

SWAINSON'S HAWK PREDATION ON A GREATER ROADRUNNER

DIANA DOYLE, 5855 E. SILVERTHORNE CT., HEREFORD, AZ, 85615, DIANA@SEMI-LOCAL.COM

This article reports on the observation of a Swainson's Hawk (*Buteo swainsoni*) preying on a Greater Roadrunner (*Geococcyx californianus*) and carrying this presumed food source to another location. The observation occurred on 22 June 2025 at 10:51 while birding at Southern Arizona Veterans' Memorial Cemetery (31.54190°N, -110.30392°W; 1,433 m elevation), a 59-ha cemetery within approximately 3,110 ha of Chihuahuan Desert grassland on the eastern slope of the Huachuca Mountains, near Sierra Vista, Cochise County, Arizona. This observation is apparently the first documented observation of predation on this fast and agile avian prey by a Swainson's Hawk.

Most Swainson's Hawks migrate to North America for their summer breeding season from wintering grounds in northern Argentina and elsewhere in southern South America (Bechard et al. 2020). In Arizona, Swainson's Hawks breed in grasslands, desert scrub, and agricultural areas, with most breeding pairs occurring in the southeastern grasslands west to the Altar Valley, and some scattered pairs in grasslands in the northern part of the state (Glinski and Hall 1998, Gervais-Wise 2005, Nishida et al. 2013, Jenness 2020).

The diet of Swainson's Hawks outside of their breeding season is apparently exclusively insects, such as grasshoppers, dragonflies, butterflies and moths, and leaf beetles (Bechard et al. 2020). During the breeding season, its diet becomes more varied and switches primarily to vertebrate prey (Bechard et al. 2020). Small mammals, including ground squirrels, rabbits, pocket gophers, voles, and mice become the predominant food source to meet the nutritional needs of growing young (Dunne 2016). In Pinal County, Arizona, round-tailed ground squirrel (*Xerospermophilus tereticaudus*) was the only prey (n = 3) observed during a monitoring study of one nest (Jenness 2020).

In addition to small mammals, during breeding season Swainson's Hawks also prey on reptiles (including lizards and snakes) and birds. The percentage of birds as prey varies by region, with birds comprising 14.7% of prey items in Arizona. In adjacent states, bird percentages are 25.4% in California, 9.7% in Utah, and only 2.4% in New Mexico (Bechard et al. 2020). A search of photographs and videos in the Macaulay Library for Swainson's Hawk, filtered to the tags "Foraging or eating," "Carrying food," "Multiple species," or "Feeding young," resulted in no images with Greater Roadrunner as prey except for Figure 1 and Figure 2 of this article (Cornell Lab of Ornithology|Macaulay Library 2025, ML637940918/ML637940920). Of 673 images, I found only 12 occurrences of avian prey, including White-winged Dove (*Zenaida asiatica*) (ML623828040/ML623828041, ML639191399), Mourning Dove (*Zenaida macroura*) (ML640857215), apparent Rock Pigeon (*Columba livia*) (ML472406301), European Starling (*Sturnus vulgaris*) (ML159730381, ML337134501/



Figure 1. Greater Roadrunner pinned under the talons of an adult Swainson's Hawk near Sierra Vista, Cochise County, Arizona, 22 June 2025. Photo by Diana Doyle



Figure 2. Swainson's Hawk flying off carrying Greater Roadrunner prey. Photo by Diana Doyle

ML337132241), meadowlark sp. (*Sturnella* sp.) (ML638457365/ML638457366, ML63958391), and 4 images unidentifiable to species (ML246730911, ML361986461, ML433153041, ML638262311). Most images show small mammals, snakes, or insects as prey.

Many sources note avian prey as “small birds” (Wheeler 2003, Dunne 2016). Dunne (2016) quotes Elliott Coues as noting that “their prey is ordinarily nothing larger than gophers.” But there are exceptions. Cartron et al. (2004) found American Kestrel (*Falco sparverius*) remains under an active Swainson’s Hawk nest in central New Mexico. Bechard et al. (2020) note at least one instance of predation on Ring-necked Pheasant (*Phasianus colchicus*). And Swainson’s Hawks in Alberta, Canada, have adapted to Burrowing Owls (*Athene cunicularia*) as an important prey item (Clayton and Schmutz 1999).

It is interesting to compare these varying avian prey masses to that of Swainson’s Hawk. Adult male Swainson’s Hawks have a mean mass of 808 g and adult females a mean mass of 1,109 g (Bechard et al. 2020). Avian prey such as European Starling are relatively light, with mean mass of 79 g for adult males and 76 g for adult females (Dunning 2023). Western Meadowlark, American Kestrel, and Mourning Dove are larger and comparable, with mean masses of 106 g, 111 g, and 111 g respectively for adult males and 89 g, 120 g, and 101 g for adult females (Dunning 1984, 1993, 2023). Burrowing Owl is similar in mean mass to White-winged Dove, at 146 g for males and 156 g for females, compared to 153 g for both sexes combined in White-winged Dove (Dunning 1993, Poulin et al. 2020).

Greater Roadrunner is heavier than Burrowing Owl or White-winged Dove. A small sample study found a mean mass of 319 g (n = 8) for adult males and 286 g (n = 4) for adult females, but 2 other studies reported mean masses with sex unknown of 317 g and 376 g (Dunning 1993, Hughes 2020). These masses are comparable to Rock Pigeon with a mean mass of 347 g (Lowther and Johnson 2020). Ring-necked Pheasant is the heaviest documented avian prey, with a mean mass of 1,263 g for adult males and 917 g for adult females (Giudice et al. 2022).

Using the numbers above, a Greater Roadrunner may be 26% to 46% of the weight of a Swainson’s Hawk, depending on sex of predator and prey.

Hughes (2020) notes that adult Greater Roadrunners are “usually swift enough to evade terrestrial predators,” able to maintain running speeds greater than 30 km/hr over considerable distances. Raptors occasionally try to catch Greater Roadrunner and sometimes succeed. A Red-tailed Hawk (*Buteo jamaicensis*) had eaten a roadrunner just prior to being collected (Van Tyne and Sutton 1937). Sutton (1977) describes a Red-tailed Hawk making several unsuccessful attempts to capture a roadrunner. Beal (1978) describes an immature Cooper’s Hawk (*Accipiter cooperii*) also attempting to capture a roadrunner, but the roadrunner “spread its tail, flashed its wings, and dodged.” Beal points out that this behavior suggests “the brilliant splashes of white distract the pursuer” and that “the spread tail and wings act as rudders and brakes facilitating sharp turns.” This evasive behavior suggests that speed is not their only strategy to avoid predation.

Regarding Swainson’s Hawks, Glinski and Hall (1998) mention a Bureau of Land Management report submitted to Northern Arizona University of pellets collected near Swainson’s Hawk nests in 1986 with “roadrunner” in a list of remains along with 8 species of small mammals, 4 species of reptiles, beetles, and other insects (Force et al. 1988). However, the report was never archived and remains unavailable (D. Harnke pers. comm., M. Lomaomvaya pers. comm.).

On 22 June 2025, I observed a Swainson’s Hawk standing on the ground with a Greater Roadrunner pinned under its talons (Figure 1). Although I did not observe the actual strike by the hawk on the roadrunner, the roadrunner convulsively twitched a few times while firmly pinned, suggesting it was recently captured and moribund. After about a minute of pinning its prey, and cautiously watching me, the Swainson’s Hawk lifted up and flew off carrying the Greater Roadrunner over the grasslands (Figure 2).

Given the date of observation, it is likely the Swainson's Hawk had a nest with young. Swainson's Hawks are known to breed in Cochise County, especially along the grassland corridor of the San Pedro River (Gervais-Wise 2005, pers. obs.). The date of observation, in late June, spans the period in which active nests are reported locally, with brooding in late May and downy young in early July (Doyle 2025, Siminski 2025). Locally, juvenile Swainson's Hawks tend to fledge in late July (Doyle 2020).

The observation also occurred during a regional drought, after the near-absence of winter rains and before the arrival of the summer monsoon season. The year-to-date rainfall for Sierra Vista was 5.8 cm below the normal average rainfall of 7.1 cm for that period (January-June 2025), ranking it as the 11th driest on record for that period over the past 131 years (NIDIS 2025, U.S. Climate Data 2025). The adjacent canyons in Coronado National Forest were rated at the highest fire risk level. The grasslands were brown and dry, yet to grow for the summer season, with many areas of exposed bare soil. It is speculated that these unusually dry conditions, especially the low winter rainfall, may have influenced the availability of the Swainson's Hawk's primary prey of small mammals, requiring adaptation during the nesting season (Nishida et al. 2013).

Further studies are needed to understand a possible link between Swainson's Hawk opportunistic feeding behavior during the high energy demand of young in the nest during a time of drought. It remains unknown if predation on the Greater Roadrunner is a regular food source to these raptors in their southwestern range, or if ecological factors such as drought are linked to adaptation to varied and larger prey, or if the observed behavior was a chance opportunity.

Thanks to Deborah Harnke, Reference Librarian, Bureau of Land Management Library, National Operations Center, and Mowana Lomaomvaya, Reference Librarian, Northern Arizona University, Cline Library Special Collections and Archives, for their extensive efforts to locate a copy of the BLM/NAU report. The comments of Jean-Luc Cartron, Kathleen Groschupf, and Peter Siminski greatly improved the manuscript.

LITERATURE CITED

- Beal, K. G. 1978. Immature Cooper's Hawk attempts to capture roadrunner. *Bulletin of the Oklahoma Ornithological Society* 11:31.
- Bechard, M. J., C. S. Houston, J. H. Sarasola, and A. S. England. 2020. Swainson's Hawk (*Buteo swainsoni*), version 1.0. In: Poole, A. F., editor. *Birds of the World*. Cornell Lab of Ornithology, Ithaca, NY. Available: <https://doi.org/10.2173/bow.swahaw.01>. (Accessed: 7 November 2025).
- Cartron, J.-L. E., D. A. Dean, S. H. Stoleson, and P. J. Polechla, Jr. 2004. Nesting of the Swainson's Hawk (*Buteo swainsoni*) in riparian woodlands of New Mexico. *New Mexico Ornithological Society Bulletin* 32:91-94.
- Clayton, K. M., and J. Schmutz. 1999. Is the decline of Burrowing Owls *Speotyto cunicularia* in prairie Canada linked to changes in Great Plains ecosystems? *Bird Conservation International* 9:163-185.
- Cornell Lab of Ornithology|Macaulay Library. 2025. Available: https://media.ebird.org/catalog?birdOnly=true&taxonCode=swahaw&tag=carrying_food. (Accessed: 9 November 2025).
- Cornell Lab of Ornithology|Macaulay Library. 2025. Available: https://media.ebird.org/catalog?birdOnly=true&taxonCode=swahaw&tag=feeding_young. (Accessed: 9 November 2025).
- Cornell Lab of Ornithology|Macaulay Library. 2025. Available: https://media.ebird.org/catalog?birdOnly=true&taxonCode=swahaw&tag=foraging_eating. (Accessed: 9 November 2025).
- Cornell Lab of Ornithology|Macaulay Library. 2025. Available: https://media.ebird.org/catalog?birdOnly=true&taxonCode=swahaw&tag=multiple_species. (Accessed: 9 November 2025).
- Doyle, D. 2020. eBird Checklist: <https://ebird.org/checklist/S71875698>. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, NY. Available: <http://www.ebird.org>. (Accessed: 6 October 2025).
- Doyle, D. 2025. eBird Checklist: <https://ebird.org/checklist/S240314565>. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, NY. Available: <http://www.ebird.org>. (Accessed: 6 October 2025).

- Dunne, P. 2016. Birds of prey: hawks, eagles, falcons, and vultures of North America. Houghton Mifflin Harcourt, New York, NY.
- Dunning, J. B., Jr. 1984. Body weights of 686 species of North American birds. Western Bird Banding Association Monograph No. 1. Eldon Publishing, Cave Creek, AZ.
- Dunning, J. B., Jr. 1993. CRC handbook of avian body masses. CRC Press, Boca Raton, FL.
- Dunning, J. B., Jr. 2023. Body masses of North American birds. Updates (August 2023). Available: https://ag.purdue.edu/department/fnr/_docs/body-masses-birds-pr-dunning.pdf. (Accessed: 7 November 2025).
- Force, C. P., M. W. Ruddell, and L. K. Murray. 1988. Hawk pellet analysis. Report submitted to the Bureau of Land Management, Kingman. Quarterly Studies Program, Northern Arizona Univ., Flagstaff, AZ.
- Gervais-Wise, C. 2005. Swainson's Hawk. In: Corman, T. E. and C. Wise-Gervais, eds. Arizona breeding bird atlas. Univ. of New Mexico Press, Albuquerque, NM.
- Giudice, J. H., J. T. Ratti, and S. G. Mlodinow. 2022. Ring-necked Pheasant (*Phasianus colchicus*), version 1.1. In: Sly, N. D. editor. Birds of the World. Cornell Lab of Ornithology, Ithaca, NY. Available: <https://doi.org/10.2173/bow.rinphe1.01.1>. (Accessed: 7 November 2025).
- Gliniski, R. L., and R. S. Hall. 1998. Swainson's Hawk. In: Gliniski, R. L. editor. Raptors of Arizona. Univ. of Arizona Press, Tucson, AZ.
- Hughes, J. M. 2020. Greater Roadrunner (*Geococcyx californianus*), version 1.0. In: Poole, A. F. editor. Birds of the World. Cornell Lab of Ornithology, Ithaca, NY. Available: <https://doi.org/10.2173/bow.greroa.01>. (Accessed: 7 November 2025).
- Jenness, D. 2020. Swainson's Hawk nesting in Pinal County, Arizona. Arizona Birds 14:55-61.
- Lowther, P. E., and R. F. Johnston. 2020. Rock Pigeon (*Columba livia*), version 1.0. In: Billerman, S. M. editor. Birds of the World. Cornell Lab of Ornithology, Ithaca, NY. Available: <https://doi.org/10.2173/bow.rocpig.01>. (Accessed: 7 November 2025).
- [NIDIS] National Integrated Drought Information System. Available: <https://www.drought.gov/location/85636>. (Accessed: 14 August 2025).
- Nishida, C., C. W. Boal, S. DeStefano, R. J. Hobbs. 2013. Nesting habitat and productivity of Swainson's Hawks in southeastern Arizona. Journal of Raptor Research 47:377-384.
- Poulin, R. G., L. D. Todd, E. A. Haug, B. A. Millsap, and M. S. Martell. 2020. Burrowing Owl (*Athene cunicularia*), version 1.0. In: Poole, A. F. editor. Birds of the World. Cornell Lab of Ornithology, Ithaca, NY. Available: <https://doi.org/10.2173/bow.buowl.01>. (Accessed: 7 November 2025).
- Siminski, D. P. 2025. eBird Checklist: <https://ebird.org/checklist/S256855435>. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, NY. Available: <http://www.ebird.org>. (Accessed: 6 October 2025).
- Sutton, G. M. 1977. Fifty common birds of Oklahoma and the southern Great Plains. Univ. of Oklahoma Press, Norman, OK.
- U.S. Climate Data. Available: <https://www.usclimatedata.com/climate/sierra-vista/arizona/united-states/usaz0214>. (Accessed: 14 August 2025).
- Van Tyne, J., and G. M. Sutton. 1937. The birds of Brewster County, Texas. Misc. Publ. Mus. Zool. Univ., Mich. 37:1-119.
- Wheeler, B. K. 2003. Raptors of western North America. Princeton Univ. Press, Princeton, NJ.