

## Another Example of Nest Sharing by American Robins and Gray Catbirds

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**Abstract** - In June 2020, we monitored a nest in Southampton, MA, that contained 2 *Dumetella carolinensis* (Gray Catbird) and 3 *Turdus migratorius* (American Robin) eggs. Females of both species alternately incubated the mixed clutch, and 2 catbird and 2 robin young successfully hatched and fledged from the nest. Adults of both species provided both intra- and interspecific parental care (e.g., nestling provisioning, brooding, and nest sanitation). The catbirds, in particular, often did not preferentially provision their own young. In fact, following earlier fledging of the catbird young, an adult catbird continued to visit the nest to care for the robin nestlings, including fecal sac removal on at least 2 occasions. After the 2 robin young fledged, we did not observe any crossover post-fledging care. Our study represents the most detailed and protracted account among the very few documented cases of nest sharing between these species.

*Introduction.* Nests containing eggs or young of multiple bird species are highly unusual, except in the case of obligate brood parasites (e.g., *Molothrus ater* (Boddaert) [Brown-headed Cowbird]), competing species of cavity-nesting birds (Barrientos et al. 2015, Robinson et al. 2005, Samplonius and Both 2014, Simpkin and Gubanich 1991, Suzuki and Tsuchiya 2010), and some waterfowl (Sorenson 1997). In the specific case of open-cup nesting passerines, the presence of eggs from more than 1 species has sometimes resulted from egg-dumping by gravid females following the sudden loss of their nests (Holcomb 1967, Wiens 1971), as a result of facultative brood parasitism (Nolan and Thompson 1975), and due to nest usurpation (Lindell 1996). There are few records where 2 or more songbirds have used the same nest simultaneously and both contributed eggs to the clutch. In these cases, ordinarily just 1 species provided parental care (Samplonius and Both 2014, Suzuki and Tsuchiya 2010) or the young of just 1 of the species survived (Bailey and Niedrach 1936, Brackbill 1952, Govoni et al. 2009, Redmond 2020).

Instances in which 2 different species contribute eggs to a clutch and provide parental care leading to successful fledging of the young of both species are quite rare. Interestingly, all such cases, including the instance reported on here, have involved the same 2 species. Wetherbee (1930) reported crossover parental care between a pair of *Dumetella carolinensis* (L.) (Gray Catbird, hereafter Catbird) and a pair of *Turdus migratorius* L. (American Robin, hereafter Robin) that had built their nests in the same ornamental *Syringa vulgaris* L. (Common Lilac, hereafter Lilac) bush. The Robin nest was about a meter above the Catbird nest. The Robin and Catbird took turns incubating the Catbird eggs, and after they hatched, the Catbird nestlings were brooded and fed by both species. The Catbird young fledged 3 days prior to the Robin young. Redmond (2020) documented facultative brood parasitism, with 2 Robin eggs deposited in a Catbird nest. In this case, the adult Robins provided no parental care at the nest, which contained no Catbird eggs or young; nevertheless, the 2 Robin eggs hatched and the Robin young fledged successfully with parental provisioning solely by the Catbirds. Lastly, Benton (1961a, 1961b) documented a Catbird pair that began building a nest in a Lilac bush beside a house in Loudonville, NY, when a Robin pair co-opted the nest building. The nest eventually contained 3 Catbird and 4 Robin eggs. Incubation was mostly

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by the more assertive female Robin, but the female Catbird took over nesting duties when the Robin was away. Ultimately, 1 Catbird and 2 Robins fledged from that nest.

Here, we document a surprisingly similar case with Gray Catbirds and American Robins caring for eggs and nestlings of both species. Because we noticed this occurrence early on, we were able to install an endoscopic camera to monitor the nest. The camera enabled us to observe (1) how the species interacted with one another, (2) whether and to what degree each contributed to overall nest and nestling care and protection, (3) whether or not they provided crossover parental care, and (4) whether or not the nest was successful (i.e., fledging 1 or more young) for 1 or both species.

*Methods.* On 5 June 2020, we discovered a Catbird nest in a large Lilac bush near the front door of a home in a wooded residential community (Southampton) located 19 km NW of Springfield, MA. We monitored the nest for 29 d, from 5 June to 3 July 2020. We made our initial observation by carefully looking directly into the nest when the adult birds were absent. We documented nest progress daily (5 to 27 June 2020) by quickly taking handheld photographs with an iOS 6.0S cell phone held ~45 cm directly above the nest when no adult birds were present. Starting on 29 June 2020, 10 d after the eggs had hatched, we installed a Depstech model WF-010 endoscopic inspection camera with 10-m-long waterproof endoscope tubing (cost ~\$35; [www.depstech.com](http://www.depstech.com), Guangdong, China; Fig. 1). The nest was <4 m from the adjacent house, so we were able to run the camera on household current and

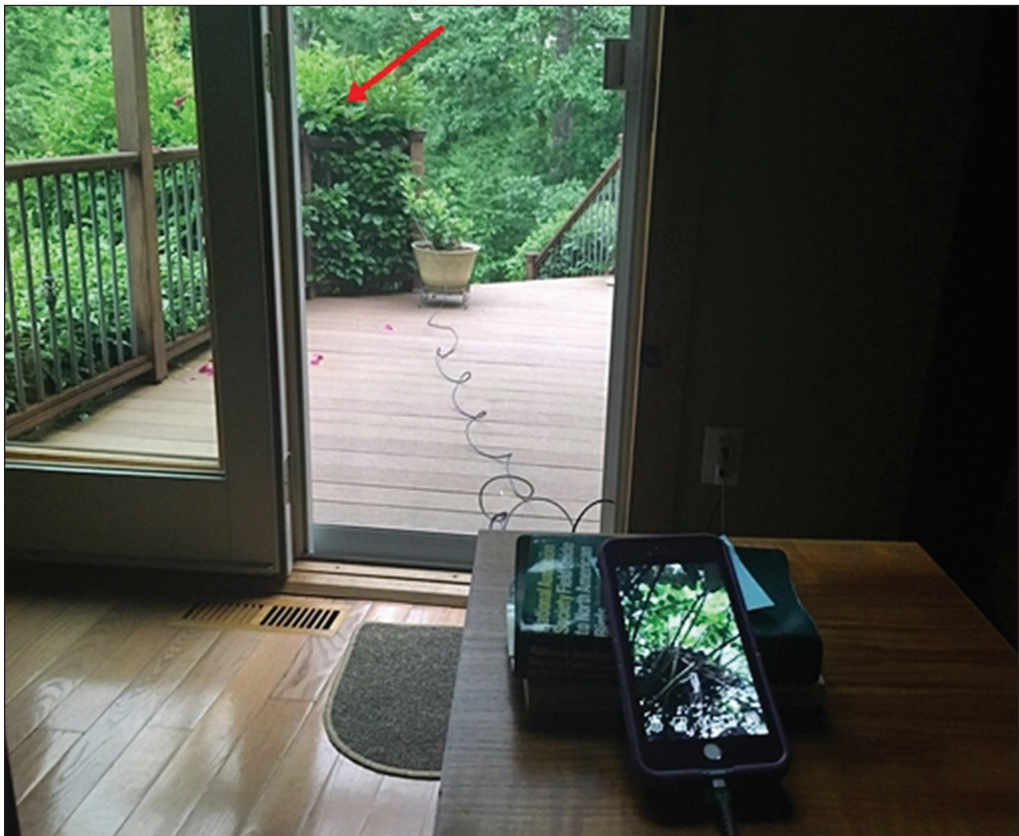


Figure 1. Endoscopic inspection camera setup used to observe and document nest sharing by Gray Catbirds and American Robins in a Lilac bush (red arrow indicates the location of the nest observed for this study).

monitor the nest more or less continuously for the next 5 d from early morning until dark. The Depstech app enabled us to observe activities at the nest from inside the house. Because the camera did not have a motion-sensitive switch for recording, we manually switched video recording on or off based on activity that we could see via the camera feed to the iPhone (Fig. 1). We kept a detailed log and tried to obtain a photo or video record of as many nest visits and nest behaviors as possible, including brooding, nestling provisioning, and nest sanitation. In all, we documented the nest with 44 videos totaling 28.5 minutes, and 49 still photos (15 handheld and 34 using the endoscopic camera). We estimated onset of incubation by backdating 13 d from known hatching dates (Smith et al. 2020, Vanderhoff et al. 2020).

*Results.* The Catbird laid 1 egg on 5 June and another on 6 June 2020, and the Robin laid 3 eggs between 7 and 9 June 2020, resulting in a 5-egg clutch (Fig. 2). Because we did not install the endoscopic camera until after any of the eggs hatched, we do not know if the female Robin may have removed other Catbird eggs before or after she laid her eggs. One Robin egg disappeared sometime over 17–18 June 2020, leaving 2 eggs of each species in the nest.

We observed both species in and near the Lilac that contained the nest throughout the incubation period, including presumed incubation changeovers (i.e., a bird of one species entering, followed by a bird of the other species leaving the Lilac bush) on several occasions. Two Catbirds eggs and 1 Robin egg hatched on 19 June, and the second Robin egg hatched on 20 June. We estimated that incubation likely commenced on 7 June, which is when the Robin laid its first egg in the nest. The young of the 2 species were easily



Figure 2. The final complete clutch in the joint nest was comprised of 2 Gray Catbird (the darker eggs; labeled “C”) and 3 American Robin eggs (labeled “R”) (10 June 2020 photograph © D. Murray).



distinguishable based on size and the color of their natal down (white in the Robins and dark gray in the Catbirds; Fig. 3).

All 4 adults shared in nest provisioning responsibilities. Adults of the 2 species sometimes arrived at the nest carrying food simultaneously, leading briefly to agonistic behavior. In such disputes, the adult Robins ordinarily prevailed over the adult Catbirds. The Catbirds, however, were persistent, and, on a few occasions, a Robin and Catbird did attend to the nestlings simultaneously. For example, we captured video where an adult of each species fed a chick of the other species after a brief tug-of-war with a large caterpillar. Following this, both adults grabbed at a single fecal sac that separated and was consumed in part by each (see Supplemental File 1, available online at <https://www.eaglehill.us/NENAonline/suppl-files/n29-3-N1957-Mulvihill-s1>, and for BioOne subscribers, at <https://www.doi.org/10.1656/N1957.s1>). In this same video, the Catbird gapes and raises its wings partly twice and once fully in an aggressive or defensive posture, and then it leaves the nest. During a rain event, we obtained a video of a Catbird and the female Robin sitting more or less side-by-side sheltering the nestlings for several minutes (see Supplemental File 2, available online at <https://www.eaglehill.us/NENAonline/suppl-files/n29-3-N1957-Mulvihill-s2>, and for BioOne subscribers, at <https://www.doi.org/10.1656/N1957.s2>) until the male Robin arrived with food. In anticipation, the Catbird gaped and displayed a partial wing flash, then the arriving Robin aggressively pecked toward it, and the Catbird exited the nest.



Figure 3. The joint nest contained 2 Gray Catbird (darker) and 2 American Robin (lighter) young on 20 June 2020 (photograph © D. Murray).

Both Catbird chicks fledged late on 30 June, although 1 chick did seem to have second thoughts and actually returned to the nest briefly (see Supplemental File 3, available online at <https://www.eaglehill.us/NENAonline/suppl-files/n29-3-N1957-Mulvihill-s3>, and for BioOne subscribers, at <https://www.doi.org/10.1656/N1957.s3>). The 2 Robin nestlings remained in the nest together for another 2 days (Fig. 4), during which time we observed an adult Catbird visit the nest and remove a fecal sac (see Supplemental File 4, available online at <https://www.eaglehill.us/NENAonline/suppl-files/n29-3-N1957-Mulvihill-s4>, and for BioOne subscribers, at <https://www.doi.org/10.1656/N1957.s4>). At dusk on the evening of 1 July, we videotaped an adult Catbird sitting on the nest and brooding the 2 Robin chicks, at the same time that we could hear the adult male Robin singing nearby until dark. After his singing ended, we documented an adult Robin returning to the nest and forcibly taking the place of the brooding Catbird (see Supplemental File S5, available online at <https://www.eaglehill.us/NENAonline/suppl-files/n29-3-N1957-Mulvihill-s5>, and for BioOne subscribers, at <https://www.doi.org/10.1656/N1957.s5>). The first Robin nestling fledged on 2 July, and the second Robin apparently fledged before 0800 on 4 July 2020, when we observed that the nest was empty.

We closely examined the nest after all the young had fledged and found that it was situated 1.37 m (i.e., two-thirds of the way) up in the interior of a dense, 2-m-tall Lilac. Numerous crisscrossing vertical shrub stems provided support for the nest. The nest comprised coarse sticks and grasses, but without any mud (Fig. 5). We also measured the nest and found it was 14 cm deep, with a 14 cm outer cup diameter and 8.9 cm inner cup diameter. The inner nest cup was 3.8 cm deep. Of these measurements, only the nest-cup diameter more closely matched that of nests typical of Robins than those of Catbirds (Fig. 4).



Figure 4. The 2 remaining 11-d-old American Robin nestlings on 1 July 2020, after both Gray Catbird nestlings had fledged (photograph © D. Murray).



*Discussion.* The present case of nest sharing by Catbirds and Robins differs from other documented cases in several important ways. First, we documented the nest continually with direct observations and an endoscopic camera. Second, both adult pairs closely attended this shared nest from laying through fledging; and, third, this nest ultimately fledged young of both species. Interestingly, although the Catbird young fledged before their Robin nest mates, the adult Catbirds nevertheless continued to provide care to the nestling Robins, indicating that they did not differentiate between their own and the Robins' young. Neither species was observed nesting in the same location in the following year (i.e., spring/summer 2021; D. Murray, pers. observ.).

Observers have documented Robin nests containing eggs or young of at least 5 other species (notably not including Gray Catbird) (Bailey and Niedrach 1936, Davison 1887, Govoni et al. 2009, Holcomb 1967, Raney 1939). In comparison, Catbirds have hosted eggs and young of just 2 species: American Robin on 3 occasions, including the 1 reported here (Benton 1961a, 1961b; Redmond 2020; this study); also, *Zenaida macroura* (L.) (Mourning Dove) on 2 occasions (Holcomb 1967). We have learned that Robins occasionally add mud to old nests of both Northern Cardinals and Catbirds, and then reuse the nests of those species for their own eggs (D. Narango, University of Massachusetts, Amherst, MA, pers. comm.). However, to our knowledge, Robins have only been observed to lay their eggs in active nests of Catbirds; conversely, Catbirds have never been reported to lay eggs in the nest of another species (Table 1).

Figure 5. The nest discussed in the present study had a very coarse and bulky stick construction typical of Gray Catbird nests; it lacked the mud component typical of a American Robin's nest (photographs © D. Murray).



The normal clutch for Catbirds is 3-4 eggs (min-max = 1-5; Smith et al. 2020) and the normal clutch size for Robins also is 3-4 eggs (in-max = 3-5; Vanderhoff et al. 2020). Because we did not install the camera until after hatching, we do not know if the female Robin may have removed additional Catbird eggs when she laid her eggs. The siting of the nest reported on here, as well as the nest materials and nest dimensions, agrees well with published descriptions of Catbird nests (Smith et al. 2020, Vanderhoff et al. 2020; Table 2). Only the nest cup diameter more closely matched that of Robin nests; however, we suspect

Table 1. Summary of published records of selected non-brood parasitic North American passerines and near-passerines that laid eggs in an active nest of a different species\*.

Egg species	Nest species				
	AMRO	GRCA	NOCA	WOTH	SAVS
AMRO		Benton 1961a,b; Redmond 2020; this study			
GRCA					
BRTH				Bailey 1887	
NOCA	Govoni et al 2009				
MODO	Holcomb 1967 (2 cases); Davison 1887 (3-way, also w/YBCU); Raney 1939	Holcomb 1967 (2 cases)			
SOSP			Brackbill 1952		
GRSP					Wiens 1971
YBCU	Davison 1887 (3-way, also w/MODO)				

\* AMRO = American Robin, GRCA = Gray Catbird, GRSP = *Ammodramus savannarum* (Gmelin) (Grasshopper Sparrow), MODO = Mourning Dove, NOCA = Northern Cardinal, SAVS = *Passerculus sandwichensis* (Gmelin) (Savannah Sparrow), SOSP = Song Sparrow, WOTH = *Hylocichla mustelina* (Gmelin) (Wood Thrush), and YBCU = *Coccyzus americanus* (L.) (Yellow-billed Cuckoo).

Table 2. Dimensions (cm) of the shared nest described in this study compared to published dimensions for Gray Catbird (GRCA) and American Robin (AMRO) nests.

Variable	This study	GRCA nest (Smith et al. 2020)	AMRO nest (Vanderhoff et al. 2020)
Nest-cup diameter	8.9	8.3	8.7
Nest-cup depth	3.8	4.5	5.8
Nest diameter	14.0	14.0	14.2
Nest height*	8.9 (14.0*)	8.9	11.3

\*Nest height when the loose foundation of coarse sticks situated below the woven nest is included (see Fig. 5).

that was the result of eventual stretching of the nest cup by the much larger Robin young (Fig. 4). Combined with the fact that we did not observe Robins near the nest until after it already contained 2 Catbird eggs, this information strongly supports our conclusion that in the present case it was a pair of Robins that contemporaneously shared a nest constructed entirely by a pair of Catbirds.

Finally, we think there is a need for refining and clarifying the terminology used in categorizing mixed-species nesting events. In our research, we came across a variety of terms, including joint nesting, co-nesting, communal nesting, nest sharing, nest usurpation, nest piracy, egg dumping, mixed clutch, and facultative brood parasitism to describe nests containing eggs or young of 2 or more different species. Joint nesting often is used synonymously with communal nesting and is typically applied to intraspecific cases (e.g., *Crotophaga sulcirostris* (Swainson) [Groove-billed Ani; Vehrencamp 1978]; *Melanerpes formicivorus* (Swainson) [Acorn Woodpecker; Mumme et al. 1988]) where multiple females of the same species lay eggs in the same nest. We chose to use “nest sharing” in this study because we found that previous authors used the term more than twice as often as any other term in cases like the current study. In order to consolidate the literature on this interesting natural history variation, we recommend that future observations of concurrent overlap of 2 species at a single nest whose clutch or brood comprises the eggs or young of both of those species in some proportion, be consistently termed “nest sharing”. We define nest sharing here as any breeding attempt, successful or not, where 2 or more bird species have used the same physical nest as a repository for their eggs, and where all the contributing species have contributed some parental care over the entire course of nesting attempt.

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