

Smooth-billed ani literature review

BIOLOGICAL INFORMATION

Life history -

- Appearance (size, weight, color, dimorphism)
 - Loflin (1983) as cited in Quinn and Startek-Foote (2000): “Medium sized cuculid with a length of 12-14 inches and a mass of approximately 3.5 ounces.
 - Quinn and Startek-Foote (2000): Males are slightly larger than females
 - Pyle 1997 in Quinn and Startek-Foote (2000): “This species is distinguished by: all-black plumage, glossed with greenish or violet iridescence in parts; a long tail (approximately 6.8 in (17.2 cm)); a large, arched, and laterally compressed bill, usually showing a raised hump on the basal half of the upper mandible; and a distinctive call, including a whining “ah-nee,” which is usually delivered 1-4 times, along with other vocalizations.” – USFWS Federal Register
 - Pyle 1997 in Quinn and Startek-Foote (2000): Immature resemble adults but with plumage that is a mix of glossy and dull blackish feather and with shallower bills. Juveniles resemble adults but with dull blackish feathers and a smaller, shallower bill.
- Breeding: season, gestation period
 - Blanchard (2000): Communal breeding season; groups of females use same nest to lay eggs and incubate. Monogamy, polygamy, and brood parasitism in Puerto Rico. Nesting groups ranged in size from a single pair to 12 adults.
 - Davis (1940): “Nonbreeding subordinates aid in defending territory and feeding young” (cooperative breeding) – quote from Quinn and Startek-Foote 2000
 - Loflin (1983): “Females may lay in another group’s nest if own nest is destroyed by an event such as predation or storm.” (brood parasitism)
 - Davis (1940): In Florida, pair formation in March or April before rainy season
 - Loflin (1983): In Florida, peak laying April-June.
 - Startek (1997): Nest bulky and cup-shaped.
 - Loflin (1983): Three to 7 eggs/female. “In Florida, mean time between laying of first egg and hatching of first egg: 17.6 d ± 2.1 SD (n = 61 nests” – from Quinn and Startek-Foote 2000
- Habitat use/seasonality in use
 - Quinn and Startek-Foote: Range-wide and year-round use of “disturbed and human-altered rural and suburban areas, open areas with brush or

scrub habitat, plantations, gardens, farmlands, forest clearings, cow pastures, and grazing lands.”

- Blanchard (2000): “Prefer” open grassland habitat
 - Loflin (1983): In south Florida, density positively associated with amount of grazing land and human habitation. Found to “occupy discontinuous patches of habitat (e.g., parks, nurseries, small undeveloped plots of land) and avoid tall grasses of the Everglades” –Quoted from USFWS Federal Register
 - Quinn and Startek-Foote (2000): “In general, this species typically occupies lowlands, often near the coast, preferring a source of water (e.g., marsh, pond, river) and avoiding dense forest” –Quoted from USFWS Federal Register
 - Quinn and Startek-Foote (2000): Use fields of grass for foraging and stream edges for nesting and roosting.
 - Startek (1997): Nest usually in a dense/thorny bush or tree
- Territorialism and solidarity/colonialism
 - Davis (1940): Territory size varies with number of individuals in a group. Defended against conspecifics by chasing and fighting. Return to same breeding territory each year.
 - Loflin (1983): “As rainy season ends in Florida, territoriality may break down and some groups join together to form large, nomadic flocks that search out moist areas with greater insect abundance. Winter flocks can reach 65 individuals in size, but more commonly contain 15–35” – Quote from Quinn and Startek-Foote 2000.
 - Diet and seasonality in diet
 - Pranty et al. (2006): Forages on the ground in search of prey
 - Quinn and Startek-Foote (2000): “This species feeds primarily on insects and small vertebrates, especially when these forage items are abundant during the rainy season; fruit is an important component of the diet during the dry season.” –Quote from USFWS Federal Register

Taxonomy –

- American Ornithologists’ Union (1998): Provides current taxonomic reference.
- Quinn and Startek-Foote (2000): Members of the family Cuculidae along with cuckoos, roadrunners, koels, malkohas, coucals.
- Hughes 2003: Belong to subfamily Crotophaginae which is composed of New World cuckoos and comprises the monotypic genus *Guira* and three ani species (*Crotophaga*): the greater ani, smooth-billed ani, and groove-billed ani. The subfamily is monophyletic, which indicates a “single origin of cooperative breeding in New World cuckoos”. Smooth-billed and groove-billed anis formed an internal clade with the greater ani basal to the pair.

- Sibley and Ahlquist (1990): Some authorities recognize coucals and anis as separate and distinct families (Centropodidae and Crotophagidae, respectively).
- Ridgway (1916): While no detailed studies of morphological variation over range exist, small samples sizes at several localities range-wide show little variation in size.

Geographic range and distribution

- AOU 1998: Occurs throughout the “West Indies” and on central and south America from Costa Rica south to northwestern Ecuador and northern Argentina.
- Pranty et al. (2006): First found breeding in Florida in 1938.
- Mlodinow and Karlson (1999): In North America, uncommon to rare and limited to south Florida; Christmas Bird Counts have revealed a distribution changing over time, but 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.”; Some credible vagrant records exist, though they are rare. There have been some credible records from Alachua and Nassau counties. Outside of Florida there have only been 5 acceptable vagrant records from New Jersey or Pennsylvania, North Carolina, South Carolina, Georgia, and Ohio.
- Mlodinow and Karlson (1999): “Smooth-billed anis may regularly disperse from the Bahamas and Cuba to South Florida.”
- Pranty et al. (2006): Populations began to decline in Florida in the 1970s.
- Greenlaw et al. (2014): “Local populations continued to disappear through 1990s, resulting in further range contraction and increased localization. By 2010, nearly extirpated and difficult to find...now limited to se peninsula and Keys”
- Stevenson and Anderson (1992), Robertson and Woolfenden (1992): May be some movement between Florida and Cuba based on occurrence at Dry Tortugas, FL.
- Robertson and Woolfendon (1992):
- Loflin (1983): Non-migratory. Some local movement when neighboring, territorial groups gather together during dry season.
- Greenlaw et al. (2014): frequency of observations in the Florida Keys over the years suggests some movement between Cuba and Florida.
- Pranty et al. (2006): speculated that the species colonized Florida from either the Bahamas, Cuba, or both

Population status and trend

- Stevenson and Anderson (1994): Christmas Bird Count indicated decrease in counts from late 1970s to 1986 in south Florida.
- Butchart and Symes (2012): IUCN listed as Least Concern because of its “extremely large range”, non-rapid decline, and extremely large population size.

Current population trend appears to be decreasing, but the decline doesn't appear to be rapid enough (>30% decline over ten years or three generations) to warrant Vulnerable status. Estimated extent of occurrence: 14,100,000 km². There are no extreme fluctuations in population or subpopulation size and no population fragmentation. All individuals are not contained in one sub-population. Area of occurrence unknown.

- USFWS (2011): Exact abundance in Florida unknown
- Pranty et al. (2006): "Smooth-billed ani populations began to decline beginning in the late 1970s. By 2005, only a few scattered groups of anis were known in Florida, and the species appears to be headed toward extirpation. The cause or causes of this decline are unknown."
- Rich et al. (2004): "The smooth-billed ani has a large global population, estimated in 2004 to be 20,000,000 individuals, with less than or equal to 1 percent occurring in the United States" –Quote from USFWS Federal Register
- USFWS (2011): Little information on global long-term trends or size unavailable at time of publication.
- Mlodinow and Karlson (1999): Current status in Florida may be the norm

Quantitative analyses (PVA)

- No PVA analyses have been reported.

Threats

- Stevenson and Anderson (1994): "Possible ingestion of pesticides as a result of insect diet may have contributed to decrease in numbers in Florida."; cited unusually cold winters as a potential cause of decline either directly or indirectly through decreased insect abundance.
- "The anis, since coming to [Florida] have several times survived sub-freezing weather."
- Steadman et al. (2009): Because smooth-billed ani tend to be associated with open habitat, increasing maturity of forest may limit habitat availability.
- Wiley and Wunderle (1993): The "flight" of the smooth-billed ani may be weak, causing mortality during hurricanes.
- Wunderle et al. (1992): "Density in Jamaica determined to be not significantly altered after Hurricane Gilbert."
- Fischer et al. (2004): Reported large amount of smooth-billed ani roadkill for a particular area, but sample size unclear.
- Pranty et al. (2006): Causes of decline in Florida unknown, though some have suggested loss of brushy fields and road edges due to urbanization could be a contributing factor (though this habitat is still common throughout south Florida).
- USFWS (2011): Disease and predation not considered a threats

- USFWS (2011): Due to the large range of the smooth-billed ani, factors such as hurricanes, cold temperatures, pesticides, and natural population fluctuations do not warrant the petitioned action of listing.

PDF Available Online

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- U.S. Fish and Wildlife Service. 2011. Listing smooth-billed ani under Endangered Species Act ‘not warranted’.
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- Loflin, R. K. 1983. Communal behaviors of the Smooth-billed Ani (*Crotophaga ani*). Ph.D. thesis. Univ. of Miami, Coral Gables, FL.

Online source:

- American Ornithologists' Union. 1998. Check-list of North American birds. 7th ed. Am. Ornithol. Union, Washington, D.C.
- Butchart, S. and A. Symes. 2012. *Crotophaga ani*. In: IUCN 2015. IUCN Red List of Threatened Species. Version 2015-4. www.iucnredlist.org. Downloaded on 15 February 2016.
- Quinn, James S. and Jennifer M. Startek-Foote. 2000. Smooth-billed Ani (*Crotophaga ani*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/539>. doi:10.2173/bna.539

In print (PDF unavailable):

- Pyle, P. 1997. Identification guide to North American birds, Pt. 1: Columbidae to Ploceidae. Slate Creek Press, Bolinas, CA.
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