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Mexican Crow invades south Texas.—The diminutive Mexican Crow (*Corvus imparatus*) is noticeably smaller than any of the U.S. members of its genus, and in habits and general appearance it seems quite different. All North American members of *Corvus* are rather gregarious, yet this small Mexican species appears even more so. Its softer, higher pitched, but unmusical voice is distinctive from all U.S. species.

The Mexican Crow should now be included in the A.O.U. Check-list as a species of the United States, as it has moved north across the Rio Grande into Cameron, Willacy, and southern Kenedy Counties, with a few somewhat doubtful records of observations in Hidalgo County. All of these are in the lower Rio Grande valley.

Earlier studies for various reasons have caused some workers to conclude that this species is closely related to our American Fish Crow (*C. ossifragus*). Hellmayr (1934: 5) classified the Mexican Crow as a subspecies of *C. ossifragus* and concluded that it "is clearly conspecific with the North American Fish Crow." Blake (1953: 376) concurred and followed Hellmayr's lead, identifying the bird as *C. o. imparatus*.

Miller et al. (1957) considered the Mexican Crow a separate species, *Corvus imparatus*. Ridgway (1904: 275) described the Mexican Crow as somewhat like *C. ossifragus* but decidedly smaller and plumage much more lustrous. Still he regarded it as a separate species and called it *C. mexicanus*.

More recently Johnston (1961) wrote after carefully reviewing previous studies, "the Mexican Crow and the American Fish Crow are quite unrelated in virtually all of their features." Peterson and Chalif (1973: 162) stated the Mexican Crow's curious voice and different habits make close relationship to the American Fish Crow quite unlikely. We concur with their conclusion.

Two specimens of the Mexican Crow collected by personnel at Laguna Atascosa National Wildlife Refuge are now housed at the National Museum of Natural History in Washington, D.C. where Richard C. Banks compared them with other

corvids and identified them as Mexican Crows. Pertinent data are: No. 532726, female, collected 16 miles east of Rio Hondo, Texas on 30 January 1970 by George Unland and M. C. LeFever. Ovary 8×4 mm; no molt; light fat; stomach contents, seeds and berries. Collected from a flock of about 2300 birds in mesquite brush, yucca, and mixed prairie habitat on Gunnery Range Unit VII, Laguna Atascosa National Wildlife Refuge. Prepared by Douglas K. John; taxonomic identification by Richard C. Banks as *Corvus imparatus*.

No. 532727, female, ovary 9×5 mm; medium fat. Other data as above.

The species was first noted near the international boundary by John and Jimmie Arvin in January 1967, when they saw a flock at the southern edge of Matamoros, Tamaulipas, Mexico. The proximity of this observation to the boundary prompted the Arvins to search for Mexican Crows carefully near Brownsville on the U.S. side of the boundary, but they found none in 1967.

In August 1968 the Arvins found three Mexican Crows feeding on carrion along Texas Highway 4 approximately 18 miles east of Brownsville, 6 miles inland from the Gulf of Mexico, and perhaps 1 mile north of the Rio Grande. This was the first known occurrence of the species strictly within U.S. territory. Six birds were also seen in the same vicinity on 6 August 1968 by John Arvin, Clarence Cottam, and Gene Blacklock. About a week later, Cottam and his daughter, Carolyn Stevenson, noted an incursion of possibly 1000 birds along a 4-mile stretch of Highway 4 some 14 to 18 miles east of Brownsville. Fully 800 of these were in one compact flock, the other 200 birds were scattered in small groups of 4-45 each along the highway. Several times they were seen as close as 30 feet.

All the above sightings were primarily in an association of xerophytic chaparral covering a clay ridge over which Highway 4 runs; the ridge separates two rather extensive marshes. The dominant shrubs include Texas ebony (*Pithecellobium flexicaule*), granjeno (*Celtis pallida*), blackbrush (*Acacia* sp.), ceniza (*Leucophyllum frutescens*), and *Condalia* sp. Fruits of these and other shrubs, together with those of hackberry (*Celtis laevigata*) and anaqua (*Ehretia anacua*) trees, supply some of the food the birds need and undoubtedly served as a seasonal attraction to these gregarious crows.

On 13 September 1968 the Arvins again found several hundred crows on rangeland approximately 8 miles east of Brownsville. By October large flocks had moved into the city proper and roosted near the northern city limits. From 4 to 100 birds have been seen at the city dump on several occasions during the fall. Charles T. Clark took photographs that support the Arvins' observations.

During the fall and winter of 1968 the Mexican Crow was seen at various places in the lower Rio Grande Valley. From February to late March 1968 an isolated flock of about 50 birds were seen almost daily at the Port Isabel city dump. By late September birds were recorded as far north as Olmito where a fair number were seen by C. E. Hudson; they were also reported in and around Raymondville on 28 September 1968 by G. W. Blacklock (*in Webster 1969*). The most northerly record, at present, is that of Fall (1973) for a flock of about 30 crows flying south over Highway 77 near Rudolf, southern Kenedy County, on 4 September 1968. Later the same day he again saw what he believed to be the same flock on the ground some 5 miles north of Raymondville. He added, "At both sightings, the birds appeared very disoriented and the individuals remained very closely spaced." In January 1970 the Mexican Crow staged its most massive penetration northward into Texas (Arvin *in Webster 1970*). Whereas none of the birds, so

far as known, went north as far as those in 1968, the 1970 sightings were more frequent, more widely scattered, and more plentiful than the earlier sightings in Cameron and Willacy Counties. One flock at the Laguna Atascosa National Wildlife Refuge on 30 January 1970 contained about 2300 birds. The birds were no less numerous on other days during January and February 1970. Thus we cannot indicate accurately the total number of Mexican Crows occurring at any one time in south Texas, but evidently several thousand birds have invaded U.S. territory at least periodically.

We have yet to record this invader nesting in Texas. In March and April each year most of the birds disappear, presumably returning to Mexico to breed. No large scale invasions have occurred since 1970, although several hundred birds were seen not infrequently at or near the Brownsville city dump. We know very little of what induces the erratic northward movement, but it is probably associated with food scarcity not far south of the international boundary. Many thousands of birds can be found within 25 miles south of the Rio Grande. Food scarcity could well account for the erratic nature of the birds' movement and of larger numbers flying northward into Texas some years and smaller numbers in other years. Birds visiting the Brownsville city dump have been seen flying across the river into Mexico to roost. About 1000 birds visited the Brownsville dump daily during December 1973.

Each year during the nesting season and during the period when the birds are caring for their young they are scarce or absent in Texas. Still a few birds have been seen during the summer months. Because of work requirements and long distances of travel for those interested in following the birds, little effort has been made to record sightings except occasionally.

Specific listings by competent observers during the late spring and summer months include: 1969—repeatedly between 22 February and 24 March a flock of about 50 birds were seen at the Port Isabel city dump. One bird was identified at Port Isabel in late May. 1970—a few birds were seen at the Brownsville city dump many times during the summer. During the winter Mexican Crows were widely scattered in flocks of 100 or more in Brownsville and at Port Isabel and also at the Laguna Atascosa Federal Refuge. 1971—we have no summer sightings. 1972—on 27 July 30 birds were counted at Brownsville city dump. On the Christmas bird census held 31 December 284 crows were reported at Brownsville. They remained throughout the winter.

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Late winter bird populations in subarctic taiga forest near Fairbanks, Alaska.—The present study complements that of West and DeWolfe (1974) by estimating the winter bird population density in high latitude forest, for which they estimated the summer population. The census was conducted between 10 February and 24 April 1973, using the same sampling method and analysis West and DeWolfe used during summer in the same place. The census route ("trail A" of West and DeWolfe 1974) runs through a tract of mixed taiga that includes pure and mixed stands of spruce, birch, alder, and other deciduous tree species typical of the taiga forest of interior Alaska.

The census area was 250 m (820 feet) wide and 3.8 km long with a trail bisecting it longitudinally. An area 250 m wide and 4 km long equals 100 ha. The census area was divided into eight strips according to their distance on either side of the trail as follows: 0-50, 50-100, 100-200, and 200-410 feet. The boundaries of these strips were recognized by stationary landmarks and periodic checks.

I began traveling the trail on cross-country skis at sunrise on each census day, and proceeded at a rate of about 1 m per second, pausing only long enough to record information. For each individual or group of birds detected, I recorded species, the lateral distance from the trail (i.e. I located the bird(s) in one of the strips listed above), number of individuals, sex and age if distinguishable, how detected (heard or seen), time, position along the trail, and activity of the bird(s). The trail was skied in opposite directions on alternate census days.

The census was divided into two periods on the basis of field observations and conditions. The first period was from 10 February to 26 March; 24 census days were included in this 45-day period. Ambient temperature ranged from -28.3 to +8.3°C and averaged -13.8°C. The second period was from 27 March to 24 April; 13 census days were included in this 29-day period. Ambient temperature ranged from -10.0 to +16.5°C and averaged +0.3°C (Weather Bureau 1973). The separation between these two periods marked the beginning of nesting for the Gray Jays (*Perisoreus canadensis*) and the White-winged Crossbills (*Loxia leucoptera*), and flock size reduction and pairing in the redpolls (*Acanthis hornemanni* and *A. flammea*) and Black-capped Chickadees (*Parus atricapillus*).

A plot of the number of detections within each lateral strip for each species and period yielded an abrupt peak followed by a sharp decline. The inflection point, termed the "critical distance" by West and DeWolfe (1974) occurred in the first lateral strip from the trail in most cases.

It was assumed that the populations of species were distributed randomly in the habitat. Using the number of individuals detected within the "critical distance" as a base, I extrapolated to obtain the projected number (n) present on the 410-foot band on both sides of the trail. In order to determine the density of each species per 100 ha, I divided n by the number of 4-km intervals censused.