

FILLING GAPS IN UNDERBIRDED AREAS IN ARIZONA—PROGRESS MADE IN THE SANTA MARIA MOUNTAINS AND CACTUS FOREST AREAS

BY DOUG JENNESS, 7760 N. SILVERBELL RD., TUCSON, AZ 85743, DOUGJENNESS@GMAIL.COM

Arizona Birds 20:12-17; <https://doi.org/10.65238/623.ftq>

One of the principal goals of the Arizona Field Ornithologists (AZFO) since its founding more than 20 years ago has been to increase the knowledge of the changing status and distribution of Arizona's birds. It has particularly focused on learning about the seasonal distribution of birds in less familiar or more remote areas of the state. Remarkably, AZFO was the first of similar state organizations to establish field expeditions, which became its most distinguishing contribution to studying the state's birds. It has conducted 50 field expeditions, led by volunteer birders and biologists, in which scores of participants have collected useful information about birds from all 15 of Arizona's counties (AZFO 2026). Each 1- to 3-day expedition has had a specific purpose, such as looking for nesting Wilson's Warblers (*Cardellina pusilla*) or Mountain Plovers (*Charadrius montanus*), surveying the status of wintering Gray Vireos (*Vireo vicinior*), assessing the status of Green Kingfishers (*Chloroceryle americana*) along the upper Santa Cruz River, or investigating areas that were not covered during the *Arizona Breeding Bird Atlas* surveys. The expeditions have occasionally involved collaboration with other organizations, including the New Mexico Ornithological Society for an expedition along the San Francisco River on the Arizona-New Mexico border in the summer of 2025.

In 2020, during the Covid pandemic, it was more difficult to pull together teams to conduct the expeditions. This led the AZFO to launch a project whereby individuals or small groups could fill in the gaps of our knowledge about birds in unbirded or underbirded areas. Five areas, which showed significant gaps in coverage, each about 136,000 ha, were selected. Gaps were defined as few or no eBird reports in any season or the absence of reports for particular seasons. The areas are Avra Valley (Pima and Pinal counties), Cactus Forest (Pinal County), Chavez Pass (Coconino County), Hassayampa Plain (Maricopa County), and Santa Maria Mountains (Yavapai County). Evaluations of the initial results for these areas through 2023 and 2024 have been published (Jenness 2023, 2025). This note reviews what has been accomplished through 2025 and what steps are needed to continue filling in these gaps. All data not otherwise attributed are from eBird.

Table 1. eBird Gap Checklists and Species July 2020-Dec 2025

Month	Santa Maria	Chavez Pass	Cactus Forest	Hassayampa	Avra Valley
Jan			20	108	9
Feb	17		18	45	7
Mar	5		5	19	11
Apr		9	11	42	63
May	139	3	20	6	
Jun		13	8	9	
Jul	3	27	6	6	
Aug		20	29	13	2
Sep	1		31	12	5
Oct	2	18	25	4	37
Nov		14	21	19	19
Dec		6	11	37	
Checklists	167	110	205	320	153
Species	131	109	197	134	115

Outstanding gains in 2025 were achieved in the Santa Maria Mountains Area as the result of an AZFO field expedition conducted by 13 volunteers from May 23 to 26. Their 137 checklists raised the total checklists shared with eBird Gaps for that area to 167. Including birds observed on scouting trips for the expedition, they added 87 species for the area, bringing the total to 131 (Table 1).

The Santa Maria Mountains are located in the Prescott National Forest northwest of Prescott, and much of the area is very remote and difficult to access. The mountains are situated in the northwest section of the Arizona transition zone, a narrow geologic band, which runs diagonally northwest to southeast across central Arizona. The region is located between the higher-elevation Colorado Plateau in northeast Arizona and the basin and range region of lower-elevation deserts in the southwest and south. It includes several biotic communities, chiefly grassland, interior chaparral, Madrean evergreen woodland communities dominated by pinyon pine (*Pinus edulis*) and juniper (*Juniperus* spp.), ponderosa pine (*P. ponderosa*) forests at higher elevation, and deciduous riparian corridors (Figure 1; Brown 1982). There are 2 national forest Wilderness Areas—Juniper Mesa and Apache Creek. Several ranches with historical leases graze cattle and grow hay in the riparian areas.

The expedition used the Walnut Creek Center for Education and Research as its base of operations and organized surveys by foot and motor vehicle on forest service roads between 1,500 and 2,000 m in elevation. One aim was to confirm the presence of Dusky-capped Flycatcher (*Myiarchus tuberculifer*; Figure 2), which had been reported in recent years near the Walnut Creek Center. Up to 3 were detected at this location, and another 7 were reported with 2 together at 2 locations, suggesting likely pairing. Also, a Willow Flycatcher (*Empidonax traillii*), a species that had been reported in the area only once previously, was seen near the Walnut Creek Center. At least 1 Gray Hawk (*Buteo plagiatus*) was reported several times by the expedition in the riparian area around Walnut Creek. This raptor was not known to be nesting in the Santa Maria Mountains during the Arizona Breeding Bird Atlas surveys in the 1990s (Corman 2005a), but up to 2 have been reported in cottonwoods (*Populus fremontii*) near the Walnut Creek Center since 2019, suggesting probable nesting. It breeds farther east in Yavapai County along the Verde River (Glinski 1998) and appears to be expanding its range.

Clark's Nutcracker (*Nucifraga columbiana*) does not breed in the area (Wise-Gervais 2005), although wandering individuals are casual in the winter. The 2 detected by the expedition were unusual, as there were no previous eBird reports in the area for March to September. Two flocks of Pinyon Jays (*Gymnorhinus cyanocephalus*), a Species of Greatest Conservation Need in Arizona (AZGFD 2026), totaled approximately 90. Five Gray Vireos, likely breeding in the juniper-pinyon and oak woodland habitats, were reported. During nighttime walks, 4 Flammulated Owls (*Psiloscops flammeolus*) were detected, including 2 that were a likely pair. There were no previous eBird reports of this species in the area. A particularly unusual sighting was of a male Costa's Hummingbird (*Calypte costae*; Figure 3). This species infrequently ventures from desert habitats, and this was the first report in the area. The western subspecies



Figure 1. Juniper-pinyon pine habitat, Santa Maria Mountains, 25 May 2025. Photo by Tracy McCarthy



Figure 2. Dusky-capped Flycatcher, Santa Maria Mountains, 24 May 2025. Photo by Tracy McCarthy

of Purple Martin (*Progne subis arboricola*) breeds at higher elevations, typically in cavities in dead trees (Corman 2005b). Teams reported 7, including a mixed group of 5 males and females near a large snag, which may have been part of a nesting colony.

In the Cactus Forest Area, progress was made in improving the distribution of checklists throughout the year, including months with less coverage (Table 1). Observers raised the number of checklists from 169 to 205. They added 7 new species bringing the total to 197. Six had never previously been reported in this area: Long-billed Dowitcher (*Limnodromus scolopaceus*), Lesser Yellowlegs (*Tringa flavipes*), Juniper Titmouse (*Baeolophus ridgwayi*), White-breasted Nuthatch (*Sitta carolinensis*), Brown Creeper (*Certhia americana*), and Rose-breasted Grosbeak (*Pheucticus ludovicianus*).

One highlight in the Cactus Forest Area over the past 6 years has been regular observations of the desert subspecies of Purple Martin (*P. s. hesperia*; Figure 4). A pair was photographed inspecting cavities in a large saguaro (*Carnegiea gigantea*) along the Florence-Kelvin Highway, which runs through a flourishing cactus forest in the northern part of the area. Most were reported, however, at earthen stock tanks in a zone between the northern cactus forest and semidesert grassland in the south (Table 2). There are no saguaros around the Barkerville and Beehive tanks; the closest are ± 1.6 km. Several grow near Lake Tank and the closest grove is ± 0.8 km. The densest populations of saguaros, however, begin more than 8 km farther north and northeast, where the martins are likely breeding. They may fly many kilometers to forage for food, a behavior that has been observed for the *hesperia* group in southeastern Arizona (J. MacFarland pers. comm.) and for the higher elevation *arboricola* group (Corman 2005b).

Another notable occurrence was the enormous number of sparrows present at the Barkerville Tank in January. Low precipitation during the winter of 2024 and 2025 led to large concentrations of birds at the few spots where there was water. The lush growth of amaranth (*Amaranth palmeri*) following summer



Figure 3. Costa's Hummingbird, Santa Maria Mountains, 24 May 2025, Photo by Tracy McCarthey



Figure 4. Purple Martins, Lake Tank, 21 June 2023. Photo by Tim DeJonghe

Table 2. Number of Purple Martins, Cactus Forest area

Date	Lake Tank	Barkerville Tank	Beehive Tank	Florence-Kelvin Hwy
5/23/20	3			
8/27/2021	4			
7/22/2022	8			
8/8/2022		2		
8/25/2022	4		35	
5/22/2023	6			
6/21/2023	9	2		
8/8/2023	2	2		
8/23/2023	6			
6/23/2024				2
8/11/2024	12		4	
9/6/2024	2			
4/11/2025		4		
5/30/2025		1		
6/25/2025		3		
7/26/2025		2		

rains was also a major attraction. The Barkerville Tank, full of water supplied by a well, was such a site. On a 23 January 2025 visit, observers reported 9 sparrow species thronging the shore and vegetation around the tank, including an estimated 1,300 White-crowned Sparrows (*Zonotrichia leucophrys*), 400 Brewer's Sparrows (*Spizella breweri*), 250 Vesper Sparrows (*Poocetes gramineus*), and 140 Lark Buntings (*Calamospiza melanocorys*).

The Cactus Forest Area is at the northern edge of the Crested Caracara's (*Caracara plancus*) range in Arizona, and there are signs they may be expanding there. An active nest was reported in this area in 2024 but was unoccupied in 2025 (P. Heveran pers. comm., pers. obs.). In 2025, 6 caracaras were reported along the Florence-Kelvin Highway at 4 locations, 1 was near Freeman Road, and 8 were along the 35-km stretch of AZ 79 located in the Gaps area. In July 2024, a grass wildfire burned more than 13,000 ha of the Cactus Forest Area. With the exceptionally dry conditions for most of 2025, there was little green vegetation and a discernible decrease in the number of birds, including Mourning Doves (*Zenaida macroura*) and Gambel's Quail (*Callipepla gambelii*), in the burned areas (Figure 5).



Figure 5. One year after grass wildfire in Cactus Forest area, 25 June 2025. Photo by Doug Jenness

The Cactus Forest Area, or at least some of it, serves as a migration route for many birds. At a private residence along East Paisano Drive, located in the Sonoran Desert scrub habitat, surveys conducted during spring and fall migration have provided informative data on this occurrence. All of the new species added to this Gaps area in 2025, with the exception of the Lesser Yellowlegs, were reported from this location. Species reported from this yard since 2022 have totaled 166.

The data and description of what has been accomplished show that much still needs to be done in all of the 5 Gaps areas. The principal tasks are to improve the seasonal distribution of checklists and to cover locations that are still underbirded across all areas. The Santa Maria Mountains area has gained excellent coverage in May, and now the priority is getting checklists earlier in the spring and in the summer and fall. Admittedly, winter is more difficult there because many roads are closed. However, in other seasons, springs and stock tanks are accessible by trails along both the south and north sides of Camp Wood Road. For those who enjoy hiking, trails are maintained in both wilderness areas. In the Apache Wilderness Area, a riparian area and several springs attract birds. Other goals are to confirm nesting of Gray Hawk and to determine how widely nesting pairs have spread in the area and the extent of Dusky-capped Flycatcher distribution.

The Chavez Pass Area also has more limited access in winter. However, more coverage is needed there from March through May and in September. The mixed conifer area in the Coconino National Forest at the eastern end of FR135, off of Lake Mary Rd (FR3), and west of a group of lakes, including Long Lake, is underbirded. The Chavez Pass/Chavez Mountain area, which is mainly ponderosa/juniper habitat, also looks promising. Montezuma Quail (*Cyrtonyx*

montezumae) has occasionally been reported here. The easiest way to access the Chavez Pass area is by taking the Meteor Crater Road south from Interstate 40. This can also be accessed from AZ 87 or FR3. Montezuma Quail has also been reported south of AZ 87. Learning more about the abundance and distribution of this species is an important goal for this area.

The eBird Gaps maps for both the Santa Maria Mountains Area and the Chavez Pass Area should be used in conjunction with the National Forest visitor maps that are available for each forest. These maps can also be purchased at Forest Service ranger stations and at local hiking/camping stores. Both areas are somewhat remote, so advance planning is needed.

The priority for Avra Valley is the May through September period. Bendire's Thrasher (*Toxostoma bendirei*) has been reported in this area, and obtaining more data on its distribution, abundance, and seasonal presence will be very useful, especially to the Desert Thrasher Working Group, which monitors the distribution of desert thrashers in the Southwest (DTWG 2026).

In the Hassayampa Plains area, the main tasks are to beef up coverage between May and October and to cover roads without many checklists, such as N. Aguila, Salome, and W. Big Horn roads. The Thrasher Working Group has conducted surveys in this area for Bendire's Thrasher, and sightings by volunteers for the eBirds Gaps Project will add to the knowledge of this species in the area, especially if less birded areas are surveyed.

Cactus Forest particularly needs checklists from March, June, and July and more coverage along E. 96 Ranch, Bartlett, and Price roads. In addition, more coverage along the roads branching off of both the north and south sides of the Florence-Kelvin Highway, which passes through the heart of the saguaro forest, could provide a clearer picture of caracara presence. Also, more trips in June and July in that area might help locate nesting Purple Martins. In the southern grassland portion of the area, Scaled Quail (*Callipepla squamata*) was known to nest historically (Brown 1989), and occasional reports, especially by hunters, still occur. It is a species surveyors should be on the lookout for.

Individuals can adopt one or more routes in one of these areas and survey them regularly through 1 or more seasons. Local Audubon and Bird Alliance chapters and other birding groups, school classes, or other interested organizations planning field trips are encouraged to incorporate visits to locations in one of the 5 areas to support expanding our knowledge of these underbirded areas. In order to help measure the progress of this effort, it is important to share checklists with the eBirds Gaps Project. Information on the 5 areas, how to participate, and how to share checklists can be found at the [AZFO website](#). Maps of the 5 areas are [published here](#) and updated quarterly.

Thanks to Joe Crouse for preparing and updating the maps of the eBird Gaps Areas and for reviewing this article. Suggestions from Jennifer Bruening, Tim DeJonghe, Paul Heveran, Chrissy Kondrat, Jennie MacFarland, Tracy McCarthey, and Tice Supplee were very helpful. Thanks also to Tracy McCarthey and Tim DeJonghe for the use of photos.

LITERATURE CITED

- [AZGFD] Arizona Game and Fish Department. 2026. Pinyon Jay (*Gymnorhinus cyanocephalus*) Arizona Wildlife Conservation Strategy. <https://awcs.azgfd.com/species/birds/gymnorhinus-cyanocephalus>. (Accessed 8 February 2026).
- [AZFO] Arizona Field Ornithologists. 2026. Arizona field expedition reports. <https://www.azfo.org/field-expeditions-reports> (Accessed 15 January 2026).
- Brown, D. E. 1982. Biotic communities of the American southwest: United States and Mexico (Editor). Desert Plants 4:1-342.
- Brown, D. E. 1989. Arizona Game Birds. Univ. of Arizona Press. Tucson, AZ.

- Corman, T. E.. 2005a. Gray Hawk. In Corman, T. E. and C. Wise-Gervais, eds. Arizona Breeding Bird Atlas. Univ. of New Mexico Press, Albuquerque, NM.
- Corman, T. E.. 2005b. Purple Martin. In: Corman, T. E.. and C. Wise-Gervais, eds. Arizona Breeding Bird Atlas. Univ. of New Mexico Press, Albuquerque, NM.
- [DTWG] Desert Thrasher Working Group. 2026. Borderlands Avian Data Center. <https://borderlandsbirds.org/projects/desert-thrasher/> (Accessed: 18 February 2026).
- eBird. 2025. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, NY. Available: <http://www.ebird.org>. (Accessed: 9 January 2026).
- Glinski, R. L. 1998. The Raptors of Arizona. Univ. of Arizona Press, Tucson, AZ.
- Jeness, D. 2023. Filling the gaps in underbirded areas in Arizona. Arizona Birds 17:34-37. <https://arizonabirds.org/journal/2023/arizona-birds-underbirded-areas.pdf> (Accessed: 5 January 2026).
- Jeness, D. 2025. Filling the gaps in underbirded areas in Arizona: An update. Arizona Birds 19:3-6. <https://arizonabirds.org/journal/2025/arizona-birds-underbirded-gaps-update.pdf> (Accessed: 5 January 2026).
- Wise-Gervais, C. 2005. Clark's Nutcracker. In: Corman, T. E. and C. Wise-Gervais, eds. Arizona Breeding Bird Atlas. Univ. of New Mexico Press, Albuquerque, NM.

 Accepted on 22 February 2026