CHANGING SEASONAL STATUS AND FIRST KNOWN BREEDING ACTIVITY OF RUFOUS-BACKED ROBIN IN THE UNITED STATES

CHRISTINA KONDRAT-SMITH, CKONDRAT-SMITH@AZGFD.GOV TROY CORMAN, APLOMADO@COX.NET

ABSTRACT: Rufous-backed Robin (*Turdus rufopalliatus*) observations in the southwestern U.S. have steadily increased during the past decade, particularly in Arizona. This includes late spring and summer records. From fall 2017 through winter 2018, unprecedented numbers of these robins were documented in Arizona, with some lingering well into May. Then in June 2018, observers first noted breeding activity from a pair of Rufous-backed Robins in Ramsey Canyon, Huachuca Mountains, in southeastern Arizona. Breeding activity observed included singing, collecting nesting material, territorial chase bouts with nearby American Robins (*Turdus migratorius*), and ultimately, feeding nestlings and fledglings. This nesting endeavor was intermittently monitored and photographed through early August, providing the first documented nesting activity of Rufous-backed Robins within the U.S.

The Rufous-backed Robin (Figure 1) is a common resident and endemic to the Pacific slope of Mexico, from southern Sonora south to Oaxaca (Howell and Webb 1995). This bird's breeding distribution is changing, showing a pattern of northward expansion. Russell and Monson (1998) noted the Rufous-backed Robin breeding north to the Río Yaqui drainage near Tónichi in east-central Sonora. More recent records (June and July 2016 to 2018) show observations of 2-4 individuals documented on the Río Sonora near Mazocáhui and Río Baviacora (northeast of Hermosillo), suggesting more northern and possible expanding breeding populations in Sonora (eBird 2019).

The first known Rufous-backed Robin in the U.S. was discovered and collected near Nogales, Arizona in December 1960 (Harrison 1962, Phillips et al. 1964). Most current records obtained through eBird detailing historical and recent detections (as of winter of 2019) confirm that the bird is found annually in small numbers during the fall and winter in Arizona and casually in California, New Mexico, and Texas. A few individuals have also been discovered occasionally during winter months as far north as southern Nevada and southwestern Utah (eBird 2019). A closer look at the apparent increase in the number of winter detections shows that Monson and Phillips (1981) noted that an average of 5 Rufous-backed Robins could be expected in Arizona in the fall and winter. During the past decade, this annual average has doubled to approximately 10 individuals, with a range of 5 to



Figure 1. Rufous-backed Robin, Catalina State Park, Pima County, 18 February 2016. Photo by Gordon Karre

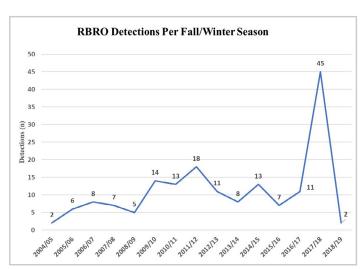


Figure 2. Annual September to March Rufous-backed Robin detections in Arizona, 2004-2019

18 individuals reported annually between September and March (Figure 2; Stevenson and Rosenberg 2008, Arizona Field Ornithologists (AZFO) Seasonal Reports, eBird 2019). A high count of 18 different individuals was noted from October 2011 through March 2012 (AZFO Seasonal Reports, eBird 2019). Furthermore, most observations pertain to single individuals; rarely are 2 noted at one location in Arizona. Recent exceptions included 2 together in Portal in March 2015 (N. Moore-Craig pers. comm.), as many as 3 individuals together in Ajo during the fall of 2015, and up to 3 individuals in December 2016 in the southern Santa Cruz Flats area of Pinal County (eBird 2016).

Beginning in the fall of 2017, unprecedented numbers of Rufous-backed Robins moved into Arizona. The first individual was reported 30 September 2017, an early arrival date for anywhere in the U.S. and one of very few September records. Numbers and locations greatly increased through November and into winter 2018. An incredible high total of 7 individuals located together along the Santa Cruz River south of Tumacacori (Santa Cruz County) was reported from late November through early March, with at least 5 reported through early April 2018 and 2-3 reported into early May at this location. Another individual was observed in early May on Fort Huachuca (Cochise County). In summary, using the observations submitted to eBird from September 2017 through April 2018, a minimum of 45 Rufous-backed Robins at an amazing 31 locations were reported in Arizona



Figure 3. Detections of Rufous-backed Robin during the months of June and July (eBird 2019)

(Figure 2). The most northern observation in Arizona was north of Flagstaff at Cameron (Coconino County), where 1-2 individuals were noted through 10 November 2017. Beyond Arizona, individuals were also observed that fall and winter in California, Nevada, New Mexico (surprisingly few), and Texas (eBird 2019).

Documented summer records of Rufous-backed Robins in Arizona are rare. Most individuals depart from the U.S. by March or early April, with very few lingering into May. All known June and July records in the U.S. have been of individuals observed in southeastern Arizona (Table 1, Figure 3). The first summer reports in Arizona include individuals along Sonoita Creek downstream of Patagonia 27 June 1976 and in Guadalupe Canyon 3-4 June 1980 (Monson and Phillips 1981). With the handful of past detections during the late spring to summer period, no confirmed nests or nesting activity of Rufous-backed Robin had been reported.

Table 1. Summer records of Rufous-backed Robin in Arizona prior to 2018.

27-Jun-1976	Sonoita Cr., near Patagonia	Santa Cruz	Monson and Phillips 1981 erroneously lists this record as in 1975
3-4 June 1980	Guadalupe Canyon	Cochise	N/A
5-Jun-1996	San Pedro Riparian National Conservation Area (NCA)	Cochise	Individual captured at Monitoring of Avian Populations and Survivability (MAPS) station
17 June, 26-29	Mt. Lemmon area, Santa Catalina Mountains	Pima	Odd, summering individual; unusually high elevation
12-18 June 2011	Sahuarita	Pima	N/A
29-Jun-2011	Las Cienegas NCA	Pima	Individual captured at MAPS station
3-5 July 2014	Lower Madera Canyon	Pima/Santa Cruz	N/A

Source: eBird (2019), AZFO seasonal reports 2007-16, and pers. comm.

At the northern edge of their known breeding range in Sonora, Rufous-backed Robins are noted nesting mostly in late June through August, often initiating nesting upon the onset of summer rains (Russell and Monson 1998). Other authors note the breeding season beginning in March (Schulenberg 2019). However, this earlier spring breeding may pertain to more southern populations within its range.

OBSERVATIONS

In the spring of 2018, with multiple Rufous-backed Robins lingering into early May, Troy Corman put out a notice to the greater Arizona birding community via the AZ/NM listserv that birders should be on alert for any breeding behavior of Rufous-backed Robins.

On 18 June 2018, Wade Leitner observed a Rufous-backed Robin pair on private property in Ramsey Canyon, Huachuca Mountains, in Cochise County. Wade observed one bird scour the ground for nesting materials, while the other was singing. A nest was not located at this time.

On the afternoon of 29 June 2018, Leitner searched for nesting activities. Leitner observed a nest in an Arizona sycamore (*Platanus wrightii*) with an American Robin sitting in it, presumably incubating.

On 6 July 2018, shortly after 0630, Christina Kondrat-Smith joined Leitner to relocate the Rufous-backed Robin pair and conducted a nest search. Leitner showed Kondrat-Smith the robin nest he had found after a brief search in late June, and as in the previous visit, an American Robin was seen sitting on the nest. However, Leitner and Kondrat-Smith did locate both Rufous-backed Robins near the nest site upon arrival. One adult Rufous-backed Robin was perched in the branches singing near the nest earlier observed with an American Robin, and a second Rufous-backed Robin was foraging underneath within 20 m of the nest tree. The perched Rufous-backed Robin sang on and off giving the whistle calls and a few teeii and teeli tuus phrases. Soon after, altercations at the nest occurred between the Rufousbacked Robins and the American Robin. These altercations continued on and off during the morning hours. Kondrat-Smith watched this nest and the bird interactions periodically from a safe distance through the morning and most of the afternoon. One or both Rufous-backed Robins were often observed foraging on the ground in the afternoon within 40 m of the nest. Later in the afternoon (after 1500) additional altercations were observed between only one of the Rufous-backed Robins and an American Robin. In the last hour of observations, one Rufous-backed Robin was observed sitting on the nest as the other perched in the same location it had been earlier that day. After seeing this, Kondrat-Smith decided to return and visit the nest before sunrise to hopefully clarify the identity of the primary incubator.

The following day (7 July 2018) Kondrat-Smith arrived before sunrise to observe the nest. At 0458 a Rufous-backed Robin was sitting on the nest (Figure 4). At 0510 the bird sitting on the nest started to move around on the nest, and then perched on the edge of the nest (Figure 5). Shortly after, a second Rufous-backed Robin came into the nest from the other side and joined the original Rufous-backed Robin on the edge of the nest (Figure 6). The second robin then flew off, perched, sang, and then went over to forage under nearby trees. With the other adult still present on the nest, the foraging adult returned with an unidentified food item. Kondrat-Smith observed the first food delivery into the nest (Figure 7) with both adults present at the nest. The bird sat perched on the edge of the nest and was seen feeding what appeared to be a single hatchling with its head popping up into view. Soon after, the adult left, foraged and made a second food delivery. No American Robin was seen during the first hour of the morning observations.



Figure 4. A Rufous-backed Robin sitting on nest at daybreak, 7 July 2018. Photo by Christina Kondrat-Smith



Figure 5. Second Rufous-backed Robin joins the bird sitting on the edge of the nest at sunrise, 7 July 2018. Photo by Christina Kondrat-Smith



Figure 6. Food deliveries to the nest site by both the male and female Rufous-backed Robins, 7 July 2018. Photo by Christina Kondrat-Smith



Figure 7. The Rufous-backed Robin returning after foraging under the oaks near the nest site, 7 July 2018. Photo by Christina Kondrat-Smith

At 0550 the American Robin came in and altercations began a short distance from the nest. Within a few minutes an American Robin, carrying what looked like a small worm, perched on the edge of the nest and leaned in to feed the hatchling. Over the next 40 minutes, an additional food delivery by a Rufous-backed Robin was noted and shortly after, altercations resumed near the nest between an adult Rufous-backed and an American Robin.

At 0638 an unexpected behavior was observed. At that time, an American Robin was perched on the edge of the nest. Then a Rufous-backed Robin arrived and fed the American Robin. This was the only observation of what was perceived as a positive interaction, without altercation.

At 0700 Kondrat-Smith left the nest site and viewed activity from a farther distance outside the property before leaving the property entirely. The last observation for the day was of the Rufous-backed Robin perched singing on the same branch as the day before and the other Rufous-backed Robin perched on the edge of the nest also occasionally singing.

On 20 July 2018 Kondrat-Smith made another visit to the nest site. The 2 adult Rufous-backed Robins were observed foraging under trees adjacent to the nest site. Soon after, Kondrat-Smith observed the Rufous-backed Robins making food deliveries to what were now fledglings. They were located high in the branches above the nest site location. At least 2, possibly 3, fledglings were observed moving through the tree branches. Of the 2 young birds observed, horizontal scalloping on the belly with a pale washed breast and light gray with buff edging on the outer median and greater coverts could be seen. A partial side view of one bird showed a splotch of rufous coloring on the top side of the back; this was therefore assumed to be a Rufous-backed Robin fledgling. These were the only characteristics visible while the young birds were momentarily viewable within the vegetation. After about 10 or so minutes of failed photo documentation attempts due to an equipment malfunction, the birds dropped into lower branches, then into the neighbor's yard, which was inaccessible. American Robins were not detected in that area during this visit.

On 3 August 2018 another attempt was made by Kondrat-Smith to relocate the Rufous-backed Robin family. The adult male was heard singing approximately 60 m to the south of the nest on private and fenced property, and no fledglings were relocated. With limited time, on 4 and 5 August 2018, Kondrat-Smith made final attempts to locate the robin family. One Rufous-backed Robin could be heard on both days south of the nest site, but no visual detection of the family group was made on either day.

DISCUSSION

The Rufous-backed Robin is known to use varied habitats in Mexico (from sea level to 1,500 m) including riparian woodlands, tropical deciduous and mixed forests, woodland edge, dense shrubbery, and scrub (Howell and Webb 1995, Russell and Monson 1998, Clement 2001). At an elevation of approximately 1,660 m, general habitat at the nesting site in Ramsey Canyon consisted of Madrean evergreen oaks (*Quercus* spp.), junipers (*Juniperus* spp.), and Arizona sycamores adjacent to a small, perennial and intermittently flowing drainage. Preferred breeding habitat consists of trees used for nesting, roosting, and feeding (fruits), with available food resources such as earthworms, insects, and other invertebrates found on the ground (Howell and Webb 1995, Clement 2001, Guevara Tacach 2006, Carbó-Ramírez et al. 2015).

A study in an urban area of central Mexico confirmed that only one adult participates in nest building and incubation, while both adults care for the young (Carbó-Ramírez et al. 2015). This observation is consistent with reports for other members of the Turdidae family, where only females are known to build the nest and incubate while both parents feed the nestlings (Clement 2001, Collar 2005, Greeney and Halupka 2008, Carbó-Ramírez et al. 2015). These observations are consistent with behaviors noted during monitoring of the Rufous-backed Robin pair in Ramsey Canyon.

The presence of the American Robin, which periodically incubated and fed a hatchling at least once, raised questions about the purity of this nest to just that of the Rufous-backed Robin pair. The evidence does show that the Rufous-backed Robin pair actively incubated and fed nestlings. The adult pair later tended to the fledged juveniles, which were identified as Rufous-backed Robins, without the American Robin present. Although the American Robin had an investment in the nest, it is unknown what the investment was or what the meaning of the interactions were. It has been documented that when the nest of a Rufous-backed Robin is disturbed, adults make a growling alarm from a concealed position, a behavior recorded in other thrushes (Greeney and Halupka 2008). This behavior was not noted during these observations. Instead, the American Robin was seen incubating and feeding a recently hatched nestling once, along with the 2 adult Rufous-backed Robins. After the young fledged, the American Robin was no longer seen.

Brood parasitism, nest usurpation, and interspecific feeding have been documented among passerines (Payne 1977, Govoni et al. 2009). Could this have been a rare case of nest-sharing? Studies have concluded that convergence upon a nest site by more than one species is evidence of interspecific competition for nesting sites (Lindell 1996, Govoni et al. 2009). For example, an observation of communal nest-sharing was discovered in 2007 between a Northern Cardinal (Cardinalis cardinalis) with 2 eggs and an American Robin with 3 eggs. Subsequent inspection of the nest area revealed only 2 fledglings and the remains of a single cardinal egg on the ground directly beneath the nest. The 2 fledglings continued to develop under parental care of the robin only and were recognizable as juvenile American Robins. From this point on the Northern Cardinal was no longer seen (Govoni et al. 2009). The American Robin, just as with the Northern Cardinal in this documented observation, may use an aggressive renesting strategy in response to high levels of nest predation (Filliater et al. 1994). This too could be a plausible explanation for the American Robin observations in Ramsey Canyon.

It is possible Rufous-backed Robins have made breeding attempts in earlier years in Arizona that were simply missed. Kondrat-Smith researched all available historical records on eBird (2019) that included breeding condition, including from captured birds at Monitoring of Avian Populations and Survivability (MAPS) stations in southeastern Arizona from June to August. Dave Krueper reported an adult female Rufous-backed Robin captured in a mist net and banded at the San Pedro Riparian National Conservation Area 5 June 1996 (eBird 1996; Figure 8). The bird was scored a 2 on the condition of the brood patch.

Similarly, following an exceptional influx of 13 Rufous-backed Robins into Arizona from October 2010 to March 2011, 3 individuals (one each in Patagonia, Portal, and the San Bernardino National Wildlife Refuge) were observed lingering late into May and another into June in Sahuarita (AZFO Seasonal Reports). Later that summer, another adult female Rufous-backed Robin with a brood patch was captured in a mist nest operated by Marcia Radke at Las Cienegas NCA, Empire Gulch 29 July 2011 (eBird 2011; Figures 9 and 10). The condition of the brood patch on this captured bird scored a 4 (as it was wrinkled).



Figure 8. The Rufous-backed Robin female banded at San Pedro Riparian NCA, Cochise County, 5 June 1996. Photo by David Krueper



Figure 9. Captured female Rufousbacked Robin from MAPS station at Las Cienegas NCA, Santa Cruz County, 29 July 2011. Photo by William R. Radke



Figure 10. Captured Rufous-backed Robin from MAPS station on 29 July 2011 at Las Cienegas NCA, Santa Cruz County, 29 July 2011. Photo by William R. Radke

The brood patch develops on the abdomen of the bird that will be incubating the eggs (usually the female). The development stage of the brood patch on a bird in hand is measured using a scale from 0 to 5 as seen in Table 2. Figure 11 shows how a brood patch appears at various stages of development (Pyle 1997). In both these captures, the conditions of the brood patch on the bird in hand indicated breeding activity of the birds observed. The condition of the brood patch on the first bird at the San Pedro Riparian NCA suggested that the bird was in the beginning stages of incubating. The bird at the Las Cienegas NCA displayed a breeding condition that occurs either a few days after nestlings fledge or when the adult female is no longer caring for young in a nest.

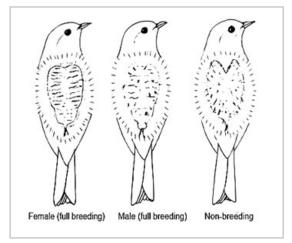


Figure 11. Brood patches at different stages of development (Pyle 1997)

Table 2. The measurements used of the development stage of the brood patch on a bird in hand.

0	None.	
1	Smooth; feathers recently dropped 3-5 days before incubation.	
2	Vascular; blood vessels begin to fill holding fluid.	
3	Heavy; thick and full of fluid under the skin	
4	Wrinkled; the swelling and blood vascularization begins to subside a few days after fledglings leave the nest.	
5	Molting; feathers are in the process of being replace which occur at the end of the breeding season.	

Another intriguing potential Arizona breeding observation in the same year as these nesting observations was of a deceased Rufous-backed Robin discovered at a private residence by Julian Donahue (AZFO 2018) 9 September 2018 in the Catalina Foothills within Pima County (Figures 12 and 13). The pale spotted/scalloped crown and nape, tapered tail feathers, and pale shaft-streaks on the primary coverts indicated a hatch-year bird. This occurrence in early September, a month with only 2 prior records in Arizona, suggests it was likely progeny from a nearby nesting. An example of early fall dispersal of a hatch-year individual was one in very similar plumage (some spotting on the head and upper breast; orange gape; pale orange back, shoulder, lower breast, and flanks; with some golden spots on the shoulder region) observed along Morgan City Wash (Maricopa County) northwest of Phoenix 1 October 2005 (eBird 2005). Dispersal patterns and home range are not well known for the Rufous-backed Robin. More study is needed.



Figures 12 and 13. Juvenile Rufous-backed Robin in Tucson, Arizona, 9 September 2018 (AZFO 2018). Photos by Julian Donahue



Based on recent literature and reports, Rufous-backed Robins appear to be expanding their breeding range north locally into central and northern Sonora. This expansion increases the likelihood of occasional pairs attempting to nest in nearby southeastern Arizona, particularly following winters when above-normal numbers of individuals are present. Furthermore, other factors could validate the expansion of this species' breeding range, as indicated in the expansion model by Martínez-Morales et al. (2010). In North America, geographic range expansion of native bird species has been better documented than it has for other biological groups. Mechanisms proposed to explain such expansions include climate change, intentional introductions, and anthropogenic land cover changes. In addition, species features such as ecological flexibility or broad habitat tolerances, ability to colonize unoccupied habitats, and being a human commensal all increase the possibility of a bird species expanding its range (Stepney and Power 1973, Johnson 1994, Rothstein 1994, Christensen 2000, Wehtje 2003).

FUTURE STUDY

An interesting observation was noted during the final deliberation of these findings. A year after such an unprecedented influx, only 2 single Rufous-backed Robins were reported in Arizona from fall 2018 to winter 2019. This is well below the average numbers reported in previous fall-winter periods. Would lower detections during the annual fall and winter influx decrease the possibility of finding breeding pairs in the adjacent preferred habitat in Arizona? More study is needed to better understand and document not only the breeding range expansion of the Rufous-backed Robin, but also the annual variation in the number of individuals that travel north each fall and winter into Arizona and the mechanisms that drive these movements.

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