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RANGE EXPANSION OF THE GREAT-TAILED GRACKLE IN WESTERN NORTH AMERICA

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The spread of the Great-tailed Grackle (*Quiscalus mexicanus*) is one of the most impressive range expansions to occur in North America during the 20th century. The U.S. breeding range was limited to southernmost Texas in 1900 (Ridgway 1902), but a century later Great-tailed Grackles breed in 19 states, from Arkansas in the East north to Minnesota and west to California and Oregon (Dinsmore and Dinsmore 1993, Scheuring and Ivey 1995, Price 1997, Granlund 1999), with sightings in Washington, British Columbia, Montana, North Dakota, Wisconsin, and Ontario (Dinsmore and Dinsmore 1993, Granlund 1999).

The northward spread of Great-tailed Grackles in North America has occurred on three fronts: Birds from south Texas, of the subspecies *Q. m. prosopidicola*, moved north and east and are currently found east of a north-south line through western Texas and eastern Colorado. A separate population from Chihuahua invaded New Mexico in 1913, with breeding confirmed in eastern Arizona in 1937 and Colorado in 1973 (Bailey 1928, Phillips et al. 1964, Stepney 1975). Phillips (1950) described this population as a new subspecies, *Q. m. monsoni*, with a range that encompassed north-central Mexico, western Texas, southern and central New Mexico, and eastern Arizona. By 2000, *monsoni* was present in New Mexico, southeastern Nevada, Arizona, and California. The third subspecies, *Q. m. nelsoni*, originated in coastal Sonora, Mexico, and adjacent areas (Friedmann et al. 1957), arriving in southern Arizona by the late 1930s (Phillips et al. 1964). After moving into Arizona, *nelsoni* expanded west and was first noted in California in 1964 (McCaskie et al. 1966); it is now found in Arizona, California, and southwestern Nevada. The subspecific affinities of Great-tailed Grackles breeding in Oregon, Idaho, Utah, and central Nevada have not been established (Dinsmore and Dinsmore 1993, Scheuring and Ivey 1995).

Great-tailed Grackle subspecies differ in both size and color. Adult males of *Q. m. monsoni* are nearly 20% heavier than adult males of *Q. m. nelsoni*, with average (flattened) wing lengths of 191 mm vs. 167 mm (14% longer) and tail lengths of 210 mm vs. 165 mm (27% longer; W. Wehtje unpublished data; *monsoni* $n = 7$, *nelsoni* $n = 8$). Adult females of *monsoni* are at least 10% heavier than females of *nelsoni*, with average (flattened) wing lengths of 150 mm vs. 136 mm (10% longer) and tail lengths of 150 mm vs. 126 mm (19% longer; W. Wehtje unpublished data; *monsoni* $n = 23$, *nelsoni* $n = 6$). In addition to the size differences, females of the two subspecies differ in plumage color: *nelsoni* shows pale grayish buffy underparts, *monsoni* darker brownish gray underparts (Phillips 1950, Rea 1969).

Clockwise from upper left, birds shown in the featured photo on the back cover are an immature female *nelsoni* (26 January 2000, Oxnard, California), adult male *nelsoni* (10 December 1999, Tucson, Arizona), immature female *monsoni* (12 December 1999, Arlington, Arizona), adult male *monsoni* (2 June 2000, Bill Williams National Wildlife Refuge [NWR], Arizona), adult female *monsoni* (10 December 1999, Tucson), adult female *monsoni* (5 June 2000, Peña Blanca Lake, Arizona), adult female *monsoni* (2 June 2000, Bill Williams NWR), and immature female *nelsoni* (15 May 1994, Salton Sea NWR, California). It bears noting that recent specimens of adult female *nelsoni* in fresh plumage are, apparently, lacking from collections.

In an ideal world, identifying Great-tailed Grackles to subspecies in the western US

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would be simple: large males and dark females would be of the subspecies *monsoni*, and small males and pale females would be of the subspecies *nelsoni*. In reality, this approach is complicated by plumage differences between adult and immature birds, and the degree to which female Great-tailed Grackles fade during the spring. The presence of intergrades complicates the picture further.

In common with several other icterids, Great-tailed Grackles have distinct first-year and adult plumages (Pyle 1997). Immature birds have duller plumages, shorter wings, and shorter tails than adults. Juvenile males molt into their first basic plumage, a dull black, by late summer. Not until their second fall do they molt into the long-tailed and glossy plumage of the adult males; therefore, meaningful comparisons between males can be made only with birds of the same age. The featured photo illustrates the size difference between adult males (*monsoni* flat wing 184 mm, tail 201 mm; *nelsoni* flat wing 174 mm, tail 174 mm).

Determining the subspecies of female Great-tailed Grackles is more difficult. While size differences are useful, plumage characteristics are of greater importance. Determining a bird's age is essential to assigning it to either *nelsoni* or *monsoni*. Adult females have cream-colored irises, while immatures have khaki-colored irises with dark flecking until at least June of their second year. Immature females are smaller and duller than adults, and their feathers tend to wear and fade more rapidly and extensively than those of adults. The difference between adults and immatures becomes most pronounced in late spring, when immatures can have pale gray underparts with no hint of brown in them. By late summer both adults and immatures have faded underparts and should not be identified to subspecies.

The two females on the upper row of the photograph are newly molted immatures. The left-hand bird is an unusually gray *nelsoni* (flat wing 134 mm, tail 122 mm), and the right-hand bird is a more or less typical *monsoni* (flat wing 139 mm, tail 127 mm). The size difference between adult females would normally be greater than this, but even a more typical *nelsoni* would be obviously paler than the rich brown characteristic of immature female *monsoni*.

The bird in the lower right-hand corner of the featured photo is a fresh adult female *monsoni* showing underparts that are a deeper brown than ever shown by female *nelsoni*. The two middle birds demonstrate the range of fading shown by adult female *monsoni* by early June (these birds were collected within three days of each other). While each of these birds has faded significantly, neither is as worn as the immature *nelsoni* on the far left, which was collected at the Salton Sea in mid-May. Birds in this extreme environment tend to have completely pale underparts by late spring.

In most of central California and Nevada, the plumage of grackles is often visibly faded by March and April, when these migratory populations arrive from southern Arizona and southern California. Since these grackles head back south in late summer before undergoing prebasic molt, they are difficult to observe in fresh plumage on the breeding grounds and therefore difficult to identify with certainty. Judicious collecting early in the nesting season should shed light on the interaction between the two subspecies as they continue to spread across western North America.

Another confounding factor in distinguishing between the two western subspecies is the presence of intergrades between them. Interbreeding between *monsoni* and *nelsoni* was observed in Arizona in the mid 1960s (Rea 1969) and has continued to the present. In California, male Great-tailed Grackles tend to be intermediate in size between the two subspecies, while females are as dark as *monsoni* but closer in size to *nelsoni*. The degree of interbreeding in other states is not known.

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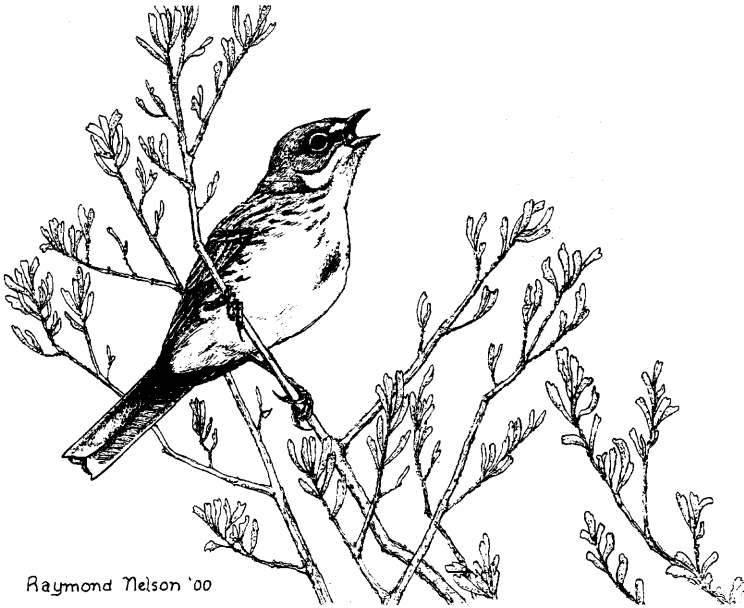
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