

NESTING OF RED-TAILED HAWKS AND GREAT HORNED OWLS IN CENTRAL NEW YORK SUBURBAN AREAS

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INTRODUCTION

For many years we have followed the nestings of Red-tailed Hawks (*Buteo jamaicensis*) and Great Horned Owls (*Bubo virginianus*) in the area to the east of Syracuse, Onondaga County. In most years we kept no records because of the sporadic nature of our observations.

During the winters of 1978-79 and 1979-80 we observed Red-tailed Hawks in the Butternut Creek valley in the Town of DeWitt, just east of Syracuse, and in late February 1980 found that Great Horned Owls were using Nest No. 5 (see Fig. 1). That nest had been occupied by Red-tailed Hawks in 1979 but had produced no young. We expected that at least one pair of Red-tailed Hawks would nest in the Butternut Creek valley in 1980. To our surprise we found three incubating hawks along the valley by mid-April (Nests 1, 2, and 4).

Between mid-March and mid-April we also located three active hawk nests to the north, along Interstate Route 90 (N.Y. State Thruway). Further investigation of nearby areas where Red-tailed Hawks had been known to nest in the past resulted in the location of two more active Red-tailed Hawk nests (Nos. 11 and 12) and two partially active hawk nests (Nos. 3 and 6). In addition we were informed of the location of another Great Horned Owl nest (No. 8).

By 20 April, 1980 we had ten Red-tailed Hawk and two Great Horned Owl nests under observation in this relatively small, generally suburban area. All of the nests were followed and the results are reported below and summarized in Figure 2. The nest locations are shown in Figure 1.

DESCRIPTION OF AREA

The area of this report is located in central Onondaga County at the northern edge of the Allegheny Plateau, with the Great Lakes Plains stretching to the north (Storey, 1977). The area covered, including nest locations, is shown in Figure 1. Butternut Creek cuts through a broad valley between two suburban areas to join Limestone Creek south of Nest No. 11. The northeastern section of the

area is drained by Ley Creek, which flows westward into Onondaga Lake. Figure 1 has an area of approximately 72 square miles (186.5 square kilometers). The area of the map does not necessarily include the entire territorial areas of the nesting birds.

METHODS

Ten of the twelve nesting sites were located by observation from nearby highways. In most cases continued observations were made with a 30x telescope from distances of up to 0.3 mile (0.48 kilometer). The ability to observe many of the nests from a distance allowed nearly level views of the nest platforms. We were extremely fortunate in that eight of the nests could still be observed from a distance after the foliage was fully developed. The other four nests (all of the Red-tailed Hawk) required short walks for observation. We were careful in these cases to approach the nests no closer than necessary for the determination of their status.

NESTING AREAS

During the last twenty-five years most of our experience has been with Red-tailed Hawk and Great Horned Owl nesting sites in upland, wooded areas to the east of Syracuse.

Bull (1974, p. 184) states that Red-tailed Hawks "show a preference for patches of woodland in upland, open park-like country," but also breed in the Adirondacks and pine-oak barrens of eastern Long Island where there are openings in the forest.

Hagar (1957), in his study in Madison County, N.Y., stated that it seemed that the Red-tailed Hawks favored the uplands exclusively, and implied that the hawks tended to avoid the lowlands. Hagar's study area is more directly related to the area of the present study than any other of which we are aware. It was made primarily in wooded uplands on the northern edge of the Allegheny Plateau.

It has been obvious to us for many years that both the Red-tailed Hawk and the Great Horned Owl are successful breeders in the lake plains to the north of the Syracuse area. This conclusion is supported for nearby Oswego and northern Cayuga Counties, where the two species are breeding successfully and the Red-tailed Hawk may be on the increase (Smith and Ryan, 1978).

In the small sample of this study the average distance of nesting sites from highways was 0.17 mi. (0.27 km) (0.05-0.5 mi., or 0.08-0.8 km range); this is not unexpected in view of our general method

of searching for nests by driving along the highways.

The average distance (0.2 mi., 0.32 km) of the twelve nests from daily human activity exclusive of roads, was surprising. Over the years we have seen occasional nests near homes and highways, but never such a concentration as we found this year.

In general the nest locations were in mixed second-growth hardwoods, but the individual locations are worth brief descriptions in relation to habitat and probable hunting areas.

Nest 1 — Red-tailed Hawk. At the bottom of a dry mixed hardwood slope above a pond and marshy area; hunting area probably to the northwest and west.

Nest 2 — Red-tailed Hawk. In mixed hardwoods (with mixed white cedar and white pine) just south of an extensive cattail marsh; probable hunting area north and south along the Butternut Creek valley.

Nest 3 — Red-tailed Hawk. In upland mixed hardwoods; most likely hunting area to the south.

Nest 4 — Red-tailed Hawk. In a dead ash in partially drowned wet woods; the Town of DeWitt landfill to the north, and the Creek valley, are the probable hunting areas.

Nest 5 — Great Horned Owl. In a small patch of hardwoods completely surrounded by highways; the DeWitt landfill is the most likely hunting area.

Nest 6 — Red-tailed Hawk. In a large cottonwood, one of a small clump in an old muckland farming area; hunting area in the valley along Route 690 to the east.

Nest 7 — Red-tailed Hawk. In a red maple in a small strip of wet woods south of Route 90; the airbase property and Hancock Airport to the north are the probable hunting areas.

Nest 8 — Great Horned Owl. A most improbable location, less than 100 yards from the back fence of the Employees' Parking Lot of the Syracuse Post Office on Taft Road; the airport and surrounding fields are the most likely hunting areas.

Nests 9, 10, 11 and 12 — Red-tailed Hawk. In contrast to the first eight nests, these four have more hunting territory in the form of surrounding farmland, both in use and abandoned. Nest 12 is in a small strip of wet woods just north of the Old Erie Canal.

Based on our knowledge of previous nesting sites, we suspect that at least two more pairs of Red-tailed Hawks, and an additional three or four pairs of Great Horned Owls, may have nested in the study area in 1980.

NESTING DENSITY

We were initially surprised at the observed density of nesting Red-tailed Hawks and Great Horned Owls. Although we have not made an exhaustive search, it seems evident from the literature which we have seen that such a density is not particularly unusual, except in its relation to suburban areas.

The classic study by Craighead and Craighead (1956) reported a nesting density of raptors (five species of hawks and three species of owls) of 1.8 pairs per square mile in southern Michigan. Austing (1964) reported a nesting density of Red-tailed Hawks approaching one pair per square mile in mature oak-hickory forests in Ohio. Hagar (1957) reported a population density of one pair of Red-tailed Hawks per 2.2 square miles in 1952, as a minimum, in central New York State, apparently including a number of pairs for which nesting was not actually demonstrated.

We estimate that approximately 50% of this study area is urban, which would give a nesting density of ten active pairs of hawks and owls in *ca.* 36 square miles (93.2 square km), or one pair per 3.6 square miles (9.3 square km).

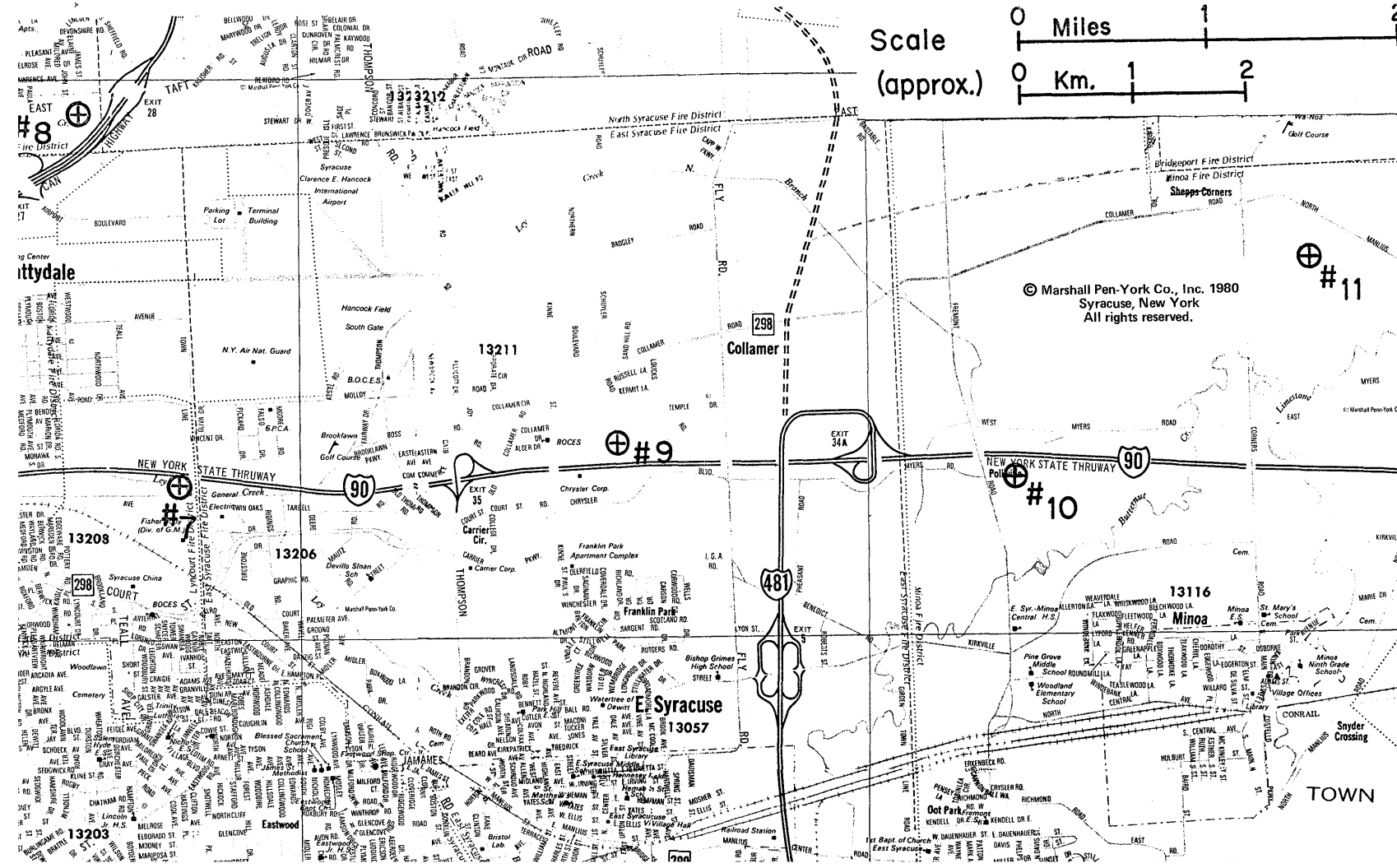
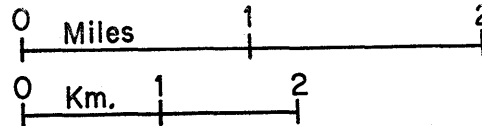
NESTING SUCCESS

Incubation by the Red-tailed Hawks was first noted on dates ranging from 20 March to 19 April 1980. We were unable to determine dates of egg-laying. We concentrated our efforts on determining the production of fledged young (see Fig. 2), the ultimate measure of nesting success.

The Great Horned Owl nests produced five fledged young. Eight active Red-tailed Hawk nests produced 17 fledged young. One downy young disappeared from Nest No. 2, the only loss of young observed. Two Red-tailed Hawk nests (Nos. 3 and 6) had only single birds in attendance and produced no young. All nesting Red-tailed Hawks which we observed had fully colored rufous tails and were therefore classified as adults.

In 1952 Hagar (1957) found 26 pairs of Red-tailed Hawks in his study area, with 17 occupied nests, only ten of which produced young. The hawk nests in this study had a much better success ratio than Hagar observed. Bull (1976, p. 13) states that in 1975 in the Millbrook area of Dutchess County, 27 Red-tailed Hawk nests produced 24 young (no reference given).

Scale
(approx.)



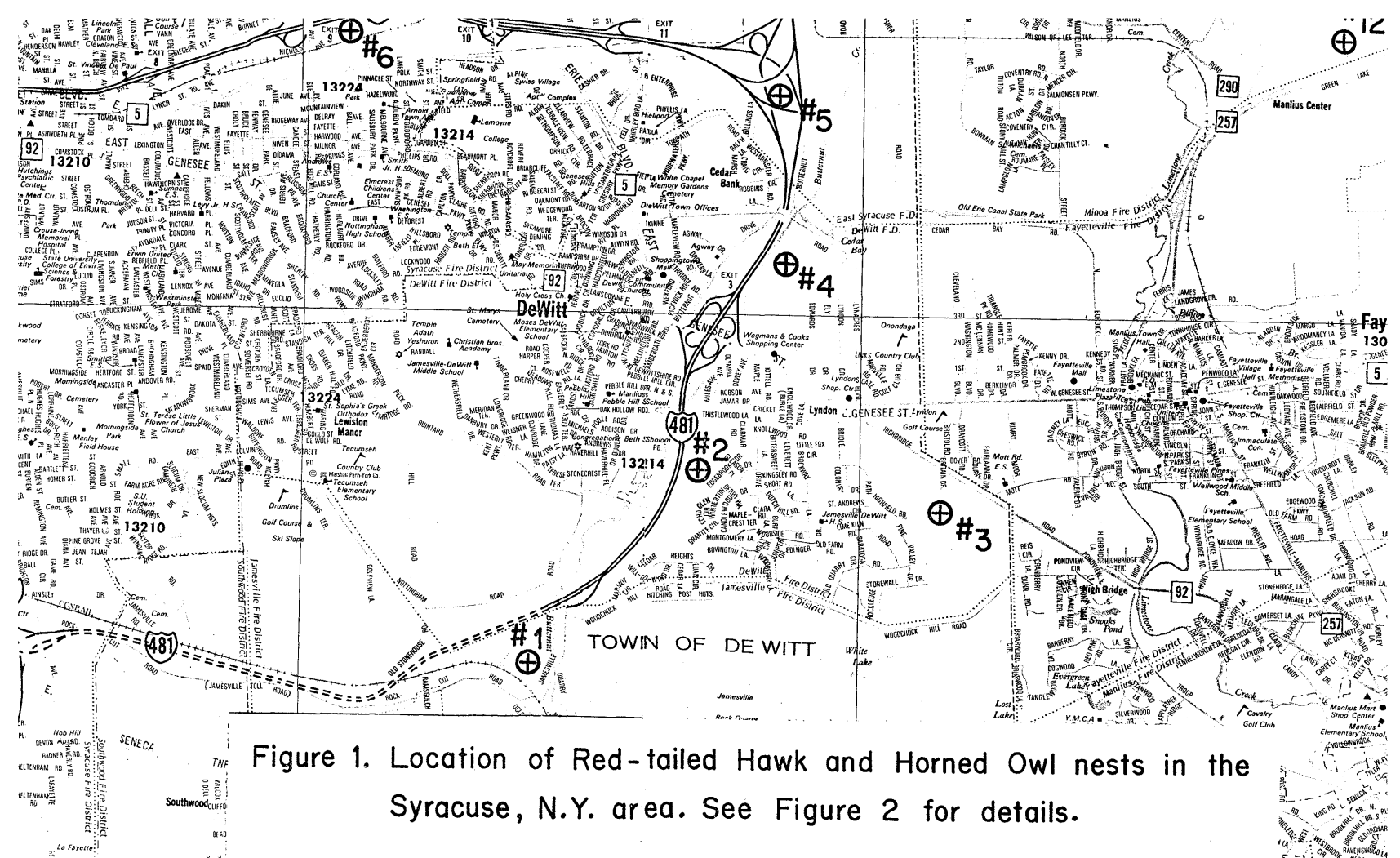


Figure 1. Location of Red-tailed Hawk and Horned Owl nests in the Syracuse, N.Y. area. See Figure 2 for details.

DISCUSSION

The observed nesting density of Red-tailed Hawks and Great Horned Owls was not unusual in view of previously reported results. Nesting success, based on active nests, may be slightly better than noted in several previous reports.

What was most noteworthy in our opinion was the proximity of the observed nests to urban and suburban areas, and to major highways. Having spent much time over the years looking for hawk and owl nests where we expected to find them, in upland wooded areas, we were surprised to find such a concentration under our noses—essentially on our way to work from the suburbs.

Good weather during the last three weeks of May was probably a contributing factor to the nesting success. On May 31, a heavy squall line, with wind gusts to 45 mph, hit the entire area, with no apparent damage to nests or young.

The location of seven of eight active and successful Red-tailed Hawk nests in close proximity to wet or marshy areas is of interest. We did not try to make any determination of the territories or ranges of the nesting pairs of Red-tailed Hawks. Various authors have commented that the Red-tailed Hawk is tolerant of adjacent nesters of the same species. This report seems to verify that. Our general impression is that this species is adapting remarkably well to marginal habitat. The availability of good hunting areas may be a controlling factor.

The proximity of so many raptor nests to major highways invites comment. It is obvious that the roadways may have contributed to the hunting ranges of the Red-tailed Hawk. However, they have also cut windows into existing habitat, and the fences along the Interstates tend to isolate the habitat.

The major factors contributing to the success of this study were time spent afield and luck. It is unusual for so many hawk and owl nests to be so easily observable during the later stages of nesting.

ACKNOWLEDGMENTS

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FIGURE 2

Nesting of Red-tailed Hawks and Horned Owls near Syracuse (1980)

Nest No.	1	2	3	4	5	6	7	8	9	10	11	12
Species ¹	RT	RT	RT	RT	HO	RT	RT	HO	RT	RT	RT	RT
Location ²	N	N	N	N	O	O	N	N	N	N	N	N
Habitat ³	UW	DW	UW	DW	DW	DW	DW	DW	DW	DW	DW	DW
Date Incubation First Observed	-4	3/20	-5	4/5	2/21	-5	4/20	--	3/20	4/7	4/19	3/27
No. of Fledged Young	2	1	--	3	3	--	3	2	2	2	3	1
Date Young Last Seen on Nest	6/15	6/11	--	6/22	5/8	--	6/22	5/2	6/22	6/22	6/22	6/22

1 RT = Red-tailed Hawk; HO = Great Horned Owl

2 N = nest location new to us; O = previously used nest.

3 UW = upland woods; DW = damp woods, generally small patches of woodland in damp area.

4 nest could not be observed from a distance; no approach possible without flushing incubating bird.

5 unsuccessful nests.

LITERATURE CITED

- Austing, G. Ronald. 1964. *The World of the Red-tailed Hawk*. J. B. Lippincott Co., Philadelphia and New York.
- Bull, John. 1974. *Birds of New York State*. Doubleday/Natural History Press, Garden City, N.Y.
- Bull, John. 1976. *Supplement to Birds of New York State*. Federation of New York State Bird Clubs, Inc.
- Craighead, John P. and F. Craighead, Jr. 1956. *Hawks, Owls and Wildlife*. Wildlife Management Institute.
- Hagar, Donald C., Jr. 1957. *Nesting Populations of Red-tailed Hawks and Horned Owls in Central New York State*. *Wilson Bulletin*, vol. 69, no. 3, pp. 263-272.
- Smith, Gerald A. and James M. Ryan. 1978. *Annotated Checklist of the Birds of Oswego County and Northern Cayuga County, N.Y.*, Rice Creek Biological Field Station, Bulletin No. 5, SUNY at Oswego.
- Storey, Mike. 1977. *Heartland, a Natural History of Onondaga County, N.Y.* Onondaga Audubon Society, Inc., Syracuse, N.Y.

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