

# Species Documentation

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## STATE OF VERMONT ENDANGERED SPECIES COMMITTEE

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|----|--|----|--|
| 1. | Scientific Name: <i>Haliaeetus leucocephalus</i> | 7. | Surrounding State & Provincial Status: |
| 2. | Common Name: Bald Eagle                          |    | Maine: Delisted 2009                   |
| 3. | Species Code ( <i>Department use only</i> ):     |    | New Hampshire: Delisted 2017           |
| 4. | Current Vermont Status: Endangered               |    | Massachusetts: Special Concern         |
| 5. | Recommended Vermont Status: Recovered            |    | New York: Threatened                   |
| 6. | Federal Status: Not listed - delisted 2007       |    | Quebec: Vulnerable (Threatened)        |
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## POPULATION STATUS

8. Global, North American, and Vermont Ranges:  
Bald Eagle is known only to North America. It nests from Alaska and Newfoundland to northern Mexico in association with moderate to large bodies of water. In Vermont eagles are observed throughout the state but nesting to date is focused in the valleys of the Connecticut River, Lake Memphremagog, and Lake Champlain.
9. Vermont's Position within Global Ranges:  Central  Peripheral  Disjunct
10. Historic Occurrences in Vermont More Than 25 Years Ago (*Type, Number, General Location, Regularity of Use, Confidence in Records, etc.*):  
Records indicate Bald Eagles were occasionally seen but nesting was not documented. Notable is the fact that Vermont was largely cleared of trees in the 19<sup>th</sup> century so nesting trees would likely have been in short supply. Zaddock Thompson (1842) reported that eagles were 'common to see in Vermont but nesting was not known to occur'.
11. Historic Abundance More Than 25 Years Ago (*number of Breeding Individuals or Size of Area Occupied, Confidence in Records, etc.*):  
Again, relying on Thompson (1842), records suggest eagles were regularly observed but not known to nest in Vermont. Records of eagles prior to state-wide deforestation are not in existence. Last confirmed nest documented from Lake Bomoseen in 1948 (S. Laughlin pers. com.).
12. Current Occurrences in Vermont (*Type, Number, General Location, Regularity of Use, Confidences in Records, Extent to which the Species has been Inventoried, etc.*):  
Eagle sightings are common throughout the state especially near moderate and large waterbodies. New eagle nests have been reported each year from 2009 to the present. Most common reports are of adults (likely because of their recognizability).
13. Current Abundance (*Number of Breeding Individuals or Size of Area Occupied, Confidence in Records, Problems in Estimating Abundance, etc.*):  
Following the 2020 nesting season at least 50 breeding and territorial pairs of eagles were documented within the recovery area (41 of those pairs were in Vermont). Those breeding pairs produced at least 76 fledglings (1.34 fledglings/nest). The Vermont pairs produced 65 fledglings or, 1.62 fledglings per nest. The average fledgling rate for the past five years is 1.62 fledglings/nest in Vermont.
14. Population Trend: Estimate Based On:  
 Declining  Surveys  
 Stable  Counts  
 Increasing  Observations  
 Unknown  Other (*explain*)

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## HABITAT IN VERMONT


15. General Description:  
Large, well-developed trees (mostly white pine) situated near moderate to large waterbodies and surrounded by trees of similar size and shape acting as protective screening.
16. Habitat Losses in Past (*Amount and Location*):  
Most habitat likely lost during the large deforestation period of the early 19<sup>th</sup> century.
17. Probable Habitat Losses in Future (*Amount, Location, and Type*):  
Possible waterfront development or increased recreation pressure at popular lakes and rivers.
18. Current Protected Status of Habitat:                      *Comments:*  
 Unknown Whether Any Protected  
 Believed To Be None Protected  
 At Least One Protected Occurrence  
 Several Protected Occurrences  
 Many Protected Occurrences  
 Other (*explain*) All known nests are protected by **Migratory Bird Treaty Act** and **Bald & Golden Eagle Protection Act**.

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## POPULATION BIOLOGY

19. Population Threats (*Contaminants, Predation, Competition, Disease, Human Disturbance from Recreation, Collection, Harvest, etc.*):  
  
Degree of Threat:  
 Very Threatened, Species Directly Exploited or Threatened by Natural or Man-caused Forces  
 Moderately Threatened, Habitat Lends Itself to Alternate Use but is not Currently in Jeopardy  
 Little Threat, Self-protecting by Unsuitability for Other Uses  
 Unknown  
*Documentation & Comments:*  
Threats to eagles likely to include waterfront habitat loss, heavy metal bio-accumulation (mercury and lead) from atmospheric deposition and scavenging, and pesticide use. Human disturbance from water-based recreation is a threat of some magnitude but actual threat is unknown. Raccoons and Great-horned Owls pose a predation threat to eggs and newborn eagles.
20. Tolerance To Human Activity: *Documentation & Comments:*  
 Fragile                      Tolerance varies among individuals, and falls between fragile and fairly resistant. Most sensitive to  
 Fairly Resistant            human presence at varying distances from nest site. Many eagles tolerate human activity (traffic, construction, logging, etc.) while operating machinery and vehicles.  
 Tough  
 Unknown
21. Reproduction Parameters (*Age to Sexual Maturity, Annual Production of Offspring, Reproductive Life, or Other Factors that Warrant Consideration*):  
Age to sexual maturity: 5 years (4-year-old eagle may pair up with an older mate)  
Avg. number of young fledged per breeding pair per year (2016-20): 1.62/nest  
Reproductive life: not well known but estimated to be 20-25 years in the wild.
22. Reproductive Status: *Documentation & Comments:*  
 Reproduces in Vermont  
 Confirmed In Last 2 Years                      First nesting pair in 2002. First fledgling in 2008. Successful every year since.  
 Confirmed In Last 10 Years  
 Confirmed In Last 25 Years  
 Confirmed Prior To 25 Years Ago  
 Unconfirmed  
 Does Not Breed or is Migratory

23. Additional Study or Documentation Needed:  
Continued monitoring and protection of all nests for a designated post-delisting period to document sustained success.
24. Attachments:  
24.1 Narrative Summary.  
See attached  
24.2 Relative Reports or Papers.  
24.3 List of Literature Cited or Other References.

25. Scientific Subcommittee Chairman: 

Date: 13 October 2020

Motion:

*Vermont Fish & Wildlife Department 7/00*

## **Narrative**

The Bald Eagle has been listed as *Endangered* by the State of Vermont since 1972, 9 years prior to the inception of the State's endangered species statute (1981). Despite these early protections, significant and steady population growth did not begin in earnest until 2006. The resulting growth of the population has prompted an examination of the species' listing status. The following documentation reflects that analysis.

### **Legal Protections**

Bald Eagles were proposed for delisting from the federal Endangered Species Act on July 6, 1999, and officially removed on June 28, 2007. Presently, the species has continued protection under the Lacey Act, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act.

#### Lacey Act

The Lacey Act, passed in 1900, was the first national law to protect wildlife. This act regulates the trade of wildlife across state or international borders. The Lacey Act makes it a violation of federal law if wildlife, taken in violation of state law, is then transported across state, foreign, or tribal boundaries.

#### Migratory Bird Treaty Act

This 1918 law prohibits the possession, taking, selling, transporting, and importing of native migratory birds (including Bald Eagles), their eggs, nests, parts, or products, without specific authorization. "Take" is defined as pursue, hunt, take, capture, kill, possess, sell, barter, purchase, ship, export, or import protected species. Exceptions are made for the lawful hunting of waterfowl and game birds, falconry, raptor propagation, and education.

#### Bald Eagle and Golden Eagle Protection Act

This act, also called the Eagle Act, which was passed in 1940, prohibits the take, sale, possession, purchase, barter, offer to sell, transport, export or import of any Bald or Golden Eagle, dead or alive, including any part, nest, or egg, unless allowed by permit. The act defines "take" as "pursue, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." The act also prohibits the use of bald eagles for falconry. Exceptions to this law are scientific and educational permits, and traditional use by Native Americans. The act was amended in 2009 to better define terms and to address the need to protect eagle habitat. The National Bald Eagle Management Guidelines (USFWS 2007a) were developed to advise various entities on where and when provisions of this act would be applicable. In addition, a strategy for implementation has been developed through a web-based, step-by-step guide for the upper Midwest (USFWS 2007b).

#### Vermont Endangered Species Law

The Vermont Endangered Species law (V.S.A. Title 10, Chapter 123) authorizes the Secretary of the Agency of Natural Resources to protect all listed species and their respective identified habitats from take, possession, or transfer. Exceptions are granted, by special permit, for purposes of scientific study, enhancement or propagation of a species, educational needs, zoological exhibition, or economic hardship.

#### Act 250, Section 248, and Use Value Appraisal

Criteria under Vermont's land use regulation (Act 250) and the public utility development oversight (Section 248) require protection for species classified as Threatened or Endangered and their respective habitats. Forest landowners may include habitat management considerations for

listed species on parcels enrolled in the State’s tax abatement program (Use Value Appraisal) for managed forest lands.

### **Historical Presence and Restoration Efforts**

Historical information on Bald Eagles in Vermont is limited; however, Zadock Thompson (1842) reported that ‘eagles are frequently seen in Vermont but not known to breed in the state’. Eagles were considered rare summer residents in the early 1900s (Fichtel 1985). An eye witness report from 1948 indicates the last nesting eagle pair in Vermont was located on Lake Bomoseen (S. Laughlin pers. com.). In 2002 the first eagle nest since 1948 was confirmed on the impounded Black River behind the North Springfield flood control dam. The nest was eventually abandoned, likely due to the presence of Great-horned Owls that were observed sitting in the nest. Subsequent attempts also failed until August 2008 when a successful nest and fledging was confirmed in Concord, VT. Two more nests were confirmed in 2009 and the number of new nests has steadily increased to 41 Vermont nests as of 2020.

While this natural growth was occurring, the Vermont Fish and Wildlife Department, the National Wildlife Federation, Audubon Vermont, and many local supporters embarked on an ambitious hacking project in Addison County to provide a boost to the natural population. With the aid of a federal grant, 29 eagle chicks were transported over a three-year period (2006-2008) from Maryland and Virginia to elaborately constructed hack boxes positioned on the state-owned Dead Creek Wildlife Management Area. Here, the chicks were banded for future identification, carefully hand-raised to fledgling stage, and then released into the wild. The effort yielded disappointing results as none of the hacked chicks has been confirmed to be nesting in Vermont. One adult did return in 2017 but was found in poor health and subsequently died at a rehabilitation facility.

### **Current Population Status**

The Bald Eagle has returned at some level to its former continental range, including the northeastern United States where its re-establishment as a breeding species appears secure. Efforts to restore Bald Eagle populations to North America have been extremely successful as a result of the ban on DDT, extensive reintroduction programs, and the protection of critical breeding and wintering habitat.

Currently, the Bald Eagle is known to nest in every state and Canadian province bordering Vermont. As one of the last of the 48 contiguous states to be recolonized by breeding Bald Eagles following the ban on DDT use, Vermont’s eagle population and its listing status would seem to be correlated to neighboring jurisdictions. These states and provinces have experienced a similar rate of growth in the last 10 years and have listed the eagle accordingly. Table 1 illustrates the variation in listing status and nomenclature by state and province.

Table 1. Listing status the Bald Eagle in jurisdictions neighboring Vermont.

<u>Jurisdiction</u>	<u>Listing Status</u>
New Brunswick	Endangered
Connecticut	Threatened
Massachusetts	Special Concern
New York	Threatened
Quebec	Vulnerable
New Hampshire	Delisted (2017)
Maine	Delisted (2019)
Rhode Island	No State Listing Status

As of the conclusion of the 2020 nesting season, 38 breeding pairs and 3 territorial pairs of Bald Eagles resided within Vermont. A minimum of another 12 nesting pairs were confirmed in New Hampshire, within a mile of the Connecticut River and on the New York side of Lake Champlain. Vermont eagle nests within the recovery area are concentrated along the Connecticut River, Lake Champlain, and their respective tributaries, with several nests now in more interior Vermont. It is important to note that during this 10-year period of significant growth, the eagle population has incurred loss as well. Principally this has been in the form of nest tree collapse and the highway collision deaths of at least 3 suspected breeding individuals.

The Recovery Plan (VT Fish & Wildlife 2010) identifies 4 delisting thresholds of consistent growth that are geographically mutually inclusive. First, the recovery population (that which nests in Vermont and within 1 mile of the NY shoreline of Lake Champlain and in New Hampshire 1 mile from the Connecticut River) must have a 5-year average of 28 nests, producing an average of 1 fledgling/nest to be considered for delisting. In 2020 this geographic area had at least 52 known nesting eagle pairs that produced a minimum of 75 fledglings. This is an average of 1.62 fledglings per nest. The third and fourth thresholds to be met are that 14 nesting pairs must be on Vermont soil and an average of at least 1 fledgling per nest must be produced over a 5-year period to validate the fact this is a Vermont-based recovery project. In 2020, Vermont's 41 nesting pairs (74.5% of recovery area) contributed 64 fledglings, which equates to 1.68 fledglings per nest. Tables 1 and 2 demonstrate the eagle's nesting results since 2002 for the recovery Area and for Vermont, respectively.

**Table 2. Recovery Area Bald Eagle nesting results 2002-2020 (including NY and NH). The criteria for delisting within the recovery area (a 5-year average of 28 breeding pairs and 28 fledglings/pair) were met in 2019 and 2020 for breeding pairs and 2015-2020 for fledglings (green highlights).**

Year	Territorial Pairs	Breeding Pairs	Fledged	5-year Average Breeding Pairs	5-year Average Fledglings	5-year Average Fledglings/Breeding Pair
2002	2	0	0			
2003	1	0	0			
2004	2	2	3			
2005	4	2	3			
2006	2	3	5	1	2	0.93
2007	3	2	3	2	3	1.23
2008	4	3	2	2	3	1.37
2009	5	5	6	3	4	1.31
2010	3	9	15	4	6	1.34
2011	8	15	23	7	10	1.31
2012	3	21	35	11	16	1.35
2013	4	21	37	14	23	1.57
2014	2	22	26	18	27	1.56
2015	3	21	22	20	29	1.44
2016	3	27	44	22	33	1.46
2017	1	30	51	24	36	1.46
2018	6	31	50	26	39	1.43
2019	1	46	65	31	46	1.48
2020*	3	52	75	37	57	1.54

**Table 3. Vermont Bald Eagle nesting results 2002-2020. The delisting criteria regarding number of nesting pairs (14 pairs over a 5-year average) in Vermont have been met for the past 5 consecutive years and the five-year average of fledglings (28) has been met since 2019 (green highlights).**

Year	Territorial Pairs	Breeding Pairs	Fledged	5-year Average Breeding Pairs	5-year Average Fledglings	5-year Average Fledglings/Breeding Pair
2002	1	0	0			
2003	0	0	0			
2004	0	0	0			
2005	2	0	0			
2006	1	1	0	1	0	0
2007	1	0	0	2	0	0
2008	4	2	1	2	0	0.10
2009	3	3	2	3	1	0.23
2010	3	5	5	4	2	0.43
2011	6	7	13	7	4	0.80
2012	3	12	24	6	9	1.20
2013	2	14	28	8	14	1.50
2014	0	15	17	11	17	1.60
2015	1	15	16	13	20	1.61
2016	1	18	32	15	23	1.60
2017	1	20	35	16	26	1.55
2018	5	23	34	18	27	1.44
2019	1	33	46	22	33	1.49
2020	3	37	64	26	42	1.62

Figures 1a and b, (Vermont) and 2a and b (Recovery Area) illustrate the nesting success of the Vermont Bald Eagle population since their first successful nest in 2008 and further demonstrate that nesting pair and fledgling per nest thresholds have met or exceeded the listing thresholds of the 2010 Vermont Bald Eagle Recovery Plan.

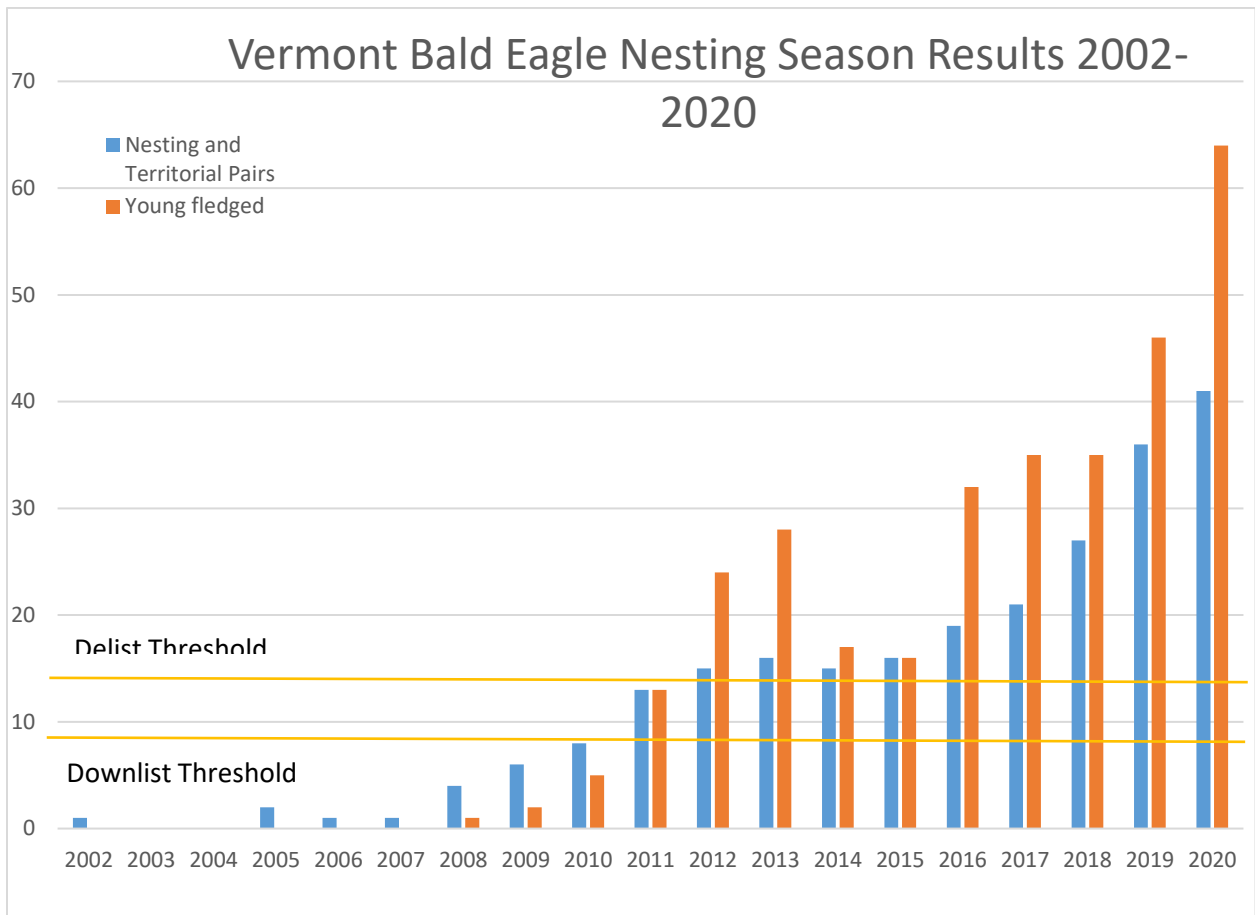


Figure 1a. Nesting pair and young fledged totals of Vermont-based Bald Eagle nesting efforts 2002-2020.

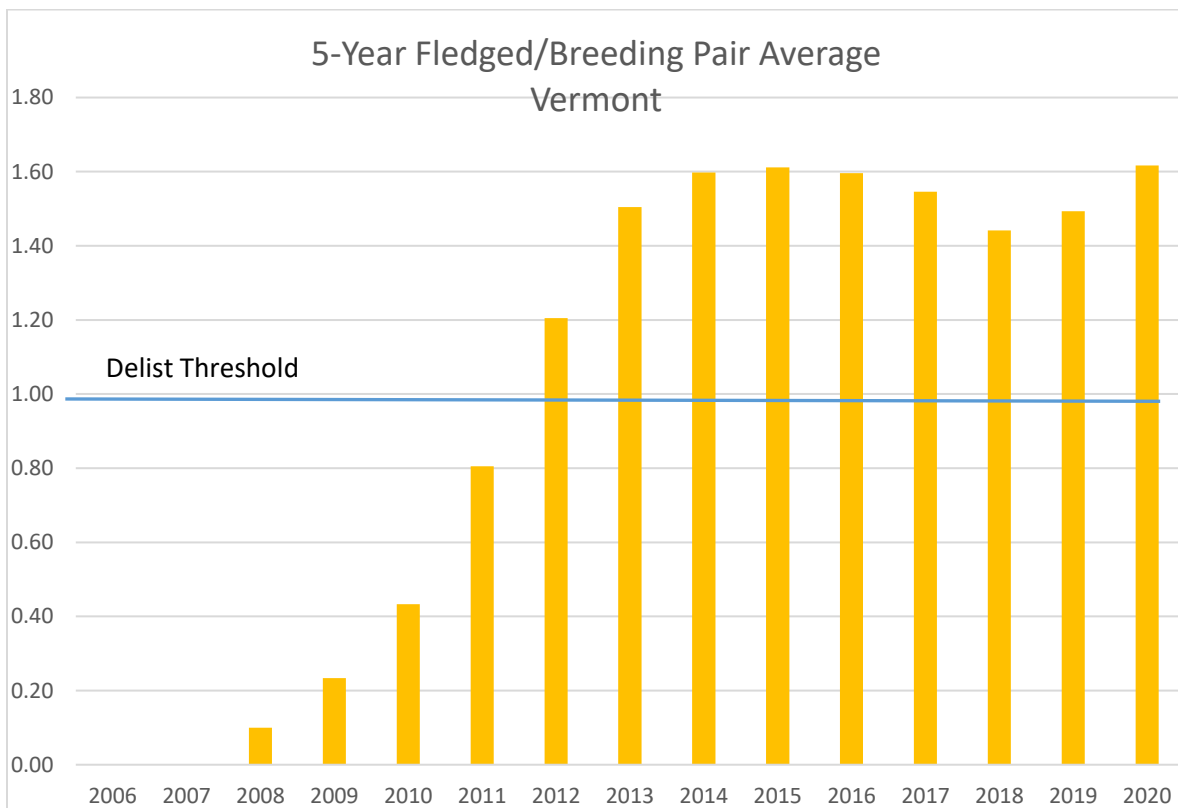


Figure 1b. Mean fledglings/ breeding pair results of Vermont-based Bald Eagle nesting efforts 2002-2020.



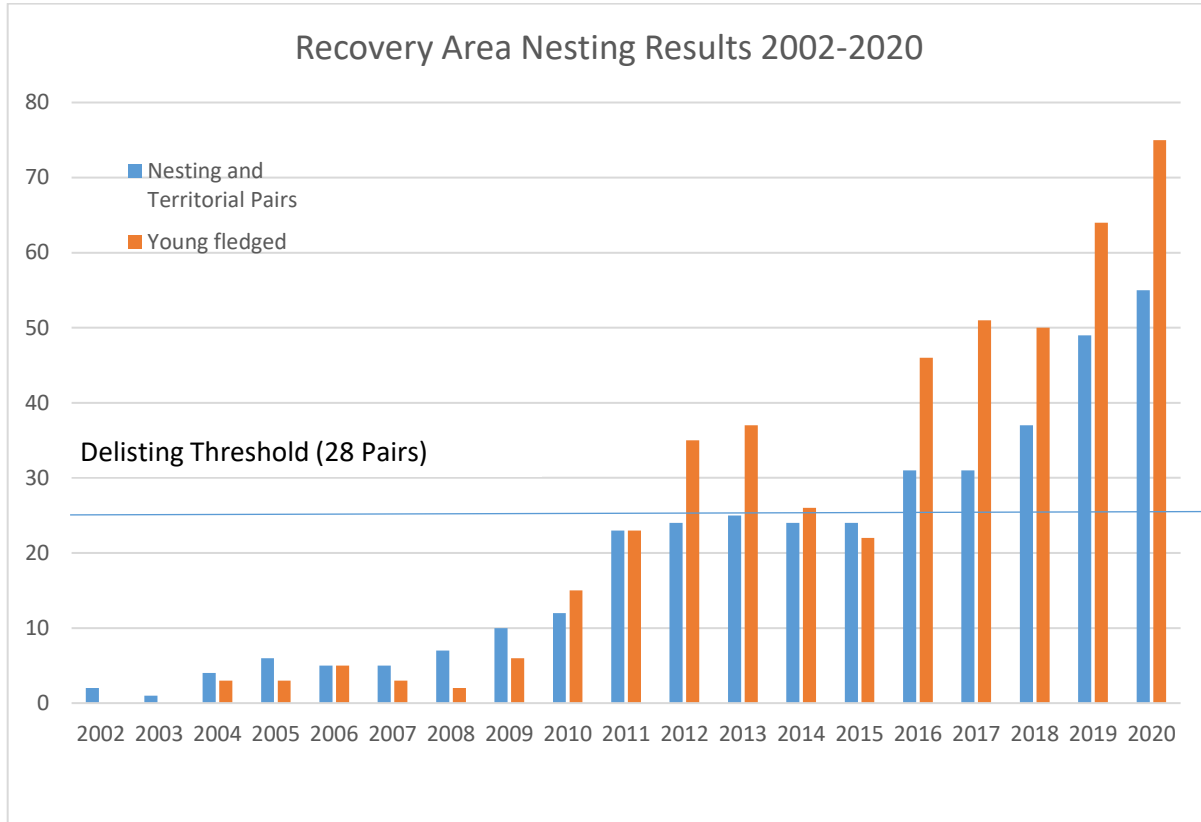


Figure 2a. Nesting pair and young fledged totals of entire recovery area Bald Eagle nesting efforts 2002-2020. Note: complete data from NY are not included in the totals for 2020.

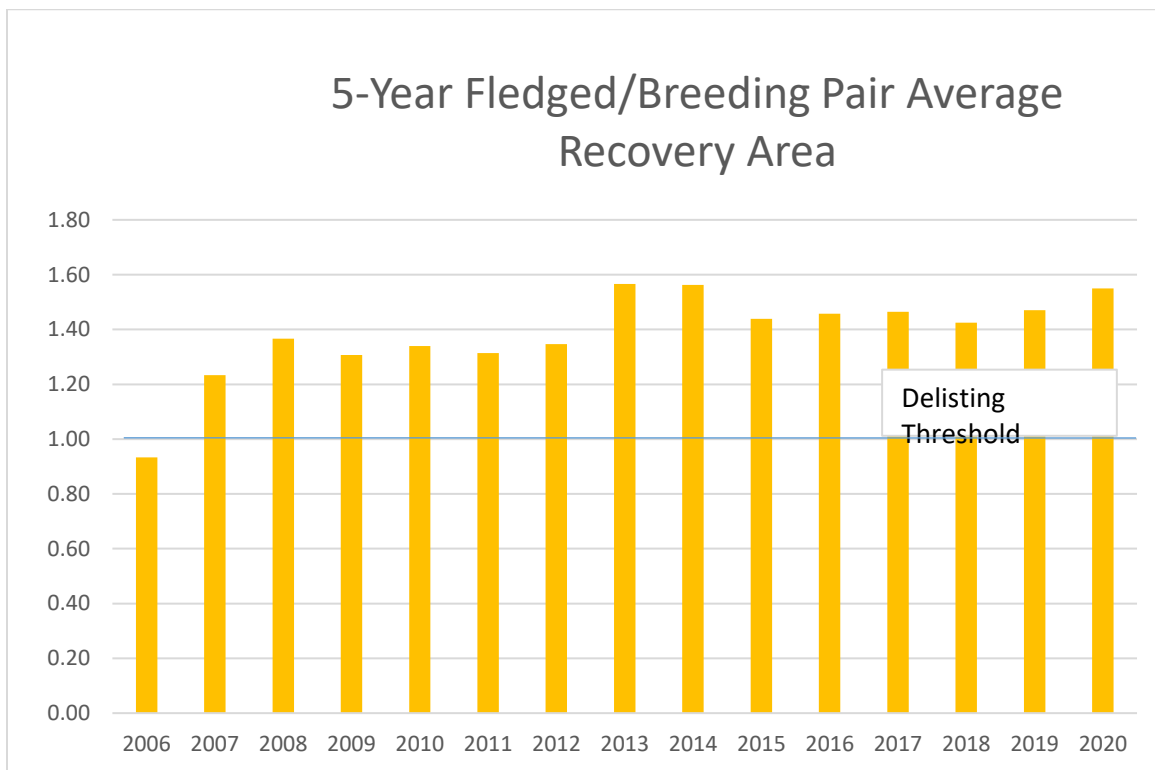


Figure 2b. Mean fledglings/ breeding pair results of entire recovery area Bald Eagle nesting efforts 2002-2020.

Figure 3 illustrates the distribution of the 41 known eagle nests within the recovery area. Vermont nests are represented by red dots and those nests outside of the state boundary are represented by the yellow dots.

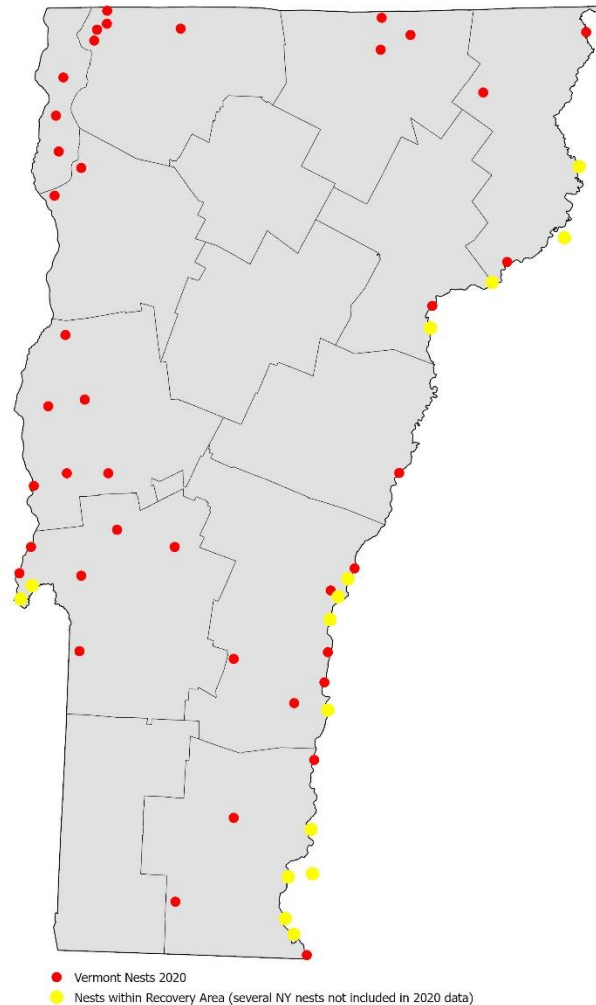


Figure 3. Distribution of Recovery Area Bald Eagle nests as of 2020.

### **Delisting Criteria.**

#### Delisting Goals:

1. Establish a breeding assemblage of Bald Eagles distributed throughout Vermont; and
2. Remove Bald Eagles from the Vermont list of endangered and threatened species.

#### Delisting Objectives:

To meet the recovery goals and move to de-list from current state *Endangered* status, the following objectives must be achieved over the course of five consecutive years:

1. There is an average of at least 28 occupied nests within Vermont and within 1.5 kilometers of its border that produce an average of at least 28 fledglings; and

2. Of the successful pairs at least 14 of which must have their nest established within Vermont's state boundary.

### Literature Cited

Fichtel, C. 1985. Bald eagle *in*. The atlas of breeding birds of Vermont. Laughlin, S. B., and D. P. Kibbe, eds. University Press of New England, Hanover, NH. 456 pp.

Thompson, Z. 1842. Part II. History of Vermont: Natural, Civil, and Statistical, in Three Parts, with a New Map of the State, and 200 Engravings. C. Goodrich.

USFWS. 2007a. National bald eagle management guidelines. U.S. Fish and Wildlife Service. 23 pp.

USFWS. 2007b. "Bald eagle management guidelines and conservation: upper Midwest. U.S. Fish and Wildlife Service," November 5, 2007. U.S. Fish and Wildlife Service. January 13, 2010. <http://www.fws.gov/pacific/eagle/guidelines/disturbnestingbaeal.html>.

Vermont Department of Fish & Wildlife. 2010. Vermont Bald Eagle Recovery Plan. 39pp.