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Range Expansion of the Great-tailed Grackle in the 1900s

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In 1900, the range of the Great-tailed Grackle extended north of the Mexican border only into Texas. Since then, it has expanded its range greatly. It now nests in 14 states and has strayed to an additional eight states and three Canadian provinces. Much of this expansion has occurred since 1960. Great-tails often stray far from their normal range, especially in spring. Most of these strays are single individuals. In states where they have nested, breeding birds typically reach the state a few years after the first reports of the species. Great-tailed Grackles do well in a variety of human altered habitats. Their range expansion in North America rivals that of the Cattle Egret both in its extent and as an example of a species thriving while living in close association with humans.

INDEX DESCRIPTORS: Great-tailed Grackle, *Quiscalus mexicanus*, grackle, range expansions, population changes, blackbirds

In recent years, conservationists have given much attention to bird species whose numbers are declining and whose long-term survival is questionable. With this concern for endangered species, biologists sometimes fail to note that other species are thriving and expanding their range. One such species is the Great-tailed Grackle (*Quiscalus mexicanus* (Gmelin)), which has prospered this century.

Around 1900, the Great-tailed Grackle was found from Colombia north through Central America and Mexico into southern Texas. By 1950, a rapid range expansion was evident. In central Mexico, the species had moved from its historic lowland habitats into higher elevations, following urbanization of those lands. Birds from northern Mexico had moved northward into southern Arizona and New Mexico, and western Texas (Phillips 1950). Also it was expanding its range northward in Texas. Originally confined to the coastal prairies and the brush country from San Antonio to Brownsville, from 1950 to 1960 the species moved north into Oklahoma and east into Louisiana.

Since 1960, the Great-tailed Grackle has continued to expand its range north, west, and east. Surprisingly, this dramatic range expansion has attracted relatively little attention. Several workers have commented on range changes within a state, but only Phillips (1950) and Pruitt (1975) have taken a broad view of the expansion. Our objective here is to summarize this range expansion through 1991.

METHODS

We systematically reviewed reports in *American Birds* and *Audubon Field Notes*, especially for the years 1975-1991. We also consulted state bird books, state journals, and individuals in several states. We found more than 560 references to great-tails in *American Birds* alone and will not attempt to cite all of them here. We have cited, when possible, the first report of the species for a state as well as other references that summarize reports within a state. In our analysis, we are limited by the completeness of records available to us. In some states, the occurrences have been thoroughly summarized, whereas in others very few have been recorded.

RESULTS

The Great-tailed Grackle's range has expanded on three major fronts: the Great Plains, where it has moved north into Nebraska and Iowa; the Rocky Mountain states, where it is established in Colorado, Utah, and Nevada; and along the Pacific Coast, where it is established in southern California. In addition, Great-tailed Grackles wander widely and stragglers have been reported well outside the established range. A state-by-state summary of its range expansion is presented in detail in Appendix A.

From a range that extended only into southern Texas in 1900, the Great-tailed Grackle has expanded its range north, west, and east so

that it has been reported from 21 additional states and three Canadian provinces (Fig. 1). Nesting populations are established in 13 of those states.

Pioneering birds

To better understand the process of pioneering new areas, we analyzed information on date, sex and/or number of individuals for two groups of Great-tailed Grackle records. One group consisted of 69 records of birds that were reported along the coast of California. In the other group, which excluded coastal California birds, we selected records of the first bird or birds to reach an area. We separated the coastal California birds from the inland records because preliminary analysis indicated that the seasonal pattern of occurrence of the two groups differed.

When the two groups are combined, of 200 records for which the month of arrival was reported, May ranked first with 51 reports (25%). The next most common months were April with 29 (15%), June with 24 (12%), and November with 20 (10%). There were few reports for January, August, September, October, and December (combined total = 39, 19%). Looking at these two groups separately, by season, the differences between the coastal California birds and the inland records are apparent (Table 1, $\chi^2 = 15.0$, d.f. = 3, $P < 0.05$). Although

Table 1. Comparative seasonal occurrence of pioneering Great-tailed Grackles at coastal sites in California and at all other North American localities.

Season	Coastal California	Inland records
	No. (%)	No. (%)
Winter (Dec-Feb)	16 (25.4)	13 (9.5)
Spring (Mar-May)	21 (33.3)	71 (51.8)
Summer (Jun-Aug)	10 (15.9)	33 (24.1)
Fall (Sep-Nov)	16 (25.4)	20 (14.6)
Totals	63	137

spring records were most common for both groups, they make up a much larger percentage of the inland records. In contrast, fall and winter records are much more common on the California coast and comprise half of the reports. Thus pioneering birds most often appeared in spring and probably were migrants that overflowed their normal destination. The large number of fall and winter reports from the California coast probably represent birds that have wandered west from inland nesting areas rather than moving south to their normal wintering areas.

Of 206 records analyzed, not all listed the number of individuals involved. Of 178 that did, single birds (145, 81%) were by far most

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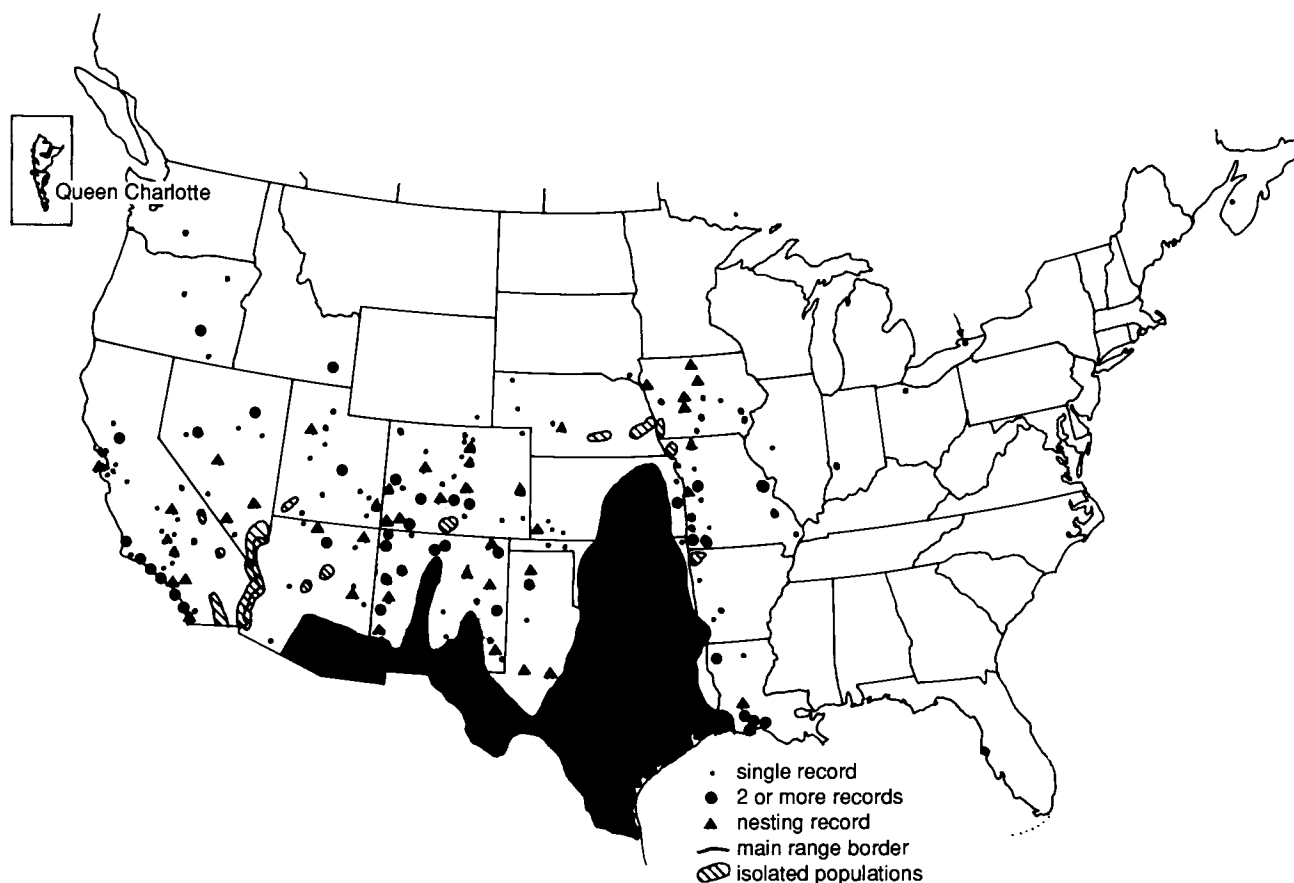


Fig. 1. Range of the Great-tailed Grackle through 1991. Note the numerous isolated records away from the main nesting range of the species, a pattern typical of this species.

common. Fifteen reports (8%) involved two birds, and 18 (10%) involved more than two birds. Based on this, single birds are more likely to stray to a new area than are pairs or groups of birds. In the 63 cases of single birds where the sex of the individual was reported; 41 (65%) were males ($\chi^2 = 5.73$, d.f. = 1, $P < 0.05$). Thus males were more likely to pioneer an area than females.

The usual pattern for Great-tailed Grackles is that first one or several strays pioneer a new area. In those cases where nesting has occurred, additional birds reach the state within a few years and nesting populations are established. At some of these sites, grackles nest only once and then move on, but in all states where they have nested, they have established nesting populations at at least one site.

DISCUSSION

Stepney and Power (1972) describe three patterns of range expansion in birds; slow expansion along a continuous population front, expansion along distinct but relatively narrow routes (dendritic), and explosive expansion where the species colonizes isolated locations and later fills in the gaps between those points and the main area of distribution. Great-tailed Grackles clearly show the third pattern of range expansion.

The range expansion of the Great-tailed Grackle into the United States dates back to early in this century when birds were noted moving into the Southwest (Phillips 1950). This expansion continues today as the species occupies new territory and fills in previously unoccupied areas behind the "front line" of its advance. In 1900, Great-tailed Grackles were found north of the Mexican border only in

Texas. Since then, it has reached an additional 21 states and three Canadian provinces. This expansion was fairly slow at first as it reached New Mexico in 1913, Arizona and Louisiana in the 1930s, and Oklahoma in the 1950s. It reached three more states in the 1960s, six more states and one Canadian province in the 1970s, seven additional states and two provinces in the 1980s, and one state in 1991.

Equally impressive is the rapidity with which it has established nesting populations. In the 1900s, great-tails have established nesting populations in 13 states, starting with New Mexico in 1913. They began nesting in one state in the 1930s, two in the 1950s, two in the 1960s, five in the 1970s, and two in the 1980s. Because great-tails reached nine new states/provinces but began nesting in only two in the 1980s (and none since 1983) perhaps the species has reached the biological limits of where it can survive. However, Oregon, Idaho, Wyoming, and South Dakota probably have suitable habitat, and the species may nest there in the future. Likewise, we believe that given their tendency to wander, great-tails eventually will reach additional states and provinces. Montana, North Dakota, Minnesota, Wisconsin, and Manitoba are places to watch for the species. The report of a large grackle in Minnesota in 1982, although not identified to species, almost certainly was a Great-tailed Grackle (Egeland 1983).

The average interval between the first state report and the first report of nesting in that state was only 4.8 years (range 0-21 years) for the 13 states where nesting populations were established. The interval would be even shorter, had we not conservatively estimated that they started nesting in Louisiana in 1959; they probably started nesting there before then. Excluding Louisiana, the average interval is only 3.5

years. Clearly, Great-tailed Grackles nest within a few years after they first reach an area. By comparison, the average arrival-nesting interval for the Cattle Egret (*Bubulcus ibis* (Linnaeus)), a species that is well known for its recent explosive population expansion, is 7.9 years ($n = 31$, derived from Telfair 1983).

We believe that the Great-tailed Grackle has two characteristics that contribute greatly to its range expansion. One is the great-tails' tendency to wander widely. Such wandering birds are probably typical of species that undergo a range expansion and provide the pioneers to occupy a new area. Many bird species occasionally stray widely from their normal range. However, for most species, these strays are just isolated individuals and only rarely do they establish a viable population. The second characteristic of great-tails is the rapidity with which additional grackles move into an area and begin to breed. With great-tails, the pioneering birds, which are typically single individuals, are soon followed by other birds which establish a breeding population. A driving force behind all of this must be an increasing population. Numerous anecdotal records suggest that great-tail populations have increased greatly in this century. Likewise, in several of the states they have colonized, their numbers have increased from just a few to dozens or even hundreds within a relatively few years. Thus the species must be experiencing very high nesting success in the areas it has colonized.

Habitat changes and Great-tailed Grackle range expansion

One of the most perplexing questions is why such a rapid range expansion has taken place. The Great-tailed Grackle is described as a bird of open habitats, living in areas with scattered trees or shrubs and typically near water. As pointed out by Selander and Giller (1961), a variety of habitat changes, often associated with humans and their influence on the landscape, have probably encouraged range expansion of great-tails. Throughout the area of range expansion, humans have altered the landscape in many ways, often resulting in habitats that match those that the Great-tailed Grackle seems to prefer. Along the coastal plain of Texas, grazing by cattle and the control of fire probably led to the encroachment of mesquite, oaks, and other woody vegetation into areas that formerly were prairie (Selander and Giller 1961). This may have encouraged the movement of grackles eastward into Louisiana. In the Southwest, the combination of urbanization (with its shrubby plantings, golf courses, and similar habitats) and irrigation have provided suitable habitat for great-tails where formerly there was none. The pattern of expansion in Colorado is instructive in this regard. There great-tails first occupied the highly irrigated San Luis Valley. Next, the species moved north along river valleys, where it lives close to towns and cities, and along the eastern edge of the Front Range, again in an area of many cities and much irrigation.

Likewise, this species' movement north through Texas into the Great Plains states was probably influenced by human settlement of these areas. With this settlement came farm groves, hedgerows, stock ponds, waste lagoons, drainage ditches, and a variety of other changes which have provided suitable habitat for Great-tailed Grackles. Despite the apparent influence of humans on their range expansion, the first birds to nest in an area often are found in natural wetlands (Iowa, Missouri, Nebraska, New Mexico) or associated with a heronry (Arkansas). Thus natural habitats also are important in establishing the species in an area.

An interesting aspect of the great-tails' range expansion is the fact that three different subspecies are involved. *Q. m. nelsoni* of the Pacific lowlands of Mexico has moved into southern Arizona and California, *Q. m. monsoni* of the highlands of north-central Mexico has moved into southeastern Arizona, New Mexico, and west Texas, and *Q. m. prosopidicola* of eastern Mexico has moved into central and eastern Texas (Selander and Giller 1961). Presumably *prosopidicola* is the subspecies that has invaded the Great Plains and Midwest; three specimens from Missouri are all this subspecies (Robbins and Easterla 1992). Because these three subspecies originally occupied a wide geographic range, it

is surprising that all three are expanding their ranges simultaneously. Whatever is triggering this expansion apparently is affecting all three subspecies.

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Appendix A. State by state summary of Great-tailed Grackle range expansion.

Texas

In 1900, the Great-tailed Grackle was confined to two regions of Texas, the brush country from San Antonio south to the mouth of the Rio Grande, and the coastal prairie region. In 1915, northward range expansion was noted when grackles nested in Austin. Great-tails reached Fort Worth in 1944, east Texas in the mid 1950s, Amarillo in 1958, and Midland in 1960 (Oberholser and Kincaid 1974). Their range was also expanding east along the coast; sometime between 1912 and 1938 they came in contact with the closely related Boat-tailed Grackle (*Q. major* Vieillot) in the Houston-Galveston area (Selander and Giller 1961). Great-tails also moved into parts of west Texas. They were reported at El Paso in 1931 and in the Big Bend region in 1935 (Phillips 1950). By 1960, great-tails were found over most of Texas east of the Edwards Plateau with scattered reports from Trans-Pecos Texas and elsewhere. Recently, they have continued to expand and fill in their Texas range. They nested in Moore County in the Panhandle in 1975, at Midland in 1977, and in Big Bend National Park in 1983. They reached Guadalupe Mountains National Park in west Texas in 1985.

New Mexico

The first Great-tailed Grackle reported from New Mexico was a male collected in 1913 near Las Cruces; they also nested near Las Cruces in 1913. One was reported near Deming in 1920, another near Carlsbad in 1924, and they nested near Carlsbad in 1925 (Bailey 1928). In 1938, they were reported from as far north as the Albuquerque area. By the late 1950s, great-tails were established in southern New Mexico and north along the Rio Grande and Pecos River into central New Mexico. Since then, their numbers have increased, and they have continued to expand their range north. Currently they are resident in southern New Mexico, along the Rio Grande to Espanola, and at least locally near Tucumcari and in the San Juan Valley. They have been reported at other sites from throughout New Mexico, at some of which they have nested occasionally. They are uncommon in parts of west-central New Mexico and seldom occur at high elevations (Hubbard 1978).

Arizona

Great-tailed Grackles were first reported in Arizona in 1935 when one was seen at Safford in southeastern Arizona. They were recorded nesting there in 1936 and were seen in Tucson in 1937. Over the next several decades, they became established in southeastern Arizona (Phillips et al. 1964). By 1964, they had reached the Colorado River region of western Arizona and nested there in 1970. Since then, their range has expanded northward. They were reported at Prescott in 1971, Globe in 1973, and the Grand Canyon in 1974. By 1976, the northeastern-most report was at Springerville in east-central Arizona and in 1979, they reached Fredonia in northwestern Arizona. In 1981, they nested at Marble Canyon in northwestern and Many Farms in northeastern Arizona.

California

Great-tails are found in four rather distinct geographic regions of California. Many California records are from places with no resident population, and great-tails seen there are readily identified as strays, pointing out a problem in analyzing Great-tailed Grackle records. Perhaps strays occur in other places with resident populations but there is no way to identify them from the resident birds.

Southern Interior California — Parts of interior southern California were the first areas to be invaded by great-tails and are their stronghold in California. Although much of this region is desert, the grackles have thrived in areas where natural or artificial water supplies provide suitable habitat. The first great-tail recorded in California was a female collected along the Colorado River in 1964 (Snider 1964). In 1969, they were reported nesting near the Imperial Dam in southeastern California. They rapidly expanded their range along the Colorado River Valley and now are resident there, with greatest numbers near the Imperial and Laguna dams and near Lake Havasu. The next area invaded was the irrigated agricultural land near the south end of the Salton Sea. A male was seen there in 1964, and in 1974 several more were seen there. Several pairs attempted to nest at Finney and Ramer lakes in 1975. Since then their numbers have gradually increased, and they are established residents. A few have also been reported near the northern end of the Salton Sea. A female at Furnace Creek Ranch in 1970 was the first great-tail report from Death Valley. A pair was there the next year, and in 1978, two or three pairs nested at Furnace Creek Ranch and another bird was seen further north at Stovepipe Wells. In 1979, one was found at Scotty's Castle, and in 1981 a male was at Oasis near the north end of Death Valley. There are several reports from the Owen Valley to the west starting with a female at Olancho in 1980; in 1984, they nested near Lone Pine in Inyo County. One at Bishop in 1991 is the northernmost record in the Owens Valley. They have moved west to the Mojave-California City area where they nested in 1984. Thus great-tails are well-established in the lower Colorado River Valley, near the Salton Sea, and in several Death Valley sites.

Coastal California — Great-tailed Grackles often wander to the California coast. The first coastal record of a great-tail was one at San Pedro in 1968 (McCaskie 1968). The next report was a female near San Diego in 1977. In 1978 there were two fall records; one at Point Fermin near Long Beach and one at Point Conception west of Santa Barbara. Since then, the number of reports of great-tails along the coast has skyrocketed with about 100 reports through fall 1991. Most reports are from south and east of Santa Barbara, especially near Los Angeles and San Diego, but they have been found as far north as the San Luis Obispo area where they appeared in spring 1988. Birds have been found along the coast in all months of the year although there are few summer reports. One at Santa Barbara in 1982-83 is the first report of a wintering bird. Most reports are of single birds but as many as 35 were at Imperial Beach in winter 1988-89. Nesting was first reported from the coastal region at Anaheim in 1982. They nested near Riverside in 1983, at Anaheim in 1984, near Corona

in 1986, and at Imperial Beach in 1988 and 1989. As elsewhere in California, great-tails seem to be establishing resident populations in the coastal regions.

San Francisco region — In 1978, a male was seen in San Francisco (Winter and Manolis 1978). It wintered there and was joined by a female in fall 1979. The pair nested several times and was seen repeatedly until winter 1989-90. The male then disappeared, but the female was still present in 1991. Besides that pair, there are four other records from the region: a male at Pescadero, San Mateo County in 1984, a male in Contra Costa County in 1985, one in Marin County in 1988, and one at San Jose in 1989.

Central Valley — The first great-tail records from the interior valleys of California were in fall or winter but recently they also were reported nesting. Three were reported from the southern end of the Sacramento Valley: two males near Sacramento in 1979 and one at Davis in 1980-81. One was at the Sacramento National Wildlife Refuge in 1989. Three other reports are from the San Joaquin Valley: a male in Tulare County in 1985, one at Los Banos Wildlife in Merced County in 1987, and two near Bakersfield in 1989 where they nested in 1990. Another was seen just east of the valley near Weldon, Kern County in 1986.

Nevada

The first Great-tailed Grackle in Nevada was a male near Las Vegas in 1970 (Snider 1970). Several more were reported in southern Nevada in the next several years, and in 1974 they were found nesting there. They gradually expanded their range in the Las Vegas-Lake Mead area and in 1976 were found nesting to the north in the Pahranaagat Valley. In 1978, one was seen at Ruby Lake in northeastern Nevada. In the late 1970s and early 1980s, they also moved northwest along the Nevada-California border. They nested at Beatty in 1980 and by 1984 were reported as far north as Lida. They also nested in central Nevada between Austin and Tonopah in 1983 (Holmes et al. 1985). In 1984, single birds were at Eureka in central Nevada and near Fallon in west-central Nevada (Alcorn 1988).

Utah

The first Great-tailed Grackle reported from Utah was a male seen at Mapleton in central Utah in 1977 (White et al. 1983). In 1978, one was seen at St. George in southwestern Utah. From 1980-1984, there were records from several southwestern Utah sites as they became established there. They were reported farther north at Bicknell in 1981, Green River in 1982, near Provo in 1982 (Behle et al. 1985), and at Bluff in southeastern Utah in 1984. In 1985, they nested at five sites in southwestern Utah and in 1986, they attempted to nest at Tooele near the Great Salt Lake in northern Utah. They were also found at two central Utah sites: Juab County in 1986 and Huntington in 1988. In 1989 they were found at Morgan in northern Utah and Moab in east-central Utah.

Oregon

Oregon's first Great-tailed Grackle was a male near Malheur Lake in southeastern Oregon in 1980. Several others were reported within the next month including one near Frenchglen, Harney County, two west of Dayville, Grant County, and one near LaGrande, Union County in northeastern Oregon (Littlefield 1983). There were four more reports in 1981, all from Harney County (Littlefield 1983). In both 1985 and 1986, one to three birds were seen at Malheur Lake and nearby Hines. In 1989, a male was seen near Malheur Lake, and a female was at Fields in southern Harney County. The latter was the first female and the first fall record for Oregon. In 1990, two different birds were seen at Malheur. So far there are no Oregon nesting records, but nesting could easily be missed in this sparsely populated region.

Washington

A male at Union Gap in south-central Washington in 1987 (Rogers 1987) is the only Washington record.

Idaho

Idaho's first Great-tailed Grackle was a male near Downey in southeastern Idaho in 1985 (Rogers 1985). The next year a bird was found in the same area.

Wyoming

A female at Cheyenne in 1989 was the first report of a Great-tailed Grackle in Wyoming (Kingery 1989). One was at Cheyenne in 1990, and another was at Evanston in 1991.

Colorado

The first record of a Great-tailed Grackle in Colorado was a male at Gunnison in 1970 (Reddall 1976). Several males were seen at Gunnison and Durango in southwestern Colorado in 1972, and a pair was at Gunnison in 1973. In 1973 eight nests were found at Monte Vista in south-central Colorado, the state's first nesting record (Stepney 1975). Other than a female at

Pueblo in 1974, all reports for the next several years were in the Monte Vista area. In 1979, a pair attempted to nest at Pueblo, and one was seen at Durango in southwestern Colorado. In 1982, they nested at Fountain near Colorado Springs in the lowlands east of the Front Range and at Durango in southwestern Colorado. By 1985, they were probably nesting at Grand Junction in west-central Colorado, and one was seen at Lamar in southeastern Colorado. In 1986, they were seen as far north as LaSalle near Greeley in north-central Colorado. The next year they nested at Eagle in central Colorado. In 1988, they were reported at Greeley and Berthoud, and in 1989 one was at Fort Collins, all far north along the Front Range. In 1989, they were reported at Julesburg in the northeastern corner of the state. They reached Burlington in east-central Colorado in 1990 and nested there in 1991. In 1991, great-tails also nested at Fort Collins and Denver. By 1991, nesting had been reported at 16 sites over most of the state except the northeastern and northwestern corners (Andrews and Righter 1992).

Oklahoma

The first Great-tailed Grackle in Oklahoma was a female in Norman in 1953 (Sutton 1967). Also in 1953, a male was seen at Alva in northern Oklahoma. There were several records in the next few years, and in 1958 they nested near Norman, a first for the state. Since then, the species has spread rapidly (Davis 1975) and now has been reported almost statewide (Woods and Schnell 1984). Most nesting records are from a north-south band through central Oklahoma, but grackles have moved eastward toward the Arkansas border. There are few records from southeastern Oklahoma.

Kansas

The first Kansas record was one in Harvey County in 1963 (Thompson and Ely 1992). In 1964, one was at Sedan in southeastern Kansas (Baumgartner 1964), and in 1968, great-tails were seen at Wichita. The first nesting reports were in 1969 from near Great Bend and Wichita. By 1971, they were nesting at several Kansas sites (Schwilling 1971). In the next decade they spread rapidly, especially in central and eastern Kansas. In 1978, great-tails nested in Morton County and the next year flocks were seen in Grant, Seward, and Meade counties in southwestern Kansas (Ports 1981). By 1991, they had been reported from most of Kansas except the northwestern corner with most nesting reports from central and southwestern Kansas (Thompson and Ely 1992).

Nebraska

Great-tail Grackles were first reported in Phelps County, south-central Nebraska in 1976 (Longfellow 1979). The next year they were reported nesting at Hastings in south-central Nebraska and Boys Town in eastern Nebraska. Over the next several years their range continued to expand, and nesting was reported in Buffalo County in 1979 and near Lincoln in 1981. In 1986, they moved into the North Platte River Valley in western Nebraska. Western Nebraska reports include Dawes County in 1988, Morrill County in 1989, and a nesting record from Lincoln County in 1991. However, most records are from southeastern and south-central Nebraska.

South Dakota

South Dakota's only record of a Great-tailed Grackle is a male near Yankton in southeastern South Dakota in 1988 (Berkey 1988).

Iowa

Great-tailed Grackles first were reported in Iowa in 1983, when a pair was seen near Glenwood in southwestern Iowa (Silcock 1983, Peterjohn 1983). That year, a pair nested at nearby Riverton Wildlife Area, a site at which they have since been seen almost yearly. In 1984, a pair nested near Jefferson in central Iowa, 150 miles northeast of the 1983 sightings (Brown 1985). In 1986, Great-tailed Grackles invaded central Iowa with reports from five sites in Greene, Guthrie, Tama, and Wright counties. Nesting was confirmed in all except Tama County. They also were reported nesting in northwestern Iowa near Sioux City in 1986. A 1988 nest found at Eagle Lake, Hancock County, in north-central Iowa is the northernmost verified nesting record for the species. In 1992, great-tails were reported in Johnson and Louisa counties in eastern Iowa.

Missouri

The first Missouri Great-tailed Grackle was one at Springfield in southwestern Missouri in 1972 (Robbins and Easterla 1986). The next report was a female in Holt County in northwestern Missouri in 1976. In 1979, ten nests were found near Big Lake State Park, the first breeding record for Missouri. Since then, great-tails have become established at Squaw Creek National Wildlife Refuge and several other northwestern Missouri sites, the stronghold of great-tails in Missouri. Two records from southwestern Missouri (Spring-

field in 1982 and Newton County in 1984) are close to populations in northwestern Arkansas but great-tails have not yet been found nesting in that part of Missouri. In 1984, birds were seen at several west-central Missouri locations, and in 1986 they nested near Freeman in Cass County, the first nesting record for that region. There are four records from eastern Missouri: one near Farmington in 1987, several at Big Oak Tree State Park in Mississippi County in southeastern Missouri in 1987, one at St. Charles near St. Louis in 1989, and two at nearby West Alton in 1991. A Great-tailed or Boat-tailed grackle was seen at St. Charles in 1958, but since the two species were then considered conspecific, its specific identity was not determined (Robbins and Easterla 1992). It probably was a Great-tailed Grackle.

Arkansas

Two seen at Spirit Lake, Lafayette County, in southwestern Arkansas in 1969 is the first state record (James and Neal 1986). The next record was in 1976 when six were found near Ashdown in southwestern Arkansas. These birds eventually nested, a first for Arkansas. There were several records from that region over the next few years and by 1980, a small population was established near Texarkana. In 1984, they were found in the Ozarks of northwestern Arkansas for the first time when several nested near Center-ton. In 1986, grackles nested in Washington and Benton counties, both in northwestern Arkansas. Recently, they have nested at several new sites in northwestern Arkansas and have moved east a bit. One in Clark County in 1989 is the easternmost record.

Louisiana

Great-tails arrived in southwestern Louisiana sometime between 1938 and 1959 when they moved into Cameron and Calcasieu parishes; by 1959 they were well-established there and breeding. However, five females were collected at Avery Island, Iberia Parish, in winter 1938-1940, suggesting a pattern of some birds moving east in winter (Selander and Giller 1961). In the early 1960s, there were two isolated colonies in the rice country of Evangeline Parish, one near Ville Platte and the other at Mamou. Both colonies were abandoned in the mid 1960s, but in the early 1970s great-tails returned to south-central Louisiana when birds were found in Lafayette (1972), Vermilion (1972), and Acadia (1973) parishes; grackles nested in Evangeline Parish in

1973 (Pratt et al. 1977). By 1986, great-tails had moved farther east and north in Vermilion, Lafayette, and Acadia parishes. Between 1968 and 1973, great-tails were also found in central Cameron and eastern Calcasieu parishes (Selander et al. 1969, Pratt et al. 1977) indicating continued eastward expansion near the gulf coast in the zone of sympatry with Boat-tailed Grackles. Extralimital records include a female near Shreveport in 1957, a female at Shreveport in 1983, one near Shreveport in 1988, and a male in northeastern Louisiana near Monroe in 1988.

Illinois

A female at Jacksonville in west-central Illinois in 1974 was collected and is the only Illinois record (Kleen 1975).

Indiana

Indiana became the latest state to add Great-tailed Grackle to its list when a male was seen in Sullivan County in 1991 (Peterjohn 1992).

Ohio

Ohio's only record is a male in Ottawa County in northwestern Ohio in 1985 (Peterjohn 1985).

Hawaii

There are two records from Hawaii, both of which are probably birds that escaped from captivity. A female first seen in 1980 on the Waipi'o Peninsula in Oahu was seen there sporadically through 1991. A male first reported in Honolulu in 1988 has been reported several times since then, most recently in 1991.

British Columbia

In 1979, a female was photographed on the Queen Charlotte Islands for the first record from Canada (Godfrey 1986).

Ontario

A female photographed at Atikokan in southwestern Ontario in 1987 was the province's first record (Weir 1988). The only other record is one at Port Rowan in 1988-89.

Nova Scotia

A female at Annapolis Royal in 1983-84 is the first record not only for Nova Scotia but also for the entire northeastern coast of North America (Heil 1984).