Identifying Rusty Blackbird Foraging Habitat in New Hampshire

Report to the Nuttall Ornithological Club's Charles Blake Fund

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Introduction

The Rusty Blackbird is a boreal songbird that breeds from Alaska to Newfoundland. The breeding range extends south into the continental United States in Minnesota, Michigan, New York, and northern New England. The wintering range of this short-distance migrant extends from central New England and eastern Nebraska south to Florida and Texas, but the majority of birds winter in the southeastern coastal plain and the Mississippi Valley.

Rusty Blackbirds nest in dense, young softwoods associated with shallow wetlands such as beaver ponds, shrubby swamps, and hillside seeps. They typically place their nests in young spruce or fir trees with diameters <3 inches and heights of 6-15 feet. During the breeding season, Rusty Blackbirds forage for invertebrates on exposed mud and in shallow puddles. Wooded swamps and bottomland forests provide the primary wintering habitat. Wintering birds forage on minnows, aquatic invertebrates, small acorns, and pecans.

Historical accounts suggest that Rusty Blackbird populations have been declining since at least the 1920s, and recent data indicate a decline of more than 80% since the 1960s (Greenberg and Droege 1999, Niven et al. 2004, Sauer et al. 2004). A contraction of the species' breeding range, particularly in the southern and eastern fringes, has coincided with this decline (Powell 2008). Through the International Rusty Blackbird Working Group, formed in 2005 to foster communications among people seeking to understand and reverse the decline of the Rusty Blackbird, conservation biologists in the United States and Canada are now coordinating research activities in an attempt to identify contributing factors.

Loss of wintering habitat is likely one important factor contributing to the decline. At least 75 percent of bottomland hardwood forests in the southeastern U.S., which historically supported large flocks of wintering Rusty Blackbirds, have been converted to agriculture and development. Wintering Rusty Blackbirds forage on acorns of riparian oaks as well as invertebrates and fish in small floodplain wetlands, which are rarely retained in converted landscapes. Effects of climate change, acid precipitation, mercury contamination, and forest management on breeding habitat are active areas of research. In addition, blackbird control programs aimed at mixed flocks of Red-winged Blackbirds, Common Grackles, and Brown-headed Cowbirds, may have killed large numbers of Rusty Blackbirds that joined the other blackbird species at roost sites.

In 2006, New Hampshire Audubon initiated surveys of documented Rusty Blackbird breeding sites in Pittsburg, the State's northernmost township, where the highest density of documented breeding sites occurred. This effort documented Rusty Blackbirds at only three (13%) of the 23 historic sites surveyed. Birders observed the species at four additional New Hampshire locations that year, for a total of seven occupied sites. In 2008, surveys in the White Mountains yielded two additional occupied sites. A 2009 survey of historical and potential Rusty Blackbird breeding habitat in New Hampshire documented 57 active breeding areas, including a concentration of pairs in the upper Androscoggin watershed, and collaboration with other researchers enabled collection of tissue samples from 20 New Hampshire Rusty Blackbirds that are contributing to research on diet, genetics, blood parasites, and mercury levels.

The present study focused on the population in the Androscoggin watershed to collect detailed information on habitat use throughout the breeding and early fledgling periods. The specific objectives were to:

- Document habitat use by following individually marked birds, and
- Conduct a citizen science weekend to augment monitoring Rusty Blackbird activity at breeding sites.

Study Area

This study took place within the Abbott Brook, Dead Diamond, Swift Diamond, and Mollidgewock drainages of the Upper Androscoggin watershed in northern New Hampshire (Figure 1). Townships included Atkinson and Gilmanton Academy Grant, Dix's Grant, Dixville, and Errol in Coos County.

Methods

Project personnel visited sites of 2009 Rusty Blackbird activity on 1 and 2 May to determine 2010 occupancy, and field technicians conducted daily observations at occupied sites from 9 May through fledging. Adults received a standard USFWS aluminum band and a white plastic band (to indicate year banded) on one leg and two plastic bands in a unique color combination on the other leg. Six adult male, five adult female, and eight pre-fledglings also received radio transmitters. Project personnel used ATS receivers and hand-held yagi or vehicle-mounted dipole antennas to attempt daily location of each radioed bird from the day following radio attachment through 8 July, by which time all radio batteries had died.

Audubon staff organized a citizen-science weekend on 11-13 June, which included a Friday evening training and orientation session, Saturday morning and afternoon field observation periods, and a group field trip on Sunday.

Results and Discussion

Project personnel monitored 11 Rusty Blackbird nests within the study area, and documented 11 additional breeding pairs. Road conditions prevented access to breeding areas in April, and eggs in most nests were already laid when daily observations began. Hatch dates ranged from 18 May to 8 June and fledge dates from 25 May to 24 June; nests fledged young during 25-31 May. Researchers banded and tissue sampled 29 adults and 32 young during 16 May – 10 June. Four of the adults were recaptures of individuals banded on the same territories in 2009.

Project personnel made more than 550 signal detections and 364 visual observations of telemetered birds. Fledglings typically remained within 300 m of their nest sites for the first four days after leaving the nest. Thereafter, their increasing mobility made direct observation of families increasingly challenging. Firstly, the search area for radio signals expanded dramatically, as families moved considerable distances within a day. Secondly, birds typically detected approaching observers and moved away before their location could be pinpointed. In addition, dense vegetation often obscured birds from view even when they were relatively nearby.

After leaving the immediate vicinity of the nest, most pairs moved their young to a densely vegetated, forested wetland nearby. The young remained hidden in the dense vegetation while the adults traveled back and forth to foraging areas. Multiple families congregated in these wetlands, which made keeping track of which fledglings belonged to which adults difficult. Unbanded adults and fledglings were observed in these congregations as well, demonstrating that we have yet to locate all the breeding territories in these populations.

Once the young were able to fly well, families and groups of families traveled together to foraging areas. In one study area, some families moved to distant wetlands for a few days at a time, returning to the vicinity of their nesting territory between trips. In two study areas, families ultimately concentrated in wetlands along the primary drainage. Project personnel observed color-banded individuals, including a family from 10 miles away, in one of these drainages on 16 July.

Eight individuals participated in the citizen science weekend. Participants augmented the efforts of staff by providing simultaneous observations in key locations and paddling a field technician up a stream to document foraging areas which were inaccessible by land. Highlights included the documentation of these foraging areas along Mollidgewock Brook and observation of a color-banded pair in a previously undocumented foraging area. Participants were enthusiastic about their weekend experience and about what they learned about Rusty Blackbirds during the training and orientation session.

This pilot season demonstrated the feasibility of using radio-telemetry to monitor habitat use of Rusty Blackbird families and provided the first available information on this species' early post-fledging behavior and habitat use in the Northeast. This data is already informing the revision and update of the International Rusty Blackbird Working Group's Rusty Blackbird Conservation Plan (currently in preparation) and will help to inform management recommendations for industrial forest lands. The field experience gained in 2009 is enabling us to refine field protocols for 2010 and will provide many helpful insights for researchers conducting similar studies in other parts of the breeding range.

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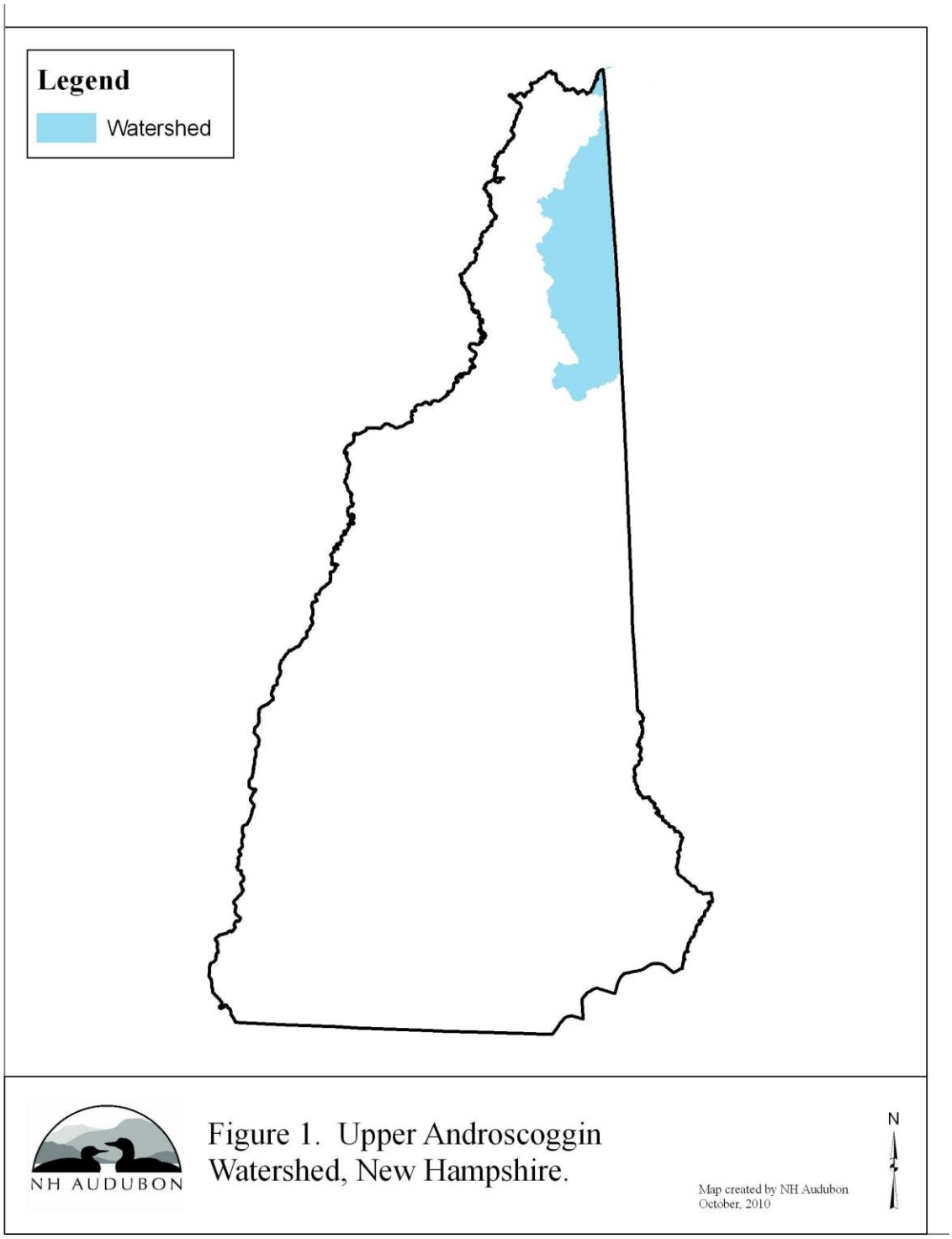
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Watershed
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Figure 1. Upper Androscoggin Watershed, New Hampshire.
Map created by NH Audubon
October, 2010
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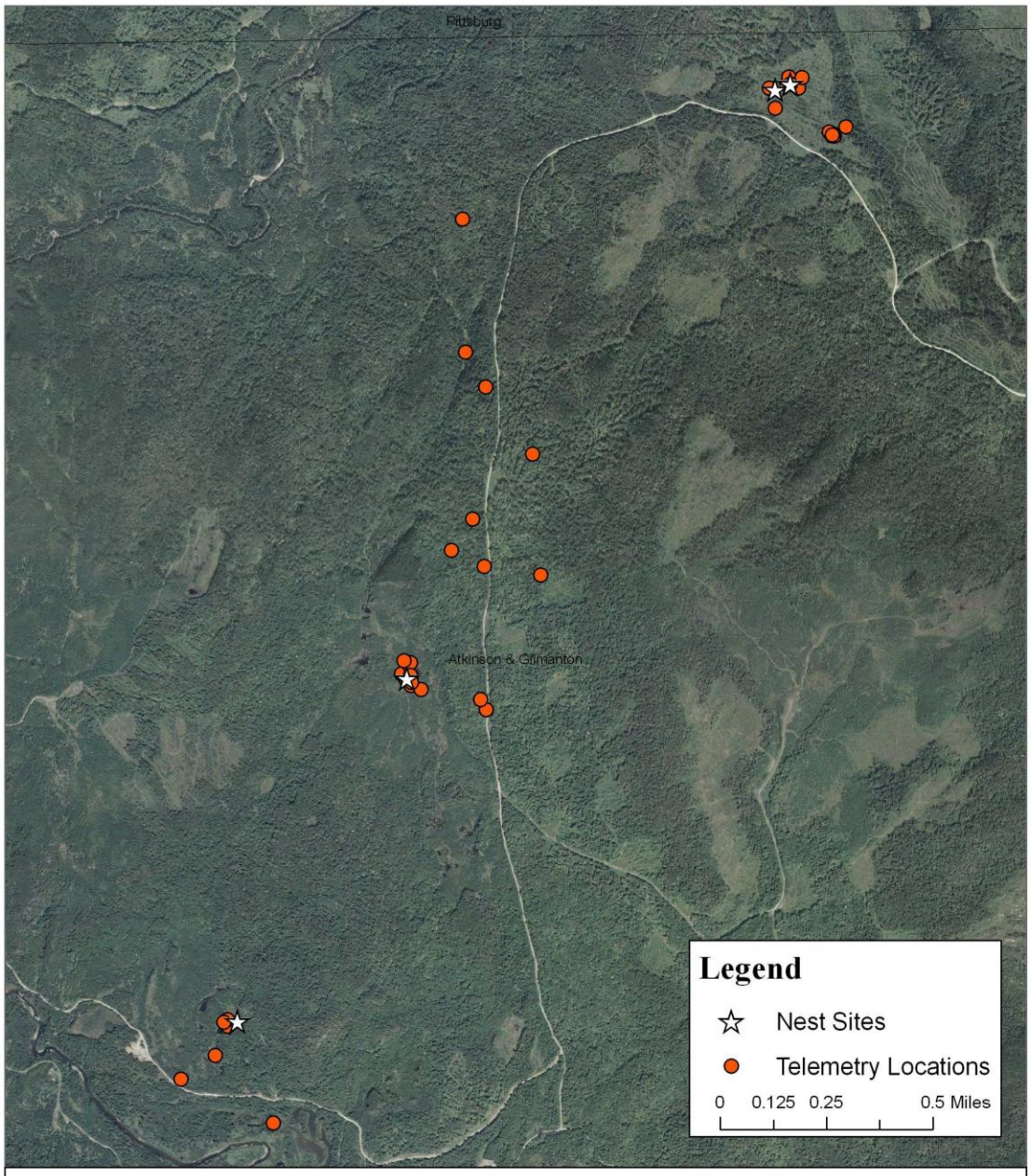

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Figure 2. 2010 Nest Site and Telemetry Locations of Rusty Blackbirds, Upper Androscoggin Watershed Area 1, New Hampshire.

Map created by NH Audubon
October, 2010

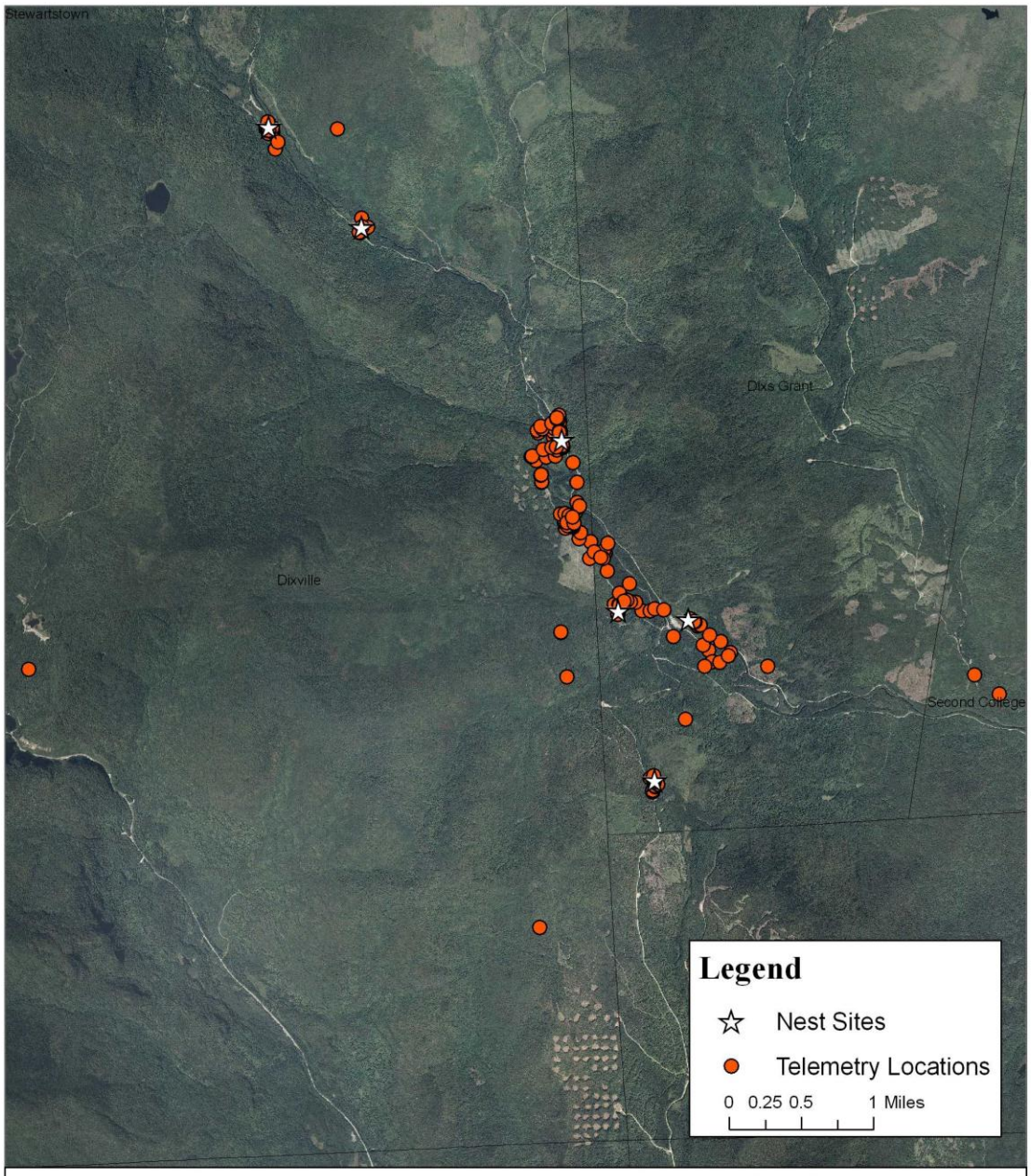

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Figure 3. 2010 Nest Site and Telemetry Locations of Rusty Blackbirds, Upper Androscoggin Watershed Area 2, New Hampshire.

Map created by NH Audubon
October, 2010

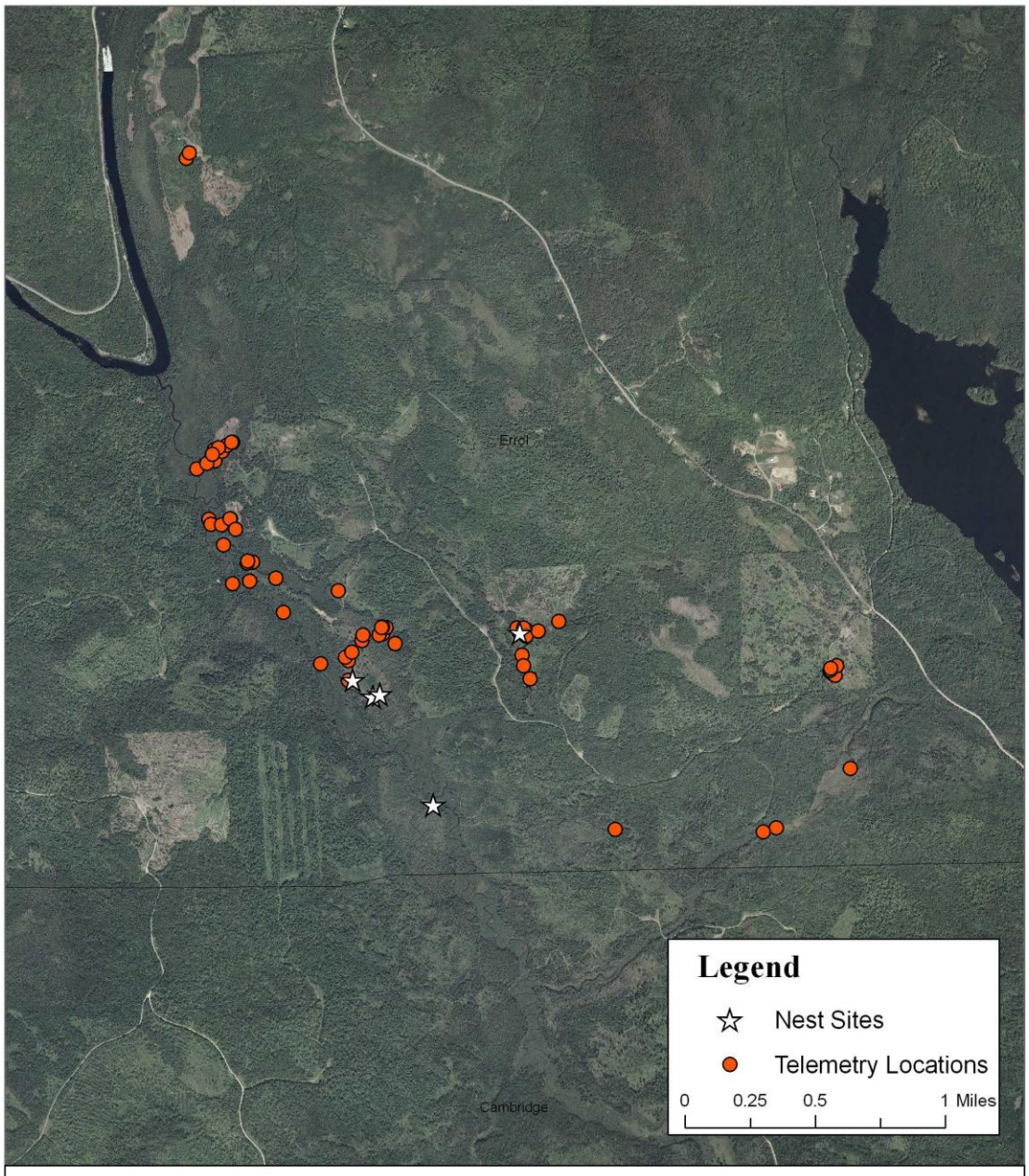

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Figure 4. 2010 Nest Site and Telemetry Locations of Rusty Blackbirds, Upper Androscoggin Watershed Area 3, New Hampshire.

Map created by NH Audubon
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