

Anis in the United States and Canada

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Anis are peculiar birds. They have the body of a grackle, the bill of a puffin, and the personality of parrots, but they are most closely related to roadrunners and cuckoos. They typically hang about in small cohesive groups. When flushed, anis fly away with urgent squeaks of dismay, wings flapping wildly, and tails dangling and wobbling like a banner trailing an airplane. Their personalities are utterly charming, and so is their tendency to wander far from home.

There are four species of anis in the world, two of which occur north of Mexico—the Groove-billed Ani *Crotophagus sulcirostris* and the Smooth-billed Ani *C. ani*. Both anis are generally tropical species fond of open brushland, and both have a rather restricted breeding range in our area. Beyond that, however, their tales in the North America are somewhat different. The Groove-billed Ani has a long-standing and relatively stable presence in South Texas, plus a distinct penchant for occurring far out of range on a somewhat regular basis. The Smooth-billed Ani, however, occurs only in South Florida, where it seems to be a relative newcomer and may be losing its foothold. Smooth-billed Anis have also wandered great distances but with far less frequency. Herein, we review the status and distribution of these species in North America.

METHODS

Records and information were gleaned from *Audubon Field Notes* (hereafter *AFN*), *American Birds* (*AB*), and *Field Notes* (*FN*) from volume 17 (fall 1962 records) through volume 52 (fall 1998 records). Some local publications, such as *New Mexico Ornithological Society Field Notes* (*NMOSFN*), were also consulted. Books and monographs dealing with state and provincial status and distribution were also reviewed, and in many instances state and provincial bird records committees and local experts were consulted (see Acknowledgments).

For identification information, Tom Halliwell and Karlson visited the American Museum of Natural History in New York, where 108 Groove-billed Anis from the United States and Panama Canal Zone and 101 Smooth-billed Anis from Central America ($n = 36$) and the Caribbean (mostly the Bahamas; $n = 65$) were examined.

GROOVE-BILLED ANI

The Groove-billed Ani is common through much of the lowland Neotropics, breeding south to Guyana and northern Chile (AOU 1998). Notably, it is absent from much of the central Mexican highlands, so that the northern end of its range is bifurcated north of San Luis Potosí and Zacatecas (Howell and Webb 1995). One prong extends north along the Atlantic slope through Tamaulipas, Nuevo Leon and Coahuila into southern Texas, whereas the other stretches north along the west slope of the Sierra Madre to southern Sonora

and Chihuahua. Through much of its range this species is resident; at the northern edge of its range, however, it is definitely migratory.

North of Mexico, the Groove-billed Ani is normally found only in south Texas in summer, where they are numerous. In fall this species mostly evacuates south Texas, and a few move north along the Gulf Coast to coastal Louisiana and Mississippi, with even fewer reaching as far east as the Florida Panhandle. Movement during spring along the Gulf Coast is hard to detect. Outside of this pattern it is rare, but almost regular, through most of the remainder of Texas (mostly mid-spring–late fall) and in southern New Mexico and Arizona (mostly fall). Exceptional records come from as far afield as southern California, Colorado, South Dakota, Minnesota, Ontario, and Maryland. There are unusual breeding records as far west as Big Bend National Park (Wauer 1985), as far north as Lubbock (Maxwell 1980, *AB* 39:73), and as far east as Plaquemines Parish, Louisiana (*AB* 25:867). To better understand details of movement, especially with regard to vagrancy, it is best to consider its status regionally.

Texas. In Texas, the Groove-billed Ani is a common breeder from the Rio Grande north to Webb and Nueces counties (Oberholser 1974) and is locally uncommon during summer north to Bexar and Uvalde counties (Texas Ornithological Society 1995). Though some are present year-round within their breeding range, numbers do not arrive until late April and most have left by late September.

During most falls some Groove-billed Anis move north along the Gulf Coast to Louisiana. Many may well originate in Texas, but others may be from northeastern Mexico. These birds are restricted almost entirely to coastal counties. They begin to appear in early July and are present in peak numbers from mid-August through late November, when they are generally uncommon (Elwonger 1995), though annual numbers vary considerably (G. Lasley pers. comm.) A few usually linger into winter, and fresh arrivals in spring are few. The highest published count is of 180 at Falfurrias, Brooks County, 30 August–1 September 1990 (*AB* 45:127); the highest winter count published is 28 near Corpus Christi 28 December 1986 (*AB* 40:301).

Outside of southern and coastal Texas, the Groove-billed Ani is a vagrant of somewhat regular occurrence. Since 1962 there have been 23 reports from the Trans-Pecos region (west of the Pecos River, including Val Verde County), 29 from the Panhandle/west-central Texas (north and west of Uvalde and Kinney counties, excluding the Trans-Pecos), and 19 from north-central/east-central Texas (north and east of Medina County, excluding the coastal plain and Bexar County). Records from the Trans-Pecos are mostly from Big Bend National Park, with some as far west as El Paso; most are from late April–late May, but there are records for every season including two for winter. Unsuccessful nesting attempts occurred during the summer of 1969 (Wauer 1985).

In the Panhandle and west-central Texas, about half of the records are from Midland and records from the Panhandle are relatively few. Most anis in this region have been seen between late August and late November, but there is also a smaller pulse in spring, from early

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Table 1. Vagrant Groove-billed Anis in the Southwestern United States

California		
Lakeview	4-16 Nov 1974	Luther et al. 1979
Anaheim	13-17 Sep 1978	Luther et al. 1983
Seeley	25 Oct 1986	Langham 1991
Gallileo Hill	14-15 Oct 1988	Pyle and McCaskie 1992
n. of Blythe	30 Sep-18 Oct 1992	Heindel and Patten 1996
Baker	22-23 Oct 1992	Heindel and Patten 1996
near Desert Center	23 Oct 1992	Heindel and Patten 1996
El Monte/Pico Rivera	9 Nov-30 Dec 1992	Heindel and Patten 1996
Santa Barbara	13 Apr-8 Jun 1993	Erickson and Terrill 1996
Harbor City	2 Dec 1995-4 May 1996	Garrett and Singer 1998
Desert Center	4 Oct 1998	NAB 53:104
Nevada		
Boulder City	7 Dec 1964	Long and Poyser 1965
Las Vegas	4 Nov 1973	AB 28:85
Logandale	9 Nov 1974	AB 29:95
Arizona		
1960 was first year since 1928		
Patagonia	9 Jun 1960	G. Rosenberg <i>in litt.</i>
Sabino Canyon	19 Oct 1963	AFN 18:62
Patagonia	9 Jun 1966	AFN 20:590
Phoenix	20 Aug 1967	AFN 22:75
St. John's	24 Oct 1967	AFN 22:75
Nogales	mid-June 1968	AFN 22:635
Phoenix	11 Jul 1969	G. Rosenberg <i>in litt.</i>
Maricopa Co.	20 Jul 1969	G. Rosenberg <i>in litt.</i>
St. David	30 Nov 1969	AFN 24:77
near Aztec	18 Nov 1972	AB 27:98
Phoenix (2)	21 Dec 1972-8 Apr 1973	AB 27:648
Marana	20-24 Nov 1974	AB 29:95
Harshaw Canyon (3-4)	late June-mid-Sep 1975	G. Rosenberg <i>in litt.</i>
Grand Canyon	3 Jul 1975	Rosenberg and Witzeman 1998
Patagonia	20 Jun 1976	Rosenberg and Witzeman 1998
Chandler	1 Jul 1977	Rosenberg and Witzeman 1998
Arivaca (6)	9 Sep 1978	AB 33:203
Arivaca (5 of above)	10 Sep-late Oct 1978	AB 33:203
Arivaca (1 of above)	late Oct 1978-24 Jan 1979	AB 33:303
Phoenix	20-21 Dec 1978	Rosenberg and Witzeman 1998
Tucson	6 Dec 1981	AB 36:319
Rim Rock	21 Oct 1982	AB 37:209
Sycamore Canyon	26 Jun 1983	AB 37:1014
s. of Winkleman	17 Jul 1983	AB 37:1014
Buckeye	30 Jul 1985	AB 39:947
near Arlington (3)	2 Oct 1985	AB 40:151
Sabino Canyon	28-30 Jun 1991	AB 45:1145
Granite Reef	19 Oct 1991	AB 46:???
Chandler	15 Oct 1992	AB 47:128
w. of Cameron	21 Oct 1992	AB 47:128
Grand Canyon	23 Oct 1992	AB 47:128
Tucson	24 Oct 1992	AB 47:128
near Carefree	4 Nov 1992	AB 47:128
w. of Gila Bend	27 Jul 1993	AB 47:1134
Sells	22-23 Jun 1994	FN 48:972
Upper San Pedro R.	8 Aug 1994	Rosenberg and Witzeman 1998
e. of Phoenix	2 Oct 1994	Rosenberg and Witzeman 1998
Pinal Air Park	9-16 Oct 1994	Rosenberg and Witzeman 1998
Marana (same as above?)	20 Nov 1994	FN 49:79
near Patagonia	31 May 1995	FN 49:286
Patagonia	19 Jul 1996	FN 50:978
Sierra Vista	25 Jul 1997	FN 52:102
Lake Montezuma	24-29 Sep 1998	G. Rosenberg <i>in litt.</i>
Colorado		
Pueblo Reservoir	6 Jul 1975	Webb 1976
Pueblo Co.	15 Oct 1975	Andrews and Righter 1992
Bonny Reservoir	3 Oct 1976	Webb 1976
Loveland	22 Oct 1981	Andrews and Righter 1992
Bonny Reservoir	17 Sep 1982	Webb and Reddall 1989
Colorado Springs	15 Sep 1983	Andrews and Righter 1992

New Mexico		
Albuquerque	1952	Ligon 1961
s.w. of Hatchita (2)	mid-May 1953	Ligon 1961
Santa Fe	5 Sep 1964	AFN 19:65
Rattlesnake Springs	13 Nov 1966	NMOSFN 5:31
Albuquerque	4 Dec 1966	Condor 70:90
Silver City	28 Sep-5 Oct 1972	AB 27:98
Las Cruces	7 Dec 1974	AB 29:725
Bosque del Apache	12 Oct 1975	AB 30:108
Bitter Lake N.W.R.	18 Sep-14 Nov 1977	AB 32:242/S.O. Williams <i>in litt.</i>
Oasis S.P.	15 Jun 1978	AB 32:1195
Guadalupe Canyon	5 Dec 1978	AB 33:303
Bell Lake	11 May 1979	NMOSFN 18:10
Bitter Lake N.W.R.	23-24 May 1979	AB 33:796
Carlsbad Caverns N.P.	29 Sep 1979	NMOSFN 18:31
near Artesia (2)	6-28 Jun 1980	AB 35:213
Mangas Springs	3 Oct 1980	AB 35:213
Mangas Springs	20 Nov 1985	AB 40:153
Randall's Pool	22 May 1987	AB 41:474
Socorro	4-18 Nov 1988	AB 43:149
near Gila	23 Nov 1989	AB 44:139
Bosque del Apache	25 Nov 1989	AB 44:139
near Garfield	10 Mar 1991	AB 45:482
Bitter Lake N.W.R.	6 Aug 1993	AB 48:138
Bosque del Apache	18 Nov 1994	FN 49:82

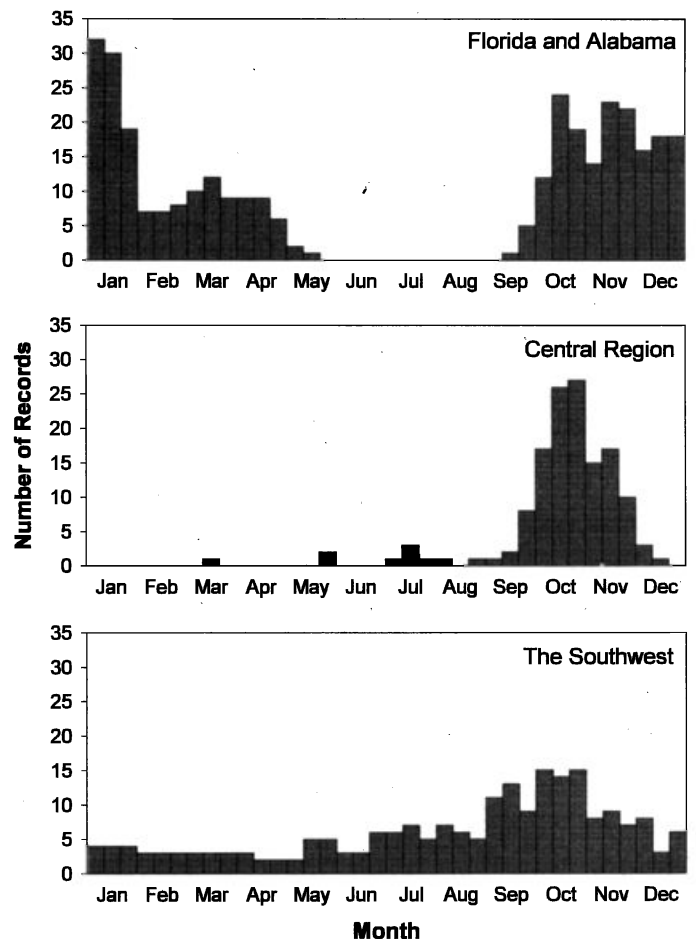


Figure 1. Frequency of occurrence across the year of the Groove-billed Ani in different regions of the United States and Canada. See the text for more details.

May–early June, and a couple of mid-summer records. Breeding has occurred in Tom Green and Lubbock counties (Maxwell 1980). High counts include eight (four adults, four young) at Lubbock 8 September 1984 (AB 39:73) and seven at San Angelo 7 November 1976 (AB 31:196). In north-central and east-central Texas, records are widely scattered geographically, with most for spring (late May–mid-June) and fall (late September–late October). There is a winter record from Dallas 24–26 December 1992 (AB 47:276).

Southwest. Groove-billed Anis are somewhat regular vagrants to the Southwest (Table 1). Since 1962 there have been approximately 85 records from New Mexico (22), Arizona (43), Colorado (6), Nevada (3), and California (11), the vast majority south of 35°N latitude. Records span the year, but most are from early September–late December with an apparent peak in October (Fig. 1). Late spring/early summer records are almost entirely from southeastern Arizona and southern New Mexico, even when considered as a percentage of total records, suggesting spring overshoots from southern Chihuahua and Sonora. It breeds in Sonora, where it is found predominantly from early June–late September (Russell and Monson 1998). Also, there are two Baja California records: one from the Cape District in the 1800s (Grinnell 1928) and another from Tripui 10 November 1985 (Howell and Webb 1992).

Groove-billed Ani records from the Southwest show little decade-to-decade variation but show substantial year-to-year variation. Since 1962 this region has averaged about 3.0/yr. However, in 1992–3 there were nine records involving nine birds, and in 1978–9 there were six records involving eleven birds. The record high count is six at Arivaca, Arizona, 9 September 1978 (AB 33:203).

Central. Groove-billed Anis wander north of Texas into the continent's mid-section somewhat regularly and quite widely, with sightings as far north as South Dakota, Minnesota, Michigan, and Ontario (Table 2). Through spring 1998, there have been 99 records from South Dakota (5), Nebraska (3), Kansas (13), Oklahoma (12), Minnesota (10), Iowa (2), Missouri (5), Arkansas (11), Wisconsin (11), Illinois (5), Michigan (7), Indiana (2), Ontario (5), Ohio (4), Kentucky (2), and Tennessee (2).

The frequency of records has shown interesting changes over time. During the 1960s there were 21 records, increasing to 31 during the 1970s but dropping slightly during the 1980s, when only 24 were found. The 1990s, however, have seen a dramatic decline, and as of the summer of 1998, there have been but five. More specifically, records increased between fall 1972 and fall 1983, during which time 3.7/yr were found. The peak period was fall 1978–fall 1983, when there were 4.8/yr—almost as many per year as the entire 1990s. The reason for the surge during the 1970s and 1980s is not known, but it may have been due to an increasing number of observers. The decline since, however, has no obvious explanation.

Groove-billed Anis are mostly fall wanderers to central North America, with most occurring late September–late November. There are no winter records after mid-December, though a bird in Marshall County, Oklahoma, 11 March 1962 may have wintered locally (Baumgartner and Baumgartner 1992). Spring and summer records are few and are almost exclusively from the southern part of the region. Indeed, there are only two northerly records outside the 26 August–18 December timeframe: Stearns County, Minnesota, 17 July 1978 (Janssen 1987) and Alum Creek Reservoir, Ohio, 10 August 1980 (Peterjohn 1989). Records of multiple birds are scarce. The record high count from the region's southern part is four at Fort Smith, Arkansas, 10 October 1960 (James and Neal 1986). The only multiple bird record from the more northern areas is of two at Two Rivers, Wisconsin, 18 November 1979 (Robbins 1991).

Table 2. Vagrant Anis in Central United States and Canada

South Dakota		
Groove-billed		
Milbank	23 Oct 1968	Elliott 1968
near Pickstown	27 Oct–18 Dec 1972	South Dakota Ornithol. Union 1991
Huron	29 Sep 1982	Johnson 1983
Pierre	13 Oct 1982	Larsen 1983
Gregory Co.	22 Sep 1984	AB 39:71
Nebraska		
Groove-billed		
Elgin	4 Oct 1952	Baumgarten and Rapp 1953
Grand Island	15 Oct 1975	Stoppkotte 1975
Beaver Lake	22 Sep 1985	Kiser 1985
Kansas		
Groove-billed		
McCune	date unknown	Tordoff 1956
Lyon Co.	1 Nov 1904	Tordoff 1956
n.e. of Blue Rapids	28 Oct 1952	Tordoff 1956
Baldwin City	late Nov–8 Dec 1979	AB 34:177
Miami	24 Oct–6 Nov 1992	AB 47:114
8 more records, four from Nov 1977 (Lloyd Moore pers. comm.)		
Oklahoma		
Groove-billed		
Garfield Co.	25–27 Sep 1952	Baumgartner and Baumgartner 1992
Stephens Co.	7 Oct 1952	Baumgartner and Baumgartner 1992
Oklahoma Co.	8–22 Jul 1960	Baumgartner and Baumgartner 1992
Marshall Co.	11 Mar 1962	Baumgartner and Baumgartner 1992
Tishomingo N.W.R.	18 Oct 1963	Baumgartner and Baumgartner 1992
Wagoner Co.	27 Oct 1966	AFN 21:53
Oklahoma Co.	early Oct–11 Nov 1968	Baumgartner and Baumgartner 1992
Oklahoma Co.	20 Jul 1969	Baumgartner and Baumgartner 1992
Comanche Co.	5–6 Oct 1970	Baumgartner and Baumgartner 1992
Oklahoma Co.	25 Nov 1970	Baumgartner and Baumgartner 1992
Payne Co.	17–18 Nov 1971	Baumgartner and Baumgartner 1992
Washington Co.	20 Oct 1979	AB 34:177
Unidentified		
Tulsa	5–6 Oct 1983	AB 38:219
Minnesota		
Groove-billed		
Lac qui Parle Co.	20 Oct 1958	Janssen 1987
near Ortonville	17 Sep 1959	Janssen 1987
Washington Co.	20 Oct 1968	Janssen 1987
Rouseau River W.A.	5 Oct 1973	Janssen 1987
Lake Co.	27 Oct 1975	Janssen 1987
Stearns Co.	17 Jul 1978	Janssen 1987
Cook Co.	5 Oct 1983	AB 38:206
Brown Co.	4–12 Nov 1983	AB 38:206
Stearns Co.	26 Oct 1985	Janssen 1987
Cook Co.	15 Oct 1995	FN 50:58
Iowa		
Groove-billed		
Cedar Rapids	22 Oct 1966	Kent and Dinsmore 1996
Krumm Wildlife Area	19 Oct–25 Nov 1987	AB 42:83
Missouri		
Groove-billed		
Centertown	6–13 Nov 1950	Robbins and Easterla 1992
Columbia	9–11 Nov 1972	Robbins and Easterla 1992
Greenwood	22 Nov 1973	Robbins and Easterla 1992
Kansas City	10 Oct 1978	AB 33:184
Kingdom City	11–26 Oct 1979	Robbins and Easterla 1992

(table continued on following page)

Gulf Coast. From Louisiana to Florida, the Groove-billed Ani is primarily found October–April along the Gulf Coast. Fall wanderers occasionally arrive by mid-September, but more typically appear during early October, with peak numbers present from mid-October into early April (D Dittmann, S Cardiff pers. comm.) As in coastal

Table 2 (continued)

Arkansas		
Groove-billed		
Howard Co.	Late Nov 1955	M. Parker <i>in litt.</i>
Ft. Smith (3)	17 Nov 1959	M. Parker <i>in litt.</i>
Ft. Smith (4)	10 Oct 1960	James and Neal 1986
Clark Co.	20 Oct 1968	M. Parker <i>in litt.</i>
Sevier Co. (2)	25 Nov 1977	AB32:218
Miller Co.	28 Nov 1977	AB32:218
Lake Millwood	22 Oct 1978	M. Parker <i>in litt.</i>
Lake Millwood	11 Oct 1987	AB42:84
Johnson Co.	22 May 1993	AB47:422
Woodruff Co.	25 May 1993	AB47:422
Lake Millwood	2 Dec 1995	FN50:181
Wisconsin		
Groove-billed		
Pierce Co.	12 Oct 1913	Robbins 1991
Dane Co.	27 Oct 1949	Robbins 1991
Wood Co.	late Sep 1953	Robbins 1991
Milwaukee	8 Nov 1968	Robbins 1991
Portage Co.	31 Oct 1969	Robbins 1991
Iowa Co.	7 Oct 1973	Robbins 1991
Brown Co.	8 Oct 1975	AB30:75
Two Rivers (2)	18 Nov 1979	Robbins 1991
Lake Wisconsin	17–23 Oct 1981	AB36:181
near Dorchester	23 Oct 1981	AB36:181
n. of Fountain City	26 Aug–11 Sep 1982	AB37:183
Unidentified		
Apostle I.	26 Sep 1981	AB36:181
Ashland	21 Oct 1981	AB36:181
Sheboygan Co.	19 Oct 1987	Robbins 1991
Illinois		
Groove-billed		
Chicago	6 Oct 1979	AB34:168
Evanston	13 Oct 1979	AB34:168
Chicago	27 Sep 1981	AB36:184
Chicago	24–25 Sep 1982	AB37:187
Galesburg	28 Sep 1987	AB42:83
Unidentified		
Carbondale	12 Nov 1978	AB33:184
Beall Woods S.P.	10 Oct 1979	AB34:168
Michigan		
Groove-billed		
Allegan Township	14 Nov 1951	Granlund et al. 1994
Berrien Springs	3–11 Nov 1968	Granlund et al. 1994
Sarrett Nature Center	20–24 Oct 1973	Mlodinow 1984
Parchment	8–9 Oct 1975	Granlund et al. 1994
Allendale	16 Oct 1976	AB31:181
Rogers City	12 Oct 1978	Granlund et al. 1994
Sarrett Nature Center	27 Oct 1983	AB38:206
Unidentified		
Bruce Crossing	1 Oct 1992	Granlund et al. 1994
Indiana		
Groove-billed		
Valparaiso	16–19 Nov 1981	Mumford and Keller 1984
Upland	16 Oct–1 Nov 1983	AB38:209
Unidentified		
Michigan City	27 Oct & 23 Nov 1957	Mumford and Keller 1984
Michigan City	23 Nov 1958	Mumford and Keller 1984

Texas, annual numbers vary greatly. It is strictly casual after early May, with little or no spring passage (D. Dittmann, S. Cardiff pers. comm.). However, there is one breeding record from Triumph, Plaquemines Parish, Louisiana, during summer 1971 (AB 25:867).

It is most numerous along the Louisiana coast and grows rarer as one goes east, becoming rare-but-annual along the Alabama and Florida coastline east to Franklin County. For instance, Alabama has about 24 records through spring 1998 (G. D. Jackson pers. comm.), and there are over 60 from the Florida Panhandle (we break Florida into four sections, following Robertson and Woolfenden 1992) State

Ontario		
Groove-billed		
Thunder Bay	18–20 Oct 1963	James 1991
Stromness	12 Oct 1969	AFN24:40
Sundridge	27 Oct 1978	James 1991
Thunder Bay	1 Nov 1983	James 1991
Bright's Grove	9–13 Oct 1988	AB43:97
Ohio		
Groove-billed		
Crane Creek S.P.	20 Oct 1963	Peterjohn 1989
Holmes Co.	15 Oct–17 Nov 1972	AB27:69
Alum Creek Reservoir	10 Aug 1980	Peterjohn 1989
near Owensville	9 Oct–19 Nov 1981	AB36:184
Smooth-billed		
Westlake		
Kentucky		
Groove-billed		
e. of Murray	30 Oct 1979	Monroe et al. 1988
Lexington	22–23 Oct 1981	AB36:184
Tennessee		
Groove-billed		
n. of Dyersburg	29 Nov 1968	Leggett 1969
Tigrett W.M.A.	17 Oct 1985	Criswell 1986

high counts illustrate this pattern. The highest count published for Louisiana is 40, recorded during two days in November 1959 at Johnson Bayou, Cameron Parish (Lowery 1974), but the maxima in Alabama is 11 from Gulf Shores, 2–26 January 1983 (AB 37:310) The Florida Panhandle high count of eight has been recorded thrice, at Lanark 19 November 1978 (AB 33:170), Fort Pickens 25 November 1992 (Stevenson and Anderson 1994), and Dog Island mid-January 1993 (AB 47:251).

It is considerably rarer east of the Florida Panhandle. Since 1963 there have been only 33 records from the Florida Peninsula. As expected, most are from the Gulf Coast, but are spread surprisingly evenly along the length of the Peninsula, with the southernmost at Key West 5–7 October 1997 (FN 52:50). Importantly, truly Atlantic Coast records from Florida are extremely few. The first Florida record was of one collected along the Atlantic, at Juniper Inlet, January 1891 (Stevenson and Anderson 1994). Records thereafter include one at Cape Florida 18 October 1987 (AB 42:62) and several at Delray Beach November 1992–November 1995 (AB 47:85, FN 48:291, FN 49 141, FN 50:42), possibly involving a single bird returning to winter.

About half of peninsular Florida's records are from the 1990s, but a likewise increase has not been seen in the Panhandle or farther west along the Gulf Coast. This apparent change in peninsular Florida may well be due to increased observer awareness teamed with a decline in the similar Smooth-billed Ani. Indeed, the pattern of Groove-billed Ani occurrence in peninsular Florida is obscured by the presence of Smooth-billed Anis. Some Groove-billeds undoubtedly were passed off as Smooth-billeds, and perhaps the reverse has occurred as well.

Groove-billed Ani abundance in the Gulf Coast states has not been stable. Prior to the mid-1970s, it was infrequently reported east of Mississippi, with only one record from Alabama and less than 1.0/yr from Florida. Since, however, the frequency of records has been relatively stable, averaging about 1.0/yr in Alabama and >3 0/yr in Florida. This pattern is distinctly different from changes over time in the Southwest and Central Regions, perhaps because birds wandering northeast along the Gulf Coast originate from a different breeding population than those wandering into other regions.

Atlantic Coast. The Groove-billed Ani is unmistakably casual along the Atlantic Coast, but the precise pattern is obscured by possible confusion with Smooth-billed Ani. There are only five accepted records of

the Groove-billed Ani, four records of the Smooth-billed Ani, and seven of unidentified anis (Table 3). Notably, only three Groove-billeds were truly near the coast, as the two Virginia birds were fairly far inland. All definite Groove-billeds were first found 14 October–3 November, fitting nicely with patterns from both the Gulf Coast and Central Region. Four of five records fell between 1975 and 1981—coinciding with the peak in the Central Region and with the increase in records from the Gulf Coast. Unidentified anis from the Atlantic region fit both patterns less tightly, with a wider range in season as well as year.

Among the seven records of unidentified anis (Table 3), the Nova Scotia and New Jersey birds were generally thought to be Groove-billeds, but certain separation from Smooth-billed was not possible (Tufts 1986, I. McLaren pers. comm.). The more southerly unidentified anis were even more controversial. Prudence in accepting such records is warranted, as Smooth-billeds have been collected as far north as the Philadelphia area (Academy of Natural Science Philadelphia 24271) and Ohio (McLean et al. 1995).

SMOOTH-BILLED ANI

The Smooth-billed Ani is predominantly resident, occurring throughout the West Indies and on mainland Central and South America from Costa Rica south to extreme northwestern Ecuador (west of the Andes) and northern Argentina (east of the Andes; AOU 1998) In the United States and Canada, this ani is currently an uncommon to rare resident of southern Florida. Some movement between the West Indies and Florida is evidenced by records from the Dry Tortugas (Robertson and Woolfenden 1992). Vagrant records within North America are relatively scarce but have occurred in such far-flung locations as Ohio, the Philadelphia area, and possibly Louisiana (Lowery 1974, McLean et al. 1995, L. Bevier pers. comm.).

The story of the Smooth-billed Ani in the United States and Canada is one of boom and bust. Howell (1932) knew of only 13 records, so he labelled it as occurring “casually in southern Florida from Brevard County and Tampa Bay southward.” About twenty years later, Sprunt (1954) wrote that “this queer tropical species has, since 1932, altered its status in Florida considerably. Of no more than accidental occurrence when Howell wrote, and until the late 1930s, it has now become established in at least one thriving breeding population (in southern Lake Okeechobee area), and may very well spread further.” Indeed, the first flock was not recorded until February 1937, when ten were seen at Miami Beach (*Auk* 54:391), and the first confirmed breeding record did not occur until July 1938 at Miami (*Auk* 56:335). Beyond the breeding population around Lake Okeechobee, Sprunt (1952) considered the Smooth-billed Ani to be of only sporadic occurrence in southern Florida north to Tampa and Melbourne.

Its status changed little until the early 1960s. For instance, Christmas Bird Counts (CBC) during 1959–1960 and 1960–1961 revealed but a few anis at West Palm Beach and Fort Lauderdale (Fig. 2), but in the early 1960s numbers began to increase. By 1962–1963 the number per party-hour (p-hr) tripled on these counts, reaching 0.17/p-hr at West Palm Beach and 2.41/p-hr at Fort Lauderdale. By 1968–1969 the level reached 1.51/p-hr at West Palm Beach and 4.20/p-hr at Fort Lauderdale, with reports on counts north to Brevard County on the east coast and Lee County on the west (Fig. 2).

This period was the Smooth-billed Ani heyday. It was fairly common to common from the Everglades north to Brevard County on the Atlantic Coast and Lee County on the Gulf Coast. Numbers remained at their peak from fall 1968–winter 1976, when vagrants reached Jacksonville Beach in the east (*AFN* 21:24) and St. Petersburg in the west (*AFN* 21:410). CBC totals from Fort Lauderdale were typically in

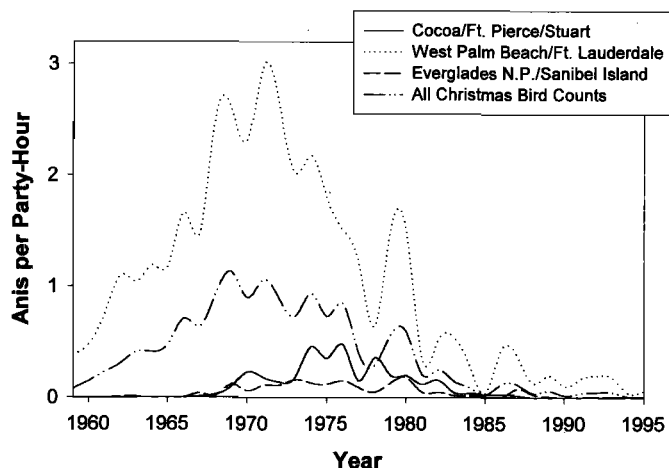


Figure 2. The Smooth-billed Ani on southern Florida Christmas Bird Counts (CBC). Note the increasing populations beginning in the 1960s and the sharp decline after the mid-1970s.

the 3.0–4.0/p-hr range. CBCs at Fort Pierce, St. Lucie County, reached as high as 1.87/p-hr, while Sanibel Island/Captiva Island, Lee County, had counts to 0.41/p-hr—totals on par with the 1959–1960 CBCs from Fort Lauderdale and West Palm Beach. By winter 1977–78, however, numbers took a sharp downturn (Fig. 2), with CBC totals returning to mid-1960s levels. The decline continued, and by winter 1988–1989 totals generally resembled those of the late 1950s; during the

Table 3. Vagrant anis in Atlantic Coast states and provinces.		
Nova Scotia		
Unidentified		
Guysborough Co.	fall 1975	Tufts 1995
Colchester Co.	7–8 Dec 1980	Tufts 1995
White's Lake	16 Sep–1 Oct 1996	FN51:18
New Jersey		
Smooth-billed		
near Petty I.	Sep 1849	P. Lehman <i>in litt.</i>
Note: This bird was either in New Jersey or Pennsylvania		
Unidentified		
Sandy Hook	9 Oct 1997	FN52:37
Maryland		
Groove-billed		
Millington	3 Nov 1975	P. Davis <i>in litt.</i>
Virginia		
Groove-billed		
Tazewell Co.	20 Oct–18 Nov 1979	Kain 1987
Rockingham Co.	24 Oct–18 Nov 1981	AB36:178
Unidentified		
Rustic	7 Jun 1988	AB43:78
North Carolina		
Groove-billed		
Atlantic Beach	14 Oct 1996	FN51:41
Smooth-billed		
Edenton	23 Aug 1866	Pearson et al. 1942
South Carolina		
Groove-billed		
Savannah N.W.R.	27 Oct–9 Dec 1979	Young 1983
Smooth-billed		
Jacksonboro (2)	5 Dec 1981	Dick 1983
Unidentified		
Cherry Grove	23 Jan 1976	Post and Gauthreaux 1989
Huntington Beach	29 Nov 1978	Post and Gauthreaux 1989
Georgia		
Smooth-billed		
Jekyll Island	5 Mar–29 Apr 1974	Georgia Ornithological Society 1986



Figure 3. Immature ani at Sandy Hook, New Jersey, 9 October 1997. This bird was originally reported as a Smooth-billed Ani, but it was most likely an immature Groove-billed Ani. Photograph/Al Pochek.

1990s this species has grown even scarcer. As of 1998, the Smooth-billed Ani is found locally from the Florida Keys north to West Palm Beach on the east coast and Collier County on the west.

Reasons for this decline are not clear. A series of cold winters during the late 1970s likely played a role (Robertson and Woolfenden 1992) but continued waning of the population does not seem explicable by weather alone. Perhaps a more interesting question is why the Smooth-billed Ani increased initially. The current status may be the status quo for Florida, not an aberration. P. W. Smith (*in litt.*) proposed an interesting and plausible hypothesis. Smooth-billed Anis may regularly disperse from the Bahamas and Cuba to South Florida. Before the World War I era, South Florida had little if any suitable ani habitat, being largely a wetland surrounded by an inner zone of pine woods and an outer zone of mangrove and sandy beaches. Thus, anis reaching Florida failed to colonize successfully. However, substantial anthropogenic changes began in the 1920s with a great deal of agricultural development coupled with low-level residential development, creating enough suitable habitat for dispersing anis to successfully colonize South Florida by the 1930s. Over time, however, residential development increased to the point that it formed a barrier to dispersal along Florida's southeast coast and keys. Concomitantly, changes in agricultural practices led to more intense land use and decreased habitat, so that anis already breeding in Florida had a tougher time surviving. Perhaps pesticides also reduced food sources. Thus, Florida's Smooth-billed Anis may well be caught in environmental pincers, with decreasing reproductive success and lower recruitment. The cold winters of late 1970s may have been just a *coup de grace*.

Smooth-billed Ani vagrancy in North America has been a decidedly rare event. In Florida there are a couple of records north to Alachua and Nassau Counties, but there have been no acceptable records from the Panhandle (Stevenson and Anderson 1994). Outside of Florida there are only five acceptable records (Tables 2–3). Additionally, a reported Smooth-billed Ani specimen from Diamond, Louisiana, 18 July 1893 was examined by G. E. Beyer and H. C. Oberholser but is now lost (Lowery 1974).



Figure 4. A typical adult Smooth-billed Ani, photographed at Loxahatchee National Wildlife Refuge, Florida, January 1996. Note the protruding ridge on the culmen and the angled gonyx. Photograph/Kevin T. Karlson.

NOTES ON IDENTIFICATION

On 10 October 1997 an ani was observed and photographed (Fig. 3) at fairly close range at Sandy Hook, New Jersey, a regular migrant rarity location. Because of the absence of grooves on the bill several birders identified the bird as a Smooth-billed Ani. Although the bird vocalized a few times, there were no notes taken to describe this vocalization. Suspicions were confirmed when Karlson and other members of the New Jersey Bird Records Committee examined photos, in that the bird looked much like the more expected vagrant Groove-billed Ani.

Most birders do not consider the problem of ani identification until a situation similar to the one above occurs. Problems in identification occur mostly with juvenile and immature birds, which are most likely to occur as vagrants. Vocalizations are distinctly different, and diagnostic. Therefore it is important to listen for vocalizations from any out-of-range ani and either tape record the vocalizations or write down a description of them while in the field (if you wait until later the accuracy of the description may be compromised). The Smooth-billed Ani has a “querulous, whining, whistled *ooenk* or *wooyeek* or *wooiick* in alarm or excitement, often in flight.” The Groove-billed Ani has “a characteristic ‘*tijo*’ call, in excitement or alarm. It also gives a “querulous *tee’ho, tee’ho, tee’ho*, often preceded by soft clucking *tuc* notes; also a long series of rapid whistled *kiw* notes on the same pitch, falling at the end; or a full prolonged mournful call” (Stiles and Skutch 1989).

A combination of several characters, mostly involving the shape and size of the maxilla (“upper mandible”) and mandible (“lower mandible”), can positively identify better than 97% of individuals (note that this figure is merely an approximation used for emphasis only, and not from a statistical analysis). A number of individuals of both species would prove difficult to identify in the field, and were even troublesome in the hand. All such specimens were juveniles, being either Groove-billeds lacking grooves on the bill or small-billed Smooth-billeds with little or no rise to the culmen as it extends upwards to the crown. This maxillary “ridge” or “shield” is prominent in most adults (Fig. 4), especially males, and is a definitive field mark



Figure 5. A typical adult Groove-billed Ani, photographed in Costa Rica in March 1989. Note the relatively flat gonys and the distinct grooves on the maxilla. Photograph/Kevin T. Karlson.

for the Smooth-billed Ani. Similarly, the series of well-defined horizontal grooves on the maxilla of a Groove-billed Ani, which typically is prominent on most adults (Fig. 5), is diagnostic of that species. The Smooth-billed Ani can have a few lines present on the upper mandible, but they are usually without the horizontal pattern of Groove-billed. The absence of grooves on the bill does not, however, guarantee the identity of the bird as a Smooth-billed.

Presented here are several characters useful in separating small-billed individuals that lack an obvious raised ridge on the culmen and lack noticeable horizontal grooves on the bill. Firstly, the shape of the mandible seems to be a fairly consistent field mark that differentiates almost all of the individuals. However, several of the bills of the Smooth-billed came extremely close in shape to the mandible structure of a Groove-billed. These few birds were of various ages, and did not represent only young individuals. The Groove-billed did not show any variation in the shape of the mandible. From its tip the mandible curves downward at a slight angle to the base of the gonys, at which point it extends in a fairly straight line to the gape. In some individuals, the mandible extends slightly upward from the gonys to the gape, but in almost all individuals examined the thickness of the bill at the base of the gonys was the same as the thickness of the bill at the gape. This structural character differs consistently between the Groove-billed and Smooth-billed ani, and gives the bill a relative concave appearance in the Groove-billed versus the convex appearance often seen in the Smooth-billed.

The convex appearance of the mandible of the Smooth-billed Ani results from the noticeably thicker base of the gonys, creating a protrusion at that point of the bill. In almost all specimens the mandible decreased in thickness proportionally as it extended towards the gape. This difference in depth of the mandible at the gape versus the gonys varied in the sample group, but occasionally approached 50% in some individuals. In most birds examined the decrease in depth ranged from 15–25%, with a few individuals showing an almost negligible decrease. Even so, about 90% of the individuals showed a noticeable decrease in depth of the mandible, which translated in appearance to

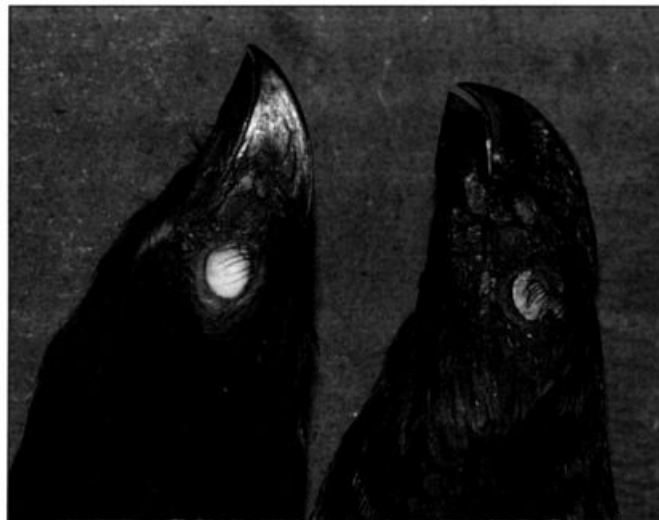


Figure 6. Museum skins of Smooth-billed (right) and Groove-billed anis. The Smooth-billed was collected in the Canal Zone, Panama, 12 January 1902. It exhibits the characteristic mandible shape but shows a greatly reduced curve to the maxilla. The Groove-billed was collected in Brownsville, Texas, 28 August 1912. It was a young bird lacking grooves on the bill, but with a typical reduced rise to the maxilla and typical uniform thickness to the mandible from tip to gape. Photograph/Kevin T. Karlson.

a definite upward rise in the angle of the mandible as it extended to the gape. Almost all Groove-billed Anis showed little or no decrease in size of the mandible from the gonys to the gape, and thus showed a fairly straight line from the gape to the tip of the bill. Smooth-bills exhibit a downward slope to the mandible from the gape to the gonys, and then a slight upward rise of the mandible to the tip of the bill, creating a noticeable angle at the base of the gonys. This character can be seen in the field if the bird is close enough to view the bill in detail (and if the duration of viewing is long enough). Identification of some Smooth-billed Anis would prove difficult as a result of the reduced angle of the mandible.

Secondly, the angle of the maxilla can be useful in the field identification of both species. The maxilla of the Smooth-billed Ani tends to rise towards the crown at a steeper angle than in the Groove-billed. This rise is further accentuated by the presence of a prominent ridge on the culmen (especially near the crown) in most adults. On the small number of Smooth-billeds that lacked a noticeable ridge, the dates of collection suggest juvenile or immature birds. Even these young birds, however, exhibited a steeper angle on the maxilla from the tip to the crown. Another mark that is typical of most Smooth-billed Anis is a small dip on the maxilla just before it reaches the fore-crown, creating a slight notch at the juncture of the crown and the bill. This feature was not present in any of the Groove-billed Anis examined. The crown also seems more rounded on the Smooth-billed, with a steeper incline upward from the base of the bill. The maxilla of the Groove-billed, on the other hand, rises at a slighter angle from the tip towards the crown, and then continues in a fairly straight line to a gently rounded crown. This feature is somewhat obvious in the field, and can be used to set the identification process in motion in birds with small, ungrooved bills (Fig. 6). The ani from Sandy Hook exhibits this physical appearance (Fig. 3).

Lastly, the bare-skin region around and behind the eye seems to be more extensive in the Groove-billed Ani, with the bare skin continuing to the loreal area. This feature is difficult to determine in specimens as a result of preparation of the skin. Some Smooth-billed Anis exhib-

it apparent large amounts of facial skin behind the eye. However, the difference in amount of facial skin seems to be comparable to the difference in the Glossy Ibis *Plegadis falcinellus* and White-faced Ibis *P. chihi* in breeding condition, with the more extensive facial skin on the White-faced Ibis being comparable to that on the Groove-billed Ani.

The combination of these factors can help to identify almost all Smooth-billed and Groove-billed anis seen in the field if the viewing time is sufficient enough to analyze the field marks, and if the observer knows what to look for in advance. A few young Smooth-billeds, however, would be difficult to identify in the field if the observation conditions were not perfect, and a scope view was not possible.

As for the bird at Sandy Hook, we feel that it was a Groove-billed Ani. The shape and angle of the maxilla is more easily seen than the mandible, but the lack of any upward angle on the mandible to the gape supports this conclusion. It also exhibited a large amount of facial skin, the crown is gently rounded from where it meets the bill, and there is no ridge on the culmen.

CONCLUSIONS

In the United States, the Groove-billed Ani is mostly a breeder in south Texas and a migrant/winter resident along the Gulf Coast northeast to coastal Louisiana and Mississippi. This species wanders extensively. Vagrancy in North America is mostly a fall phenomenon involving birds that have migrated north instead of south after breeding. Birds primarily arrive in October and November, though in the Southwest, September is also a peak month. Wandering birds sometimes cover vast distances. To the north and east, Groove-billed Anis have appeared at locations in Minnesota, Ontario, and Maryland, more than 2000 km from their breeding range. In the west, wandering has been more restrained, with records in southern California and northern Colorado being "only" about 1200 km from this species' usual haunts. In areas where wintering is possible, such as the Gulf Coast and Southwest, a number of the fall arrivals remain into the winter and spring. Vagrancy during spring and summer is more restrained, with fewer birds covering less distance. Typically, these individuals occur from May to July, and they likely represent, to some extent, northbound migrants that "overshot" their breeding grounds. Spring and summer vagrants are far less scattered than those from fall, with the vast majority occurring in southern Arizona, southern New Mexico, and Texas. There are only two July records that show the kind of long-distance vagrancy seen during fall (Tables 1–2).

Notably, Groove-billed Ani vagrancy has not been stable over time, and even more interesting, changes vary across regions. Along the Gulf Coast, vagrants greatly increased during the mid-1970s and have remained stable ever since. In the Central Region, however, there was a surge of records 1972–1983, with declines thereafter, especially since 1990, such that they are even scarcer now than during the 1960s. Only in the Southwest has vagrancy been relatively stable over the last 30 years. Reasons for these changes and regional differences are obscure, but may be related to population changes in northeastern Mexico versus northwestern Mexico. By looking at these patterns we may also be able to gain some insight. For instance, the six Colorado records all occurred 1975–1983, fitting much more closely with the Central pattern than the Southwest one, suggesting that these birds may not be originating from the same place as those found in Arizona, New Mexico, and California. Perhaps in the future we will be able to follow weather patterns and/or breeding success in various parts of their breeding range and then be able to trace changes to the occurrence of vagrants in different regions.

Smooth-billed Ani status and distribution is quite different. In the United States, this species is limited to southern Florida, is generally

non-migratory, and is on the down side of a boom-bust cycle and may even face extirpation. Vagrants have been much scarcer than vagrant Groove-billeds; there are but five confirmed records outside of Florida. However, given that the Smooth-billed Ani is thought of as sedentary, any long-distance vagrancy would seem an unlikely event. But is it really so sedentary? It has occurred on a number of occasions at the isolated Dry Tortugas, which are about 100 km from Key West and about 160 km from Cuba. These birds may well represent movement between Cuba and Florida (Robertson and Woolfenden 1992), and they clearly traveled a substantial distance over water. Consequently, the more far-flung records seem less surprising. Still, future vagrants are increasingly unlikely given declines in Florida, but the 1993 bird in Ohio shows that the possibility still exists.

Birders should continue to be on the look out for out-of-place anis as they will undoubtedly continue to occur. Identification should be cautious, as both species seem to have a tremendous capability to wander. Furthermore, these two species are far more similar than many guides might lead one to believe, especially as immatures. The patterns of occurrence that develop in the future will be most interesting to see.

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