SPECIES

Yellow-billed Cuckoo *Coccyzus americanus*

Janice M. Hughes

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Birds of North America
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Distribution

Breeding Range

Temperate North America south to Mexico and the Greater Antilles (Figure 1 (https://cdn.download.ams.birds.cornell.edu/api/v1/asset/25035771?__hstc=65717809.1d5464f4c87512a17fdcd9cadc427475.1610132957658.1628639954229.1628805730217.18&__hssc=65717809.5.16288057302178__hsfp=1209027(
Possibly breeds in Central America and nw. South America. Breeding range may be confused by reports of nonbreeding adult vagrants outside of known breeding areas during the breeding season.

Northern limit extends west from s. Maine (Calais to Bethel; Adamus 1987 (/bow/species/yebcuc/cur/references#REF34246)), through s. New Hampshire (Foss 1994), nw. and s. Vermont (Renfrew 2013), n. and central NY State (widespread except for Adirondacks; http://www.dec.ny.gov/cfmx/extapps/bba/bbaMaps.cfm?bndcode=YBCU&order=1&year=2000&comp=1 (http://www.dec.ny.gov/cfmx/extapps/bba/bbaMaps.cfm?bndcode=YBCU&order=1&year=2000&comp=1)), extreme sw. Quebec (Central St. Lawrence lowlands and s. Ottawa River valley; Jauvin 1996b (/bow/species/yebcuc/cur/references#REF23294)), s. Ontario (primarily south of Canadian Shield; Cadman et al. 2007), Upper Peninsula of Michigan (Blaney to Sault Ste. Marie; http://www.mibirdatlas.org/Portals/12/MBA2010/YBCUaccount.pdf (http://www.mibirdatlas.org/Portals/12/MBA2010/YBCUaccount.pdf)), and n. Minnesota (north of St. Paul to Lake of the Woods, but absent from ne. Minnesota; http://www.mnbba.org/blockmap/cresults.php?species=Yellow-billed%20Cuckoo (http://www.mnbba.org/blockmap/cresults.php?species=Yellow-billed%20Cuckoo)), possibly se. North Dakota (Stewart 1975b (/bow/species/yebcuc/cur/references#REF2259)), and ne. and w.-central South Dakota (Peterson 1995 (/bow/species/yebcuc/cur/references#REF29173)).

Breeding range extends southward along the Atlantic Coast to s. Florida (widespread, and south thru the keys to Key West; http://legacy.myfwc.com/bba/docs/bba_YBCU.pdf (http://legacy.myfwc.com/bba/docs/bba_YBCU.pdf)), and west through coastal, Appalachian, midwestern, and lower plains states to e. Wyoming (Faulkner 2010), the eastern plains of Colorado (Andrews and Righter 1992 (/bow/species/yebcuc/cur/references#REF20836)), and throughout Texas (rarer in west; http://txtbba.tamu.edu/species-accounts/yellow-billed-cuckoo (http://txtbba.tamu.edu/species-accounts/yellow-billed-cuckoo/)).

Extremely rare and local in Northern Rocky and Great Plains, locally breeding in s.-central and se. Montana (Montana Bird Distribution Committee 2012), sw. and se. Idaho (Dobkin 1994; Taylor 2000), nw. and sw. Wyoming (Devil's Tower, Grand Teton National Park), n., s., and e. Utah (including Tooele, Salt Lake, and Washington Cos.; Walters and Sorenson 1983 (/bow/species/yebcuc/cur/references#REF6422)), and w. Colorado (Mesa Co. south; Andrews and Righter 1992 (/bow/species/yebcuc/cur/references#REF20836)). Has bred as far north as Selkirk, Manitoba (Godfrey 1986 (/bow/species/yebcuc/cur/references#REF62222); http://www.birdatlas.mb.ca/mbdata/maps.jsp?lang=en (http://www.birdatlas.mb.ca/mbdata/maps.jsp?lang=en)).

Rare and local in the Southwest. Breeds along major river valleys in s. and w. New Mexico (San Juan, Rio Grande, Pecos, Canadian, San Francisco, and Gila rivers; Howe 1986 (/bow/species/yebcuc/cur/references#REF23293)), and central and s. Arizona (Gila, Bill Williams, and Colorado Rivers; Groschupf 1987 (/bow/species/yebcuc/cur/references#REF50427); Corman and Wise-Gervais 2005). Occurs at isolated sites in the Sacramento Valley of n. California, and along the Kern and Colorado river systems in s. California (Gaines and Laymon 1984 (/bow/species/yebcuc/cur/references#REF50426), Laymon and Halterman 1989 (/bow/species/yebcuc/cur/references#REF23297)).

In Mexico, fairly common to locally common in extreme s. Baja California Sur, along the s. Colorado River, Pacific Slope and adjacent interior from Sonora and Chihuahua south to Zacatecas, Atlantic Slope from Coahuila south to Tamaulipas, and n. Yucatan Peninsula; may breed in s. Veracruz (Howell and Webb 1995 (/bow/species/yebcuc/cur/references#REF62109)). May also breed in Guatemala (Land 1970 (/bow/species/yebcuc/cur/references#REF29159)) and El Salvador (Thurber et al. 1987 (/bow/species/yebcuc/cur/references#REF8761)).

Possible isolated breeding sites in South America; specimens taken in Colombia (Antioquia, Caquetá, Magdalena) Apr–Jun had enlarged gonads. Likewise, 2 juveniles (12 Aug, 12 Sep) and 1 immature (1 May) taken in Chaco, Paraguay may be offspring from local breeding population rather than migrants (Banks 1988a (/bow/species/yebcuc/cur/references#REF50421)).

In the West Indies, uncommon breeder (May–Aug) on Cuba, Hispaniola, and Puerto Rico (Latta et al. 2006); more rare on Jamaica and the Virgin Is. Has bred on St. Martin in the n. Lesser Antilles. May breed in Bahamas (Raffaele et al. 1998).

Winter Range

Winters almost entirely in South America east of the Andes. A vast majority of specimens and sight records from northern South America are from migration periods; most records for Dec-Feb are from southern South America, including e. Bolivia, central and se. Brazil, Paraguay, Uruguay, and n. Argentina (K. Rosenberg, pers. comm.). A wintering western individual fitted with a geolocator spent 5 mo in Bolivia, Brazil, Paraguay, and Argentina; traveled 1,050 km during that time (Sechrist et al. 2012)

In central (Meta) and s. (Leticia) Colombia (Sep–May; Hilty and Brown 1986 (/bow/species/yebcuc/cur/references#REF29359)), and Venezuela (Aug–May), east to Aragua and Barinas, nw. Bolivar, and n. Amazonas (De Schauensee and Phelps 1978 (/bow/species/yebcuc/cur/references#REF4061), Hilty 2002). Locally common in Suriname (Oct–May; Haverschmidt and Mees 1994 (/bow/species/yebcuc/cur/references#REF42101)); rare in Guyana (Oct–Apr; Tostain et al. 1992b (/bow/species/yebcuc/cur/references#REF62092)). Very rare transient and possible winterer in central (Quito) and e. (Pastaza) Ecuador (Mar and Nov; Ridgely and Greenfield 2001). Rare migrant from Oct-May in e. Peru (Schulenberg et al. 2007).

Status in Brazil remains poorly known; generally winters south of Amazonia (Dec–Jun); however, individuals have been observed in central Amazon near Manaus and Cachoeira Nazaré in spring (Stotz et al. 1992 (/bow/species/yebcuc/cur/references#REF41499)). Winters in central and e. Bolivia (Nov–Mar; Remsen et al. 1986b (/bow/species/yebcuc/cur/references#REF23303)), and central Paraguay (Aug–May; Hayes et al. 1990 (/bow/species/yebcuc/cur/references#REF18447)), south to La Rioja, Córdoba, and Buenos Aires in Argentina (Meyer De Schauensee 1982a (/bow/species/yebcuc/cur/references#REF57827)), and Uruguay (Rio Negro), but not Chile (Rappole et al. 1983 (/bow/species/yebcuc/cur/references#REF35370)). Also winters west of the Andes in n. Colombia (Hilty and Brown 1986 (/bow/species/yebcuc/cur/references#REF29359)).

Rare and irregular in central Florida south to the Keys (Stevenson and Anderson 1994b (/bow/species/yebcuc/cur/references#REF55525)). Rare to uncommon in the Bahamas (Buden 1987b (/bow/species/yebcuc/cur/references#REF45649)), Hispaniola (Latta et al. 2006), Puerto Rico (Kepler and Kepler 1978a (/bow/species/yebcuc/cur/references#REF14870)), and the Virgin Is. (Raffaele 1989 (/bow/species/yebcuc/cur/references#REF7180)). No evidence for wintering in Trinidad and Tobago (ffrench 1991a (/bow/species/yebcuc/cur/references#REF60923)). Rare and local in Costa Rica (Guanacaste and Península de Osa; Stiles and Skutch 1989 (/bow/species/yebcuc/cur/references#REF24711)); small numbers reported in Tocúmen and Canal area, Panamá (Ridgely and Gwynne 1989 (/bow/species/yebcuc/cur/references#REF42705)).

Extralimital Records

Individuals reported east and north of breeding distribution during summer. Several vagrant reports in Canadian Prairie Provinces in Jul (e.g., Roche Percee, Saskatchewan; Gollop 1988a (/bow/species/yebcuc/cur/references#REF49560); Dinosaur Provincial Park, Alberta; Koes and Taylor 1996 (/bow/species/yebcuc/cur/references#REF23295)). At least two records in Alaska (Juneau, 22 Jul; Ketchikan, 18 Aug; Tobish and Isleib 1992a (/bow/species/yebcuc/cur/references#REF5617)). Accidental in summer in the Lesser Antilles (Guadeloupe, St. Vincent, St. Lucia; Evans 1990a (/bow/species/yebcuc/cur/references#REF7145)). Also accidental in former breeding range in w. U.S. and Canada. See Historical changes, below. May also wander north or east in fall before migrating south. Apparently uncommon vagrant in Nova Scotia (Aug–Nov), but widespread incursion in fall possible (Tufts 1986 (/bow/species/yebcuc/cur/references#REF7597)). Single individuals reported regularly Sep–Oct in e. Quebec (Jauvin 1996b (/bow/species/yebcuc/cur/references#REF23294)). Regular, sometimes common, vagrant in Bermuda (Apr–Jun, Aug–Dec; Amos 1991

(/bow/species/yebcuc/cur/references#REF58276)); however, remarkable invasion occurred Oct 1849 when thousands of individuals were reported throughout this island (Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)).

Transatlantic vagrants observed in Britain, Ireland, and w. Europe. Migrants become disoriented in frontal zones north of Bermuda, and then carried east in fast moving wave depressions. Forty European records occurred in late Sep (*n* = 3), Oct (*n* = 25), Nov (*n* = 11), and Dec (*n* = 1); 56% of British and Irish records found migrants dead or dying (Cramp 1985a (/bow/species/yebcuc/cur/references#REF4571)).

Historical Changes to the Distribution

Western populations suffered catastrophic range reductions in 20th century owing to loss of riparian habitat through clearing for agriculture, flood control, and urbanization (Laymon and Halterman 1987 (/bow/species/yebcuc/cur/references#REF36000)). Formerly uncommon local summer resident in thickets of deciduous vegetation along Fraser River in se. British Columbia. Extirpated in 1920s. Now considered accidental; 5 records (Jul, Oct) since 1927 (Campbell et al. 1990a (/bow/species/yebcuc/cur/references#REF15960)).

Formerly rare breeder in w. Washington, particularly around Puget Sound, but extirpated by 1934. Reasons for disappearance unknown. Some habitat destruction evident; however, suitable habitat still remains. Four accidental records (Jun–Aug) since 1934.

In Oregon, formerly bred in Willamette and Rogue River valleys and along Columbia River, but extirpated by 1945. Seven accidental records during breeding season (May–Sep) from 1970–1977 (Roberson 1980 (/bow/species/yebcuc/cur/references#REF16796)); at least 20 individuals sighted east of Cascade Mtns. in Oregon from 1970–1994 (USFWS 2013).

Previously considered rare breeder in the Snake River Valley in se. Idaho but faced significant declines in recent decades; surveys undertaken between 2005 and 2011 estimated breeding population in Idaho likely only 10–20 pairs. Historically, rare and local breeder in Wyoming, primarily west of Rocky Mtns. in the Green River Basin; breeding population likely < 5 pairs. Extremely rare breeder in Colorado; likely only a few breeding pairs remaining. Historically considered uncommon breeder along streams in lower valleys in Utah, particularly Salt Lake Valley; current breeding population probably about 10 pairs. Rare in w. and s. Nevada since 1940s; and not observed in preferred habitat during 1970s. Possibly breeding at Beaver Dam Wash in 1979; however, not confirmed because most reports are of single individuals (Alcorn 1988 (/bow/species/yebcuc/cur/references#REF1827)). More recent surveys indicated general decline in numbers from 2002–2009, and <10 breeding pairs likely (USFWS 2013).

Historical breeding range in California northwest from San Diego Co. along coast through San Francisco Bay to Sonoma Co., San Joaquin and Sacramento valleys, from Kern Co. to Shasta Co., plus many outlying sites in Siskiyou, Inyo, San Bernardino, and Imperial Cos. (Gaines 1974b (/bow/species/yebcuc/cur/references#REF35998)); breeding population before 1850s estimated 15,000 pairs. Considered common to numerous in Sacramento Valley, South Coast (e.g., Ventura and Los Angeles Cos.), and Kern Co. in late 1800s, but only fairly common by 1920s (Gaines and Laymon 1984 (/bow/species/yebcuc/cur/references#REF50426)). Habitat destruction recognized as factor reducing numbers by 1910s, and serious population declines noted by 1940s. Extirpated north of Sacramento Valley by 1950s (Gaines and Laymon 1984 (/bow/species/yebcuc/cur/references#REF50426)). Breeding now restricted to isolated sites in South Fork Kern River, lower Colorado River, and Sacramento River valleys in California. Statewide surveys located 121–163 breeding pairs in 1977, 32–42 breeding pairs in 1986/1987, and 39–43 breeding pairs in 1999/2000; also, some previously occupied sites were vacant in 1999/2000 surveys. Current breeding population in California estimated to be about 40–50 pairs (USFWS 2013).

Historically widespread and locally common in Arizona, where a survey in 1976 estimated 846 pairs on the lower Colorado River and tributaries (Groschupf 1987); by 1999, surveys found only 172 pairs and 81 single birds. Overall, Arizona populations have declined 70–80% in past 30 yr, with largest regional populations declining substantially since 2000. Arizona has greatest number of western cuckoos; nonetheless, state breeding population likely only 170–250 pairs. In w. New Mexico, considered historically common along the Rio Grande and locally uncommon to common elsewhere. However, loss of suitable breeding habitat has been considerable;

estimated breeding population in New Mexico 100–155 pairs. Historically fairly common in w. Texas. State does not make distinction between eastern and western subspecies; however, surveys indicate that species is becoming increasingly rare and declining. Surveys undertaken within range of western subspecies in 1988 and 2000 found only a few individuals. Estimated breeding population in w. Texas <10 pairs (USFWS 2013). See Demography and Populations: population status, and Conservation and Management, below.

Some evidence for northward and eastward range expansions in Ontario during 1960s and 1970s. Now breeds commonly east of Kingston. Also, individuals observed carrying nesting material near Sudbury suggests northern breeding outpost (Peck and James 1983 (/bow/species/yebcuc/cur/references#REF2091), Helleiner 1987c (/bow/species/yebcuc/cur/references#REF23291)).

‹ **Systematics (/bow/species/yebcuc/cur/systematics)**

Habitat (/bow/species/yebcuc/cur/habitat) ›

(https://cdn.download.ams.birds.cornell.edu/api/v1/asset/39421541?_hstc=65717809.1d5464f4c87512a17fdcd9cadc427475.1610132957658.1628639954229.1628805730217.18&_hssc=65717809.5.16288057302178&_hsfp=1209027(

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Year-round Breeding

Migration Non-Breeding

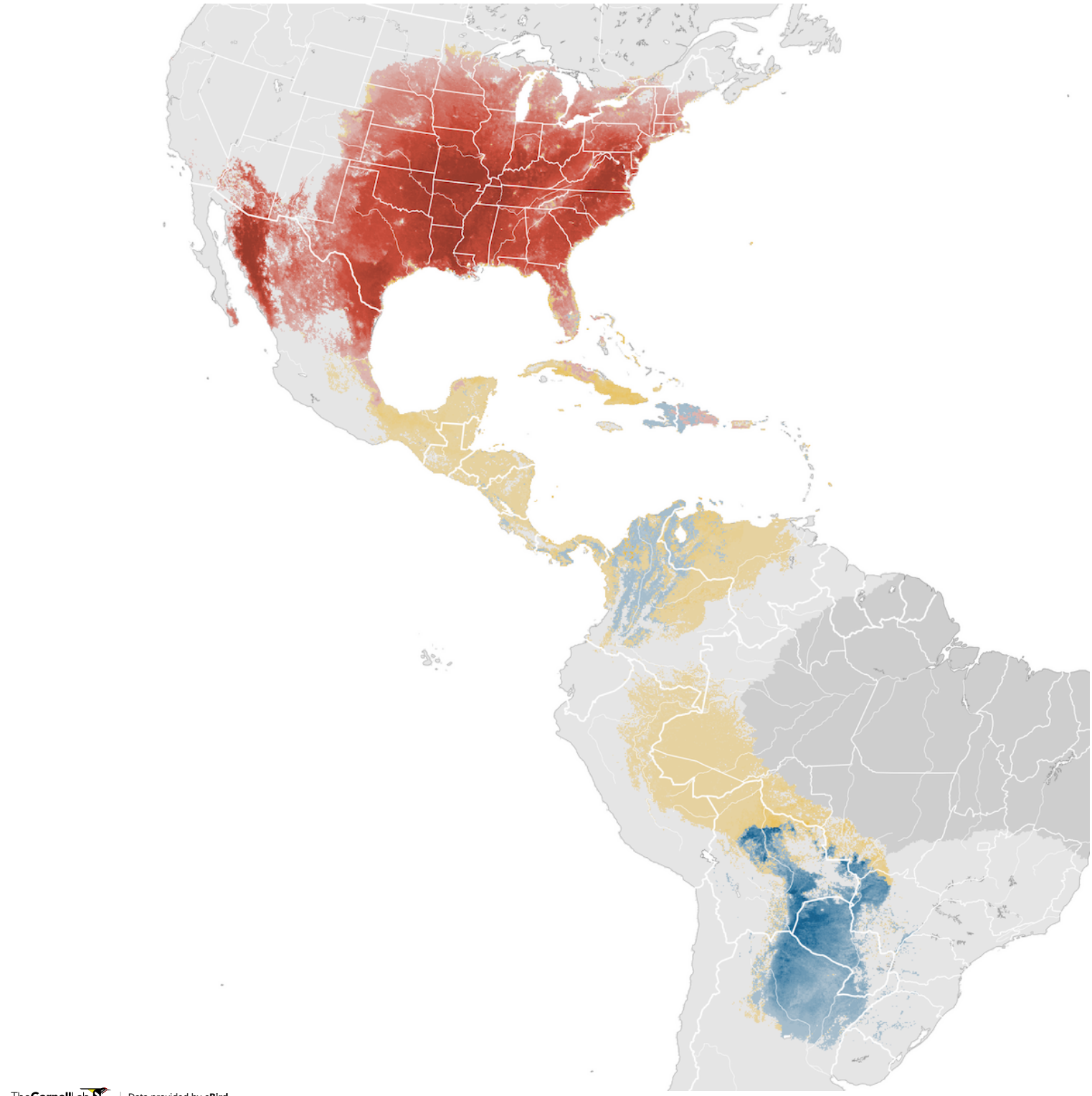
Distribution of the Yellow-billed Cuckoo

+ Enlarge (https://ebird.org/embedmap/yebcuc?llwheel=true&draggable=true&mapType=terrain&__hstc=65717809.1d5464f4c87512a17fdcd9cadc427475.1610132957658.1628639954229.1628805730217.18&__hssc=65717809.5.1628805730217&__hsfp=1209027052)

eBird range map for Yellow-billed Cuckoo

Generated from eBird observations (Year-Round, 1900-present)

Explore more on eBird (https://ebird.org/map/yebcuc?__hstc=65717809.1d5464f4c87512a17fdcd9cadc427475.1610132957658.1628639954229.1628805730217.18&__hssc=65717809.5.1628805730217&__hsfp=1209027052)



(Lightbox-emsed-map)

Yellow-billed Cuckoo *Coccyzus americanus*

Abundance

Relative abundance is depicted for each season along a color gradient from a light color indicating lower relative abundance to a dark color indicating a higher relative abundance. Relative abundance is the estimated number of individuals detected by an eBirder during a traveling count at the optimal time of day. Learn more (https://ebird.org/science/status-and-trends/faq?__hstc=65717809.1d5464f4c87512a17fdcd9cadc427475.1610132957658.1628639954229.1628805730217.18&__hssc=65717809.5.1628805730217&__hsfp=1209027052#abundance)

RELATIVE ABUNDANCE

Breeding season Jun 28 - Aug 17

Non-breeding season Dec 14 - Mar 8

Pre-breeding migratory season Mar 15 - Jun 21

Post-breeding migratory season Aug 24 - Dec 7

0 0.28 1.5

Note: Seasonal ranges overlap and are stacked in the order above; view full range in season maps.

SEASONS TIMELINE

Learn more (https://ebird.org/science/status-and-trends/faq?__hstc=65717809.1d5464f4c87512a17fdcd9cadc427475.1610132957658.1628639954229.1628805730217.18&__hssc=65717809.5.1628805730217&__hsfp=1209027052#seasons)

J F M A M J J A S O N D

Modeled area (0 abundance)

No prediction

Learn more (https://ebird.org/science/status-and-trends/faq?__hstc=65717809.1d5464f4c87512a17fdcd9cadc427475.1610132957658.1628639954229.1628805730217.18&__hssc=65717809.5.1628805730217&__hsfp=1209027052#no-prediction)

eBird data from 2005-2020. Estimated for 2019.

Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, O. Robinson, S. Ligocki, W. Hochachka, C. Wood, I. Davies, M. Iliff, L. Seitz. 2020. eBird Status and Trends, Data Version: 2019; Released: 2020. Cornell Lab of Ornithology, Ithaca, New York. https://doi.org/10.2173/ebirdst.2019 (https://doi.org/10.2173/ebirdst.2019)

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SPECIES

Yellow-billed Cuckoo *Coccyzus americanus*

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ORIGINALLY APPEARED IN

Breeding

Phenology

Pair Formation

Little information. Likely May–Jun in e. and central U.S. (Johnsgard 1979a (/bow/species/yebcuc/cur/references#REF61582), Vega and Rappole 1994a (/bow/species/yebcuc/cur/references#REF16488)). Copulation observed 20 May (Cattaraugus, NY; Eaton 1979 (/bow/species/yebcuc/cur/references#REF23290)), 28–30 May (Cottle Co., TX; JMH), and 12 Jun (Puerto Rico; Kepler and Kepler 1978a (/bow/species/yebcuc/cur/references#REF14870)). Pairing in western populations mid-Jun or later (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)).

Nest Building

Observed carrying twigs in Texas in late May (Cottle Co.) and mid-Jun (Brewster Co., TX; JMH), and in Puerto Rico in Aug (Kepler and Kepler 1978a (/bow/species/yebcuc/cur/references#REF14870)). In Tamaulipas, Mexico, nest completed 24 May (Sutton et al. 1950 (/bow/species/yebcuc/cur/references#REF14885)). See also Breeding: nest, below.

First Brood Per Season

Long breeding season, particularly in se. U.S. (Apr–Aug); may be delayed until Jun in north (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760); Figure 5 (https://cdn.download.ams.birds.cornell.edu/api/v1/asset/25035881?__hstc=65717809.1d5464f4c87512a17fdcd9cadc427475.1610132957658.1628639954229.1628805730217.18&__hssc=65717809.6.1628805730217&__hsfp=1209027(
Also western populations breed 2–12 wk later than eastern populations occurring at the same latitude (Franzreb and Laymon 1993 (/bow/species/yebcuc/cur/references#REF35997)). Onset of breeding may be correlated with abundance of local food supply (Nolan and Thompson 1975 (/bow/species/yebcuc/cur/references#REF36246)), or periods of greatest rainfall (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)). See Demography and Populations: population regulation, below.

In Canada and ne. U.S., peak breeding season Jun–Jul (Jauvin 1996b (/bow/species/yebcuc/cur/references#REF23294)); extreme egg dates: 23 May–7 Aug (Ontario; Peck and James 1983 (/bow/species/yebcuc/cur/references#REF2091)), and 24 May–19 Aug (New York; Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)). Breeds mid-May–early Sep in Michigan (Eastman 1991f (/bow/species/yebcuc/cur/references#REF50424)). Peak season in midwest U.S. Jun–Aug; extreme egg dates 20 May–19 Jul (Illinois; Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)), 28–30 May (Ohio; Peterjohn 1989b (/bow/species/yebcuc/cur/references#REF56491)), and 14 Jun–14 Aug (Indiana; Nolan and Thompson 1975 (/bow/species/yebcuc/cur/references#REF36246)). Late nesting records in Ohio: 19 Sep (nestling) and 20 Sep (fledged 3 Oct; Peterjohn 1989b (/bow/species/yebcuc/cur/references#REF56491)). Breeds May–Aug in central U.S. Early nest record 22 Mar (Texas; Johnsgard 1979a (/bow/species/yebcuc/cur/references#REF61582)). Record late egg dates: 10 Sep (Kansas; Johnsgard 1979a (/bow/species/yebcuc/cur/references#REF61582)), 12 Sep (South Dakota; South Dakota Ornithologists' Union 1991 (/bow/species/yebcuc/cur/references#REF15508)); recently fledged chick observed 2 Oct (Texas; Pulich 1988b (/bow/species/yebcuc/cur/references#REF23302)). In Florida: peak season Apr–Jun; extreme dates: 12 Apr–25 Aug (Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)). Breeds Apr–Jul in West Indies (Raffaele et al. 1998

(/bow/species/yebcuc/cur/references#REF57325)). In Mexico, females with eggs in oviduct 23 May (Tamaulipas; Sutton et al. 1950 (/bow/species/yebcuc/cur/references#REF14885)) and 25 Jul (Sonora; Short 1974d (/bow/species/yebcuc/cur/references#REF57623)).

Western populations breed Jun–Aug, with peak occurring mid-Jul–early Aug (Bent 1940a (/bow/species/yebcuc/cur/references#REF55437), Howe 1986 (/bow/species/yebcuc/cur/references#REF23293)). Extreme egg dates in Arizona: 24 Jun–24 Aug (Groschupf 1987 (/bow/species/yebcuc/cur/references#REF50427)). In s. California, 21 Jun–20 Jul (82.5% of clutches initiated during this period; USFWS 2013); extreme egg dates: 15 May–20 Aug (55 records; Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)).

Second Brood Per Season

May be double-brooded in central (Sutton 1967b (/bow/species/yebcuc/cur/references#REF40041)) and e. U.S., with second clutch beginning in Aug (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)) or Sep (Mengel 1965b (/bow/species/yebcuc/cur/references#REF28926)). Exceptionally late nests (mid-Aug to mid-Sep) observed in all parts of range (no evidence these are second clutches). Likely single-brooded in some regions of the west where breeding season is 1–3 mo shorter than in east (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760); Laymon et al. 1997); however, regularly double-brooded, and perhaps triple-brooded, in southeastern Arizona where favorable conditions for prolonged breeding seasons occur (Halterman 2009). See Demography and Populations: measures of breeding activity, below.

Previously thought to be post-migratory double breeder whereby breeding individuals in northwestern Mexico during summer would have already bred in e. North America earlier in same breeding season (Rohwer et al. 2009, 2012). However, additional study of brood patch condition throughout annual cycle now suggests that post-migratory double breeding unlikely (Rowher and Wood 2013).

Nest Site

Selection Process

Pairs may visit prospective nest site together frequently prior to building nest (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)).

Microhabitat

Generally groves of broad-leafed deciduous hardwoods with thick bushes, vines, or hedgerows providing dense foliage within 10 m of ground (Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429)). In arid regions, restricted to river bottoms, ponds, swampy areas, and damp thickets with relatively high humidity; not necessarily near water in eastern deciduous forests that are consistently humid during summer (Gaines and Laymon 1984 (/bow/species/yebcuc/cur/references#REF50426); see Habitat: breeding range, above). In central and e. U.S. and s. Canada, nests most commonly associated with oak (*Quercus* spp.), beech (*Fagus* spp.), elm, dogwood hawthorn, ash; less frequently pine (*Pinus* spp.), juniper (Cupressaceae), and fir (Pinaceae; Bent 1940a (/bow/species/yebcuc/cur/references#REF55437), Preble 1957 (/bow/species/yebcuc/cur/references#REF50432), Nolan 1963 (/bow/species/yebcuc/cur/references#REF23367), Eaton 1979 (/bow/species/yebcuc/cur/references#REF23290), Wilson 1999a).

In w. U.S., nests in willow, Fremont cottonwood, and mesquite; also hackberry, soapberry (*Sapindus saponaria*), alder, and cultivated fruit trees (Hanna 1937 (/bow/species/yebcuc/cur/references#REF35999), Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429), USFWS 2014a, JMH). Preferred willow species include Gooding's black willow (*Salix gooddingii*), red willow (*S. laevigata*), and coyote willow (*S. exigua*; USFWS 2014a). Nests in mangroves and cashaw trees in Jamaica (Downer and Sutton 1990 (/bow/species/yebcuc/cur/references#REF2806)). In Puerto Rico, nest found in cotorro tree (*Adelia ricinella*; Kepler and Kepler 1978a (/bow/species/yebcuc/cur/references#REF14870)). Nest may be concealed with spanish moss (*Tillandsia usneoides*; Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)), mistletoe (Viscaceae), poison oak (*Rhus toxicodendron*), or grape vines (Hanna 1937 (/bow/species/yebcuc/cur/references#REF35999)).

Black-billed Cuckoo nests in similar habitat (Eastman 1991f (/bow/species/yebcuc/cur/references#REF50424)), but may also be found in more densely wooded areas (Eaton 1988j (/bow/species/yebcuc/cur/references#REF57825), Jauvin 1996b (/bow/species/yebcuc/cur/references#REF23294)), including coniferous trees (Peck and James 1983 (/bow/species/yebcuc/cur/references#REF2091)).

Site Characteristics

Table 1 (/bow/appendix/ACT1051009/APP1004430). Nest typically placed on horizontal branch or vertical fork of tree or large shrub; usually 1–6 m above ground, but observed to 27 m. In eastern Arkansas, mean height of nests over four breeding seasons: 4.9 m (range 2.8–9.4, *n* = 34); 5.5 m (range 2.7–13.2, *n* = 45); 5.6 m (range 1.5–23.4, *n* = 75); 8.2 m (range 1.4–27.0, *n* = 117; Wilson 1999c). Mean height of nest above ground: Ontario, 1–2 m (range 0.6–6.0, *n* = 55; Peck and James 1983 (/bow/species/yebcuc/cur/references#REF2091)); Kentucky, 2.5 m (range 0.8–6.2, *n* = 14; Mengel 1965b (/bow/species/yebcuc/cur/references#REF28926)); Indiana, 1.8 m (range 1–3.4, *n* = 3; Nolan 1963 (/bow/species/yebcuc/cur/references#REF23367)); w. Texas, 2.3 m ± 0.88 SD (range 1.4–3.4, *n* = 5; JMH); California, 3.5 m ± 0.84 SD (range 2.5–4.3, *n* = 4;Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429)); Arizona, 6.0 m ± 3.4 SD (range 1.8–13.0, *n* = 14; Laymon 1998). Data from 217 nests in w. Arizona and s. California: mean height of nest above ground 7 m (range 1–22 m); mean height of nest tree 11 m (range 3–30 m); average nest cover 78.4–93.4% (Laymon 1998, USFWS 2014a). Nest frequently placed 0.3–1.0 m from end of branch and 2–4 m from main tree trunk. Generally well concealed by surrounding foliage, particularly from above (Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429)). Nest of Black-billed Cuckoo also built on horizontal branch or in vertical fork, but often placed higher in tree (1–13.5 m, *n* = 233; Peck and James 1983 (/bow/species/yebcuc/cur/references#REF2091)).

Nest

Construction Process

Both adults build nest. Twigs (about 15 cm long) collected from ground or broken off vegetation with bill. When breaking dead twigs from branch, grasps twig in bill and bends back and forth until it snaps off; back arches and tail waves about when tugging at a stubborn twig. One twig at a time carried back to nesting tree, held crosswise in bill (Clay 1929 (/bow/species/yebcuc/cur/references#REF23288)). Nesting material gathered from area of approximately 0.4 ha, but most items probably collected within 10 m of nest site. Male may place nesting material or give to female for placement. In 0.5 h, male returned to nest site twice carrying a stick and 4 times with bill full of pine needles and grass and presented materials to female. (Eaton 1979 (/bow/species/yebcuc/cur/references#REF23290)). May build for 1–2 h at a time until nest completed (Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)). Pair will return to nest site within 15 min if disturbed during construction (JMH). Nest building took 2–3 d in eastern Arkansas (Wilson 1999b).

Construction continues for several days after first egg is laid. Once incubation has begun, male more likely than female to add or rearrange nesting materials (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)*;* adult typically brought twigs when returning to nest to relieve incubating bird (Halterman 2009). See Breeding: incubation, below.

Structure And Composition

Loose, flat, oblong platform of dry twigs (frequently willow), sparingly lined with dried leaves, strips of bark, and plant tendrils. Rim of nest may be scattered with dried pine needles (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)). Nest components are not intertwined. One nest in Arizona had mean twig diameter of 2.05 mm ± 0.45 SD (range 0.8–3.4, *n* = 51 twigs), and mean twig length of 137.45 mm ± 52.34 SD (range 50–280, *n* = 51 twigs). Detailed description of construction process, and measurements and species composition of nesting materials in Hamilton and Hamilton (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)). Eggs often can be seen through bottom or sides of nest.

Indistinguishable from nest of Mangrove Cuckoo. Nest of Black-billed Cuckoo similar, but may have somewhat sturdier construction (Peck and James 1983 (/bow/species/yebcuc/cur/references#REF2091), Eastman 1991f (/bow/species/yebcuc/cur/references#REF50424)) and more substantial lining (Jauvin 1996b (/bow/species/yebcuc/cur/references#REF23294)). Also, coniferous twigs and needles may comprise larger portion of Black-billed Cuckoo nest (Peck and James 1983 (/bow/species/yebcuc/cur/references#REF2091)).

Dimensions

Data from Bent (Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)), Preble (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)), Hamilton and Hamilton (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)), Potter (Potter 1980

(/bow/species/yebcuc/cur/references#REF50431)), and JMH. Depth: inside, 2–4 cm; outside, mean 7.7 cm ± 2.39 SD (range 3.8–10, *n* = 10). Diameter: inside, mean 12.3 cm ± 3.08 SD (range 10.2–18, *n* = 7); outside, mean 20.9 cm ± 7.67 SD (range 10–36.5, *n* = 19).

Microclimate

Nest often protected from prevailing winds or rain by thick overhanging branches (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432), Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)). In Arizona, nest sites had 6–13% greater daytime humidity and 1–2° C lower daytime temperatures than average forested sites (McNeil et al. 2012)

Maintenance Or Reuse Of Nests, Alternate Nests

Reuse of nest in one breeding season noted in Arkansas; nest found under construction 27 May had clutches within in early June and mid-July (Wilson 1999b). Infrequently uses abandoned nests of other species. Two eggs found in old Brown Thrasher (*Toxostoma rufum*) nest in Oklahoma (Sutton 1967b (/bow/species/yebcuc/cur/references#REF40041)). Two cuckoo eggs and two dove eggs found in dove nest; nest attended by pair of cuckoos (McNeil et al. 2012).

Nonbreeding Nests

No information; however, partially completed, abandoned nests have been observed (JMH).

Eggs

Shape

Elliptical to subelliptical.

Size

Eastern populations: mean length 30.6 mm (range 27.4–34.6); mean breadth 23.1 mm (range 20.8–25.4, *n* = 100; Schönwetter 1967 (/bow/species/yebcuc/cur/references#REF23283)); mean length 30.4 mm (range 27.43–34.64); mean breadth 23.0 mm (range 20.83–25.4, *n* = 53; Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)); mean length 30.7 mm ± 1.11 SD (range 29.58–33.2); mean breadth 23.4 mm ± 0.94 SD (range 21.84–24.9, *n* = 31; Fleischer et al. 1985b (/bow/species/yebcuc/cur/references#REF50425), JMH).

Western populations: mean length 30.8 mm (range 27.4–35.5); mean breadth 23.4 mm (range 21.0–25.0, *n* = 60; Schönwetter 1967 (/bow/species/yebcuc/cur/references#REF23283)); mean length 31.1 mm (range 27.5–35.5); mean breadth 23.1 mm (range 21.0–25.0, *n* = 43; Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)).

Data from Western Foundation Vertebrate Zoology (WFVZ), all populations: mean length 30.76 mm; mean breadth 23.04 mm (*n* = 542). Shape, as defined by ratio of length to breadth, may be useful to discriminate between eggs laid by ≥2 females (Fleischer et al. 1985b (/bow/species/yebcuc/cur/references#REF50425)).

Mass

Mass of fresh egg: eastern populations, mean 9.1 g (*n* = 100); western populations, mean 9.4 g (*n* = 60; Schönwetter 1967 (/bow/species/yebcuc/cur/references#REF23283)). Egg mass in proportion to body mass (about 14%) among largest known for nidicolous birds. Large egg allows for rapid development of both embryo and nestling, but costly for female to produce. Energy cost required for egg production ≥30% of female's daily intake (Nolan and Thompson 1975 (/bow/species/yebcuc/cur/references#REF36246)).

Color

Pale bluish green, unmarked, fading to light greenish yellow (Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)). Eggs may appear almost white in museum collections. Indistinguishable from eggs of Mangrove Cuckoo; lighter in color and less blue than eggs of Black-billed Cuckoo.

Surface Texture

Smooth. Not glossy.

Eggshell Thickness

Pre-DDT (1950): eastern populations, mean 0.13 mm (*n* = 100); western populations, mean 0.14 mm (*n* = 60; Schönwetter 1967 (/bow/species/yebcuc/cur/references#REF23283)); mean 0.143 mm (Layman and Halterman 1987). Post-DDT: western populations, mean 0.115 mm (Laymon and Halterman 1987

(/bow/species/yebcuc/cur/references#REF36000)). Mass of dry shell: eastern populations, mean 0.58 g (range 0.30–0.45, *n* = 100); western populations, mean 0.62 g (range 0.47–0.72, *n* = 60; Schönwetter 1967 (/bow/species/yebcuc/cur/references#REF23283)); all populations, mean 0.553 g (WFVZ). See Conservation and Management: effects of human activity, below.

Clutch Size

Variable; 1–5 eggs (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)); usually 2 or 3. Sets of >6 eggs may be attributable to more than one female laying in a single nest (Nolan and Thompson 1975 (/bow/species/yebcuc/cur/references#REF36246)). See Demography and populations: measures of breeding activity, below.

Egg-Laying

Usually lays every second day, but interval may be highly variable. Intervals of 1 d (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)) to 5 d (Nolan and Thompson 1975 (/bow/species/yebcuc/cur/references#REF36246), Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429)) reported. Longest intervals may reflect intraspecific parasitism. Eggs may be laid in incomplete nests (≤10 small twigs; J. K. pers. comm.). first egg laid within 24 of nest initiation in Arizona (Halterman 2009). Female may be mobbed by other birds while laying an egg in her own nest (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)). See Brood parasitism, below.

Incubation

Onset Of Broodiness And Incubation In Relation To Laying

Incubation continuous, beginning after first egg is laid (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760), Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)). Nests may contain partially incubated eggs and nestlings at highly variable stages of development (Nolan and Thompson 1975 (/bow/species/yebcuc/cur/references#REF36246)).

Incubation Patches

Both adults have incubation patches.

Incubation Period

Nine days (Potter Potter 1980 (/bow/species/yebcuc/cur/references#REF50431), Potter 1981 (/bow/species/yebcuc/cur/references#REF23301); J. K. Wilson pers. comm.) to 11 d (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)), not 14 d as reported by Bent (Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)) and many earlier authors.

Parental Behavior

Data from Preble (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)), Hamilton and Hamilton (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)), Eaton (Eaton 1979 (/bow/species/yebcuc/cur/references#REF23290)), Potter (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)), and JMH.

Both parents incubate; shared almost equally during day, but male relieves female shortly before dark and incubates through night. Male continues to provide female with nesting material during early stages of incubation; female accepts offering and works into nest while sitting. Male also brings nesting material each time he relieves incubating female. Female usually stays on nest until displaced by male. Male may leave before being displaced by female; however, female generally returns within 1 min of male leaving. Adults change places every 1–2 h throughout day, except in poor weather when incubating parent remains on nest until rain ends. When displacing each other, returning cuckoo sidles up to sitting cuckoo and exchanges positions with it; no vocalizations given. Returning adult usually lands near trunk of nest tree and creeps along branch to nest, but departing adult flies directly from nest.

Incubating bird generally faces outward away from tree trunk; long tail frequently aligned along nest limb, or cocked up at 45° angle with neck and bill. Position maintained for 1–35 min. Egg shifting with bill may occur frequently (twice in 3 min), but often occurs at intervals of approximately 10 min, associated with position change of incubating adult. Otherwise adult remains still while incubating. More restless on hot days; adult pants, preens,

and turns eggs more frequently. Incubation almost continuous until second egg hatches, after which offspring may remain uncovered for extended periods on warm days. Sitting adult may leave nest in response to other cuckoos calling. Will flush when intruder 0.5–12 m from nest (see Behavior: predation, above). Adults call frequently from nest and nearby perches.

In se. Arizona, males incubated at night; females did most of daytime incubation. Males incubated on average 13.8 h/d; females 7.3 h/d (*n* = 2). Daytime incubation bouts averaged about 2 h (range 20 min–4.5 h). Adult typically added twig to nest when exchanging incubation duty. Nests never unattended for >10 min during incubation (Halterman 2009).

Behavior of two females in se. Arizona during incubation suggests facultative serial polyandry. Females left nest just prior to young fledging; males continued to raise young without female assistance. Both females renested with other males within several days of leaving first nest. One female left second nest 4 d post-hatch, and initiated a third nest with another male; all 3 nests successful (Halterman 2009).

Hardiness Of Eggs Against Stress, Effect Of Neglect

No information.

Hatching

Preliminary Events And Vocalizations

No information.

Shell Breaking And Emergence

Shell is pipped around lesser circumference. Shell breaks in half exposing chick with head tucked beneath abdomen. Chick emerges from shell following several forceful kicks by feet; straightens out neck, lies quietly for several minutes. Adult utters rapid Cuc-cuk Call upon emergence (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). See Vocalizations: vocal array, above. Hatching asynchronous; nest may contain unhatched eggs and young of various ages.

Parental Assistance And Disposal Of Eggshells

Parental assistance not reported. Adult may crush and swallow a few eggshell fragments, but remainder not removed from nest (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432), Potter 1980 (/bow/species/yebcuc/cur/references#REF50431), JMH).

Young Birds

Condition At Hatching

Altricial, but alert and active within 10 min of hatching. Responds to touch by gaping and uttering a series of persistent buzzing notes (*qua-a-a-a-a*; Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). The skin is shiny black and unfeathered, except hairlike neossoptiles on pterylae; apteria bare (Nolan 1975 (/bow/species/yebcuc/cur/references#REF45658)). Legs, feet, and bill are light slate gray, and the gape is red with elaborate mouth markings. See Appearance: bare parts, below.

Growth And Development

Data from Preble (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)), Hamilton and Hamilton (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)), Potter (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431), Potter 1981 (/bow/species/yebcuc/cur/references#REF23301)), and JMH. Growth rapid, 17 d from start of incubation to fledgling—among shortest for any species of bird; young gain an average of 4.9 g/d while in nest. Nestling able to lift head well above nest rim 1.5 h after hatching. When begging, nestling stretches neck, elevating head to vertical position, and opens mouth fully wide. Posture accompanied by Begging Call and wing fluttering at a rate of 2/s. Begging initiated by adult stepping onto nest. Weight at hatching 8–9 g.

At age 1 d, partly covered with short pinfeathers; 1 or 2 eyes open; can stand in nest and flap wings. At 2 d (14–15 g), can grasp stick with feet and raise itself briefly. Begging reactions 1–90 s (mean 20 s) in duration. Can perch on side of nest and snap at flies. At 3 d (18–19 g), young stands on nest rim and turns tail outward when

defecating so parents can receive fecal sac. Clutches nesting material tightly with feet to avoid being lifted out of nest. At 5 d (27–30 g), both eyes open wide; chick attentive; begging reactions decreased to 1–10 s (mean 4) in duration. Covered with long, grayish (4–5 cm) feather sheaths. Pants continuously with open gape during midday to expend excess heat. Hunches down in nest, remains silent and motionless when threatened. At age 6–7 d (26–29 g), feather sheaths burst open; nestling methodically preens off sheaths with bill; within 2 h nestling is fully feathered, but tail is still short. Loose feces are expelled over nest rim. Maintains alert posture with tail up and wings down; emits hard, rasping Distress Call and clutches perch tightly if attempts are made to pick it up. Drop in body weight of 3–5 g often associated with sudden development of plumage. At age 8 d (32–34 g); all feather shafts broken except those just above bill; chick rubs head underwing to remove sheaths from crown feathers. Sunbathes on sunny side of nest. Able to move away from nest easily, and will fly to another perch, if necessary. Unseasonably cool weather during nesting period may delay bursting of feather sheaths and departure from nest by 1–3 d.

Data from Halterman (2009). Eggs hatched at night; weight on morning after hatching about 10 g. Chicks gained about 4.5 g/d on average for first 4 days; greatest 24 h weight gain of 9 g (*n* = 1 chick) at age 4–5 d. Weight gain stopped at age 5 d, but wing and tail feathers continues to grow about 4 mm/d.

Parental Care

Brooding

From Preble (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)) and Potter (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)). Both parents brood young, but male generally broods continuously at night. Brooding bouts less frequent and shorter in duration as chicks mature. One day after hatching, brooding parent absent from nest on 3 occasions for 10–35 min. By age 2–3 d, young brooded 7 times/d (3 h 25 min total); adult absent from nest for periods of 1–86 min (mean 30, 10 h total observation). By age 5–6 d, young brooded twice for total of 2 h 25 min during rainstorm; adult absent for periods of 1–67 min (mean 18, 12 h total observation). Brooded generally only during cooler times of day (e.g., dusk to early morning), during rainfall, when approached by predators, and to provide shade from midday sun. Daylight brooding ceased after nestlings burst feather sheaths (age 6 d).

During late afternoon thunderstorm, brooding adult faced into wind and depressed back down to level of nest rim; did not leave nest for remainder of evening (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). Adult shades young in nest by standing at nest edge with back to sun and spreading wings (Hamilton III and Hamilton 1965 (/bow/species/yebcuc/cur/references#REF56760)).

Nests never unattended for more than 10 min during first 4 d of nestling care (Halterman 2009).

Feeding

Both parents feed young. Work load may be shared equally by male and female (Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429)), or 1 parent may supply most food (32 of 39 foraging trips). Foraging trips about 10 min in length; adult usually leaves and returns to nest via same route. Adult utters faint, but rapid, Cuk-cuk Call when returning to nest with food (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). Begging Calls are quiet, repeating *cuk-cuk-cuk-cur-r-r-r-rrr* (Bent 1940a (/bow/species/yebcuc/cur/references#REF55437)). See Sounds: vocalizations, above.

Young fed first within 1 h of hatching. Bill inserted in throat of <1 d old nestling and held for about 1 min until food swallowed. Food (mostly caterpillars) first crushed and swallowed by adult, then regurgitated into mouth of nestling. Nestlings >1 d old receive whole caterpillars, butterflies, and katydids. At age 2–3 d, young fed 13 caterpillars, 1 grasshopper, and 1 other insect/d. At age 5–6 d, fed 28 caterpillars, and 3 other insects/d (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). One hundred food items observed brought to 1 nest (56 by 1 adult parent, 46 by other adult parent, and 2 by second female observed at nest; see Cooperative breeding, below). Food items included 40 caterpillars, 30 grasshoppers, 5 katydids, and 25 other insects (Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429)). In Arkansas, nestlings fed green tree frogs, katydids, tree crickets, beetles, and small spiders (J. K. Wilson pers. comm.). In Arizona, young fed grasshoppers, cicadas, caterpillars, sphinx moths (Sphingidae), swallowtail butterflies (Papilionidae), katydids, and tree lizards (*Urosaurus* sp.). Tree lizards about 4 g in weight fed to 20 g nestlings (Halterman 2009).

Frequency of feeding increases as chicks mature. At age 2–3 d, young fed 15 times/d with 5–180 min (mean 64) between feedings; at age 5–6 d, young fed 31 times/d with 1–139 min (mean 29) between feedings (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). One nest with 3 chicks: mean feedings/d 10.0 ± 5.8 SD (range 8–27, *n* = 10); mean feedings/h 1.8 ± 0.64 SD (range 1.3–3.4, *n* = 10); mean time between feedings 31.0 min (range 1–106, *n* = 10). Number of feedings per hour for each chick decreases as subsequent chicks hatch. One young in nest fed 1.4 times/h, 2 young fed 1.9 times/h, and 3 young fed 3.4 times/h. Younger chicks receive less food than older chicks; may be insufficient for survival. Mean number of feedings per day for each chick: first hatched chick 9.1 ± 3.9 SD (range 3–14, *n* = 8); second hatched chick 8.9 ± 3.18 SD (range 4–13, *n* = 8); third hatched chick 3.0 (*n* = 1). Adult may remove last hatched chick from nest if unable to provide enough food for it, even if it is begging vigorously (Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429)).

In se. Arizona, males provided about twice as much food as females, but females brought larger food items. Total daily food deliveries low (range 9.3–16.3 food items total; range 5.6–9.8 food items/nestling). Female decreased food delivery 2 d prior to fledging and stopped feeding when fledging. Smallest nestling (age > 18 h) in 1 nest denied food for at least 8 h, then observed being carried off by adult (Halterman 2009).

Nest Sanitation

Young expel fecal sacs shortly after eating; adult may assist by removing them directly from cloaca. By age 3–4 d, chick may stand on nest rim allowing adult to grasp sac as it emerges (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)); adult may eat fecal sacs or remove them from nest. By age 6 d, young can defecate over edge of nest (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). Nest remains free from droppings (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)).

Parental Carrying Of Young

None reported.

Cooperative Breeding

Helpers

May occur on occasion. Two females and 2 males observed tending single nests in s. California during periods of food abundance (Laymon 1998). Nonparent adult observed at nest feeding young in 5-egg clutch; fourth cuckoo also visited same nest, but did not attempt to feed. Clutch likely laid by 2 females (Laymon 1980 (/bow/species/yebcuc/cur/references#REF50429)). In South Fork Kern River, CA, 30% of nests tended by apparently unrelated helper males (Laymon et al. 1997, Laymon 1998). In Arkansas, 3 adults, spaced <5 m apart, gave Knocker Call in nest vicinity, suggesting all were tending nest (J. K. Wilson pers. comm.). See Sounds: vocalizations, above. In Arizona, 3 adults observed incubating and provisioning young at nest (Halterman 2009).

Results Of Helping

No information.

Brood Parasitism by Other Species

Action As A Parasitic Species

Identity Of Parasitized Species. Intraspecific brood parasite that occasionally lays eggs in other Yellow-billed Cuckoo nests. Recognized by unusually large clutches (5–11 eggs), eggs appearing after clutch complete, irregular laying intervals (Hughes 1997 (/bow/species/yebcuc/cur/references#REF57974)), eggs within clutch differing greatly in shape, and egg protein electrophoresis (Fleischer et al. 1985b (/bow/species/yebcuc/cur/references#REF50425)). Also occasional interspecific brood parasite. Known to parasitize at least 11 other bird species; most frequent hosts: Black-billed Cuckoo, American Robin, Gray Catbird, and Wood Thrush (Hughes 1997 (/bow/species/yebcuc/cur/references#REF57974)). Three dove nests in w. Arizona contained cuckoo eggs and dove eggs; 1 nest attended by pair of adult cuckoos (McNeil et al. 2012).

Frequency Of Occurrence, Seasonal Or Geographic Variation. Intraspecific parasitism may be common but frequency has not been quantified. May occur more often during breeding seasons of food abundance when female produces eggs in excess of nest capacity, or when she has no nest. Nesting anomalies well documented during years with massive outbreaks of 17-year and annual cicadas (Nolan and Thompson 1975 (/bow/species/yebcuc/cur/references#REF36246), Fleischer et al. 1985b

(/bow/species/yebcuc/cur/references#REF50425)). Probably also occurs during outbreaks of forest tent caterpillar, *Lymantria dispar*, and other lepidoptera. Interspecific parasitism may be rare. Survey of 39 nests with cuckoo eggs revealed only 3 cases of intrageneric parasitism (Yellow-billed x Black-billed cuckoo) and 1 case of interordinal parasitism (Yellow-billed Cuckoo x Rufous-sided Towhee [*Pipilo erythrophthalmus*]; Nolan and Thompson 1975 (/bow/species/yebcuc/cur/references#REF36246)).

Timing Of Laying In Response To Host's Laying. Poorly known. One egg laid in Red-winged Blackbird nest containing 4 eggs after host clutch was complete. Cuckoo egg hatched 3 and 4 days after blackbird eggs (Yasukawa 2010).

Other Species' Response To Parasitic Mother, Eggs, Or Nestlings. Little information available. Female mobbed by other birds (e.g., Wood Thrush, Carolina Chickadee) as she approached her own nest to lay or settled to incubate; suggests that other bird species may be aware of inherent tendency towards parasitism (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)). See Behavior: social and interspecific behavior, above.

Effects Of Parasitism On Host. Poorly known. Cuckoo chick begged and vocalized vigorously, and stood on backs of Red-winged Blackbird host chicks to gain advantageous position in nest (Yasukawa 2010).

Success Of Parasitism. Little information available. Successfully hatched or fledged by ≥5 other bird species, including Black-billed Cuckoo, Northern Cardinal (*Cardinalis cardinalis*), and Red-winged Blackbird (*Agelaius phoeniceus*). However, successful attempts at parasitism may be greatly underestimated because most parasitized clutches were collected for their value as oddities, had no follow-up observation, or were predated before young hatched or fledged (Hughes 1997, Yasukawa 2010).

Subject Of Brood Parasitism

Occasionally host of Brown-headed Cowbird (*Molothrus ater*; Friedmann 1971 (/bow/species/yebcuc/cur/references#REF21104)). In s. Texas, rarely parasitized by Bronzed Cowbird (*M. aeneus*; Clotfelter and Brush 1995 (/bow/species/yebcuc/cur/references#REF5677)). Also subject to occasional parasitism by Black-billed Cuckoo, but more frequently to egg dumping by conspecifics. See Action as brood parasite, above.

Frequency Of Occurrence, Seasonal Or Geographic Variation. No information.

Timing Of Laying In Response To Host's Laying. No information.

Response To Parasitic Mother, Eggs, Or Nestlings. No evidence that cuckoo rejects cowbird eggs by either ejection or desertion (Clotfelter and Brush 1995 (/bow/species/yebcuc/cur/references#REF5677)).

Effects Of Parasitism On Host. Little information. Bronzed Cowbird may puncture cuckoo eggs when laying in nest (Clotfelter and Brush 1995 (/bow/species/yebcuc/cur/references#REF5677)).

Success Of Parasite With This Host. Little information; needs study. Probably low; unlikely that cowbird chick would fledge successfully. Cowbird usually selects hosts with longer nestling period than itself (11 d; Clotfelter and Brush 1995 (/bow/species/yebcuc/cur/references#REF5677)); however, cuckoo has nestling period of 7–9 d.

Fledgling Stage

Departure From Nest

Fledges at age 7–9 d (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)) when nestling able to support itself on legs for extended period (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). Chick leaves nest and runs along supporting limb to meet adult approaching with food; disappears into foliage above nest where adult attends (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)). Fledging asynchronous; broods of >2 young may fledge over several days (J. K. Wilson pers. comm.).

Growth

Weight at fledging about 38 g (Preble 1957 (/bow/species/yebcuc/cur/references#REF50432)). Fledgling resembles adult except for shorter tail, gray eyelids, and absence of yellow on slightly stubby bill.

Association With Parents Or Other Young

Males provided most of care to fledglings in southeastern Arizona (Halterman 2009). Within 4 h, adult and fledgling move about 30 m from nest. Parent in attendance when chick fledges; continues to provide for it. Subsequent fledgling attended by other parent; 1 d after fledging, adults and young have left nest vicinity (Potter 1980 (/bow/species/yebcuc/cur/references#REF50431)).

Ability To Get Around, Feed, Care For Self

Little information; needs further study. Flies at age about 21 d (Jauvin 1996b (/bow/species/yebcuc/cur/references#REF23294)).

Immature Stage

No information; needs study.

‹ **Behavior (/bow/species/yebcuc/cur/behavior)**

Demography and Populations (/bow/species/yebcuc/cur/demography) ›

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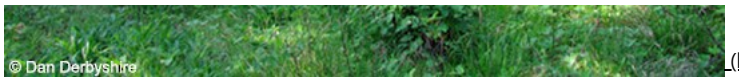
Yellow-billed Cuckoos mating, Warbler Woods Sanctuary, Guadalupe Co., TX, 15 June.

Immediately prior to copulation, male Yellow-billed Cuckoos will offer the female a food item, or small stick. Both partners hold the item while mating. The following is a link to this contributor's image via Birdshare (https://www.flickr.com/groups/birdshare/): Lora Render (https://www.flickr.com/photos/texaslorarend/7379955736/in/photolist-cf9cJ9-nuowtN-nmi6ij-fzaKWx-p48UdB-cTAECW-nX5UDW-aeswue-cf9cku-sjNBn5-75tCbb-fJK3fc-caD8rA-nMVPAN-ejKqJD-nhZXH1-oZZFyZ-nKY5iR-8cJ4Ev-afYzFL-nwvDtK-ejRasw-dowH2q-bVdDLn-8hNN8K-c5uMK5-fWPW2S-9R3wMx-6Zcc3X-cCShA5-ctefgW-84q87i-9R6pS7-niJATL-84tbd1-eNNT3g-ekd1bv-dbnjDi-9R6cwW-aAr2XG-ctvaXQ-fdHjew-9RarmR-a3wL4S-9WYi2H-ctdxiA-nt9dF5-6Pq1Vz-9C4D1M-f9A7QT/).



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Yellow-billed Cuckoo nest site, Sharbot Lake, Frontenac Co., ON, 30 May.

Generally nests in groves of broad-leafed deciduous hardwoods with thick bushes, vines, or hedgerows providing dense foliage within 10 m of ground. Nest is shown in red circle. Image by Dan Derbyshire: Frontenac Bird Studies (http://frontenacbirds.ca/); the Nest Files- Yellow-billed Cuckoo (http://frontenacbirds.ca/2010/05/30/the-nest-files-yellow-billed-cuckoo/).

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Adult Yellow-billed Cuckoo on nest, Sharbot Lake, Frontenac Co., ON, 30 May.

Nest typically placed on horizontal branch or vertical fork of tree or large shrub. Image by Dan Derbyshire: Frontenac Bird Studies (http://frontenacbirds.ca/); the Nest Files- Yellow-billed Cuckoo (http://frontenacbirds.ca/2010/05/30/the-nest-files-yellow-billed-cuckoo/).

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Yellow-billed Cuckoo eggs in nest, Sharbot Lake, Frontenac Co., ON, June.

Eggs are pale bluish green, unmarked, fading to light greenish yellow. Image by Dan Derbyshire: Frontenac Bird Studies (http://frontenacbirds.ca/); the Nest Files- Yellow-billed Cuckoo (http://frontenacbirds.ca/2010/05/30/the-nest-files-yellow-billed-cuckoo/).

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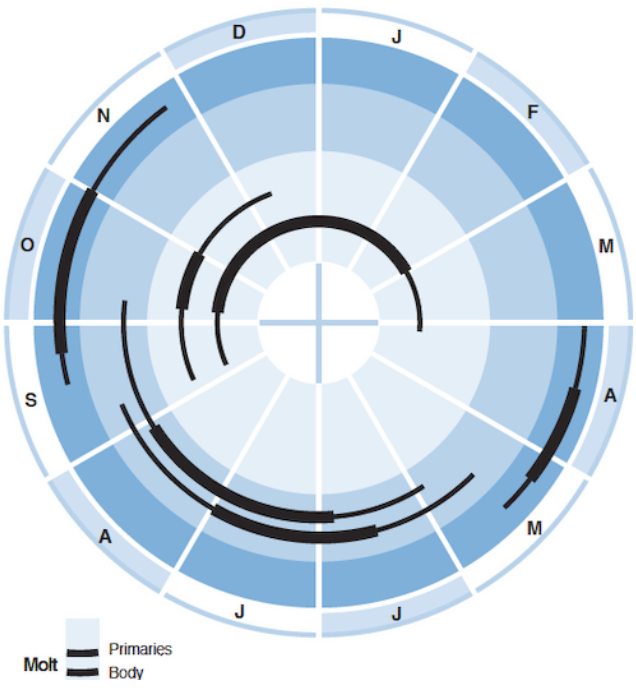
Yellow-billed Cuckoo nestling in Red-winged Blackbird nest, Newark Road Prairie, Rock Co., WI, 21 May.

Yellow-billed Cuckoos are both intraspecific and interspecific brood parasites. Yellow-billed Cuckoo nestling on right; two Red-winged Blackbird nestlings on left. Cuckoo chick begged and vocalized vigorously, and stood on backs of Red-winged Blackbird host chicks to gain advantageous position in nest. See Yasukawa (2010) (http://wjoonline.org/doi/abs/10.1676/09-132.1) for more details.



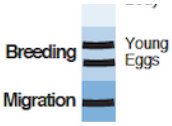


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Figure 5. Annual cycle of breeding, migration, and molt by Yellow-billed Cuckoos.

Annual cycle of breeding, migration, and molt by Yellow-billed Cuckoos in the central U.S. Thick lines show peak activity; thin lines, off-peak. Northern and western populations arrive and breed 2–8 wk later, and depart for wintering grounds 2–4 wk earlier. See text for details.

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Yellow-billed Cuckoo nestlings in nest, Sharbot Lake, Frontenac Co., ON, June.

In the first week after hatching, nestlings are covered first with pinfeathers, and then long, grayish feather sheaths. At age 6–7 d, feather sheaths burst open, and nestling methodically preens off sheaths with bill. Within 2 hours, nestling appears fully feathered. Image by Dan Derbyshire: Frontenac Bird Studies (http://frontenacbirds.ca/): the Nest Files- Yellow-billed Cuckoo (http://frontenacbirds.ca/2010/05/30/the-nest-files-yellow-billed-cuckoo/).

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