

**Center for Field Research
Vermont Institute of Natural Science
Annual Report – 2023**



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Introduction

This report includes a summary of the banding and tagging activities conducted by the Center for Field Research during the 2023 season. All animals are handled for the purpose of scientific research under the appropriate federal and state permits.

American Kestrel Project

We completed our third season of nest box monitoring in Vermont and New Hampshire. We added a total of 28 new boxes in 2023 for a total of 108 available boxes. 83 boxes are located in Vermont while the remaining 25 are located in New Hampshire. 11 boxes were occupied in Vermont and 2 in New Hampshire.

A total of 62 birds were banded in Vermont and New Hampshire. 51 were nestlings, 11 were adults. All adult birds were banded in Vermont. 7 nestlings were banded in New Hampshire.



One day old chick

This was our first season targeting adult birds both at the nest boxes and in the surrounding areas. Also new this year was the use of color bands to make birds easier to re-sight from a distance. Color bands were placed on the birds' left leg and consist of white characters on a green background. 59 birds received color bands along with traditional USGS aluminum bands. Several nestlings were re-sighted by birders at Windsor Grasslands in the days after fledging the nest.



First VINS color banded adult, an after hatch year female

Unfortunately, one nest was unsuccessful after the nestlings were banded. During a routine nest check after banding one bird was found deceased and one bird was severely emaciated. That bird was taken to our Center for Wild Bird Rehabilitation where it did not survive the night. One of the remaining siblings was found deceased and the other unaccounted for on a subsequent nest check. This was the first time the pair used this box as it had just been installed for this season. The landowners reported increased levels of starling activity nearby and had observed the pair being routinely harassed. This could have led to difficulty providing food for the nestlings. This could also have been a young pair's first attempt at raising young and they may not have been as proficient at obtaining food. We were able to band the adult male and will be able to determine if he attempts nesting in this box again next year.



Adult male banded at box that failed

Another deceased bird was reported to us by a landowner who found an adult male in a water trough on their property. The bird tested negative for HPAI and is presumed to have drowned. The body was sent to the American Kestrel Partnership for a necropsy. This location had two pairs nesting in close proximity. One pair utilized a box mounted on a telephone pole while the other found a cavity in a snag. We were able to band the three nestlings and one adult female in the box but could not access the nest in the snag.

Broad-winged Hawk Project



Broad-winged Hawk nestlings in a stick nest. Credit M. Walsh

Several months following Broad-winged Hawks around Vermont culminated in a successful trapping expedition with researchers from Hawk Mountain Sanctuary's Broad-winged Hawk Project. In early July Laurie Goodrich and Rebecca McCabe joined us with the goal of deploying GPS transmitters on local birds. VINS staff and volunteers began monitoring these elusive forest hawks as soon as they returned to the state from migration in preparation for Hawk Mountain's arrival. We spent many hours finding active territories in hopes of locating nest sites with several identified around the VINS Nature Center in Quechee.

The Hawk Mountain team joined us at these territories where we attempted to trap an adult parent from near the nest. They planned to spend three days trapping with us but the rain had other plans. In their "downtime" they continued searching for nests and were able to find two more in one day. When the rain finally broke we travelled to the first nest site to set up a trap.

Trapping consisted of setting up mist nets around a robotic Great Horned Owl decoy. A blind was setup nearby where we played great horned calls to attract the attention of the parents. Within a few minutes of starting calls an angry broad wing adult answered. The bird quickly dive-bombed the decoy and became tangled in the mist nets. As we removed the first bird, a second adult began calling from the trees. We moved the first bird out of sight and reset the trap and within minutes had both adults in hand.



Male and female comparison from first nest site. Female on left, male on right. Credit L. Goodrich

We collected morphometric data and attached a GPS transmitter backpack to the female, as she was large enough to carry the weight of the unit, and quickly released both birds with USGS bands and color bands to help with re-sighting in the future. We visited two more nests while the rain held but only came up with one more bird. He was not big enough to be equipped with a GPS transmitter but received a color band instead.



Female Broad-winged Hawk during data recording



Color bands on the female carrying a GPS transmitter

We will follow the movements of the female bird now named Ottauquechee to see where she goes during migration. Next spring we will determine if she returns to the same territory and if she is joined by her mate. This important project allows Hawk Mountain to learn more about Broad-winged Hawk migration and their nesting success. They are following broad wings from across their range and are gaining valuable insight into their movements. We hope to deploy more transmitters on Vermont birds in the future to help expand Hawk Mountain's data. Vermont transmitters were funded by a generous grant from the Butler Foundation.



Ottauquechee's track shortly before going off line in Mexico.

One hatch year bird was also trapped and banded as part of our ongoing blood parasite project with the Center for Wild Bird Rehabilitation. Frequent rainy weather during our trapping season severely limited our efforts and many field days were cancelled as a result. We will continue our efforts next season as broad wings return to the state from migration.



Hatch year Broad-winged Hawk

Monarch Monitoring

We conducted our sixth season of Monarch monitoring and tagging. A total of 50 monarchs were encountered throughout the year. The first individual was caught on July 18th and the last on September 26th. Six butterflies were captured and sampled for *Ophryocystis elektroscirrha* (OE) prior to migration and were not tagged. Forty-four butterflies were sampled for OE and tagged. The big day this year was on September 14th when twenty-four butterflies were caught and tagged at three locations. Nineteen were caught in one field in Plymouth.

The frequent rain during the 2023 season may have led to decreased numbers of monarchs compared to last year. Few eggs or caterpillars were observed while in the field and numbers of adults appeared down. Anecdotally numbers appeared down throughout the Upper Valley as well. In 2022, 84 monarchs were tagged during the season. 2020 remains the lowest record of monarchs with only 25 tagged and 39 total encountered during our monitoring season.



Monarch AHNW 456

Winter Raptor Banding



We continue our work in Addison County monitoring populations of wintering raptors. This season we are attempting to trap and band birds along with continued road side survey efforts. Trapping and banding will allow us to better understand the populations utilizing the area in winter. It also allows the potential to determine where birds are moving if they are recaptured in the future. We are targeting Red-tailed Hawks, Rough-legged Hawks, Northern Harriers, Red-shouldered Hawks, and American Kestrels. So far a mild winter has resulted in low numbers of trapped birds. Five red tails have been banded so far. Our season started in September and will continue through March.

Table I. 2023 Summary Raptor Banding Data

Species	Month	Day	City	County	State	Sex	Age
American Kestrel	05	09	Thetford	Orange	VT	F	AHY
American Kestrel	05	12	Hartland	Windsor	VT	M	AHY
American Kestrel	05	12	Norwich	Windsor	VT	F	AHY
American Kestrel	05	13	Woodstock	Windsor	VT	F	AHY
American Kestrel	05	23	Addison	Addison	VT	M	AHY
American Kestrel	05	23	Norwich	Windsor	VT	M	AHY
American Kestrel	05	25	Hartland	Windsor	VT	M	AHY
American Kestrel	06	08	Poultney	Rutland	VT	F	AHY
American Kestrel	06	08	Poultney	Rutland	VT	M	AHY
American Kestrel	06	09	Norwich	Windsor	VT	F	AHY
American Kestrel	06	13	Thetford	Windsor	VT	F	L
American Kestrel	06	13	Thetford	Windsor	VT	F	L
American Kestrel	06	13	Thetford	Windsor	VT	F	L
American Kestrel	06	13	Thetford	Windsor	VT	F	L
American Kestrel	06	13	Thetford	Windsor	VT	M	L
American Kestrel	06	13	Hartland	Windsor	VT	M	L
American Kestrel	06	13	Hartland	Windsor	VT	M	L
American Kestrel	06	13	Hartland	Windsor	VT	F	L
American Kestrel	06	14	Addison	Addison	VT	M	L
American Kestrel	06	14	Addison	Addison	VT	F	L
American Kestrel	06	14	Addison	Addison	VT	F	L
American Kestrel	06	14	Addison	Addison	VT	M	L
American Kestrel	06	15	Windsor	Windsor	VT	F	L
American Kestrel	06	15	Windsor	Windsor	VT	F	L
American Kestrel	06	15	Windsor	Windsor	VT	M	L
American Kestrel	06	15	Windsor	Windsor	VT	F	L
American Kestrel	06	15	Windsor	Windsor	VT	M	L
American Kestrel	06	15	Norwich	Windsor	VT	F	L
American Kestrel	06	15	Norwich	Windsor	VT	M	L
American Kestrel	06	15	Norwich	Windsor	VT	M	L
American Kestrel	06	15	Norwich	Windsor	VT	F	L
American Kestrel	06	15	Norwich	Windsor	VT	F	L
American Kestrel	06	20	Woodstock	Windsor	VT	M	L
American Kestrel	06	20	Woodstock	Windsor	VT	F	L
American Kestrel	06	20	Woodstock	Windsor	VT	F	L
American Kestrel	06	20	Woodstock	Windsor	VT	M	L
American Kestrel	06	20	Hartland	Windsor	VT	F	AHY
American Kestrel	06	26	Norwich	Windsor	VT	F	L
American Kestrel	06	26	Norwich	Windsor	VT	F	L
American Kestrel	06	26	Norwich	Windsor	VT	F	L
American Kestrel	06	26	Norwich	Windsor	VT	F	L
American Kestrel	06	26	Norwich	Windsor	VT	F	L
American Kestrel	06	26	Norwich	Windsor	VT	M	L
American Kestrel	06	26	Norwich	Windsor	VT	F	L
American Kestrel	06	26	Norwich	Windsor	VT	F	L
American Kestrel	06	26	Norwich	Windsor	VT	M	L

American Kestrel	06	28	Lebanon	Grafton	NH	F	L
American Kestrel	06	28	Lebanon	Grafton	NH	M	L
American Kestrel	06	28	Lebanon	Grafton	NH	F	L
American Kestrel	06	28	Lebanon	Grafton	NH	M	L
American Kestrel	07	04	Hartland	Windsor	VT	M	L
American Kestrel	07	04	Hartland	Windsor	VT	F	L
American Kestrel	07	04	Hartland	Windsor	VT	F	L
American Kestrel	07	11	Lebanon	Grafton	NH	M	L
American Kestrel	07	11	Lebanon	Grafton	NH	M	L
American Kestrel	07	11	Lebanon	Grafton	NH	M	L
American Kestrel	07	17	Poultney	Rutland	VT	F	L
American Kestrel	07	17	Poultney	Rutland	VT	F	L
American Kestrel	07	17	Poultney	Rutland	VT	M	L
American Kestrel	07	18	WRJ	Windsor	VT	M	L
American Kestrel	07	18	WRJ	Windsor	VT	M	L
Broad-winged Hawk	08	18	Norwich	Windsor	VT	U	HY
American Kestrel	08	29	Addison	Addison	VT	F	U
Red-tailed Hawk	10	03	Rochester	Windsor	VT	U	ATY
Red-tailed Hawk	11	02	Weybridge	Addison	VT	U	SY
Red-tailed Hawk	11	05	Addison	Addison	VT	U	AHY
Red-tailed Hawk	11	21	Addison	Addison	VT	U	AHY
Red-tailed Hawk	11	21	Addison	Addison	VT	U	AHY

Table 2. 2023 Summary Monarch Tagging Data

Month	Day	M/F	TagCode	City	State
07	18	F	NA	Quechee	VT
07	19	F	NA	Quechee	VT
07	24	F	NA	Quechee	VT
07	26	F	NA	Quechee	VT
07	27	F	NA	Quechee	VT
08	16	F	NA	Quechee	VT
09	08	M	AHNW 450	Quechee	VT
09	11	F	AHNW 451	Quechee	VT
09	12	M	AHNW 452	Quechee	VT
09	12	F	AHNW 453	Quechee	VT
09	12	F	AHNW 454	Quechee	VT
09	12	F	AHNW 455	Quechee	VT
09	12	F	AHNW 456	Quechee	VT
09	12	M	AHNW 457	Quechee	VT
09	12	F	AHNW 458	Quechee	VT
09	14	M	AHNW 459	Pike	NH
09	14	M	AHNW 460	Quechee	VT
09	14	M	AHNW 461	Quechee	VT
09	14	F	AHNW 462	Quechee	VT
09	14	M	AHNW 463	Quechee	VT
09	14	M	AHNW 464	Plymouth	VT
09	14	F	AHNW 465	Plymouth	VT
09	14	M	AHNW 466	Plymouth	VT

09	14	F	AHNW 467	Plymouth	VT
09	14	M	AHNW 468	Plymouth	VT
09	14	F	AHNW 469	Plymouth	VT
09	14	F	AHNW 470	Plymouth	VT
09	14	F	AHNW 471	Plymouth	VT
09	14	M	AHNW 472	Plymouth	VT
09	14	M	AHNW 473	Plymouth	VT
09	14	F	AHNW 474	Plymouth	VT
09	14	M	AHNW 475	Plymouth	VT
09	14	M	AHNW 476	Plymouth	VT
09	14	M	AHNW 477	Plymouth	VT
09	14	F	AHNW 478	Plymouth	VT
09	14	M	AHNW 479	Plymouth	VT
09	14	F	AHNW 480	Plymouth	VT
09	14	M	AHNW 481	Plymouth	VT
09	14	M	AHNW 482	Plymouth	VT
09	15	F	AHNW 483	Plymouth	VT
09	17	M	AHNW 484	Quechee	VT
09	17	M	AHNW 485	Quechee	VT
09	17	M	AHNW 486	Quechee	VT
09	17	M	AHNW 487	Quechee	VT
09	17	M	AHNW 488	Quechee	VT
09	17	F	AHNW 489	Quechee	VT
09	17	F	AHNW 490	Quechee	VT
09	17	M	AHNW 491	Quechee	VT
09	24	M	AHNW 492	Falmouth	ME
09	26	M	AHNW 493	Quechee	VT