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First record of the Green Violet-Ear for Oklahoma

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On 2 September 1996 at approximately 1330 in rural east Norman, Cleveland County, Oklahoma, we observed a large and seemingly black hummingbird land on one of our hummingbird feeders. The light would briefly refract brilliant emerald green in much of its plumage. We noted a small patch of violet in the eye area, a dark blue-green breast, and a slightly curved black bill. The only pale areas on the bird were the tan undertail coverts. The bird appeared to be at least one-third larger than an adult male Ruby-throated Hummingbird (*Archilochus colubris*).

This bird was not aggressive, and it did not associate with the many Ruby-throated Hummingbirds visiting our feeder. It tended to come to the feeders immediately following a flurry of feeding activity by the ruby-



Fig. 1. Green Violet-ear (*Colibri thalassinus*). Painting by George Miksch Sutton. Reprinted from Sutton (1975) with permission.

throats. It gave a two-note vocalization which was distinctively different from that of the Ruby-throated Hummingbirds.

We identified this bird as a Green Violet-ear (*Colibri thalassinus*). Joe Grzybowski, who visited the site and observed the bird on 3 September 1996, concurred with our identification. We then placed our sighting on the Oklahoma Bird Alert. On 4 September, the bird was observed by Jeri McMahon, Mitch and Mary Oliphant, Pat Bergey, Jan Ward, Jim and Marion Norman, Nathan Kuhnert, Debbey Kaspari, Timothy Snively, John Dole, John Sterling, and Bob Funston. On 5 September, S. Woolbright saw the hummingbird between 1330 and 1400, the last time it was seen at our residence. Presumably, the bird left our site that afternoon.

The location of the sightings was 3.5 km south of Highway 9 at 4905 120th Ave. S.E., approximately 3.5 km south of Lake Thunderbird, about 1 km west of the Indian Meridian. This area lies just inside the western edge of the cross timbers of central Oklahoma. The predominate trees are blackjack (*Quercus marilandica*) and post oak (*Quercus stellata*).

The yard containing the hummingbird feeders is a small clearing that has been left to grow wild with primarily native plant species. The predominate grass species were a mix of little bluestem (*Schizachyrium scoparium*), indian grass (*Sorghastrum nutans*), big bluestem (*Andropogon gerardii*), and switch grass (*Panicum virgatum*). The wild flowers that were blooming were partridge pea (*Cassia marilandica*), scarlet sage (*Salvia coccinea*), mexican hat (*Ratibida columnaris*), and hoary vervain, (*Verbena stricta*); blue sage (*Salvia azurea*) was just starting to bloom. We also had a large stand of domesticated tall garden phlox (*Phlox paniculata*) and red spider lilies (*Lycoris radiata*) that attracted hummingbirds regularly.

We maintained eight hummingbird feeders from April through October 1996. Four were placed at the edge of the woods approximately 6 m apart, and four feeders hung on the back porch. The Green Violet-ear visited all of these feeders, along with 10–15 Ruby-throated Hummingbirds. Weather during the days this bird was seen consisted of clear skies, daily high temperatures of 28–32°C, and daily low temperatures of 18–19°C.

The preferred habitat of the Green Violet-ear is oak woods and clearings (Peterson and Chalif 1973). Its normal range is Mexico (from southern San Luis Potosi) to Bolivia, mostly in the highlands. Mlodinow and O'Brien (1996) list 25 "non-rejected" records for the United States from 1961 to 1994; we found an additional 11 records (including ours) for 1994–1996 (National Audubon Society Field Notes, Vols. 48-51). Most are for Texas, all in the southeastern part of the state, but four records were from Arkansas, and one each for North Carolina, Alabama, and Michigan. The records span the dates 14 April (1964; San Benito, Texas) to 4 November (1995; Mobile, Alabama) but are mostly from May to July. The distribution of occurrences and pattern of dates (see Mlodinow and O'Brien

1996) indicate a casual dispersal in recent decades from Mexican populations, at least for most of the records.

The identity of the bird as a violet-ear (*Colibri* sp.) was readily evident from photos taken by Nathan Kuhnert showing the violet ear patch. However, separation from other *Colibri* species or from subspecies other than the Mexican Green Violet-ear (*C. t. thalassinus*) needed evaluation. The Oklahoma Bird Records Committee (OBRC) could not make those assessments independently from the photographs. Thus, the photographs and written documentation were sent to J.V. Remsen, Jr., of Louisiana State University who, with Daniel Lane and Steven Cardiff, provided comments and conclusions (letter of 3 October 1997 to J. Grzybowski).

Of the four *Colibri* violet-ears, only the Sparkling (*C. coruscans*) and Green have primarily emerald-green plumages. However, South American populations of the Green Violet-ear are thought by some to be another species, the Mountain Violet-ear (*C. cyanotis*; Fjeldsa and Krabbe 1990). Sparklings are commonly imported (Remsen pers. comm. to Grzybowski); identification as the Mountain would also strongly suggest an escape from captivity.

Fortunately, the Oklahoma violet-ear could be distinguished from these forms through the combined photographic documentation of Clapp and Kuhnert. The ear patch of the Sparkling extends broadly onto the chin, while it is thin and barely visible in the Green Violet-ear. The green of the throat on some photos appears to meet the bill, excluding the Sparkling. Also, the tan undertail coverts are characteristic of the Green Violet-ear rather than the Sparkling, in which the feathers are green or have narrow whitish edges.

The Green is distinguished from the Mountain form by the bluish-violet breast and upper belly. This was more difficult to discern in the available photographs, but this reflectance was detected by S. Cardiff, J. Arterburn, J. Cox, J. Grzybowski, J. Loyd, and J. Tomer on one of the photos. This is consistent with our observations of the breast being a "dark blue-green." Remsen reserved judgment to indicate that, from the photos, the center of the breast was merely darker.

In composite, these characters confirm that the Oklahoma bird was a Green Violet-ear of the nominate form, *C. t. thalassinus*, and of probable natural vagrancy from Mexican populations. These conclusions were accepted by the OBRC. It is the first record of this species for Oklahoma.

George Miksch Sutton (1975) did a painting of the Green Violet-ear (Fig. 1) in his *Portraits of Mexican Birds*. He stated that "[m]any Mexican species do not range as far northward as the United States . . . one species in this category is . . . the Green Violet-ear." Wouldn't Dr. Sutton have been surprised to hear that one had ranged northward to his own Cleveland County, Oklahoma?

We thank Charles Brown, Joe Grzybowski, and Nathan Kuhnert for their assistance in drafting and reviewing this manuscript and the Uni-

versity of Oklahoma Press for permission to reproduce Fig. 1. Photographs of this bird were deposited with the Oklahoma Bird Records Committee.

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NOTES

Bull. Oklahoma Ornithol. Soc. 31:24–25, 1998

Second record of the Green Violet-ear for Oklahoma.—From 30 May 1998 to 13 July 1998, a Green Violet-ear (*Colibri thalassinus*) visited hummingbird feeders in our backyard in Lawton, Comanche County, Oklahoma. Many observers who visited the site during that period noted the bird's emerald green dorsum, violet patches just behind and below the eye, long and slightly decurved bill, extensive violet breast patch, glittering green gorget, light green tail with a dark subterminal band, and dusky wings that extended to the tip of the tail. The bird was about 1.5 times the size of the Ruby-throated (*Archilochus colubris*) and Black-chinned (*A. alexandri*) hummingbirds that also visited these feeders. The Green Violet-ear was aggressive, often chasing Ruby-throated Hummingbirds and Black-chinned Hummingbirds from the feeders. It fed only at feeders in the shade and would not visit ones I moved into direct sunlight. The Lawton bird appeared to represent the nominate race, *C. t. thalassinus*, judging from the prominent violet breast patch. Photographs of this bird by J. Grzybowski were submitted to the Oklahoma Bird Records Committee.

This is the second record of the Green Violet-ear for Oklahoma, the first being a bird reported 2–5 September 1996 in Norman, Cleveland County (Tarbutton, B., and D. Clapp, *Bull. Oklahoma Ornithol. Soc.* 31:21–24, 1998). The Norman bird also appeared to represent *C. t. thalassinus*. Another extralimital Green Violet-ear was reported a week after the Lawton bird was last seen, on 20 July 1998, at Center Point, Kerr County,

Texas, about 500 km due south of Lawton (E. Womack, pers. comm.).—KURT MEISENZAHL, 911 Bob White, Lawton, OK. 73507. Received 4 September 1998, accepted 4 September 1998.

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Nest defense and prolonged incubation in the Rio Grande Wild Turkey.—The length of the incubation period in birds apparently is a function of inherent rate of development of the embryo, which is genetically fixed (Terres, J. K., *Encyclopedia of North American birds*, Knopf, New York, 1981). In the event that an egg does not hatch at the expected time, the parent generally continues to incubate, which is a functional response in view of the variability in incubation period. A safety margin of 50–100% in excess of the normal incubation period exists (Skutch, A. F., *Wilson Bull.* 74:115–152, 1962; Holcomb, L. C., *Behaviour* 36:74–83, 1970). Eventually, incubation is terminated whether the egg has hatched or not. Holcomb (1970) suggested that there must be strong selective pressure against prolonging incubation in species in which replacement laying is possible. Prolonged incubation behavior has been documented in a few avian species; however, the behavior is not well understood (Skutch 1962; Holcomb 1970; Drent, R., *Avian Biol.* 5:333–419, 1975). How birds respond in instances where eggs fail to hatch after the normal incubation interval has not been commonly reported. This note documents a case of nest defense and unusually prolonged incubation of an egg by a female Rio Grande Wild Turkey (*Meleagris gallopavo intermedia*) in Oklahoma.

On 14 June 1993, at about 2000, I witnessed a female turkey viciously attacking a black rat snake (*Elaphe obsoleta*) in post oak–grassland habitat approximately 6.5 km west of Stillwater, Payne County, Oklahoma. The hen turkey was preoccupied with the snake and allowed me to stand within approximately 3 m of the action. She continued to peck viciously at the 1.5 m long snake as the snake attempted to climb up nearby sand plum (*Prunus angustifolia*) trees. The hen turkey spread her tail feathers and flapped her wings frequently while pursuing the snake. As the snake sought refuge in the foliage, the turkey repeatedly pulled the snake out of the trees and continued pecking at it. Finally, the snake managed to climb to the top of one of the trees, about 1.8 m high, out of reach of the hen turkey that continued to jump up toward the snake. The confrontation continued until 2020, ending without interference from me. The snake was examined and was found to have a few minor injuries from the attack and an empty stomach. The hen turkey flew a few meters away to the top of a fence post.

The following day, a search of that area turned up the hen turkey's nest. It seems likely that the snake had discovered the nest and that the hen was actively defending it from the snake. The nest was about 2 m from where the fight occurred in a densely vegetated patch directly under

a barbed wire fence. The nest was well concealed by smooth sumac (*Rhus glabra*), eastern red cedar (*Juniperus virginiana*), and grasses. The hen was determined to be a yearling based on plumage characteristics, including the presence of the two most distal juvenal primaries (Williams, L. E., and Austin, D. H., Studies of the wild turkey in Florida, Univ. Florida Press, Gainesville, 1988). Her nest was lined with dead leaves and feathers and found to contain only one egg. It was not known if the clutch size in this case was one or whether other eggs were taken from the nest by predators.

I continued to observe the turkey and her nest on a regular basis throughout the summer, usually from 0800–1000, 1300–1500, and 1700–1900. I established a partially concealed observation area behind some vegetation about 3 m from the nest to minimize disturbance. The hen would leave the nest every day in the late afternoon, usually at about 1530, and return within about an hour. She appeared to be cautious when leaving and returning to the nest. She was never observed turning the egg, a behavior common in Wild Turkeys (Latham, R. M., Complete book of the Wild Turkey, Stackpole, Harrisburg, PA., 1956). She was seen on several occasions flying back into the nest area, landing several meters away from the nest each time. In late August and September, the hen left the nest more frequently, but only for short time periods. She became much more nervous and prone to leave the nest at any disturbance. The hen was last seen incubating the egg on 29 September, 108 days after the nest was discovered. This incubation effort is in excess of four times longer than the normal 26-day incubation period and represents a record for prolonged incubation in the Wild Turkey. Upon collecting the egg, I found that it contained a putrid yellow fluid (about 30–40% full by volume) and no sign of embryonic development, and concluded that the egg was infertile.

It was not possible to determine exactly when this hen turkey initiated nesting and laid her clutch. Nesting in Wild Turkeys generally begins in mid-March in Oklahoma (Latham 1956; Lewis, J. C., The world of the Wild Turkey, Lippincott, Philadelphia, 1973). Egg dates for Wild Turkeys in Oklahoma are from 5 May to 18 July, and dependent young are seen from 8 May to 6 August (Johnsgard, P. A., Birds of the Great Plains, Univ. Nebraska Press, Lincoln, 1979). The Wild Turkey usually lays 10–13 eggs/clutch and does not initiate incubation until the last egg in the clutch is laid (Bent, A. C., Life histories of North American gallinaceous birds, U.S. Nat. Mus. Bull. 162, Washington, DC., 1932; Latham 1956; Lewis 1973; Johnsgard 1979). Incubation period in the Wild Turkey usually is 26 days (Eaton, S. W., Wild Turkey, No. 22 in The birds of North America, A. Poole, P. Stettenheim, and F. Gill, eds., Acad. Nat. Sci., Philadelphia, and Am. Ornithol. Union, Washington, DC., 1992). On average, 10% of birds' eggs fail to hatch due to infertility and other forms of embryo mortality (Koenig, W. D., *Auk* 99:526–536, 1982). Egg fertility and hatching success generally are high in Wild Turkeys (Vangilder, L. D., Population dynamics, Pp.

144-164 in *The Wild Turkey: biology and management*, J.G. Dickson, ed., Stackpole, Harrisburg, PA., 1992). In Texas, 91% of all eggs examined in early nests (before 5 July) were fertile (Cook, R. L., *Proc. Southeast Assoc. Game Fish Comm.* 26:236-244, 1972).

It is possible that the hen turkey laid only one egg; however, predators, most likely black rat snakes, may have eaten the majority of the hen's clutch of eggs. Normally, Wild Turkey hens readily abandon their nests during the early stages of incubation if disturbed by predators or humans (Latham 1956). Renesting after clutch or brood loss is common in Wild Turkeys (Eaton 1992). Although yearling hens are not known to renest after brood loss, they are known to renest following the loss of eggs (Williams and Austin 1988, Vangilder 1992). It is possible that yearling females lack the experience to recognize infertile eggs or the social status gained over time that is needed to renest. In some populations, immature Wild Turkeys do not nest at all. The yearling hen I observed showed all the major behavioral adaptations necessary to avoid nest predation, including selecting a concealed nest site, minimizing activity near the nest, remaining on the nest when predators approached, flying to and from the nest rather than walking, and not defecating near the nest (Williams and Austin 1988).

Two recent reviews on Wild Turkeys (Eaton 1992; Healy, Behavior, Pp. 46-65 in *The Wild Turkey: biology and management*, J.G. Dickson, ed., Stackpole, Harrisburg, PA., 1992) fail to mention prolonged incubating behavior. Although the Wild Turkey is not listed as a species that incubates infertile or spoiled eggs (Skutch 1962), at least three other recent records of prolonged incubation by wild turkey hens are known. In Alabama, four hens (out of 47) incubated apparently infertile clutches up to 78 days (Exum, J. H., et al., *Bull. Tall Timbers Res. Sta.* 23:1-70, 1987). In Oregon, Keegan and Crawford (*J. Wildl. Manage.* 57:801-804, 1993) reported 13 renesting attempts after brood loss, with four nests containing infertile eggs that were incubated 35-82 days. In Florida, Williams and Austin (1988), over a period of many years and among hundreds of nests, found only two hens that attended infertile clutches (35 and 64 days). In addition, the Northern Bobwhite (*Colinus virginianus*), with a 23-day incubation period, will attend infertile or spoiled eggs up to 56 days (Stoddard, H. L., *The Bobwhite Quail: its habits, preservation, and increase*, Scribner's, New York, 1946).

The costs involved in incubating an egg well beyond the normal incubation period are substantial, including decreased feeding time (leading to lower body mass and reduced overwintering survival), increased predation risk, and lost opportunity to renest. Because eggs that fail to hatch within a few days of the normal incubation time seldom produce living chicks (Skutch 1962), prolonged incubation offers few benefits. Young Wild Turkey hens, such as the one I observed in Oklahoma, may occasionally exhibit prolonged incubation, especially if they do not have the option to renest.

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RECENT LITERATURE

(Editor's Note: With this issue, the *Bulletin* inaugurates a new feature to highlight recent literature on Oklahoma ornithology. I invite readers to submit books for review and notices of journal articles for inclusion.)

Johnsgard, P. A. 1997. A George Miksch Sutton bibliography. *Nebraska Bird Review* 65:46–58.—Johnsgard has prepared a useful bibliography of over 270 Sutton publications, extending from 1913 when Sutton first wrote about a pet Greater Roadrunner (*Geococcyx californianus*) in *Bird-Lore* to 1986 when his last book, *Birds Worth Watching* (Univ. Oklahoma Press), was published posthumously. The bibliography contains 13 books, 18 monographs and museum publications, 201 journal articles, 12 book reviews, 4 obituaries, 18 popular articles, and 8 essays to accompany paintings. Thirty-five of his publications were in the *Bulletin of the Oklahoma Ornithological Society*.

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