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Birds of the Great Plains: Family Icteridae (Meadowlarks, Blackbirds, and Orioles)

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FAMILY ICTERIDAE
(MEADOWLARKS,
BLACKBIRDS,
AND ORIOLES)



Red-winged Blackbird

Bobolink

Dolichonyx oryzivorus

Breeding Status: Breeds in suitable habitats throughout western Minnesota and North Dakota southward through South Dakota (rarely in the Black Hills), most of Nebraska (locally common west to Sioux and Garden counties), western Iowa, northwestern Missouri, and locally or sporadically in northern Kansas (records for Stafford, Cloud, and Barton counties). There are no nesting records for Oklahoma and none for the portion of Colorado covered by this book.

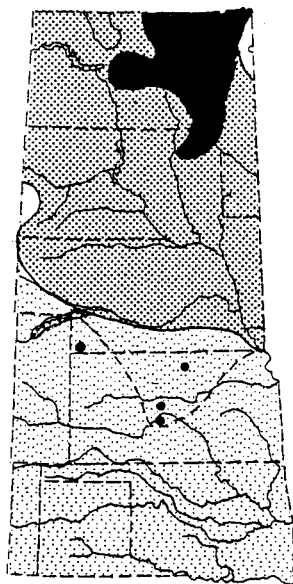
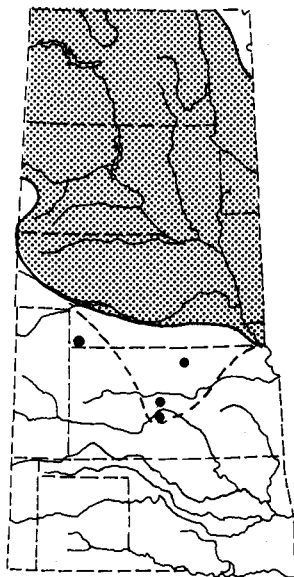
Breeding Habitat: Tall-grass prairies, ungrazed to lightly grazed mixed-grass prairies, wet meadows, hayfields, retired croplands, and sometimes small-grain croplands are used for breeding.

Nest Location: Nests are simple hollows scraped into the ground or natural depressions suitable in depth and size, such as that made by a horse's hoof. The nest is invariably concealed in dense vegetation such as tall grasses, clover, or other thickly growing plants. The hollow is filled with grasses and weeds and lined with fine grasses.

Clutch Size and Incubation Period: From 4 to 7 eggs (4 North Dakota clutches averaged 4.8). The eggs are gray to cinnamon, rather irregularly blotched and spotted with browns, and sometimes are almost entirely brown. The incubation period is 13 days. Single-brooded.

Time of Breeding: In North Dakota the breeding season extends from late May to mid-August, with egg dates ranging from June 4 to June 27 and fledglings seen from July 8 to August 16. Minnesota egg dates are from May 27 to June 22, and limited information of birds at the southern edge of their range in Kansas indicates that there the eggs are laid in June as well.

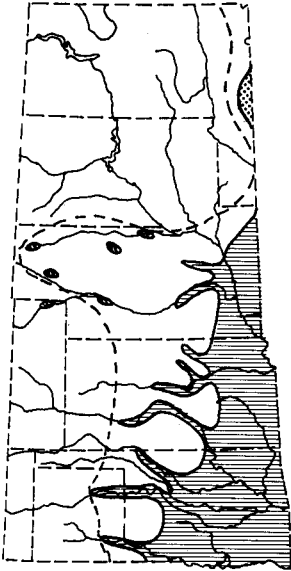
Breeding Biology: Males arrive on their breeding areas about a week before females and quickly spread out, although specific territorial establishment and defense seems to be weak or lacking. Although the nests are well scattered, males tolerate other males surprisingly near the nest site. The female incubates alone; the male seldom visits her and apparently never feeds her. But males do help feed the young. Broods usually remain in the nest for about 10-14 days but have been reported to leave when only 7-9 days old, or well before they are able to fly. Males often acquire second mates after their first mate has begun nesting. These secondary mates tend to lay smaller clutches than the primary mates, perhaps because they often are young birds or are re-nesting. This smaller clutch size of secondary mates is adaptive, since males less frequently assist in feeding their second broods, and



unassisted females are more likely to be able to tend smaller broods.

Suggested Reading: Kingsbury 1933; Martin 1971.

Eastern Meadowlark *Sturnella magna*



Breeding Status: Breeds commonly through Minnesota west to the Red River Valley and south to the northwestern corner of Iowa. South of that area the species is common only in Iowa, southeastern Nebraska, northwestern Missouri, and the eastern portions of Kansas and Oklahoma, but local breeding apparently extends west to the western edge of Nebraska (Garden and Sioux counties), eastern Colorado (no definite records), western Kansas (Jewell, Edwards, and Comanche counties), the Oklahoma panhandle (Beaver County), and the western panhandle of Texas (Deaf Smith County). There has been a recent western expansion into the plains along rivercourses (*Transactions of the Kansas Academy of Sciences* 75:1-19).

Breeding Habitat: The species is associated with tall-grass prairies, meadows, and open croplands of small grain, as well as weedy orchards and other open, grass-dominated habitats. At the western edge of its range, where the western meadowlark also occurs, it is predominantly limited to low and rather moist situations, such as wet meadows and the edges of sandhill marshes (*Ecology* 37:98-108).

Nest Location: Nests are on the ground in scrapes or natural depressions, well hidden in grass clumps and with a canopy woven into the surrounding vegetation. There is a lateral entrance to the nest, which is constructed of coarse grasses and lined with finer grasses, and there is sometimes also a visible trail leading to the nest through the adjacent vegetation. Nests are often placed on sloping ground and often face toward the east or north, away from the prevailing winds.

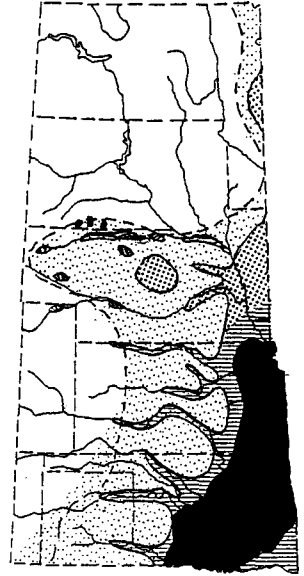
Clutch Size and Incubation Period: From 3 to 6 eggs (26 Kansas clutches averaged 5.2). The eggs are white with brown to lavender spotting, particularly around the larger end. The incubation period is 13-15 days, averaging 14. Normally double-brooded.

Time of Breeding: Minnesota nesting dates extend from late April (nests) to June 24 (hatching eggs), and fledged young have been seen as early as May 28. In Kansas, egg records are from April 10 to July 20, with most from May 1 to May 20. Oklahoma egg dates are from April 25 to June 26, and nestlings have been seen as late as July 19.

Breeding Biology: Nest-building begins early in eastern meadowlarks and evidently is performed by only the female over a period of 3-8 days, the shorter periods being typical of later nests. Polygyny is fairly frequent in this species; about 50 percent of the males in one New York study had 2 mates, and one had 3. Only the female incubates, and she leaves the nest infrequently once it has begun. The young birds normally leave their nest 11-12 days after hatching but may leave sooner if disturbed. Within 2-3 days of nest departure, the female may start a second clutch, with the male remaining to tend the young of the first brood. The female does, however, periodically feed the first brood until she begins incubating again, when the young are about 3 weeks old.

Suggested Reading: Roseberry and Klimstra 1970; Bent 1958.

Western Meadowlark *Sturnella neglecta*

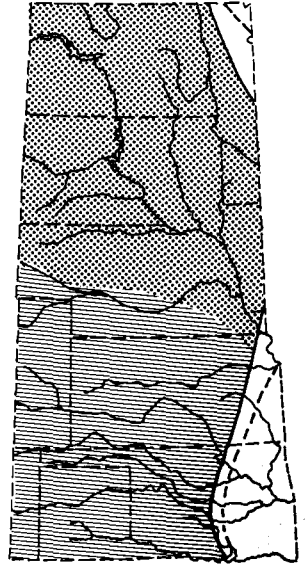


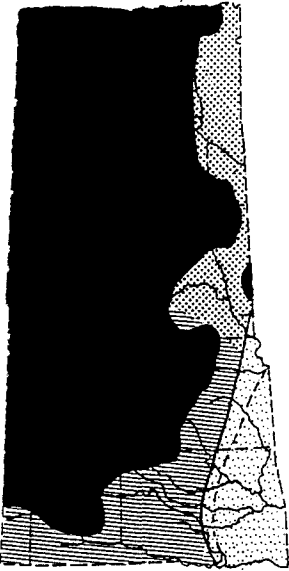
Breeding Status: Breeds over virtually all of North Dakota and western Minnesota except the most forested portions of northwestern Minnesota, all of South Dakota, western Iowa, all of Nebraska except possibly the extreme southeastern corner (occasionally present but not known to nest in adjacent northwestern Missouri), all of Kansas except for the southeastern corner, and the western half of Oklahoma (east probably to Payne, Oklahoma, Cleveland, and Marshall counties).

Breeding Habitat: In our region the species is associated with tall-grass and mixed-grass prairies, wet meadows, hayfields, weedy borders of croplands or retired croplands, and to a limited extent with short-grass prairies and sage prairies. In arid areas it is limited to moist lowland situations, but where it overlaps with the eastern species at the eastern edge of its range it occupies dry upland sites whereas the eastern meadowlark is found in moister areas (*Ecology* 37:98-108). A very limited amount of mixed pairing has been reported in such areas of habitat sharing (*Southwestern Naturalist* 10:307).

Nest Location: Nests are in the same situations as described for the eastern meadowlark, and neither the nest nor the eggs can be distinguished from those of that species.

Clutch Size and Incubation Period: From 3 to 6 eggs (16 Kansas clutches averaged 4.3 and 18 North Dakota clutches averaged 5.3). The eggs are white, with variable amounts of brown to lavender spotting near the larger end. The incubation period is 13-15 days. Probably generally double-brooded in our region.



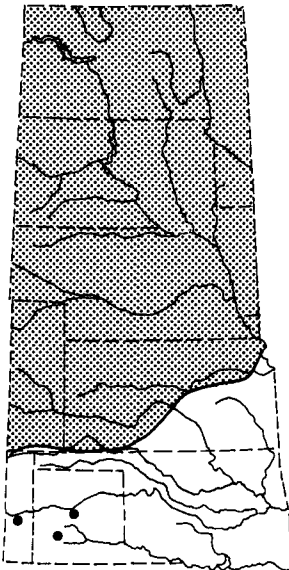


Time of Breeding: In North Dakota the breeding season extends from late March to early August, with egg dates ranging from May 5 to July 6. In Kansas, the egg dates are from April 10 to July 30, with peaks in early May and early June for the first and second broods. Texas egg dates are from March 27 to July 24.

Breeding Biology: The breeding biology of this species is virtually identical to that of the eastern meadowlark, and these two species provide an interesting problem in terms of their ecology and evolutionary relationships. Where the two species occur together they are sometimes intermediate in their primary songs, but this does not prove frequent hybridization; their call notes are more diagnostic and indicative of ancestry. One area of apparent hybridization is the Platte Valley of Nebraska, where intermediate birds are several times more frequent than elsewhere in the Great Plains. In areas of overlap there has been no evolutionary convergence in song types, but apparently some of the aggressive displays of the two species do exhibit convergent elements.

Suggested Reading: Lanyon 1957; Rohwer 1971.

Yellow-headed Blackbird *Xanthocephalus xanthocephalus*



Breeding Status: Breeds in suitable habitats throughout North Dakota and western Minnesota and southward through South Dakota (except the Black Hills), western Iowa, Nebraska, northwestern Missouri, eastern Colorado, and northwestern Kansas, reaching its normal limits north and west of a line drawn from Meade to Douglas counties, Kansas. There is only a single old breeding record for Oklahoma, from Cimarron County, and likewise a single recent breeding record for Texas, for Castro County in 1978. There are no breeding records for northeastern New Mexico.

Breeding Habitat: Favored habitats are deep marshes, the marsh zones of lakes, and shallow river impoundments where there are stands of cattails, bulrushes, or phragmites. Where it breeds on the same marshes with red-winged blackbirds, this species occupies deeper areas, while the red-winged blackbirds establish territories around the marsh edges.

Nest Location: Nests are usually clustered in stands of emergent vegetation, most frequently (in North Dakota) in hardstem bulrush or cattails, with other emergent plants used relatively little. In a sample of 79 nest sites, the water depth ranged from 3 to 32 inches and averaged 18 inches, and the height of the nest rim above water also averaged 18 inches. By comparison, 28 nests of

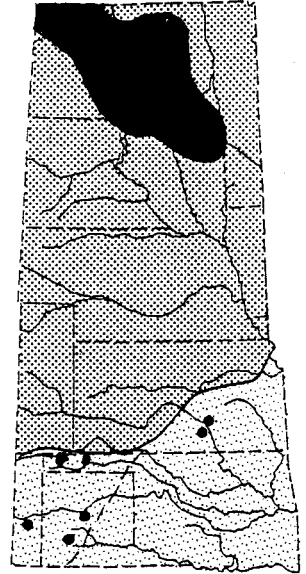
red-winged blackbirds were in water averaging only 9 inches deep, and 8 more nests were in terrestrial sites.

Clutch Size and Incubation Period: From 3 to 7 eggs (109 North Dakota clutches averaged 3.7). The eggs are off-white with spots and dots of browns and grays. The incubation period is 12-13 days. Single-brooded, but males are often bigamous.

Time of Breeding: North Dakota egg dates are from May 10 to July 13, with nestlings seen as early as May 27 and dependent young as late as August 10. Kansas egg dates are from May 20 to June 30, with a probable peak in early June.

Breeding Biology: The displays of the yellow-headed blackbird are very similar to those of the red-winged blackbird, but the species differs ecologically in that the males normally participate in brood care, are more dependent on emerging aquatic insects such as damselflies, and thus are more dependent on marshes than are redwings. In both species, the males' conspicuous and prolonged displays seem to be related to the importance of territorial size and quality in attracting the maximum number of females. As in the red-winged blackbird, only the female incubates, but males often help feed the young, particularly those of their first female. The young leave the nest at 9-12 days.

Suggested Reading: Willson 1964; Orians and Christman 1968.



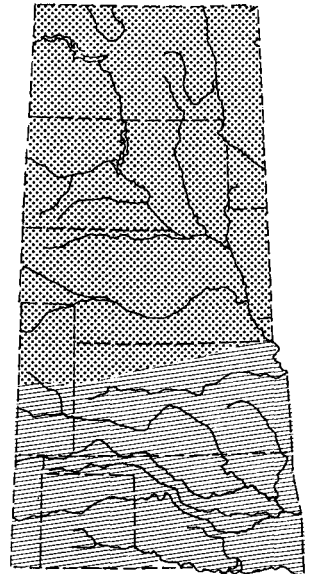
Red-winged Blackbird *Agelaius phoeniceus*

Breeding Status: Pandemic, breeding throughout the region in suitable habitats.

Breeding Habitat: Habitats range from deep marshes or emergent zones of lakes and impoundments through progressively drier habitats such as wet meadows, ditches, and brush patches in prairie, hayfields, and weedy croplands or roadsides.

Nest Location: Nests are in herbaceous or woody vegetation that is usually in or near water, but they may also be in weeds, bushes, or trees some distance from water, and, rarely, up to 14 feet above the substrate. Of 48 North Dakota nests, hardstem bulrush provided the most common vegetational support, and the rims of 28 nests built over water averaged 13 inches above the water surface. Eight terrestrial nests averaged 19 inches above ground. The nest is built of leaves of grasses and sedges woven together and bound to adjacent vegetation and is lined with fine grasses.

Clutch Size and Incubation Period: From 2 to 7 eggs (38 North Dakota clutches averaged 3.6, and 243 Oklahoma clutches aver-

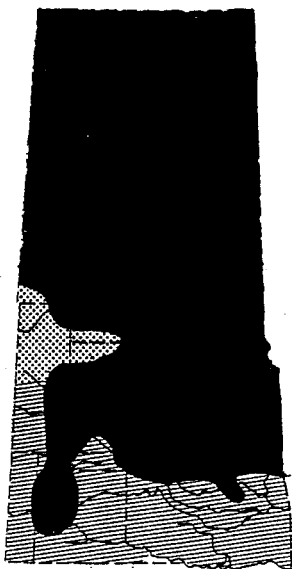


aged 3.4). The eggs are pale bluish green, with scrawls and spots of dark tones, mostly toward the larger end. The incubation period is 10–12 days. Frequently double-brooded, and males are often polygynous, with up to six females per male.

Time of Breeding: North Dakota egg dates are from May 15 to July 13, and nestlings are seen from June 9 to July 28. Kansas egg dates are from May 1 to July 30, with nearly three-fourths of the eggs laid between May 11 and June 10. Oklahoma breeding dates are from April 22 (eggs) to July 31 (nestlings).

Breeding Biology: This is one of the commonest and most thoroughly studied of all North American songbirds. Adult males arrive on their breeding marshes well before females and begin to advertise their territories by flight song and “song-spread” displays, both of which prominently exhibit the red upper wing coverts. Experiments with surgically muting males or painting these red markings black before they acquire mates result in the loss of territories by such altered males, although later alteration has no obvious effect. Pair bonds last only during the breeding season, and most territorial males manage to acquire at least two females. In one Wisconsin study, it was found that experienced males tend to return to their old territories in successive years and that first-year males are usually unable to hold territories long enough to breed. In that study, no more than three females were mated to a single male, but a few instances of double-brooding were found. The young birds leave the nest at 10–11 days but are dependent for some time thereafter.

Suggested Reading: Nero 1956; Peek 1971.



Orchard Oriole

Icterus spurius

Breeding Status: Breeds in suitable habitats virtually throughout North Dakota and western Minnesota except in the most forested areas, southward through South Dakota, western Iowa, Nebraska, northwestern Missouri, eastern Colorado (west at least to Morgan and Yuma counties), Kansas (throughout), Oklahoma (to Cimarron County), and the eastern panhandle of Texas (breeding records for Childress and Wilbarger counties). There is no breeding evidence for northeastern New Mexico.

Breeding Habitat: The species is associated with lightly wooded river bottoms, scattered trees in open country, shelterbelts, farmsteads and residential areas, and orchards. Open rather than closed woodlands are preferred, and even grassland habitats may be used if suitable nest sites are available nearby.



Nest Location: Nests are 5-70 feet (averaging about 20 feet) above the ground, in the forks or crotches of a wide variety of broad-leaved trees and shrubs. The nest is a hanging, basketlike structure almost entirely made of woven grasses and is usually wider than deep, thus differing from that of the northern oriole.

Clutch Size and Incubation Period: From 3 to 7 eggs (41 Kansas clutches averaged 4.1). The eggs are pale bluish white, with spots, blotches, and scrawls of dark colors around the entire egg or concentrated near the larger end. The incubation period is 12-14 days. Single-brooded, but known to renest.

Time of Breeding: North Dakota egg records are from May 21 to July 3; Minnesota records are from May 20 (eggs) to early July (nestlings and fledglings). Kansas egg records are from May 11 to August 11, with nearly half the eggs laid during the first ten days of June.

Breeding Biology: There is a marked separation of the sexes and ages in migration, with old males arriving in breeding areas first, followed by females and, finally, first-year birds. Territories are gradually established by singing and display, and there seems to be little direct competition between orchard and northern orioles. Trees supporting kingbird nests are often used by orioles for nest sites. The nest is built over a period of about 3-6 days, and both sexes participate in its construction. The male has also been reported by an early observer to assist with incubation, but this seems unlikely, and probably his major contribution is feeding the incubating female. The male also helps feed the nestlings, which leave the nest in 11-14 days.

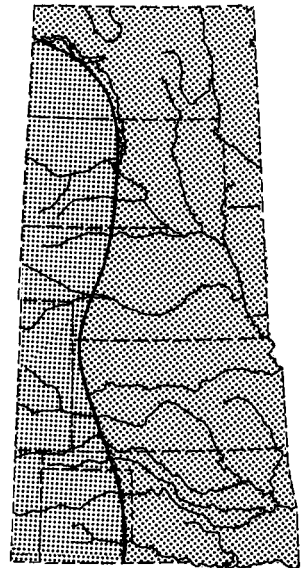
Suggested Reading: Bent 1958; Dennis 1948.



Northern Oriole (Baltimore and Bullock Orioles) *Icterus galbula* (including *I. bullockii*)

Breeding Status: Collectively, the two forms are pandemic. The eastern race *galbula* ("Baltimore oriole") generally occurs east of the 102d meridian, and the western form *bullockii* ("Bullock oriole") occurs west of this line, but there is a zone of frequent hybridization extending approximately 100 miles on either side of the line of contact (*Condor* 66:130-50; *Systematic Zoology* 19: 315-51).

Breeding Habitat: Favored habitats of the eastern race *galbula* include wooded river bottoms, upland forests, shelterbelts, and partially wooded residential areas and farmsteads. It is absent from pure coniferous forests but colonizes these areas after clear-





ing and the development of deciduous second-growth. In our region, *bullockii* is largely limited to river-bottom stands of willows and cottonwoods (in the north) and mature mesquite trees in flat uplands (in the southwest).

Nest Location: Nests are usually about 25 feet above the ground (range 9–70 feet) in rather large trees, especially elms and cottonwoods growing in open spaces below, and are deep woven baskets of plant fibers including grasses but not exclusively made of them as in the orchard oriole. The nest is deeper than it is wide and sometimes has a lateral rather than an upper opening. There are some regional variations in placement and structure (*Condor* 78:443–48).

Clutch Size and Incubation Period: From 2 to 6 eggs (57 Kansas clutches averaged 4.7). The eggs are pale grayish white, with spots, blotches, and scrawls of dark brown or black, especially around the larger end. The incubation period is 12–14 days. Single-brooded.

Time of Breeding: North Dakota egg dates are from June 11 to June 28, with nestlings seen from June 27 to July 6. Kansas egg records are from May 11 to July 10, with two-thirds of the eggs being laid between May 21 and June 10. Oklahoma breeding records are from May 3 (nest-building) to August 2 (nestlings).

Breeding Biology: The remarkable pendant nests of this species are built mostly by the female, sometimes in as little as 4½ days, though usually a week or so is needed. No true knots are tied in the process, but a loose tangle of fibrous materials is gradually pulled together and tightened, forming a woven structure. A new nest is made each year, but certain trees or territories from previous years seem to be favored, as the remains of old nests are often found near new ones. Incubation is by the female, who is fed on the nest by her mate. The nestling period is approximately 2 weeks, and the young are dependent on the adults for another 2 weeks. Until recently, the western race (“Bullock oriole”) was regarded as a species distinct from the eastern race, but extensive hybridization in the Great Plains favors the view that they are a single species. However, recent evidence (*Condor* 79:335–42) suggests that hybrids are becoming less frequent in the overlap zone.

Suggested Reading: Bent 1958; Sibley and Short, 1964.

Brewer Blackbird *Euphagus cyanocephalus*

Breeding Status: Breeds in suitable habitats virtually throughout North Dakota and western Minnesota, except perhaps the ex-

treme southwestern corner, and much of South Dakota except for the southeastern and south-central prairie areas. In Nebraska the species is a common breeder only in the northwestern corner, but there have been sporadic breedings elsewhere (Hall, Lancaster, and Johnson counties). A reported rusty blackbird breeding in Hall County, Nebraska (*Nebraska Bird Review* 41:7), is presumed to be in error and probably involves this species. There are no definite breeding records for Kansas or northwestern Missouri, and there is only a single old record for Oklahoma, in Cimarron County. Nevertheless, a rather extensive area of breeding occurs in eastern Colorado (Kingery and Gaul, 1978).

Breeding Habitat: The species is generally associated with low-stature grasslands, such as mowed or burned areas along roadsides and railroads, as well as with residential areas of towns or farmsteads. Shrubby marsh edges are also favored. Grassy areas that have small trees or shrubs for nesting and that are fairly near water seem to be used extensively.

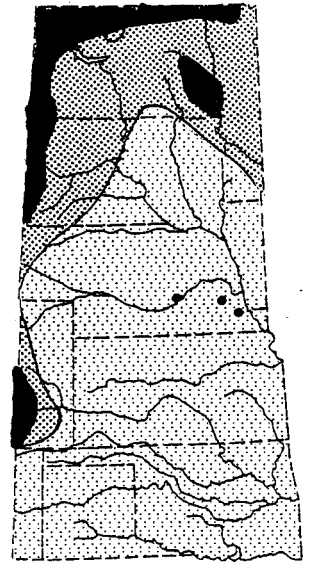
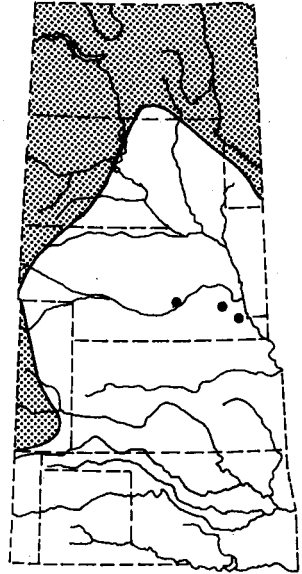
Nest Location: Nesting may be in colonies or singly, and nests may be either on the ground or in shrubs or trees. Elevated nests are usually within 3 feet of the ground. The nest is built of twigs and grasses, usually supported by mud or dung, and is lined with grasses, rootlets, and horsehair.

Clutch Size and Incubation Period: From 3 to 7 eggs (6 North Dakota nests averaged 4.8). The eggs are grayish to pale greenish, with dark dots, spots, and blotches over the entire egg or concentrated near the larger end. The incubation period is 12-14 days. Sometimes double-brooded.

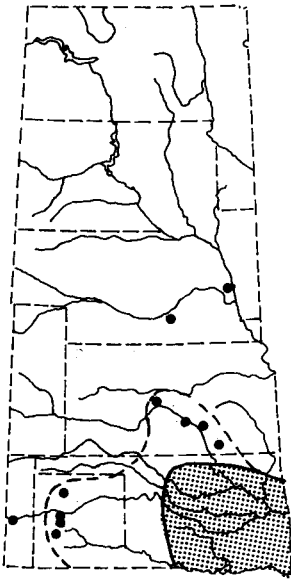
Time of Breeding: Egg records in North Dakota are from May 25 to July 1, and fledged but dependent young have been seen from June 19 to July 25. In South Dakota fledged but dependent young have been reported as early as June 16 and as late as August 6.

Breeding Biology: Brewer blackbirds are often colonial nesters, but unlike red-winged and yellow-headed blackbirds they are more frequently monogamous than polygynous. In contrast to these species, pair formation begins when the birds are still in winter flocks, and frequently mates of the previous season will form pair bonds again. The female builds the nest, although the male may often accompany her as she gathers material. From 10 to 14 days are spent in building the nest and laying the clutch. Males do not assist in incubation, but, rarely, do visit the nest to feed the incubating female. Both sexes feed the young, which leave the nest in about 13 days, and fledglings may be cared for by their parents for at least 3 weeks. At least in some areas, double-brooding is fairly frequent, and as many as three nesting attempts may be made in a single season by an unsuccessful pair.

Suggested Reading: Williams 1952; Horn 1970.



Great-tailed Grackle *Quiscalus mexicanus*



Breeding Status: Until the late 1960s this species was limited to eastern Oklahoma, which it colonized from the south in the 1950s, quickly spreading westward and northward to Caddo, Woods, Garfield, Payne, Tulsa, and Mayes counties. By 1970 the species had spread into central Kansas, breeding at least in Sedgwick, Reno, and Barton counties. Finally, in 1977 the species bred in Douglas and Adams counties, Nebraska (*Nebraska Bird Review* 45:18), suggesting that the rapid northern expansion of its range has not terminated. It has also spread into the Texas panhandle, with nesting observed in Potter, Randall, Moore, and Castro counties (K. Seyffert, pers. comm.), and has bred at Tucumcari, New Mexico.

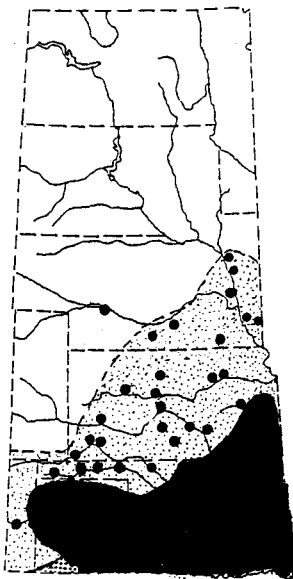
Breeding Habitat: The species is associated with a wide variety of habitats but generally is found near standing water and open ground; thus it is especially common in farmed prairie or other manmade habitats provided by the planting of shade trees and irrigated crops (*Condor* 63:37-86). The very similar and closely related boat-tailed grackle (*Quiscalus major*) is largely confined to coastal marshes in Texas.

Nest Location: Nests are elevated from 2 feet above the water in marshes to about 50 feet in tall trees; generally they are as high as the surrounding vegetation will permit. Tree nests in Texas range from 5 to 15 feet above the ground. Where trees are not available, utility poles or other artificial structures may be used. The nest is a bulky mass of grasses, rushes, and so forth, varying greatly in size and lined with mud followed by fine grasses and weed stems.

Clutch Size and Incubation Period: From 2 to 5 eggs, usually 4. The eggs are light blue to bluish gray, with scrawls or spots of darker tones over much of the surface. The incubation period is 13 days. Single-brooded in our area, but renesting is likely.

Time of Breeding: In Nebraska, eggs were found in mid-May, and adults taking food to presumed nestlings were seen as early as May 12. In Oklahoma eggs have been found from May 7 to July 1, nestings seen from late May to late June, and fledged young as early as May 25. Egg dates in Texas are from April 1 to July 19.

Breeding Biology: The recent recognition that the "boat-tailed grackle" consists of two different species has confused the earlier literature on these birds, but the males of this species are fairly easily recognized by their yellow iris coloration. In a Texas study, it was found that nesting occurred from mid-May through early August, but this prolonged period was the result of renesting rather than multiple brooding. The females build the nest in 5-10 days, without any help from the males, which apparently are polygynous or promiscuous. Nests are in colonies, within which



the birds refrain from destroying eggs of their own or other species. However, beyond the colony limits the eggs and young of virtually all species up to the size of coots are sought out and eaten. The nestlings fledge at 20–23 days and thereafter follow their mothers about for some time, begging at every opportunity.

Suggested Reading: Tutor 1962; Pruitt 1975.

Common Grackle *Quiscalus quiscula*

Breeding Status: Nearly pandemic throughout the region, but becoming progressively rarer in the more arid southwestern parts. Its southern limits probably include all of Oklahoma, but it is uncommon and local in the panhandle. In the Texas panhandle it is becoming widespread (possible breeding in Armstrong County is the only nesting record), and is apparently colonizing the area. In northeastern New Mexico it is local and mostly confined to planted trees in residential areas, having bred in the Cimarron Valley, Clayton, Des Moines and Tucumcari.

Breeding Habitat: The common grackle generally frequents woodland edges or areas partially planted to trees, such as residential areas, parks, farmsteads, shelterbelts, and the like. Both coniferous and deciduous tree plantings are used, and tall shrub thickets near croplands or marshes are also favored.

Nest Location: Nests are 1–60 feet above the ground or water, averaging about 20 feet, in coniferous or deciduous trees, shrubs, birdhouses, cavities, ledges, or even cattails. Higher elevations are preferred when available. The nest is a bulky structure of grasses and weeds, sometimes reinforced with mud, lined with finer grasses and sometimes feathers. Nests are often in loose colonies.

Clutch Size and Incubation Period: From 3 to 6 eggs (33 Kansas clutches averaged 4.5). The eggs are usually pale greenish with dark brown or purplish spots and scrawls. The incubation period is 13–14 days. Single-brooded.

Time of Breeding: North Dakota egg dates are from May 7 to June 22, with dependent young seen as late as July 23. Kansas egg records are from April 11 to June 30, with two-thirds of the eggs laid between May 1 and May 20. In Oklahoma, egg dates are from May 6 to June 15, with nestlings seen as late as July 21.

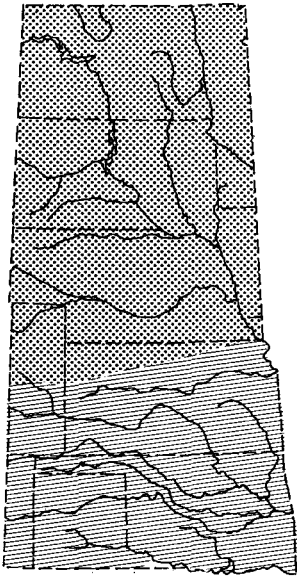
Breeding Biology: Males of this colonial-nesting species usually arrive on their breeding areas well before females and remain in flocks until the females arrive. There is only a gradual breakup of



migratory flocks as pairs are gradually formed. A major component of pair formation is a flight involving a single female and up to five males, which follow her while keeping their tails strongly keeled. After pairing occurs, the females begin to select nest sites, and their mates defend only a small area of the nesting tree. The female gathers most of the material and does all the actual construction, which sometimes takes about a week and sometimes may be spread out over several weeks. The female incubates alone and also does all the brooding. Both sexes feed their young, which leave the nest at 10–17 days.

Suggested Reading: Maxwell and Putnam 1972; Maxwell 1970.

Brown-headed Cowbird *Molothrus ater*



Breeding Status: Pandemic, breeding throughout the region.

Breeding Habitat: The species is generally associated with woodland edges, brushy thickets, and other habitats where low or scattered trees are interspersed with grassland vegetation. Originally presumed to associate with bison, it more recently has adapted to feeding near cattle and has spread to both coasts as deforestation and cattle-raising have become more widespread.

Nest Location: No nests are constructed; the species is an obligate parasite. Although more than 100 species have been found to serve as hosts, the most important host groups are the tyrant flycatchers, the vireos, the warblers, and the finches. The thrush and icterid families are also frequent targets of parasitism.

Clutch Size and Incubation Period: The “clutch” probably consists of about 6 eggs, laid one per day in different nests. After several days a second clutch may be laid, and a female may lay up to about 20 eggs in a single season. The eggs are white, with small brown spots, especially at the larger end. The incubation period is usually 11–12 days and is performed by the host species. Studies in North Dakota indicated that 1–6 cowbird eggs occurred in 69 parasitized nests, averaging 2.0. Presumably most of these multiple layings were by more than one female.

Nesting Period: North Dakota egg dates range from May 10 to July 15, with nestlings seen from June 15 to July 25, and include more than 30 host species (Stewart 1975). In Kansas, egg dates are from April 21 to July 20 and include 40 hosts (Johnston 1964). Eggs in Oklahoma have been seen from April 13 to July 23, and at least 39 species have served as hosts (Sutton 1967). Species that have served as hosts in all three states include the red-winged

blackbird, brown thrasher, chipping sparrow, dickcissel, and lark sparrow. Common hosts in Nebraska, Kansas, and Missouri include the Bell vireo, meadowlarks, cardinal, indigo bunting, and field sparrow (*Bird-Banding* 48:358).

Breeding Biology: This is the only species of North American bird that is an obligatory nest parasite. Before colonization the species was largely limited to the Great Plains, but recently it has come into contact with many new potential host species that have not had time to evolve defensive mechanisms. These include many forest-adapted songbirds, including the rare Kirtland warbler. There is no egg-mimicry in this species, but apparently each cowbird normally lays only one egg in each host's nest, usually during the host's egg-laying period. The female sometimes but not always removes a host's egg from the nest as well, but only when at least two eggs are already present. The eggs do not always hatch at the same time as or before the host's eggs, but the nestling period is roughly 10 days, about the same as for many of its hosts. However, the young grow much more rapidly than the host nestlings and thus the amount of food available for the young of the host is correspondingly reduced.

Suggested Reading: Mayfield 1965; Bent 1958.

