

REPORT ON 16 TURKEY VULTURE (*Cathartes aura*) NESTS IN EASTERN OHIO

By Scott Pendleton

The Turkey Vulture (*Cathartes aura*) is ubiquitous in Ohio. It was reported from 3740 breeding blocks (84.2%) on the recently completed Ohio Breeding Bird Atlas II (OBBA2). However, breeding was confirmed in only 90 blocks (2%). The low confirmed percentages are, in part, due to the nest sites and adult behavior. The incubating adult's habit of remaining motionless in the presence of danger allows the casual observer to pass by. Also playing a part are the nests' cryptic nature, remote locations, lack of access to or awareness of nest sites in buildings, and, for such a large bird, the remarkably small cavity size of natural nest sites. .

There has been only one paper discussing multiple turkey vulture (TUVU) nesting sites in Ohio (Coles, 1944). This paper adds to the knowledge of Ohio nests by presenting characteristics of fourteen TUVU nest sites and nests located during the OBBA2 period in eastern Ohio: Harrison Co. (12 sites), Jefferson Co. (one site), and Carroll Co. (one site). Data from two Harrison County nests that were photographed in 1982 and 1986 are also included. Not included were three nests reported to me after the 2011 breeding season was over.

METHODS

As a by-product of breeding bird surveys, the data have several limitations. Though the species does not make nests in the conventional sense, for convenience I define the nest as the area of incubation. Egg location within the nest, number of eggs or young, and fledging rates were not always recorded. Data about the nest sites and the nests were recorded. I define the nest site as the topographic area surrounding the site of incubation.

Nests were located by several methods: serendipity (2), reports from farmers and friends (7) and searches of likely nest sites (7). Serendipity applies to those nests found while not actively birding. Both of those nests were found by hearing the characteristic hiss of a vulture chick. All second party reports contained precise locations that were confirmed by a visit, except for Nest 6. That nest was confirmed and measured by registered atlasers George and Kelly Benish. For buildings, likely nest sites were located by observing a TUVU perched in or entering an

opening. Natural sites required more foot work. If a TUVU was noticed perched in or flying into a heavily wooded area, the area was searched until either carrion or a nest was found. In one case a fellow atlaser and I were surveying a rocky hillside associated with a small hemlock ravine in late July 2010 when I commented, "There are two things we should be able to find here—a copperhead and a vulture nest." The area was visited the following year in May and a nest was found under a large rock, but we had no luck on the copperhead.

Nests were confirmed by one of three methods: observing eggs, chicks or fledglings; sound; or multiple observations of an adult entering a cavity. TUVU leave the nest unattended for fairly long periods of time (Jackson, 1984). To keep disturbance to a minimum, nest sites were visited when the adults were not present. Sound was used in many of the building sites. The buildings tended to be dilapidated and unsafe with the nest located on the second floor. These nests were confirmed by tapping the floor or wall with a stick and listening for the hiss of the chicks. The latitude and longitude were recorded. Precise locations for one unused nest of each type are given so the interested reader can pursue satellite images of the surrounding topography. Once confirmed, nests were rarely revisited.

Nest site data recorded includes the following: surrounding vegetation, topography, and distance to the nearest regular human activity. Nest data recorded include the substrate, cavity dimensions, and entrance number and dimensions. Other data such as number of eggs, number of chicks, and number of years used were recorded when available and are discussed in the description of each nest.

NEST DESCRIPTIONS

Nest 1: The nest site is a sandstone ravine in mature woods. The nest is located on a cliff ledge 4 meters from the bottom of the ravine. A rock had fallen from the roof of a shallow shelf cave, landed against the wall and cracked. This left a cavity with one entrance of dimensions 25cm x 80cm. One end of the incubating cavity is a triangular 80cmx36cmx73cm that over 1.8m tapers to a point. There is a much smaller cavity on the opposite side of the cave. When incubating, part of the bird's back and tail can be seen. To exit the nest, the bird backs into the opposite side and climbs out. The rock which fell in the

autumn of 2005 trapped some detritus that was used as nest substrate the first year. Since the detritus has decomposed the substrate has been bare rock. The site was first used in 2006 and has fledged ten birds in six nesting seasons.

Nest 2: This nest dates from 1982 and was photographed by Blair Heavilin, who also reported Nests 3 and 4. The nest site was a sandstone ravine in mature woods. The nest was on an open ledge 70cm deep and 3.2m long under a sandstone shelf. The shelf is 2.6 above the base of the cliff which is 5m high.

Nest 3: The nest site is in mature woods with moderate slope. The nest was in a heart rot cavity of a fallen oak. The entrance was an irregular 65cm circle. The cavity extended 2.5 m and the eggs were 1.7 m inside. The substrate is decomposed heart wood.

Nest 4: The nest site is in mature woods on a moderately sloping hillside. The nest was located near the center of a 2.6m grapevine thicket that was formed when an overloaded tree top was pulled over. The trunk broke 4m up and the top formed a grapevine tent. There was one obvious entrance approximately 40 cm in diameter and the eggs were 1.2m from the edge. The substrate was leaf litter. According to Mr. Heavilin the nest was used for three years. The tree and vine collapsed in 2010 and no longer has a suitable nesting cavity.

Nest 5: The nest site is in mature woods on a steeply sloping hillside. The nest was in a ground



This typical eastern Ohio sandstone ravine is the location for Nest 1. The ravine is 15 meters wide at its narrowest, 150 meters long and 18 meters from creek to cliff top.

level cavity formed by heart rot in a standing beech. The external diameter of the tree is 95cm and the cavity diameter is 70cm. The entry is a 32 cm irregular circle at ground level. The substrate is humus and the nest had two chicks in 2010. The tree top was broken from the trunk in the fall of 2010 and the nest was not used in 2011.

Nest 6: The nest site borders second growth woods and open field. It is 33 meters from a busy state highway. The cavity is in a standing dead oak with a 1.5m diameter. The entrance is 1.8m from the ground and is an irregular 70cm circle. The inside cavity is an irregular 1m circle 1.5 m deep. The substrate is decomposed tree. The nest was confirmed by seeing an adult enter repeatedly.

Nest 7: This nest dates from 1986 and was photographed by Tom Ford. The nest site was in mature woods on a moderately sloping hillside. The nest was located in a cavity of a wild cherry tree. The cavity was approximately 2m from the ground but the tree grew against a large rock that was nearly as high. The adult would land on the rock and step up into the cavity. The outside diameter of the tree was approximately 60 cm.



Two chicks at two weeks old in Nest 1. At around two weeks they begin to show threat response of hissing and raising wings. Note that the substrate is bare rock.



A 40-45 day old chick in the right side of Nest 1 showing typical defensive posture. At this age they not only hiss vigorously, but also stamp their feet, lunge and regurgitate.

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Nest 8: The nest site is in mature woods on a steep sandstone talus slope. Amongst the sandstone boulders were several that were larger than 2m. The nest was located under a 3x3.4x1.5m sandstone rock. The cavity was 30 cm high and a triangular 1.7m deep and 2.2m wide. At the back of the triangle there was a notch in the rock where the two eggs were laid. The substrate was sand with little organic detritus.

Nest 9: The nest site is a cabin in a small woodlot surrounded by 5,000 acres of reclaimed grasslands. It is the most appropriate nest for birds associated with death. Some years ago, five cows forced open the door of this hunting cabin and once in, managed to get it shut. They died of dehydration and then mummified. In this macabre atmosphere, six TUVU over the past three seasons have fledged. The nest is in the northeast corner of the 5.4 x 5.4m cabin. The door is stuck open 35cm and is the only entrance to the nest. The substrate is dirt.

Nest 10: This nest is one of eight in buildings or structures; it is in a treeless area and is the closest to regular sustained human activity. The nest site is an overgrown farmstead. To the east 46 meters is a hay field, to the west 39 meters is a 90 acre wooded hillside, to the south is a large pasture and to the north, only 45 meters away, is US250 and across it is a very busy farm implement business. The nest is in the loft of a machine shed and was confirmed by listening for the hiss of the chicks. Entry is via the open loft door. The substrate is bare wood.

Nest 11: This is the second nest in an open field. The nest site is an overgrown sloping farmstead. To the north and south is fallow field. The woods are 42 meters to the east and 86 meters to the west. The nest is in an old corn crib (1.8 x 3.6m) with four windows for entry and exit. The substrate is bare wood amongst corn cobs where one egg was laid.

Nest 12: The nesting site is at the edge of a large wooded area with a large active truck garden only 22 meters away. The nest is located in an attic of a dilapidated brick house. A third of the roof has collapsed allowing access to the attic. The substrate is assumed to be bare wood. The nest has been used for the past four nesting seasons. It was confirmed by listening for hiss of chicks.

Nest 13: This is the only nest in the survey that started out as a TUVU nest and ended up a Black Vulture (BLVU) nest. The nest site is shrubby immature woods with mild slope. The nest is a triangular eave attic in a nearly collapsed frame house. It has two entrances, a window and

a closet door open to a collapsed roof. The eggs were placed in the corner furthest from the window entrance. The substrate is bare wood. It is 370 meters from Nest 1 and was used by TUVU from 2006 thru 2009. On 3 March, 2010 two BLVU were noticed perched in a nearby tree. It is common for BLVU to roost near their nest site before the breeding season (Jackson, 1983) and I confirmed their nesting with a visual inspection of the nest in May of 2010. BLVU used the nest in 2010 and 2011.

Nest 14: The nest site is shrubby immature woodlot edge on an active beef cattle farm that is visited daily. (The owners live elsewhere.) The abandoned brick home in which the nest is located is 40m from the cattle barn. The nest was in a closet on the second floor. The closet dimensions are 40cm x 90cm and the room dimensions are 3.6m x 5.4m; it had two open windows for access. There were two chicks in 2009. Interestingly, when disturbed they each went to different closets every time the site was visited, even if it meant crossing each other's path.

Nest 15: The nest site is a wooded flat cattle pasture. The nest is in an open closet on the second floor of an abandoned brick house. The room was 3.6m x 5.4m and the closet 40cm x 90cm with its door stuck open. The substrate was bare wood. According to the owner, TUVU have nested there since 2006. There were two chicks in 2010 when the nest was confirmed.

Nest 16: The nest site is shrubby second growth woodland edge within 25 meters of a regularly used dirt road. There are two buildings in close proximity, a house and a detached summer kitchen. It was first located while surveying for Ruffed Grouse drumming on April 28, 2011. Two vultures were observed, one on the summer kitchen roof and one in a dead elm to the front of the buildings. A third bird exited a window in the summer kitchen. The buildings were revisited on 16 May in the early morning and two birds were noted: one on the house roof and one in the dead elm. After some time a bird exited the window in the house. The site was visited again in early July and there was a fledged young in the window of the summer kitchen. Unfortunately, all observations had to be made from the road and the presence of two nests could not be confirmed.

Nest descriptions are summarized in the accompanying table.

DISCUSSION

In areas with suitable cliff habitat, nearly all nesting TUVU pairs will choose such sites (Coleman, 1989 and Coles, 1944). Eastern Ohio

has many sandstone ravines but very few have the cavities or fissures that TUVU prefer. Nest 1 meets this standard and as such, it was used the first year it formed and every year since. Nest 2 was on a sandstone ledge without a cavity. It was used by a pair of TUVU for several years in a row but has not been used in the past 25 years. If its roof were to collapse and form a cavity, one would expect it to be regularly used again.

If appropriate cliffs are not available, TUVU will nest in a large variety of cavities (Jackson, 1984 and Mossman, 1992). The selection of nest sites in this report supports this. There is not only variation in nesting sites, but also in the size of the cavities used within nest types (e.g. corn crib verses closet). The nests are also divided equally between natural cavities and buildings.

The sandstone talus slope of Nest 8 was a common type of nesting site in Wisconsin (Coleman, 1989). That particular slope type is unusual away from the steep large valleys near the Ohio River in Jefferson County. Many lack roads and are inaccessible without a canoe and are therefore under-surveyed. There are several abandoned sandstone quarries in the area that have this habitat formed by artificial means. One would expect to find a nest there but they have yet to be surveyed.

Tree (Nests 3 and 5) or thicket nests (Nest 4) at ground level are less likely to be successful than other types (Jackson, 1984). Upright trees with appropriate cavity size are becoming rare in this area. It takes many decades or even centuries to produce the large trees required to support a TUVU nest. Modern forestry practices make the formation of further large cavities unlikely. A decline of tree cavities with above-ground entrances is of concern in some areas (Jackson, 1984). In areas with many abandoned structures in appropriate habitat, such as eastern Ohio, this loss is less of a problem.

The nests described demonstrate the TUVU's willingness to use structures. In some areas, 70% of abandoned buildings in wooded habitats had TUVU nests (Buhnerkempe, 1984). However, no systematic survey of abandoned buildings was attempted. Within the structures, the TUVU chose a smaller cavity (closet) within a larger cavity (room) or a dark recess when available. This behavior is expected (Jackson, 1984 and Buhnerkempe, 1984).

There are two differences in this report from previous reports: nests in non-wooded areas and the possibility of a communal nest site. Authors from previous reports stress remoteness (Coleman, 1989 and Mossman, 1992). For a natural

cavity nest, Nest 6 is exceptional. It is the only one not in a large tract of forest and it is less than 225m from several houses. However, it also had a large cavity and a large entrance that was above ground level. Apparently the quality of the nest cavity trumped the neighborhood in which it was located. Nests 10 and 11 are unusual in that they are clearly in open field. In a small sample size, 25% may be an anomaly and not significant but it is certainly interesting to entertain the thought that TUVU may change its behavior as preferred nest sited decline in remote areas.

Jackson (1984) states that TUVU appear to be territorial when nesting. Coleman (1989) did not find this in Pennsylvania where four pairs of nests, out of 21 nests surveyed, were less than 120m apart. There is one report of a TUVU and BLVU nesting on different floors of the same structure (Richardson, 1989). This sample had one nest site that potentially had two nests.

The observations made at Nest 16 are not proof that TUVU nested less than 15m from each other in different buildings. To see three birds at two different times with adults exiting two different buildings is intriguing and worth pursuing. Unfortunately, permission to take a ladder to the site could not be obtained. Observation of fledglings is hindered by the significant time commitment it takes to get to the site. It is reported here as a potential close nesting of TUVU that requires further observation to confirm.

CONCLUSIONS

The 14 OBBA2 nests reported represent 11 breeding blocks. It is clear, when 12% of all confirmed TUVU nests originate from one atlasing area, there is an underlying reason. I think the two most important factors are interest in the species and how atlasing activities are conducted.

My success in finding TUVU nests originates in my personal interest in this fascinating species. My interest began when I picked up an injured TUVU and brought it back to my clinic for rehab. He perched on the back seat and attempted, with his bald head, to look regal. A magnificent stench filled the vehicle and the sensation of Hippoboscid flies exploring my beard as habitat was memorable. The two weeks I cared for him hooked me on this remarkable species. Consequently, I actively looked for nests, questioning every farmer and exploring areas where TUVU entered mature woods.

TUVU nesting confirmations are not amenable to normal atlasing techniques. For efficiency, atlasing is most productive using the "park and listen" technique. TUVU do not sing, many ob-

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served birds are not breeding birds, pairs may or may not be mated, and finally, they nest in relatively remote places. Locating natural cavity nests requires a significant physical and time commitment. All of these factors decrease confirmation percentages.

Why should it matter if confirmed TUVU are underrepresented? As a percentage, both reported and confirmed blocks have decreased compared to OBBA1. There is concern that as natural cavities decline in number, nesting success will drop. How long will there be abandoned farm buildings in which they can nest? As common as the species appears, it may not always be so. Any nests found can be registered at the Turkey Vulture Society web site (vulturesociety.homestead.com). The more baseline data are collected, the better we can understand this fascinating scavenger.

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Scott is a veterinarian in Harrison County who treats both farm animals and pets. Due to a hectic schedule, he rarely birds outside of eastern Ohio and is quite happy with his 258-species life list. As this article attests, he likes to collect observations and data while hiking nearly 400 miles a year and working on cattle in Harrison and neighboring counties.

Nest	Location	Nest Type	Area Type	Human Activity	Nest Dimensions	Entrances	Entrance Dimensions
1	Washington Twp., Harrison Co.	Cliff Face	Mature Woods	Paved Road-172m	80cm x 36cm x 73cm tapering to a point over 1.8m	1	80cm x 25cm
2	Nottingham Twp., Harrison Co.	Cliff face	Mature Woods	Dairy Operation 650 m	70cm shelf 3.2 m long	Open cliff face	Historic nest
3	Nottingham Twp., Harrison Co.	Down Tree	Pastured Mature Woods	Dirt road, cattle feeding- 270m	65cm x 2m	1	Irregular 65cm circle
4	Nottingham Twp., Harrison Co.	Grapevine Thicket	Mature Woods	Dairy Operation 550m	2.6 m Exterior 80cm cavity	1	Irregular 40cm tunnel 1.2 m long
5	40.322444 -81.158175	Tree Cavity	Mature Woods	Home site- 360m	70cm irregular circle	1	32cm irregular circle
6	Carroll Co.	Tree cavity	Mature Woods	Highway	irregular 1m circle 1.5 m deep	1	Irregular 70cm circle
7	40.227243 -81.084384 Approximate	Tree cavity	Mature Woods	Highway- 510m		1	Historic Nest- no dimensions available
8	Salem Twp., Jefferson Co.	Sandstone boulder	Mature Woods	Hay Field- 580m	1.7x2.2m with a notch in the rear	1	30 cm high 2.2m at opening
9	Cadiz Twp., Harrison Co.	Cabin Floor	Sparsely wooded within 5K acres of grass	Active surface mine at +1,000m	5.4 x 5.4m	1	Door 35cm ajar
10	Cadiz Twp., Harrison Co.	Barn Loft	Overgrown field	Business and Highway- 45m	3m x 5m	2	0.75m x1.2m
11	Archer Twp., Harrison Co.	Corn Crib	Field bordering mature woods	Seldom used dirt road-22m	1.8m x3.6m	4	46cm x46cm
12	North Twp., Harrison Co.	House attic	Field bordering mature woods	Large Active Garden-22m	No access	Open roof	
13	Washington Twp., Harrison Co.	House 2 nd floor	Second growth woods	Home Site-370m	1.8m x2.2m eave closet	2	60cm x 60cm window 86cm x 1.6m door
14	Cadiz Twp., Harrison Co.	House, 2 nd floor	Pasture and shrubby area	Cattle feeding area- 40m	3.6m x 5.4m room 40cmx90cm closet	2	76cm x 1.2m windows
15	Green Twp., Harrison Co.	House, 2 nd floor	sparsely wooded pasture	Active rail line 43m	3.6m x 5.4m room 40cmx90cm closet	2	76cm x 1.2m windows
16	Nottingham Twp., Harrison Co.	House, 2 nd floor	Shrubby area near second growth forest	Regularly used dirt road- 20m	No access Est. 4x5m	2	No access Est 0.7x1.5m