the lower reaches of wooded draws which supported mature trees. Vegetation most frequently associated with northern oriole habitat included low density of trees, high basal area, high percentage canopy cover, and low shrub density. All northern orioles observed were of the Baltimore subspecies.

FAMILY FRINGILLIDAE

Pine Siskin (*Spinus pinus*):

One pine siskin was recorded in a McKenzie County wooded draw on 3 June. This was probably a bird that nested in an adjacent area, because there were no additional observations in the wooded draw where this bird was recorded.

American Goldfinch (*Spinus tristis*):

An abundant and well-distributed nesting species throughout the study area. The highest breeding density (117 prs/km²) was recorded from a wooded draw near Cussick Springs, Williams County. Their largest numbers were associated with young growth wooded vegetation. American goldfinches were recorded from 80% of the wooded draws censused.

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