Fish and Wildlife Board
Meeting Minutes

Wednesday, February 19, 2020

The Vermont Fish and Wildlife Board held a meeting beginning at 5:00 p.m. on Wednesday, February 19, 2020 in the Dewey Building, located at 1 National Life Drive, Montpelier, VT.

Board Members in Attendance: Tim Biebel (Board Chair); David Robillard; Martin Van Buren; Michael Bancroft; Wendy Butler; Dennis Mewes; Johanna Laggis; Cheryl Frank Sullivan; Brian Bailey; David Fielding; Bill Pickens; Jay Sweeny; and Michael Kolsun.

Department Staff in Attendance: Louis Porter, Commissioner; Mark Scott, Director of Wildlife; Col. Jason Batchelder, Director of Law Enforcement; Catherine Gjessing, General Counsel; Will Duane, Executive Assistant; Nick Fortin, Deer and Moose Project Leader; Katy Gieder, Biometrician and Research Coordinator; Chris Saunders, Wildlife Division Project Coordinator; David Sausville, Migratory Game Bird Project Leader; John Hall, Outreach Division Specialist; Forest Hammond, Black Bear Project Leader; and Julie Moore, Agency of Natural Resources Secretary.

Members of the Public: Molly Cook; Therese Donovan, Assistant Unit Leader, Vermont Cooperative Fish and Wildlife Research Unit; Elias Rosenblatt, PHD Student, UVM Rubenstein School of Environment and Natural Resources; Josh Blouin, Master's Student, UVM Rubenstein School of Environment and Natural Resources; Dr. Jed Murdoch, Associate Professor, Director of Wildlife and Fisheries Biology Program, UVM ; and Walt Cottrell, Wildlife Veterinarian.

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The meeting was called to order at 5:00 by the Chair

Introductions

Agency of Natural Resources Secretary Julie Moore introduced herself to the Board Members. Secretary Moore explained her responsibilities as Secretary of the Agency and the important role that the Board plays in the Agency structure. She thanked the Members for their volunteer service and dedication to the state's natural resources.

Approval of Previous Meeting Minutes

The January 2020 meeting minutes were approved on a 13-0 voice vote.

2020 Moose Season Recommendation

In advance of the Department's presentation to the Board, Commissioner Porter recapped the recent history of moose hunting seasons in Vermont. In 2018, 13 total permits were issued for

moose hunting in WMUs E1 and E2. In 2019 there were zero permits issued statewide. In 2019 the legislature made some needed adjustments to the permit allocation statutes which now allow the Board to authorize a more precise permit allocation during years when permit numbers are low.

Wildlife Division Director Mark Scott explained how the Department arrived at its recommendation for the 2020 moose hunting season. Department management left the entire initial proposal in the hands of the Division's big game team. Nick Fortin led the initiative as the leader of the moose project. The big game team presented the recommendation to Director Scott and Commissioner Porter, who approved the recommendation.

Director Scott introduced Dr. Terri Donovan from the Vermont Cooperative Fish and Wildlife Research Unit at the University of Vermont to present on the work done in collaboration between the Coop and Department on the impacts of parasites on Vermont's moose herd. Donovan noted at the outset that much of the research that went into the presentation was the work of Jake Debow who recently completed his master's degree at UVM. Jake now works with the New Hampshire Fish and Game Department. The Slides from the presentation are attached to these minutes.

Following the presentation from the UVM Coop researchers the Department's Deer and Moose Project Leader Nick Fortin presented on the Department's 2020 moose season recommendation. The Department recommends to the Board that it authorize the Department to issue 55 moose hunting permits to be divided between WMUs E1 and E2. The primary reason for this recommendation is to lower the moose densities in Essex County in order to reduce the number of winter ticks by reducing the tick's host population. Ticks are a host-density dependent parasite, lower numbers of moose per square mile is expected to lower the tick population.

Of note:

- Moose populations in other parts of Vermont have declined, but not as a result of winter ticks. This is likely caused by the spread of brain worm due to higher deer densities and loss of habitat including young forest. We believe that the population is currently stable but may be declining slightly.
- There are likely as many moose in the entirety of WMU E as there are in the rest of the state combined. The estimated density for all of WMU E is just under 2 moose per square mile.
- Research shows that at population densities of more than one moose per square mile high mortality from winter ticks can occur regularly.
- Tick impacts have not been observed at density levels below .75 moose per mile.
- The Department's recommendation for the 2020 moose hunting season is intended to bring the moose population to a lower density in the area of the hunt.

The slides from that presentation and the Department's 2020 recommendation are attached to these minutes.

The Board Chair asked for a straw vote to gauge the Board's thoughts on the direction of the Department's proposal. There was a unanimous show of hands in support of the 2020 recommendation. The Board will take an official vote on the 2020 season at its second meeting in April.

2020 Migratory Game Bird Seasons and Bag Limits Proposal

David Sausville presented on the Department's proposed plan for the upcoming 2020 Migratory game bird seasons. Sausville explained to the Board that Vermont is part of the Atlantic Flyway, a group of states and provinces that runs from Nova Scotia and Prince Edward Island down to Georgia. This group of states and provinces works cooperatively to establish annual seasons for migratory game birds. Vermont has three zones for waterfowl hunting: the Lake Champlain Zone, the Interior Zone, and the Connecticut River Zone. New Hampshire sets regulations for the Connecticut River Zone, Vermont and New York Biologist work together to prepare recommendations for the Lake Champlain Zone

Of Note:

- In the Eastern Survey area of the Atlantic Flyway, breeding habitat conditions for duck populations look better than in years past. Populations are still decreasing slightly but are still above long-term averages.
- Last year the Department changed to as self-registration system for the controlled hunt at Mud Creek WMA and Dead Creek WMA. This will stay the same for 2020 and the Department will add more signage and lighting.
- Vermont has the opportunity in 2020 to increase to 4 zones, if a change is made it will be in place for 5 years.

The Board held a straw vote on each section of the proposal and approved all of sections with a unanimous vote. The Board will vote on April 1 to adopt the 2020 migratory bird hunting regulations.

The proposal and the slides from the presentation are attached to these minutes.

Big Game Plan Preview

Chris Saunders explained the Department's Big Game Plan and the process involved in developing it. The Big Game Plan is a ten-year planning tool to assist the Department and Board in setting policy for the states 4 big game species: deer, moose, bear, and turkey. The draft of the plan is finished and the Department will be seeking public comment. There will be a public meeting on March 5th at the White River Valley School in Bethel. (Note: the public meeting has been postponed due to COVID 19

The executive summary of the draft plan is attached to these minutes, the entire draft can be found on the Department's website.

Commissioner's Update

- Board Members Johanna Laggis and Cheryl Frank Sullivan will be staying on for one additional Board meeting in April. The Members, the Chair, and the Governor's Office have approved this meeting extension.
- Deer yard surveys are happening in the Northeast Kingdom, Essex County. The Department is assisting Conti National Wildlife Refuge with this survey.

- The Department has hired Chris Ingram as new outreach staffer. Chris will cover on all types of outreach with a focus on online video.
- Bears are active and awake this winter, the Department has received many calls. Hopefully colder weather will allow them to stay denned up for the year.
- There is no Board Meeting in March but there are hearings that the Department requests the Members attend.
- There are several bills currently in the legislature regarding fish and wildlife topics. The Department is seeing the same pushback from certain interests on the Department's mission and operations that has been seen in the last few years. There are bills ranging in topic from Act 250, migratory bird protections, funding of the Department, oversight of the Department, and no cost licenses for members of the state's Abenaki population.

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The Meeting was adjourned by the Chair at 8:20

The mission of the Vermont Fish and Wildlife Department is the conservation of all species of fish, wildlife and plants and their habitats for the people of Vermont.

Fish and Wildlife Board
Meeting Agenda

Wednesday, February 19, 2020

Please note the meeting will begin at 5:00 p.m.

The Vermont Fish and Wildlife Board will hold a meeting beginning at 5:00 p.m. on Wednesday, February 19, 2020 in the Dewey Building, located at 1 National Life Drive, Montpelier, VT.

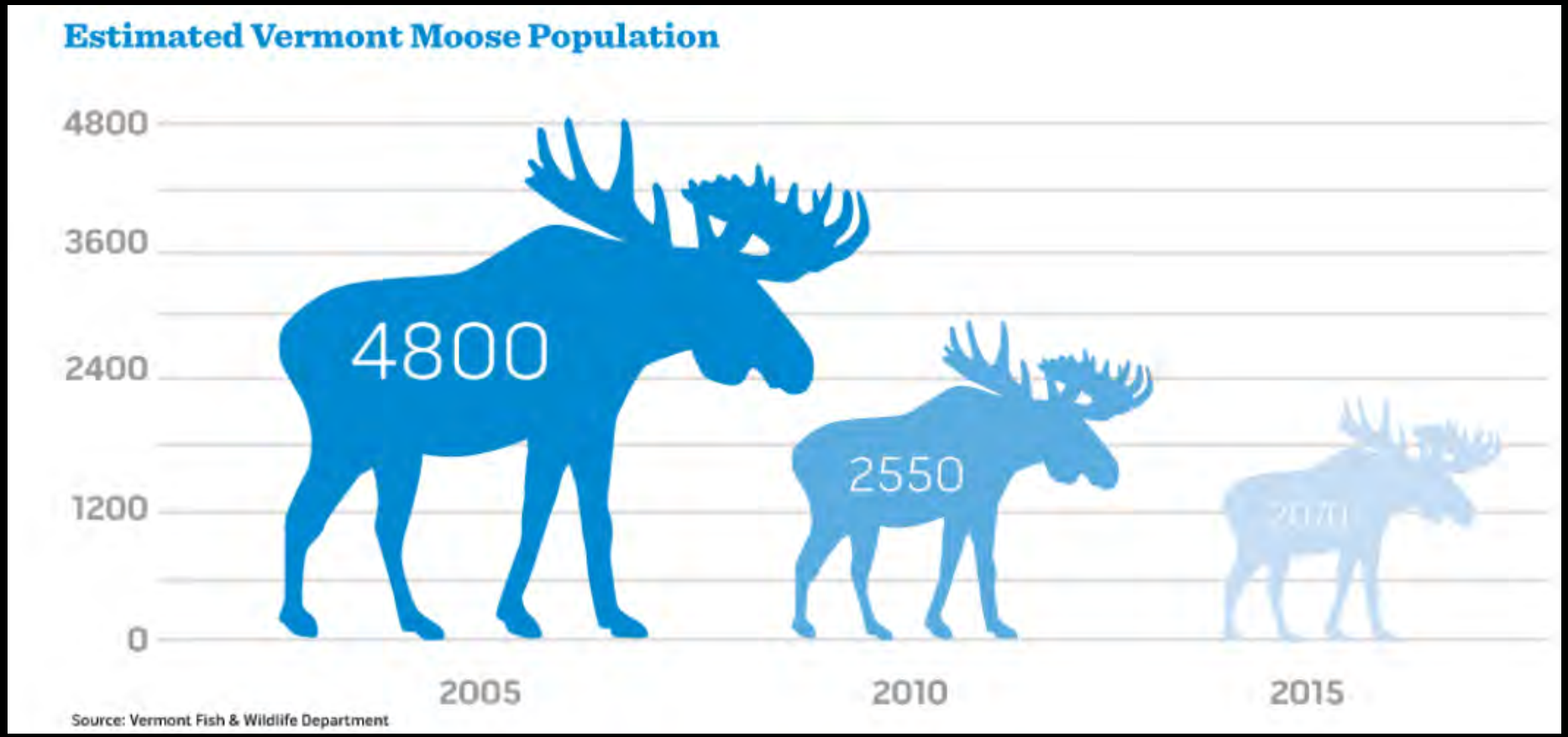
Agenda:

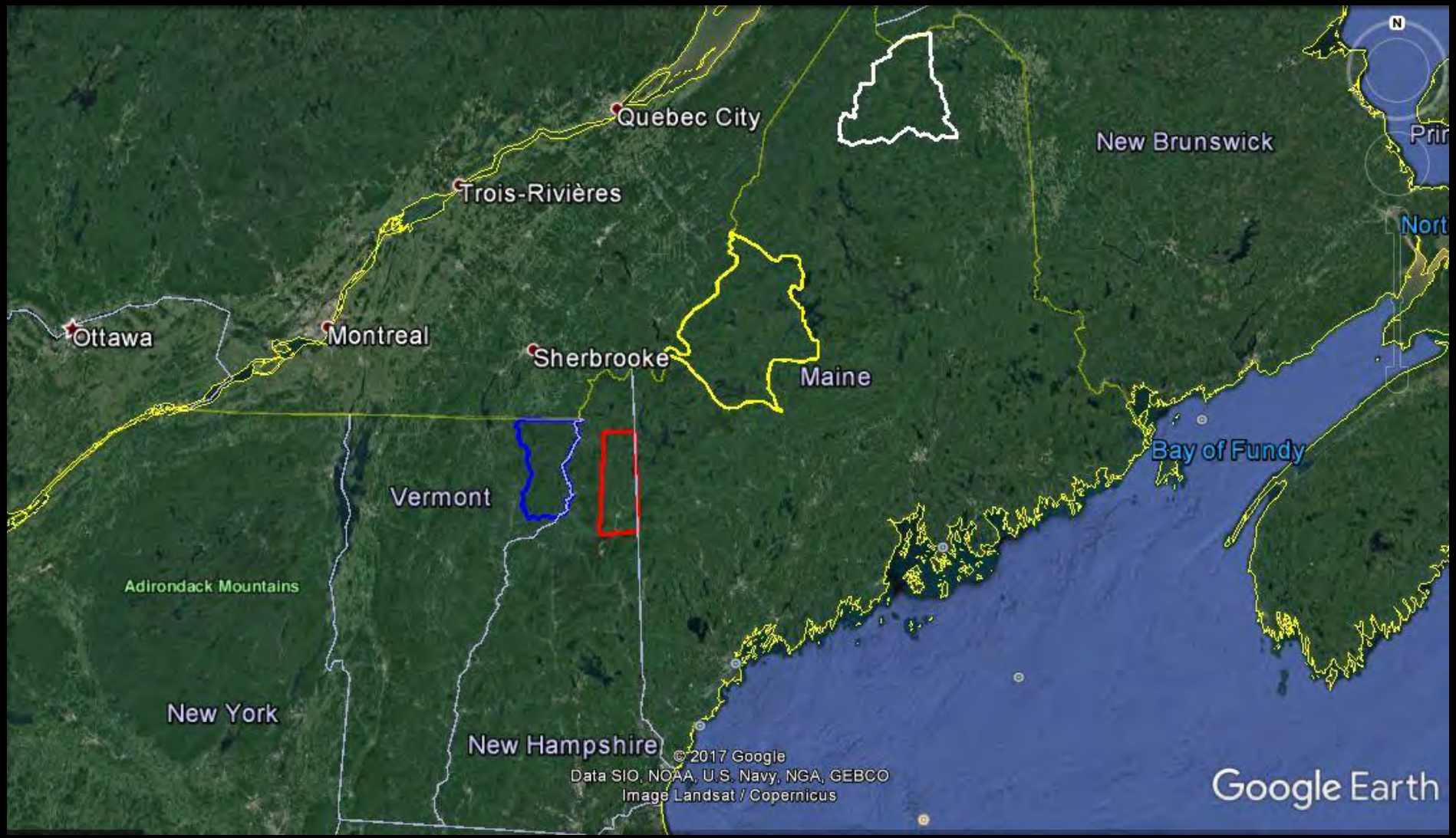
1) Approval of Previous Meeting Minutes (January 15, 2020)
2) Public Comments (Limited to 2 minutes per speaker)
3) ANR Secretary Julie Moore
4) 2020 Moose Season Recommendation
5) 2020 Migratory Game Bird Seasons and Bag Limits Proposal
6) Commissioner's Update
7) Roundtable Discussion

The mission of the Vermont Fish and Wildlife Department is the conservation of all species of fish, wildlife and plants and their habitats for the people of Vermont.

Attachment 1

Moose Decline and Associated Parasites in Vermont





- Studies in nearby states have shown sharp population decline

Parasite Driven Mortality

- Warming climate allows for northward movement of parasites
- Parasites of interest

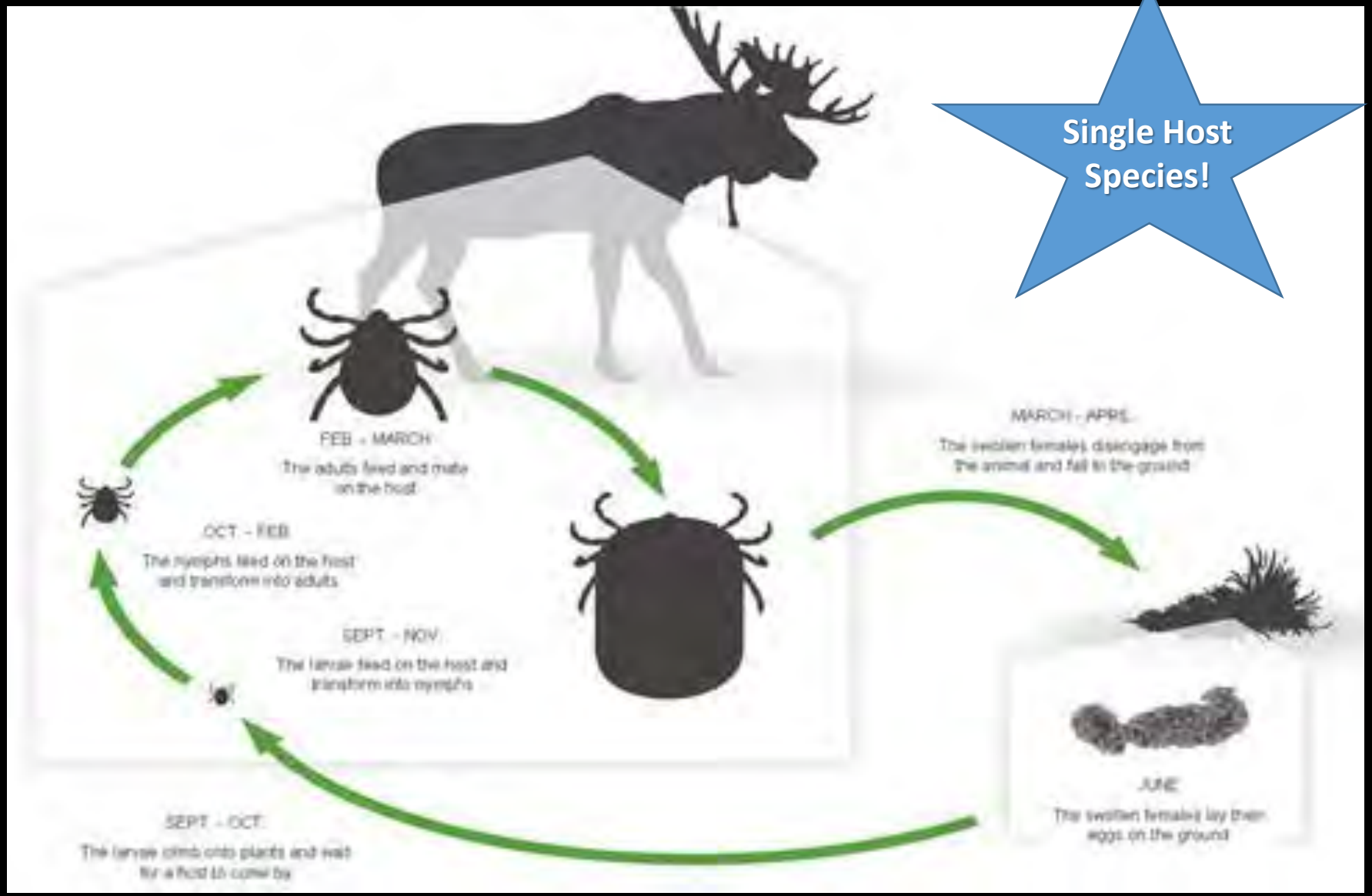
  - Winter Tick
  - Brain Worm

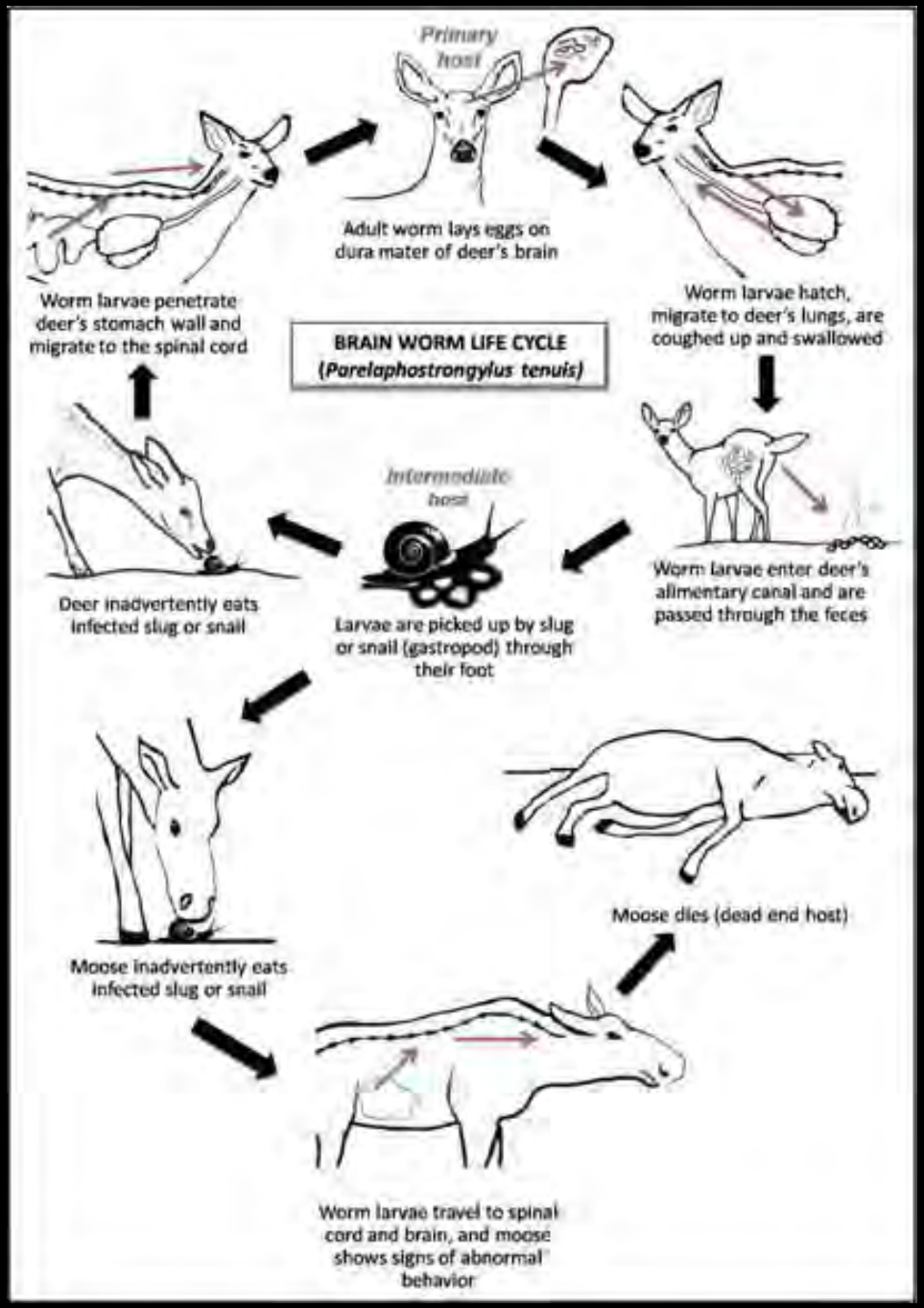
  - Lung Worm
  - *Sarcocystis spp.*
  - Moose botfly
  - Tape worm
  - Round worm

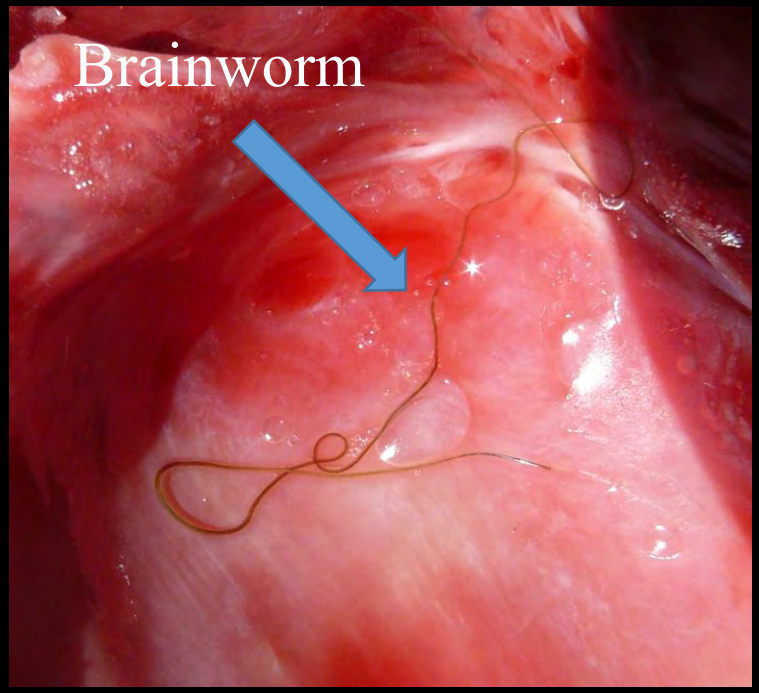

STAINLESS
INCH


CENTIMETERS
INCHES
Cat. No. 09-016
Fisher Scientific
PRINTED IN U.S.A.

Winter Tick


Single Host Species!
FEB - MARCH
The adults feed and mate on the host
MARCH - APRIL
The swollen females disengage from the animal and fall to the ground
OCT - FEB
The nymphs feed on the host and transform into adults
SEPT - NOV
The larvae feed on the host and transform into nymphs
JUNE
The swollen females lay their eggs on the ground
SEPT - OCT
The larvae climb onto plants and wait for a host to come by





- Weakness
- Fearlessness
- Deafness
- Blindness
- Sluggish ears
- Circling
- Head tilt
- Paralysis

Vermont Objectives

- Determine cause and rate of mortality of adults and calves.
- Estimate productivity of adult cows and determine timing and cause of death of neonate calves.
- Evaluate non-invasive forms of population monitoring (genetics and stress level). Elias Rosenblatt
- Estimate home range and habitat selection in relation to ticks. Joshua Blouin.

The Cast

<u>VTFWD (Scott Darling and Mark Scott)</u>

- Cedric Alexander
- Katy Gieder
- Nick Fortin
- Tony Smith

<u>UVM/Vermont Coop Unit</u>

- **Jake DeBow***
- Josh Blouin
- Elias Rosenblatt
- Jed Murdoch
- Stephanie McKay
- Terri Donovan

<u>Northeast Wildlife Disease Cooperative</u>

- Walter Cottrell

<u>Field Staff and Volunteers</u>

- a cast of many, including the Silvio Conte Refuge.

Methods

- ✓ 3 - Year study
- ✓ Native Range capture of animals in January 2017, 2018, and 2019.
- ✓ Target of 30 cows and 30 calves in 4 days of flying each year.

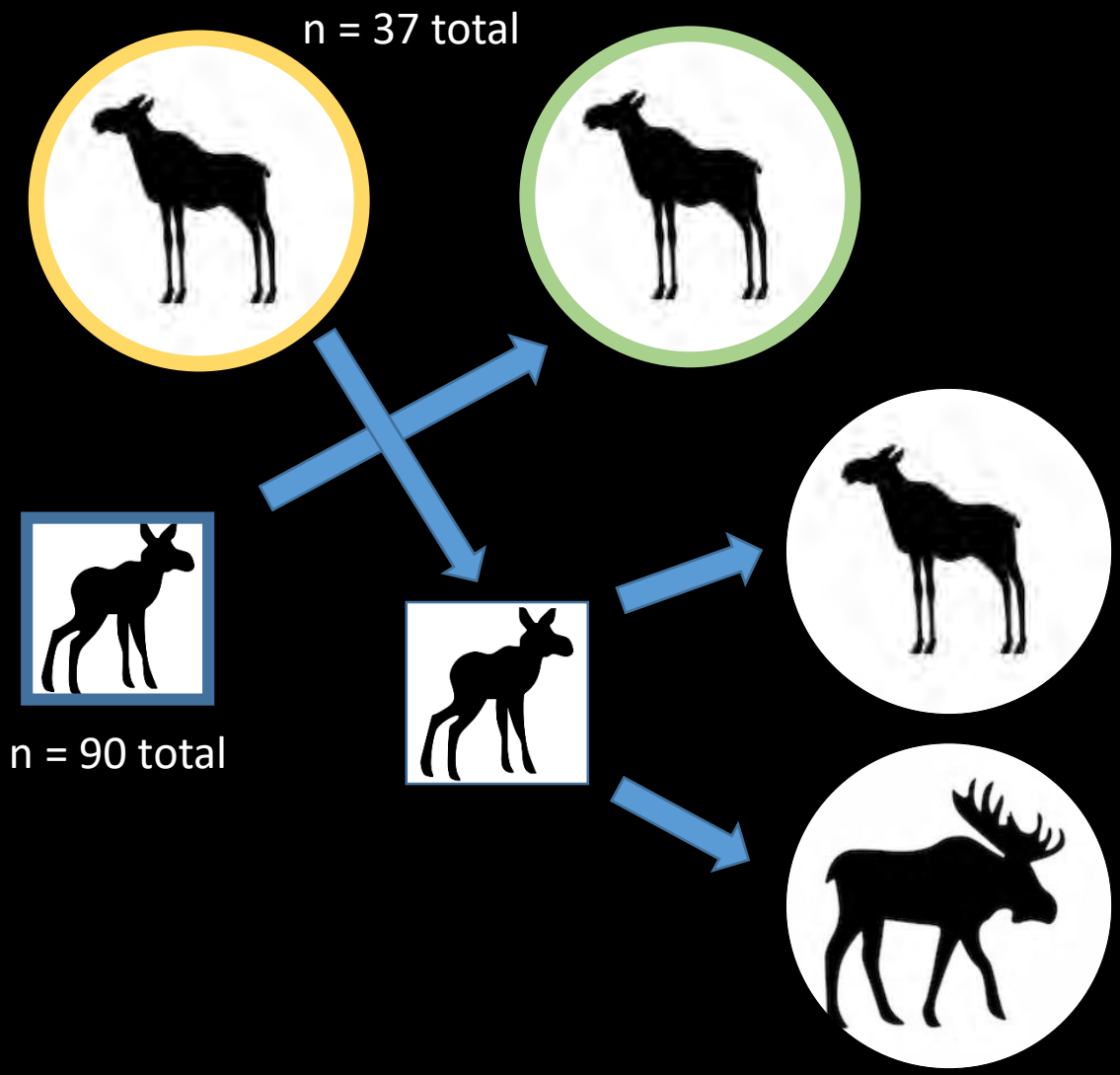
- In total, captured 37 cows and 90 calves

- Collected data
  - ✓ Tick count index
  - ✓ Body condition index (very thin, thin, normal, fat)
- Collected samples for lab analyses.
- Affixed GPS collar that transmitted a GPS location every 13 hours.

Samples Collected:

- Hair
- Feces. McMaster floatation technique to test for:
    - tapeworm presence (*Moniezia sp.*, N*ematodirus sp.*, *Strongylidea sp.*)
    - lungworm (*Dictyocaulus sp.*) abundance
- Whole blood
    - 10ml in anti-clot tubes
    - 20ml in red top tubes to be spun for serum

Staggered Capture of 30 cows and calves each year; changing age classes through time



KEY

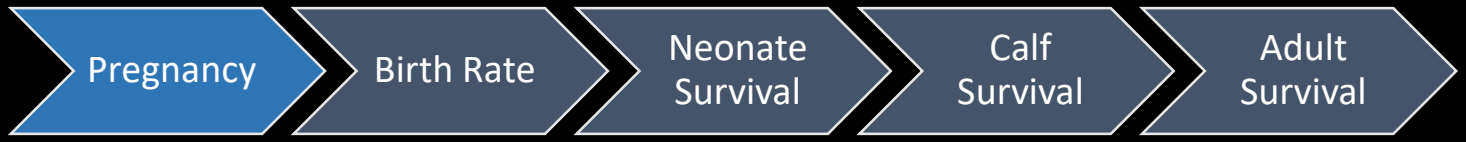
- Circles = Cows
  - Yellow = initial capture
  - Green = “recapture”
  - No color = uncaptured
- Squares = Calves
  - Blue = initial capture
  - No color = uncaptured

Jake DeBow's M.S. Thesis

- Chapter One: **Effects of Winter Ticks and Internal Parasites on Moose Survival in Vermont, USA**

- **Chapter Two: Implications of Declining Fecundity of Moose in Vermont, USA**

Pregnancy → Birth Rate → Neonate Survival → Calf Survival → Adult Survival

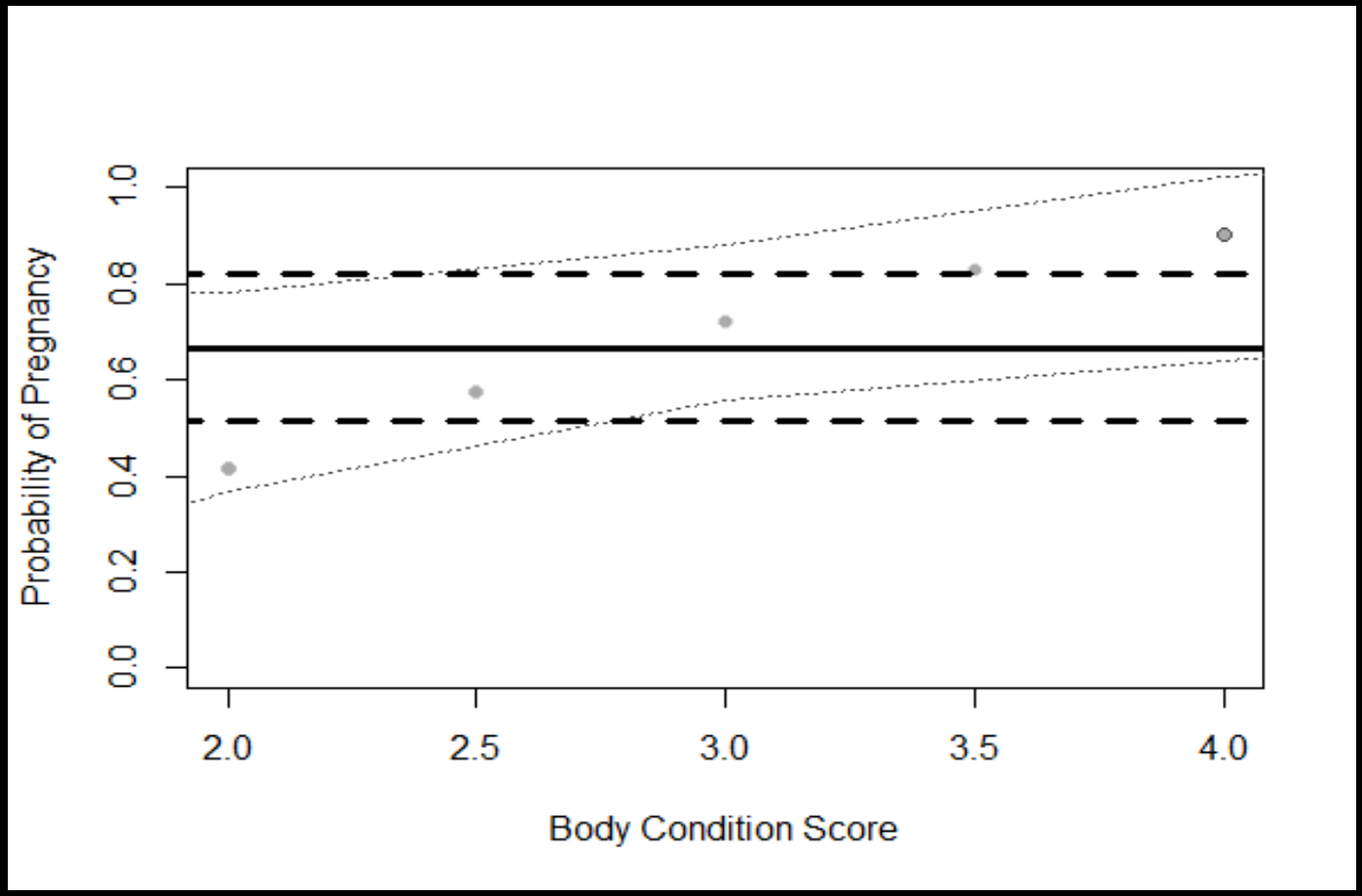


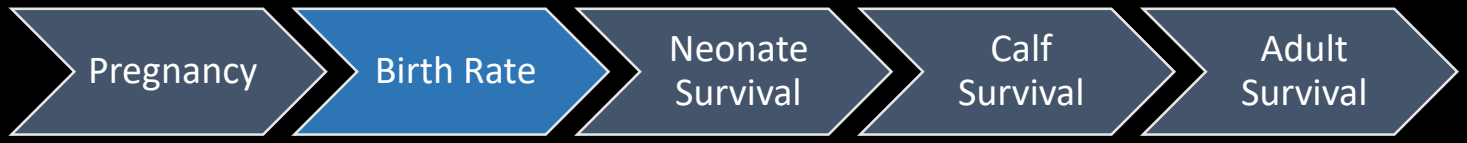
- Analyzed blood serum of captured cows to test for the pregnancy specific protein-B
- This test is 99% accurate for non-pregnant cows, and 93-95% accurate for pregnant cows.

	Calf	Adult	Pregnancy Test +	Pregnancy Test -
2017	30	30	19 (**63%**)	11 (**37%**)
2018	30	6	5 (**83%**)	1 (**17%**)
2019	30	-	-	-
Total	90	36	24 (**67%**)	12 (**33%**)

Pregnancy → Birth Rate → Neonate Survival → Calf Survival → Adult Survival

- The data were pregnant versus not-pregnant cows.
- Ultimately we are asking: "What variables best explain the pattern of 0's and 1's that we have observed?"



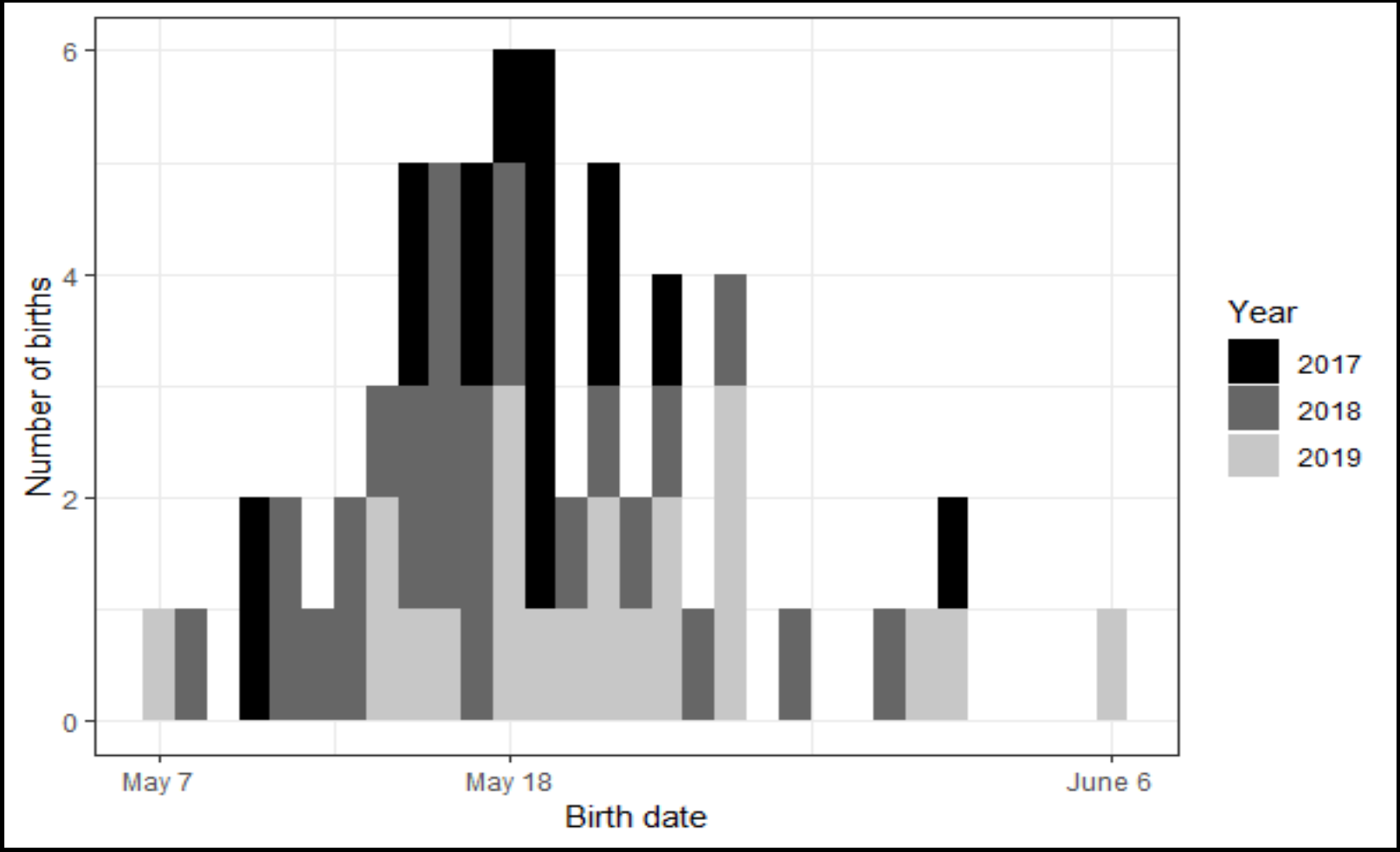


- Walk-ins on radio collared cows to directly observe offspring.
- 2-3 times per week.

Age Class	2017		2018		2019		Total	
	Birth	n	Birth	n	Birth	n	Birth	n
2 (yearling)	0	0	1	9	0	4	1	13
≥3	0	1	17	22	5	12	22	35
≥4	5	5	4	6	16	24	25	35
unknown	11	22	4	5	0	0	15	27
Total	**16**	28	26	42	21	40	63	110

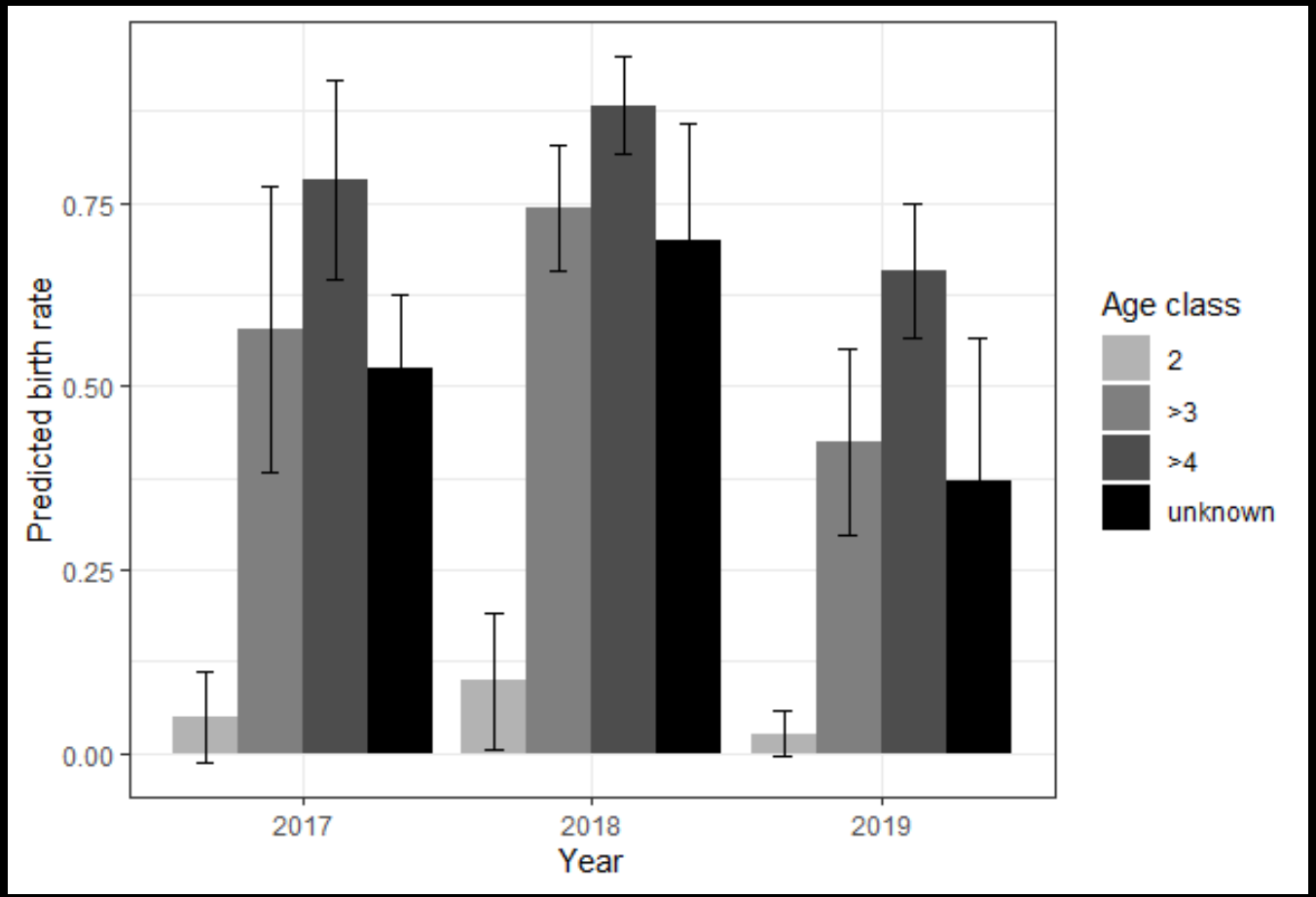
Pregnancy | Birth Rate | Neonate Survival | Calf Survival | Adult Survival

Timing of Births



Pregnancy → **Birth Rate** → Neonate Survival → Calf Survival → Adult Survival

- Walk-ins 2-3 times a week to look for evidence of offspring.
- Ultimately we are asking: “What variables best explain the pattern of 0’s and 1’s that we have observed?”



Pregnancy → Birth Rate → **Neonate Survival** → Calf Survival → Adult Survival

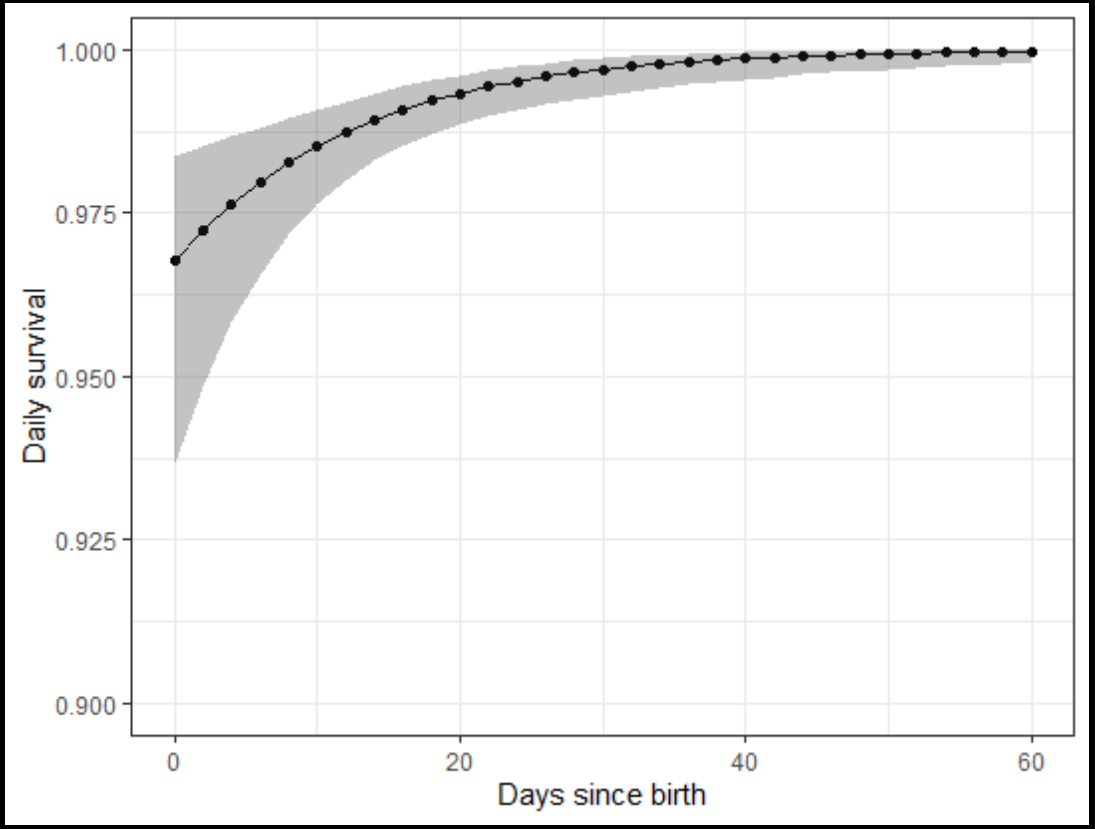
- Neonate = individuals from 0 – 60 days old.
- Walk-ins 2-3 times per week through July 31.
- Neonate survival was observed at 0.63 (10 of 16), 0.69 (18 of 26), and 0.67 (14 of 21) in 2017, 2018, and 2019 respectively.
- The majority of mortalities (80%) of occurred within two weeks (14 days) of birth.

Pregnancy → Birth Rate → **Neonate Survival** → Calf Survival → Adult Survival

- The data are live/dead observational data by date.

- Ultimately we are asking: "What variables best explain the pattern of 0's and 1's that we have observed?"

  - Distance moved?
  - Habitat quality?
  - Distance to road?
  - Weather conditions?
  - Days since birth?



Cumulative survival to day 60 under this model was estimated at 0.65 (0.44 to 0.79, 95% CI).

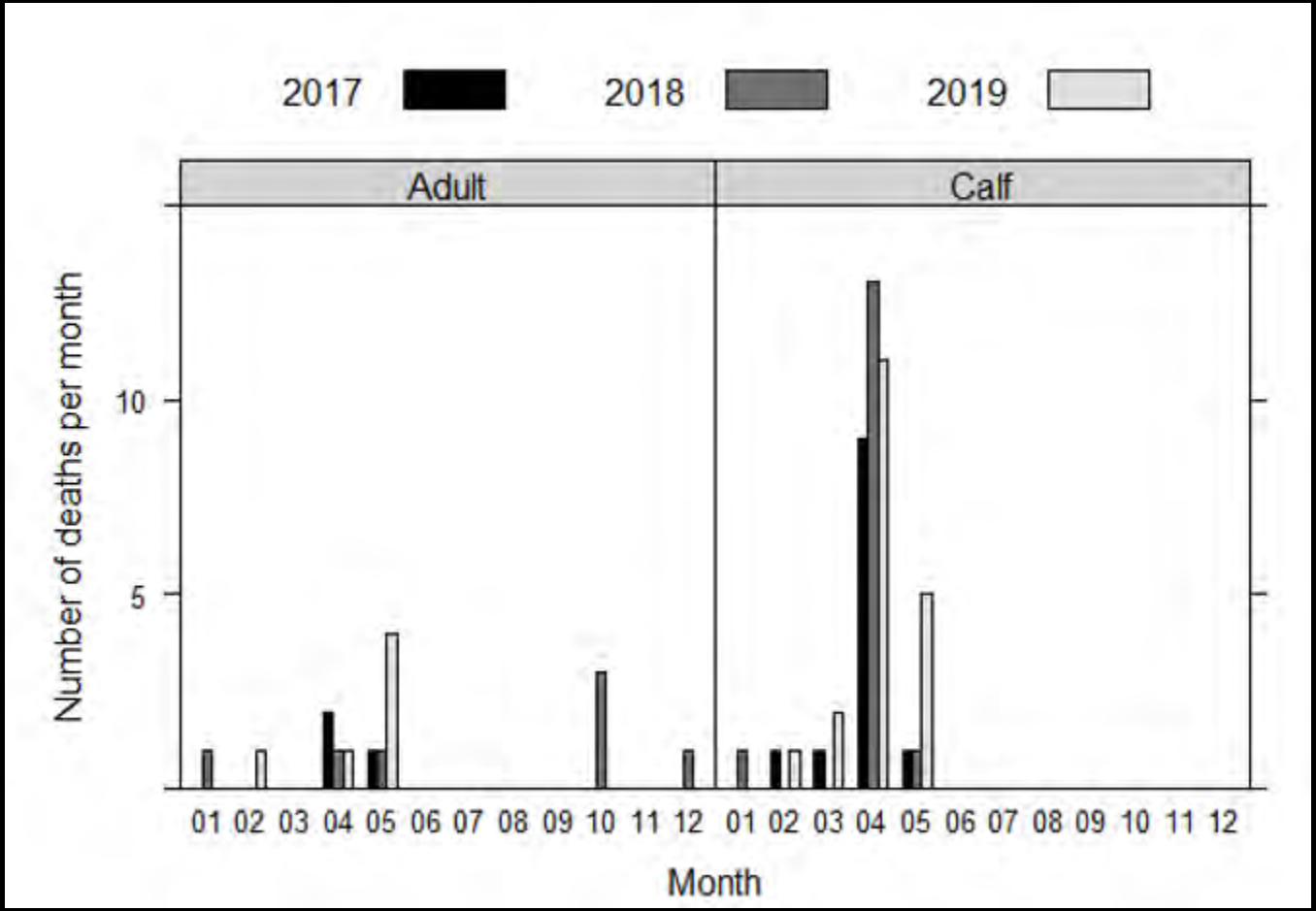
Pregnancy → Birth Rate → Neonate Survival → **Calf Survival** → Adult Survival

- Survival of collared individuals from time of capture (Jan) to May 18th (first birthday)

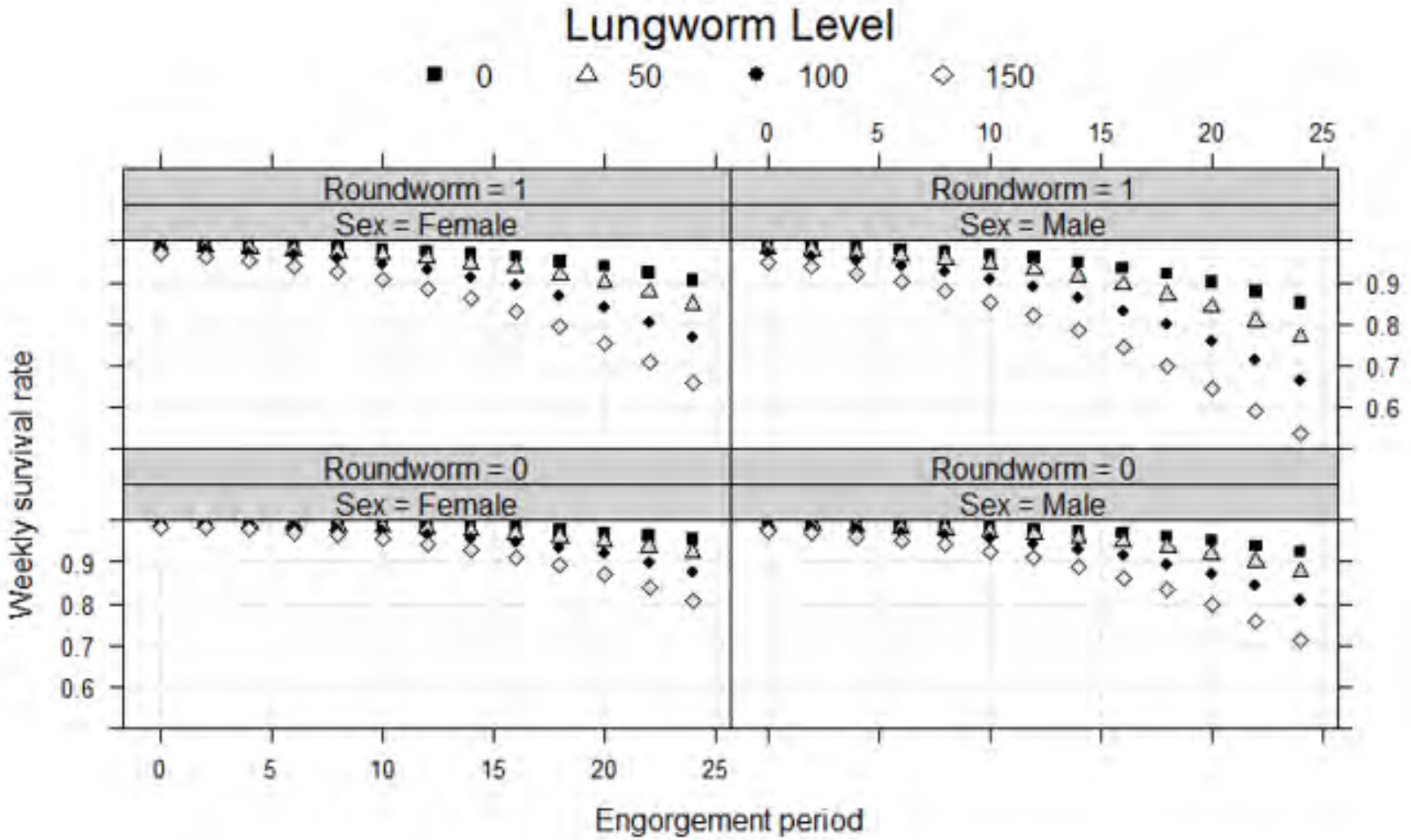
- Mortality signals from the collars themselves.

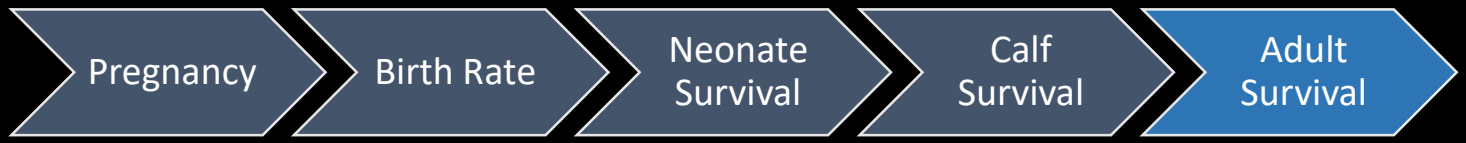
- For animals that died, field necropsies were performed within 24 hours of death to determine the cause of mortality.

Overall observed calf survival across all three years was 49% (44 of 90). Most calves that died did so in spring.



Calf Weekly Survival Data Analysis

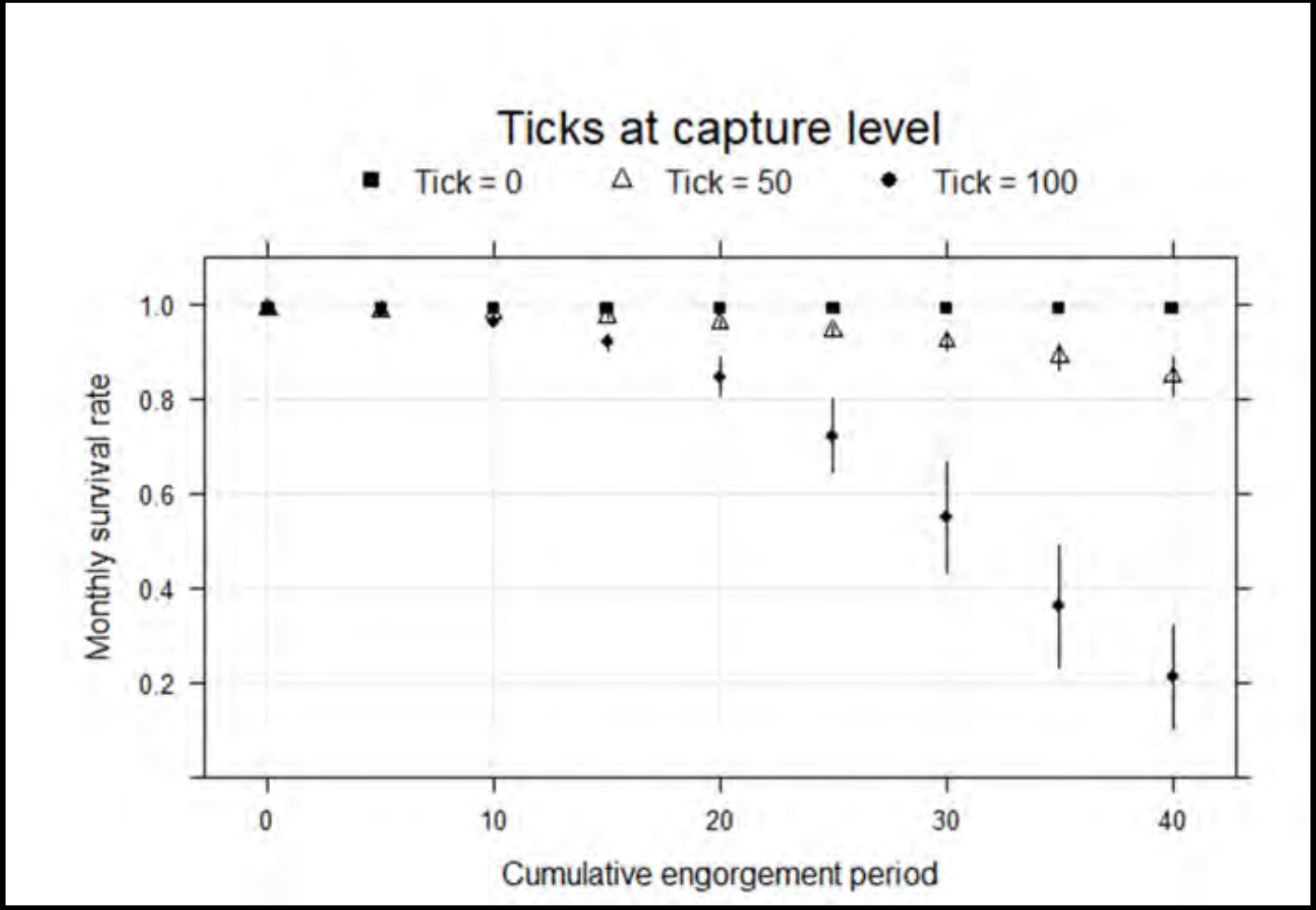


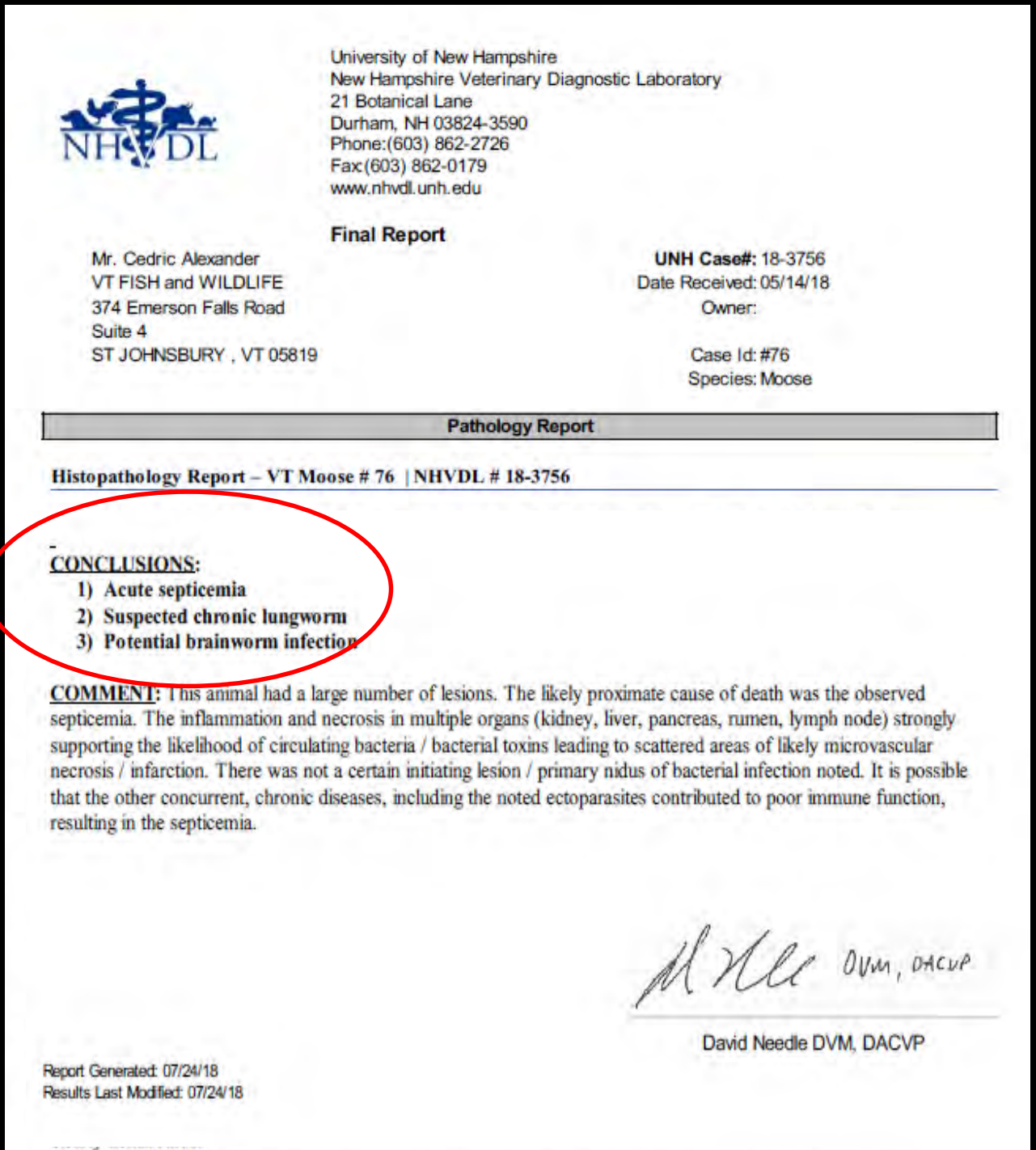


- Annual adult survival (January – January) was 90% (27 of 30) in 2017, 84% (38 of 45) in 2018, and 86% (38 of 44) in 2019
- Known fates analysis for adults focused on monthly survival rates.
- Ultimately we are asking: "What variables best explain the pattern of 0's and 1's that we have observed?"
  - Weather (snow depth, temperature, etc).
  - Tick life cycle
  - Sex
  - Year
  - Home range characteristics
  - Deer habitat suitability
  - Snowmobile trials
  - Roads

Moose ID	Age	Date	Fate
2	Adult	1/1/2017	1
2	Adult	2/1/2017	1
2	Adult	3/1/2017	1
2	Adult	4/1/2017	1
2	Adult	5/1/2017	1
2	Adult	6/1/2017	1
2	Adult	7/1/2017	1
2	Adult	8/1/2017	0

Monthly adult survival





University of New Hampshire
New Hampshire Veterinary Diagnostic Laboratory
21 Botanical Lane
Durham, NH 03824-3590
Phone:(603) 862-2726
Fax:(603) 862-0179
www.nhvdl.unh.edu

Final Report

Mr. Cedric Alexander
VT FISH and WILDLIFE
374 Emerson Falls Road
Suite 4
ST JOHNSBURY , VT 05819

UNH Case#: 18-3756
Date Received: 05/14/18
Owner:

Case Id: #76
Species: Moose

Pathology Report

Histopathology Report – VT Moose # 76 | NHVDL # 18-3756

CONCLUSIONS:

1) **Acute septicemia**
2) **Suspected chronic lungworm**
3) **Potential brainworm infection**

COMMENT: This animal had a large number of lesions. The likely proximate cause of death was the observed septicemia. The inflammation and necrosis in multiple organs (kidney, liver, pancreas, rumen, lymph node) strongly supporting the likelihood of circulating bacteria / bacterial toxins leading to scattered areas of likely microvascular necrosis / infarction. There was not a certain initiating lesion / primary nidus of bacterial infection noted. It is possible that the other concurrent, chronic diseases, including the noted ectoparasites contributed to poor immune function, resulting in the septicemia.

DVM, DACVP

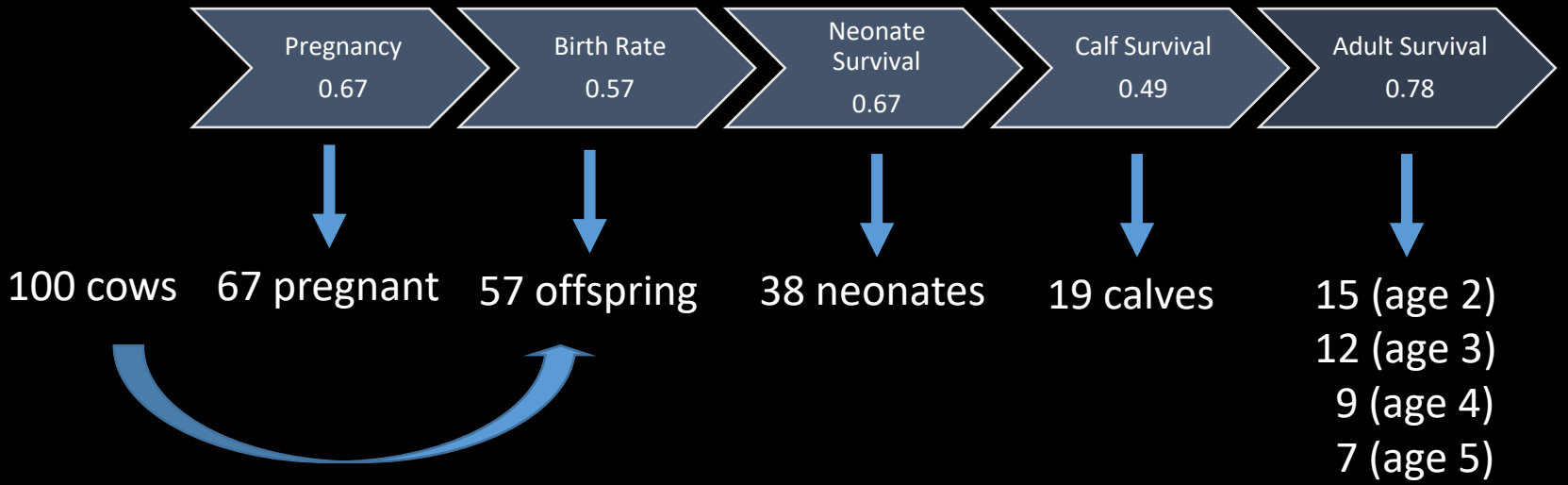
David Needle DVM, DACVP

Report Generated: 07/24/18
Results Last Modified: 07/24/18

- Over the three-year study, winter ticks were associated with 74% of all mortalities (91% of calves and 25% of adults).
- Lesions associated with meningeal worm were found in 33% of calves, 31% of adults, and 32% of all mortalities.
- While only directly responsible for 3 mortalities, lungworm was noted in 63% of all mortalities.

What does all this mean?

A hypothetical example with raw data (*no uncertainty*):



A full population viability analysis is planned to account for uncertainty and estimate probability of extirpation in the absence of migration.

Questions? jacob.debow@wildlife.nh.gov

VERMONT FISH & WILDLIFE

The UNIVERSITY of VERMONT

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Comments may be sent to ANR.FWPublicComment@vermont.gov

Attachment 2

2020
Moose Season Recommendation

to the
Vermont Fish and Wildlife Board

Vermont Fish and Wildlife Department
Agency of Natural Resources
1 National Life Drive, Davis 2
Montpelier, VT 05620-3208
802-828-1000

The Department recommends issuing either sex moose hunting permits in WMUs E1 and E2 to reduce the moose population. This will improve the health of moose in this region by reducing winter tick numbers and their impacts on moose health, survival, and birth rate.

The current number of moose in WMU E has been sufficient to sustain winter ticks at high levels that are negatively affecting moose health and survival. Winter ticks are a host-dependent parasite with moose being the primary host responsible for major fluctuations in winter tick densities. Therefore, reduction in moose density decreases the number of available hosts which in turn decreases the number of winter ticks on the landscape. Moose population reduction will be necessary to break the winter tick cycle and improve the health of moose in this region.

Taking no management action will perpetuate the current, unhealthy state of the moose population in WMU E for decades and would be inconsistent with the Department's established objective of managing for healthy moose populations. Importantly, 65% of Vermont residents support maintaining a smaller moose population through hunting if it reduces the number of moose that die each year from winter ticks. Only 15% oppose this approach (Responsive Management 2019).

Although winter ticks can be found on moose throughout the northeast, they do not impact moose populations across the more-peripheral parts of their range, including the rest of Vermont, due to lower moose densities that limit tick abundance.

Summary of Key Points

- Permits are recommended for WMU E (E1 & E2) to reduce the moose population and thereby reduce the impacts of winter ticks on the health of moose.

- Moose density in WMU E remains above 1 moose/square mile.
    - No WMU outside of the Northeast Kingdom ever had a moose density of 1/mi^2.
    - Moose densities greater than 1/mi^2 support high numbers of winter ticks that impact the health of moose.
    - Moose densities below 0.75/mi^2 support relatively few winter ticks that do not impact moose populations. This is the case in most of Vermont – winter ticks are present, but do not cause population level impacts.

- Results of moose research in WMU E indicate health of moose is very poor in that region.
    - Adult survival remains relatively good but impacts of winter ticks have caused birth rates to be very low.
    - About half of moose calves die each winter, primarily due to heavy winter tick loads.

- No permits are recommended for the remaining 19 WMUs, which cover 93% of Vermont.

Goals

This recommendation aims to improve the health of moose in WMUs E1 and E2 by reducing the impact of winter ticks and to achieve moose population objectives established in the *2020-2030 Big Game Management Plan* (Table 1).

Management Objectives

Moose population objectives are established in Vermont's *2020-2030 Big Game Management Plan*. These objectives aim to maintain healthy regional moose populations at levels that are socially acceptable and ecologically sustainable.

In WMUs D2, E1, and E2, density objectives reflect the increasing impact of winter ticks on the size and health of the region's moose population. Research has found reduced frequency of tick epizootics (where more than 50% of calves die from winter tick infestations) at moose densities below 1.06/mi^2 and no tick epizootics at densities below 0.75/mi^2 (Samuel 2007, Jones 2016). The Department will initially try to maintain moose densities below 1/mi^2 to reduce winter tick abundance and the frequency of epizootics, and improve the health of the moose population. However, if tick impacts are not reduced, the moose density may need to be reduced to 0.75/mi^2. Ultimately, the goal is to have healthy moose, with fewer individuals dying each year from heavy winter tick loads.

Moose density objectives throughout the rest of moose range in Vermont have been set at 0.5 moose/mi^2. This lower objective reflects ecological limitations on moose densities in these regions due to limited young forest habitat, higher deer densities, and a warming climate. Moose densities in these WMUs have never reached 1/mi^2.

Hunting thresholds have also been established for each WMU at 75% of the density objective. The Department will only consider hunting moose when densities exceed this threshold. This ensures that the other values of moose are maximized at these lower densities.

Population Status

Regional Perspective

Moose populations have been declining across the southern portion of their geographic range in North America. While the specific causes of this decline vary regionally, all are at least partly related to climate change. In northern Vermont and other northeastern states this decline has been attributed to increased parasitism resulting in increased mortality and decreased birth rates. Recent studies in Vermont, New Hampshire, and Maine have concluded that winter ticks are the primary cause of moose mortality across their core range in New England (Musante et al. 2007, 2010, Bergeron et al. 2013, Dunfey-Ball 2017, Jones et al. 2017, Ellingwood et al. 2019, Jones et al. 2019, DeBow 2020), with some moose hosting an astonishingly high number of ticks (>50,000/individual; Jones et al. 2019).

Importantly, population-level effects of winter ticks have only been observed in the region's core moose range (Figure 1), where moose densities have been high enough to support large numbers of winter ticks. Winter ticks are a host density dependent parasite and thrive during times of elevated host populations (Samuel 2004). Core moose range (continuous red area in Figure 1) in New England has a colder climate with longer winters, low deer densities, large blocks of forest, and an abundance of young forest created by commercial timber management which allows it to sustain higher densities of moose than more peripheral parts of their range. In Vermont, core moose range is primarily found in WMU E, located in the northeast corner of the state.

Although winter ticks can be found on moose throughout the region, they are not impacting moose populations across the more-peripheral parts of their range in the northeast, including the rest of Vermont, due to lower moose densities limiting tick abundance. Moose numbers in other parts of Vermont outside of the Northeast Kingdom have declined, but the main cause of this decline is not winter ticks. Rather, this decline is likely due to a combination of increased parasite loads (particularly brainworm linked to increasing deer populations), declining quantity of young forest, and fewer moose in core moose range to migrate out to these other regions.

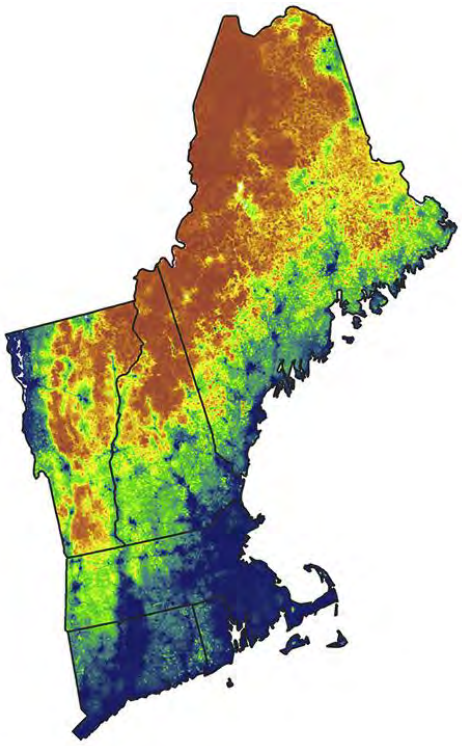

Figure 1. Estimated probability of occurrence of moose in the New England region from Pearman-Gilman et al. 2020.

Population Health

Many factors affect the health of individual moose and the overall population. These include diseases and parasites (e.g., winter ticks and brainworm), habitat quality, and environmental conditions. Ultimately, how fast a population is able to grow and how resilient it is to additional sources of mortality is determined by how long individuals can be expected to live (i.e, the survival rate) and how many new individuals are added to the population each year (i.e., the birth rate).

During 2017–2019, 126 moose (36 adult cows and 90 calves) were fitted with GPS radio collars in WMU E to monitor survival and birth rates. Results of this research clearly show that chronic, high winter tick loads have caused the health of moose in WMU E to be poor. Birth rates were low and overwinter calf survival was poor (48%). Although observed adult female survival remained relatively good, it was lower than expected for a population without major predators (Table 1). Survival of breeding age females has significant influence on population trends in long-lived species like moose.

Survival and birth rates observed during 2017–2019 from collared moose were lower than those observed in WMU E during 2004–2010 (Table 1). At that time, the Department was actively reducing the moose population in this area amid concerns about reduced physical condition due to over browsing of habitat caused by overabundant moose. In a healthy moose population both survival and birth rates would be even higher.

Table 1. Moose survival and birth rates during 2004–2010 and during 2017–2019 in WMU E. Numbers from 2004–2010 were derived from biological data collected from harvested moose. Numbers from 2017–2019 were observed from radio-marked study animals.

	2004–2010	2017–2019
Birth rates		
Yearling	0.12	0.08
2+ years old	0.86	0.67
1st year calf survival	0.63	0.34
Adult female survival	0.78 (≥0.85[1])	0.85

[1] *Estimated adult survival in the absence of hunting. Average of 130 adult females harvested annually during this period.*

Moose are not currently limited by habitat in this region (Dunfey-Ball 2017). There is no evidence that moose are currently over browsing their habitat, and there is enough available habitat to support the current population. Based on comparable research in New Hampshire and Maine during 2013–2017, it is possible that Vermont moose experienced epizootic years in 5 out of the last 6 years. Multiple years of heavy parasitism may have weakened the overall health of adults in the Vermont population and thus made them – and their calves – more susceptible to the effects of parasitism.

Population Estimates

Regional moose densities in Vermont are estimated from moose sighting rates reported by deer hunters during the November rifle season. This approach was originally developed by the New Hampshire Fish and Game Department by relating sighting rates to moose densities determined by aerial surveys. Aerial surveys conducted in Vermont allowed this model to be modified to fit Vermont sighting data. Sighting rates often vary from year to year due to factors other than the number of moose (e.g., weather conditions), so a 3-year rolling average is used to smooth out some of this variation.

Based on moose sighting rates by deer hunters, the 2019 (2017–2019 rolling average) density estimates for WMUs E1 and E2 are 1.99 and 1.70 moose/mi^2, respectively, which are above the upper density objectives established in the *2020-2030 Big Game Management Plan* (1 moose/mi^2). Populations in all other WMUs remain below established hunting thresholds (Table 2).

Sighting rates have been notably higher during the past two years in WMU E, resulting in an increase in population estimates (Figure 2). It is unlikely that the moose population in that region is actually increasing. Over the longer term, sighting rate trends indicate the population has likely remained relatively stable over the past 8 or 9 years (Figure 2).

Based on the ratio of collared moose to non-collared moose observed by researchers during the past 3 years, the Department is confident that the current moose density in WMU E is at least 1 moose/mi^2, and likely higher.

Table 2. Moose density estimates based on sighting rates by deer hunters and density objectives and hunting thresholds established in the *2020-2030 Big Game Management Plan*, by WMU. Density estimates are based on average sighting rates during 2017–2019.

WMU	Habitat (mi^2)	Moose Density (moose/mi^2)			Population Estimate	
		Objective	Hunting Threshold	Current Estimate	N	(80% CI)
A	35	n/a	n/a	0.04	1	(1–2)
B	420	n/a	n/a	0.07	30	(23–37)
C	351	0.5	0.38	0.33	116	(93–138)
D1	449	0.5	0.38	0.25	111	(90–131)
D2	346	0.75-1	0.56	0.43	147	(123–172)
E1	306	0.75-1	0.56	1.99	609	(543–675)
E2	326	0.75-1	0.56	1.70	554	(484–623)
F1	108	n/a	n/a	0.08	8	(4–12)
F2	158	n/a	n/a	0.04	7	(4–10)
G	363	0.5	0.38	0.05	20	(14–25)
H	466	0.5	0.38	0.33	152	(127–177)
I	407	0.5	0.38	0.23	92	(72–113)
J1	464	0.5	0.38	0.17	77	(62–93)
J2	633	0.5	0.38	0.18	114	(90–137)
K	359	n/a	n/a	0.02	8	(7–9)
L	346	0.5	0.38	0.24	82	(52–111)
M	424	0.5	0.38	0.27	115	(82–147)
N	275	n/a	n/a	0.03	7	(5–9)
O	478	n/a	n/a	0.03	16	(12–20)
P	447	0.5	0.38	0.13	56	(38–75)
Q	219	n/a	n/a	0.03	7	(5–10)
STATE	**7380**				**2329**	**(1931–2726)**

The results of the moose study clearly show that the current density of moose in WMU E has been sufficient to sustain winter ticks at high levels that are negatively affecting moose health and survival. Winter ticks are a host dependent parasite with moose being the primary host responsible for major fluctuations in winter tick densities. Therefore, reduction in moose density decreases the number of available hosts which in turn decreases the number of winter ticks on the landscape. Moose population reduction will be necessary to break the winter tick cycle and improve the health of moose in this region.

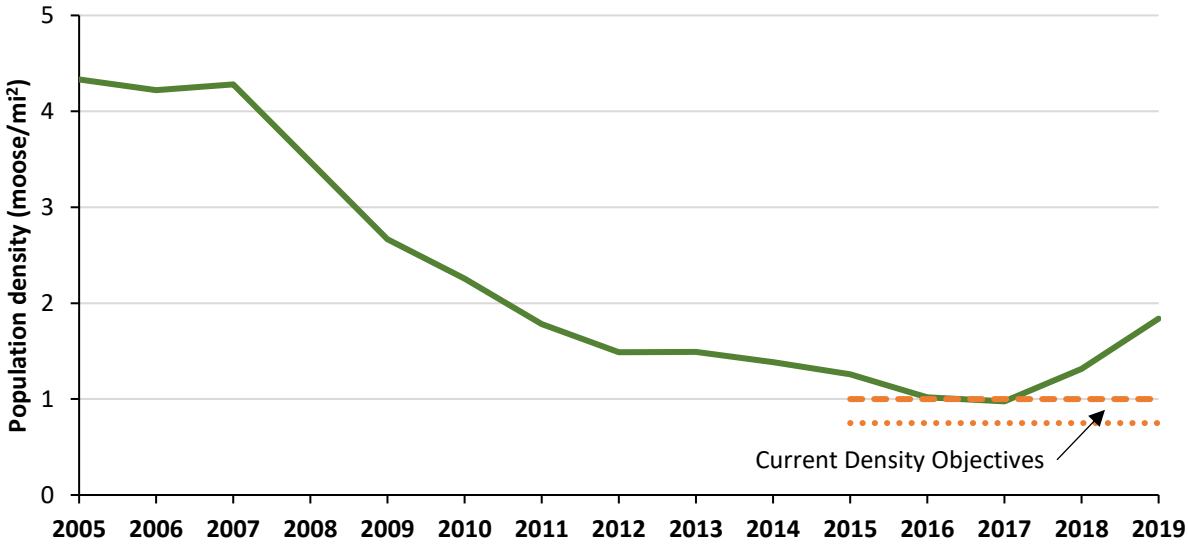

Figure 2. Moose density estimates in WMU E during 2005–2019. Estimates are based on 3-year average moose sighting rates reported by deer hunters.

Population projections using survival and birth rates from the Vermont moose study indicate the population in WMU E should decline by 4-5% per year over the next decade in the absence of hunting (Figure 3). These estimates are based on 3 consecutive years of the heavy tick infestations, and, therefore, presumably represent a worst-case scenario. The observed population trend, based on moose sighting rates by deer hunters, suggests the population is not currently declining, or is declining much slower than 4-5% per year.

Without intervention to reduce the moose population, high tick loads will continue to impact the health of moose in WMU E for the next decade and beyond. The resulting chronic stress, low birth rates, and high calf mortality may cause the population to decline over time on its own from the effects of winter ticks. However, uncertainty surrounding how often, and heavy, future tick infestations would be means that the moose population in WMU E might not decline over the next decade. Tick infestations are not only dependent on moose densities, but also on climate, including temperature, wind, snow, and ice. If climate conditions produce a few years where moose get a reprieve from high tick infestations, then moose populations could remain stable or even increase over time. In this way, the moose population could linger at densities that perpetuate heavy tick loads and unhealthy moose for the foreseeable future.

To account for notably higher sighting rates in 2018 and 2019 that could be due to environmental factors such as weather, population projections and this harvest recommendation are based on a more conservative population estimate using a 5-year average. Using this 2014–2019 average population estimate of 830 moose (1.3 moose/mi^2), survival and birth rates obtained from collared moose, and continued high tick loads every year, tick-induced population declines would take 7 years to reach 1 moose/mi^2 and 13 years to reach 0.75 moose/mi^2 (Fig. 3). This presumably represents a worst-case scenario, and the fastest tick-induced declines we could expect. Further, detrimental effects on moose health will remain for several years after moose densities are reduced to levels that no longer support high tick loads. Even under this worst-case scenario, taking no management action will perpetuate the

current, unhealthy state of the moose population in WMU E for many years and would be inconsistent with the Department's established objective of managing for a healthy moose population. Importantly, 65% of Vermont residents support maintaining a smaller moose population through hunting if it reduces the number of moose that die each year from winter ticks. Only 15% oppose this approach (Responsive Management 2019).

Reducing winter tick populations directly, either by treating moose or the landscape with some form of acaricide or fungal pathogen, is not currently a viable option. Research in this area is ongoing, but the realities of treating an entire landscape or a sufficient portion of the moose population make it unlikely that this will be a practical option in the near future.

Harvest Recommendation

The Department recommends issuing 55 either sex hunting permits in WMU E for the 2020 hunting seasons. This is expected to result in the harvest of 33 moose (21 bulls, 10 cows, 2 calves). Approximately 60% of permits are recommended to be allocated to WMU E1 due to higher moose densities. Allocations to the auction, special opportunity, and veterans are set by statute. Approximately 20% of permits are allocated to the archery season, based on the percentage of total applications that were for this season in recent years. Permit breakdown by WMU, season, and special allocation is provided in Table 3.

Table 3. Recommended 2020 moose hunting permit allocations by season and WMU.

	Total	E1	E2
Regular Season	34	24	15
Veteran[1]	5		
Archery Season	10	6	4
Auction[2]	3	choice	
Special Opportunity[3]	3	choice	
TOTAL	**55**	**30-36**	**19-25**

[1] *Veteran permits are for the regular season.*

[2] *Auction permit winners have choice of season and WMU.*

[3] *Special Opportunity Permits allow choice of season and WMU.*

Using the more conservative 2014–2019 average estimated population of 830 moose in WMU E (E1 and E2 combined), this permit allocation would reduce the population below 1 moose/mi^2 in 4 years and reach 0.75 moose/mi^2 in 7 years, assuming the same permit allocation and hunter success rates each year and no improvement from the current observed birth rates and survival rates (Fig. 3). At the minimum population estimate of 632 moose (1 moose/mi^2) in WMU E, it would take 4 years at this permit allocation to reduce the population to the lower density objective of 0.75 moose/mi^2.

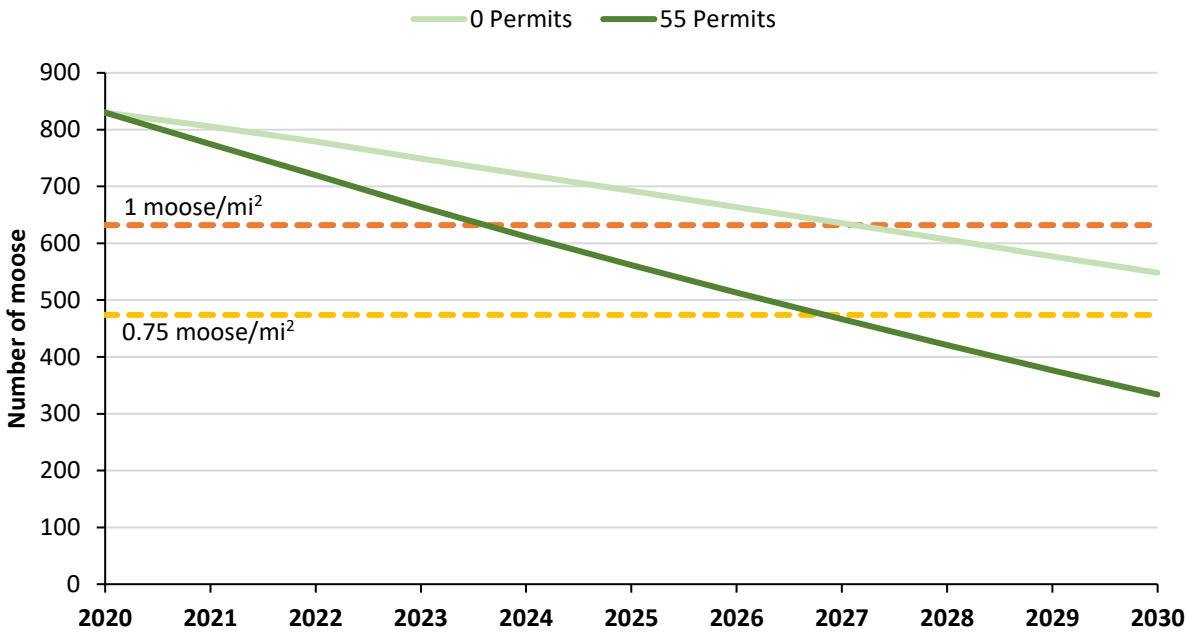

Figure 3. Moose population projections in WMU E based on the 2014–2019 average population estimate and survival and birth rates from radio-marked moose, with 0 permits and with 55 permits. Projections assume consistent harvest every year and no improvement in survival or birth rates.

This permit recommendation represents a significant change from very low permit numbers in recent years and a general declining trend in permit numbers over the past decade. Lower permit numbers during the past 3 years were reflective of lower population estimates at the time and the Department's desire to take a very conservative approach until results of our moose survival study were available. It now appears that moose densities in WMU E are greater than they were believed to be in recent years, and the results of the moose study clearly demonstrate that moose in WMU E are in poor health and identify the cause as winter ticks. It is now clear that reducing the moose population to reduce the number of winter ticks is our best option to improve the health of moose in that region.

This permit recommendation is a conservative first step to addressing winter tick impacts on moose in WMU E. Given the poor health of the moose population and a clearly identified cause, some action to address this issue is warranted. Ideally, moose health should be improved as quickly as possible. However, low survival and birth rates observed from Vermont moose, and broader, regional declines in moose populations justify a cautious approach at this time. Management of moose in WMU E and throughout Vermont must continue to be adaptive and respond to new information as it becomes available. If continued monitoring indicates that health, survival, and birth rates remain poor, and the moose population in WMU E remains above the objective, a more aggressive approach may be necessary to improve the health of the region's moose.

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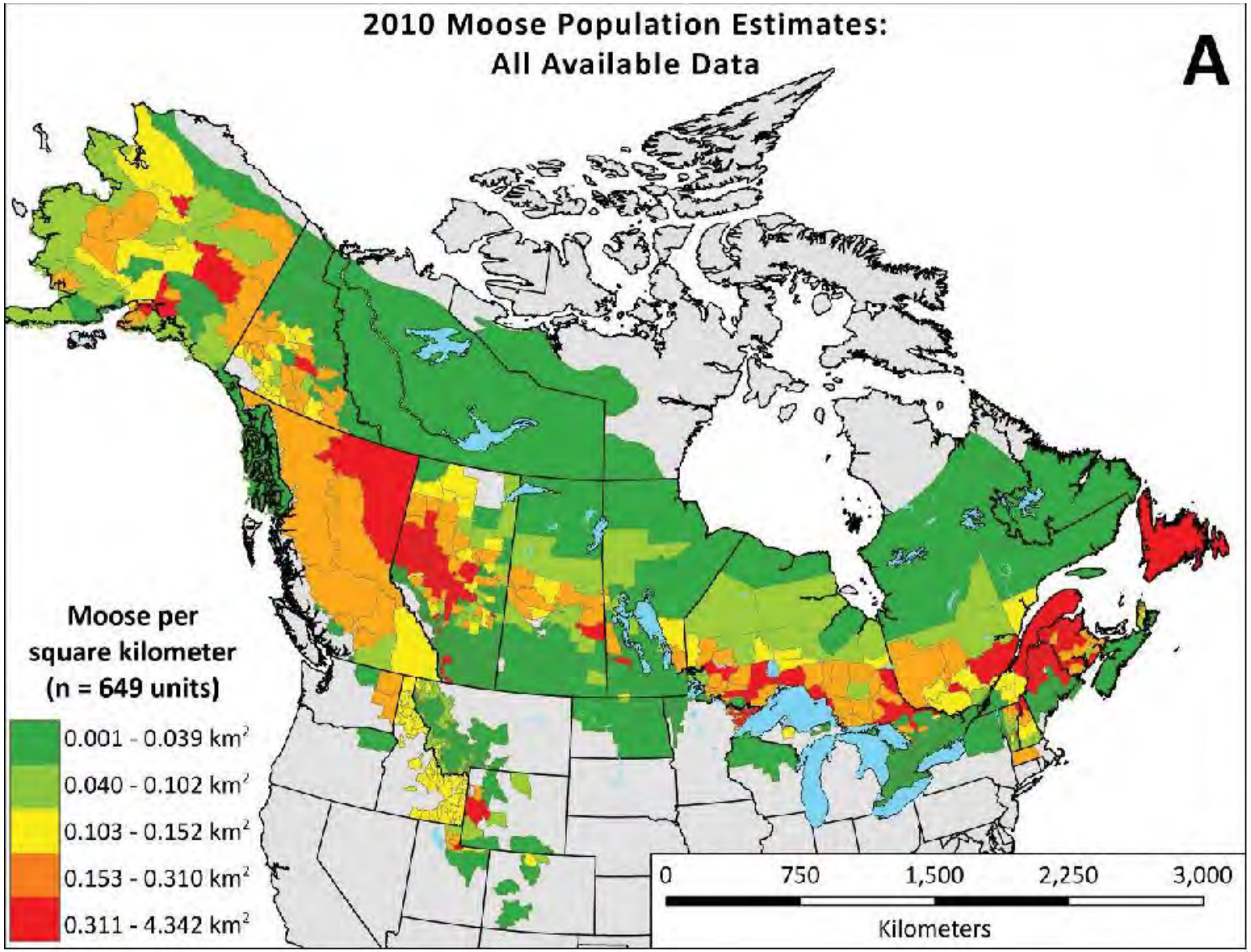
Attachment 3

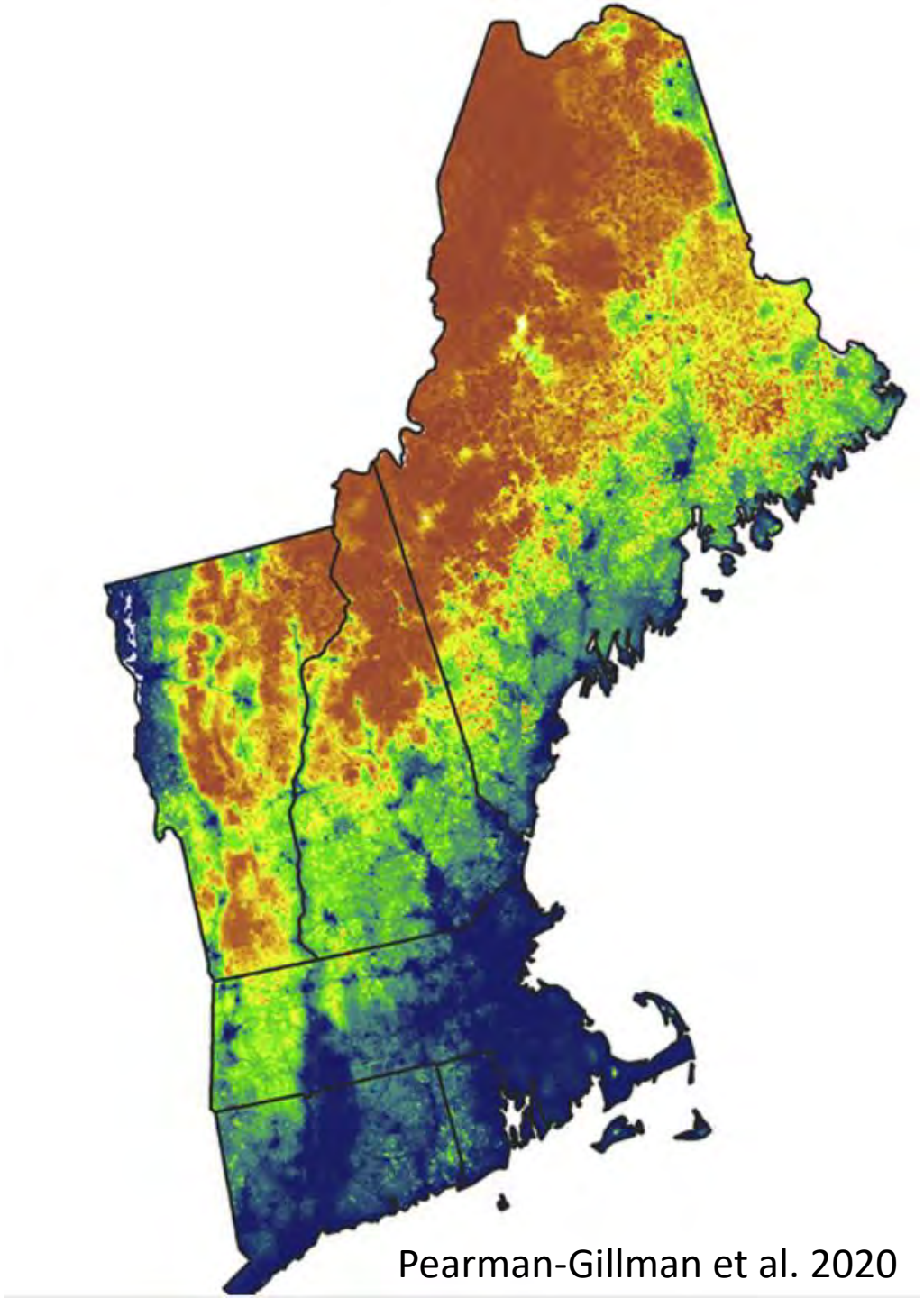
2020 Moose Season Recommendation

Continental Perspective



Jensen et al. 2018

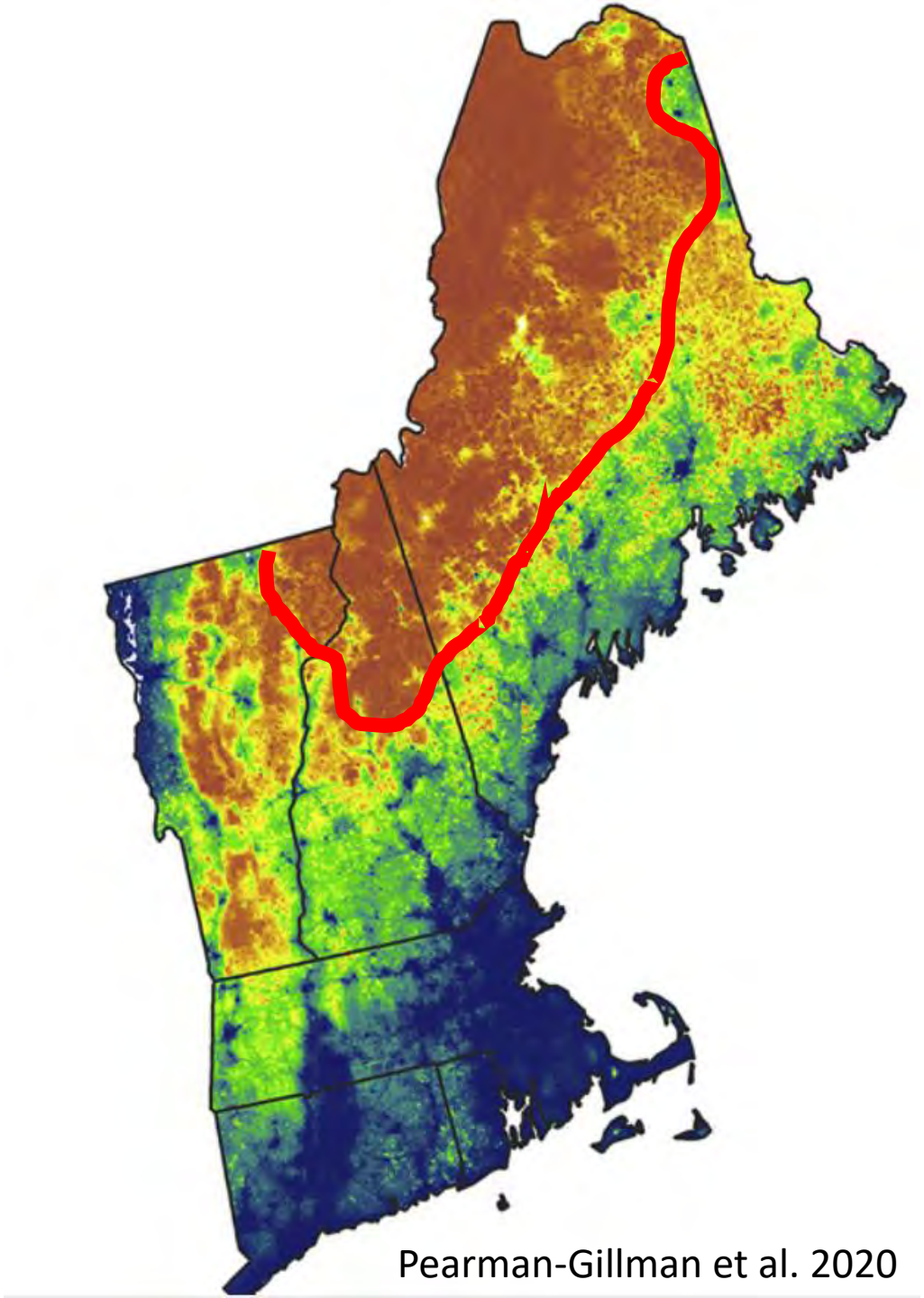
Regional Perspective



Pearman-Gillman et al. 2020

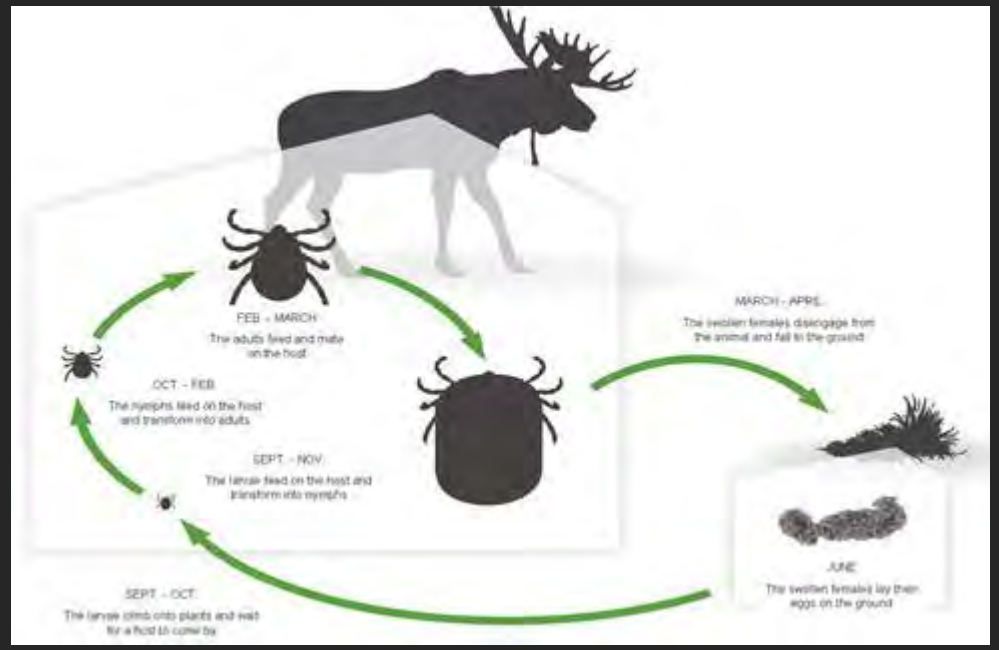
Regional Perspective

"Core" Moose Range



Pearman-Gillman et al. 2020

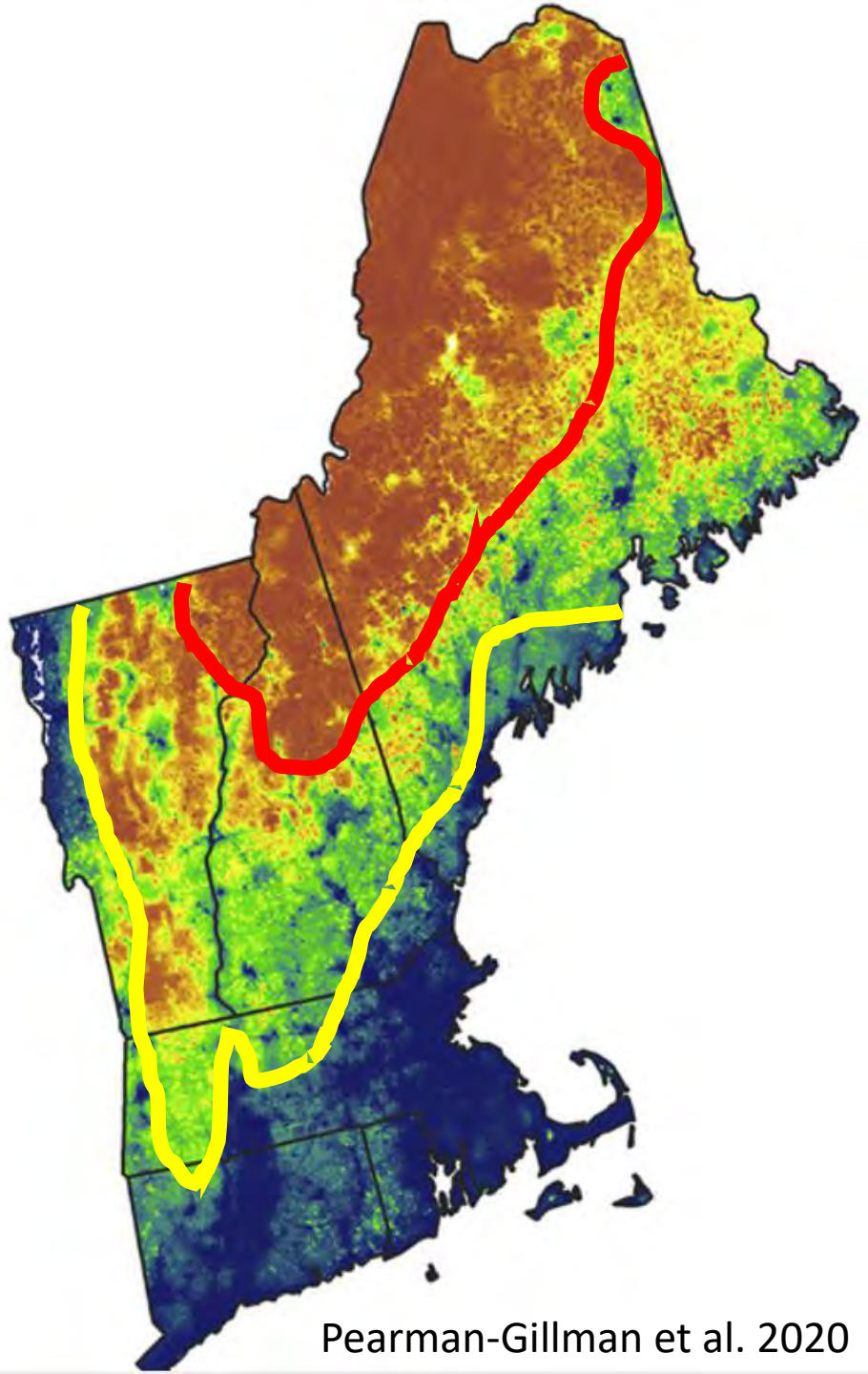
Winter Ticks



Regional Perspective

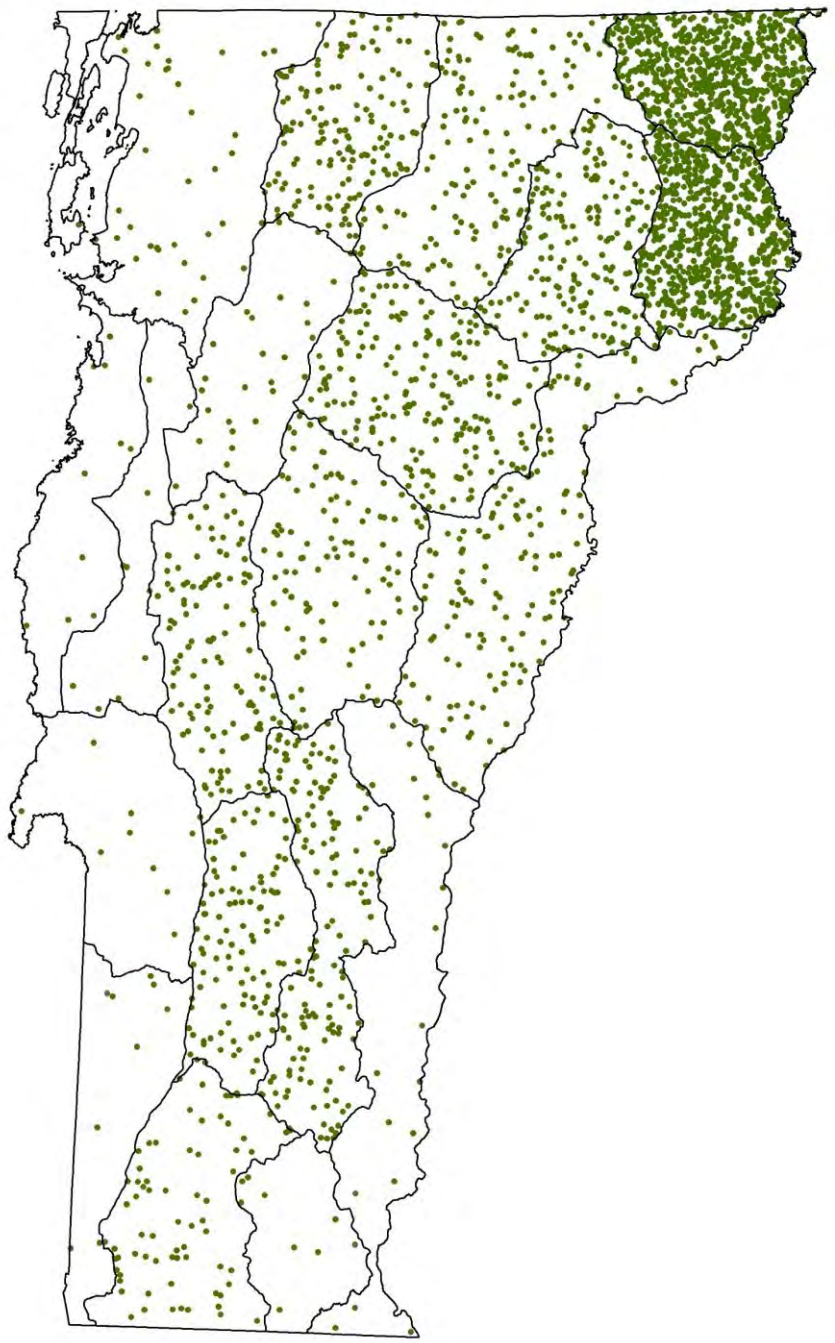
"Core" Moose Range

Peripheral Range

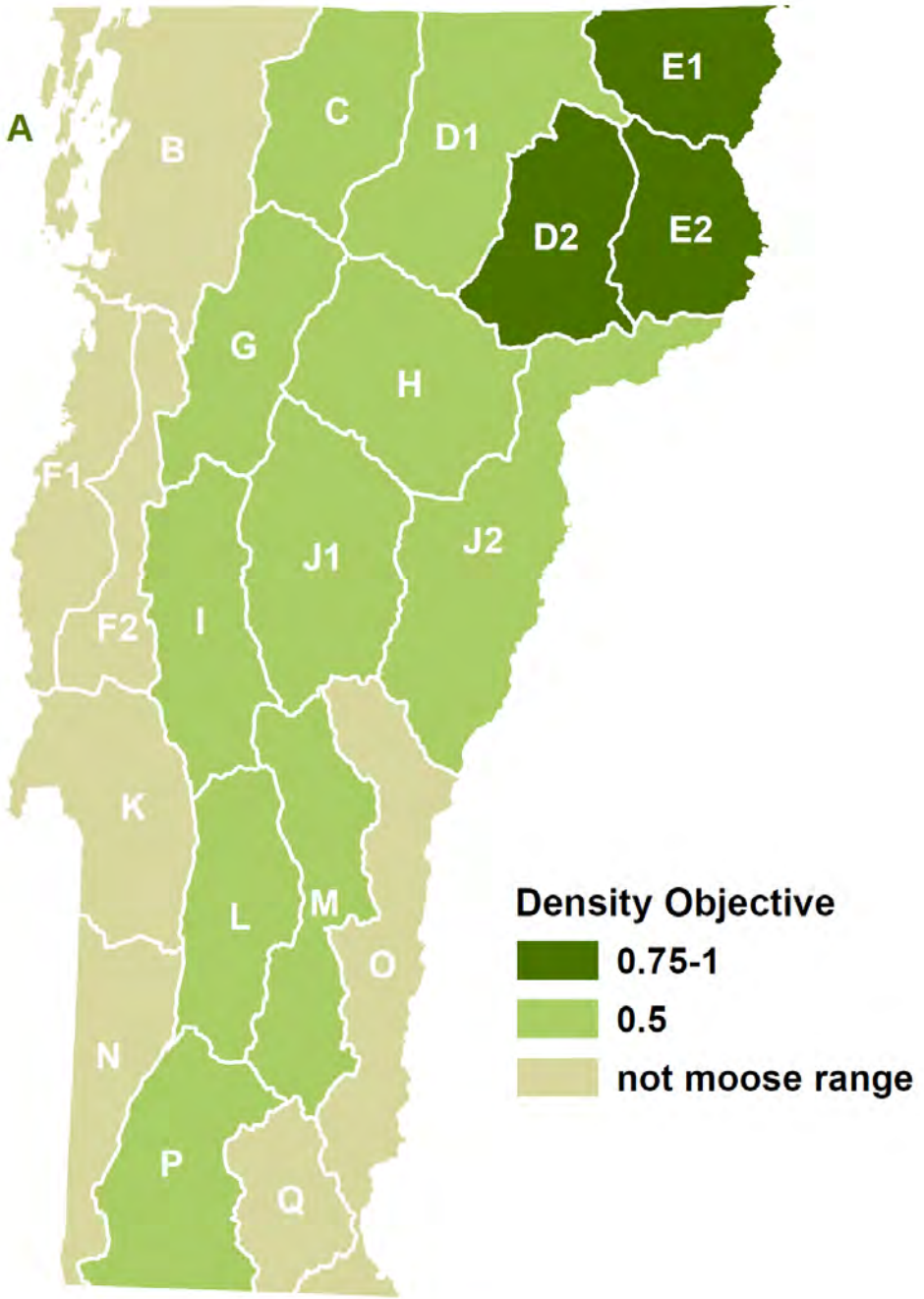


Pearman-Gillman et al. 2020

Moose Distribution in Vermont



Moose Population Objectives



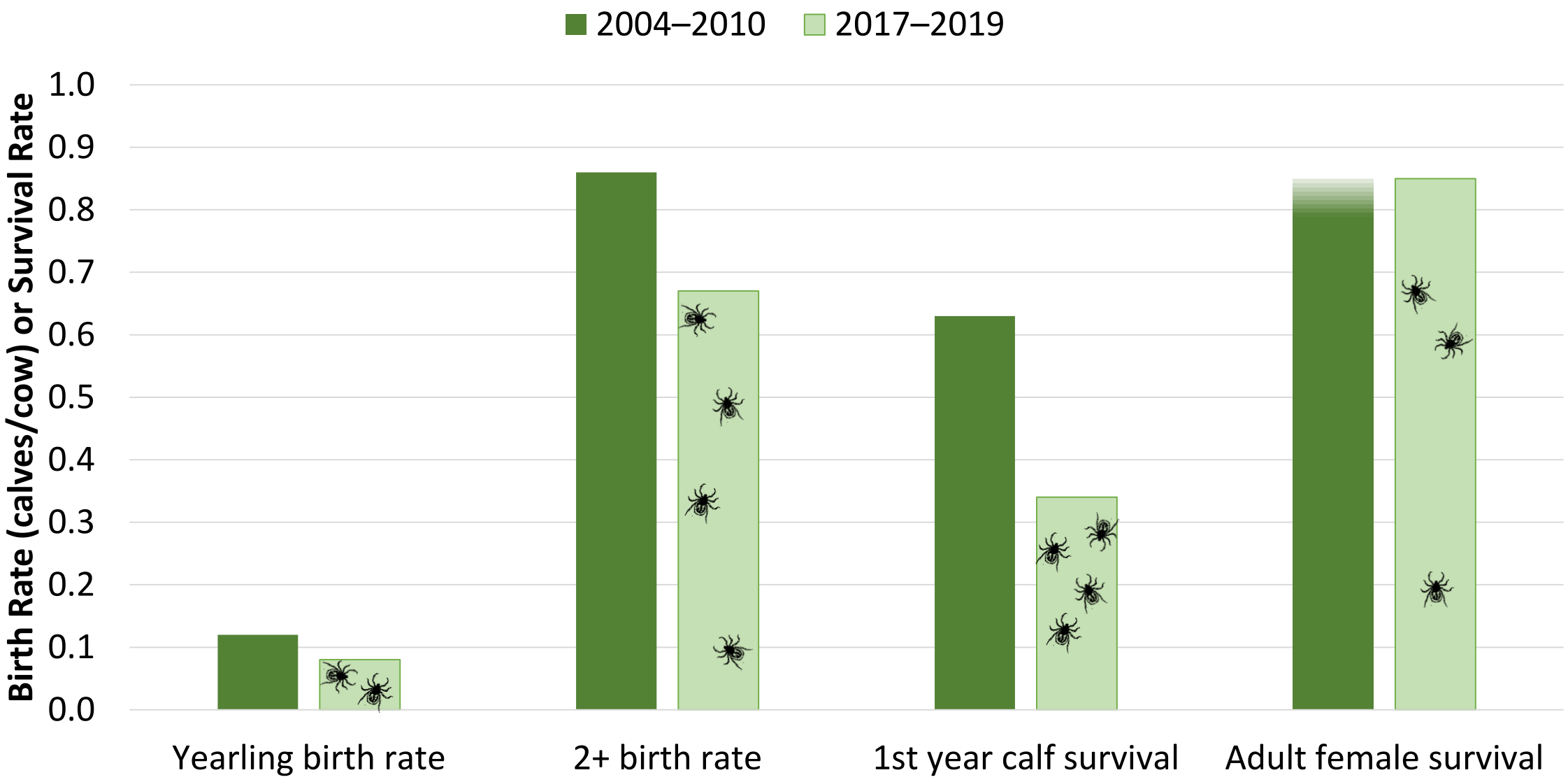
Healthy Moose!

Healthy Moose!

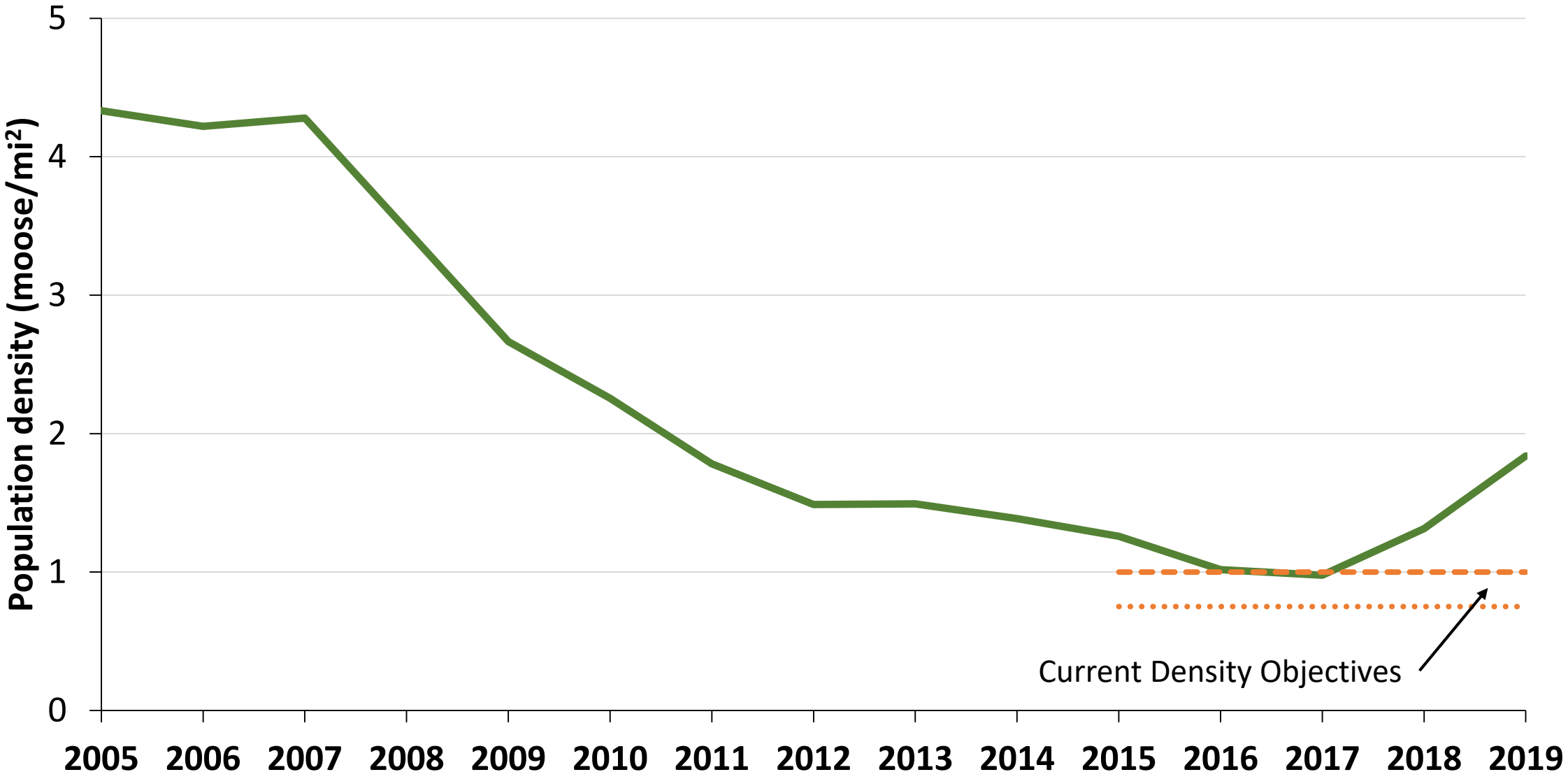
Healthy Moose!

Health Comparison

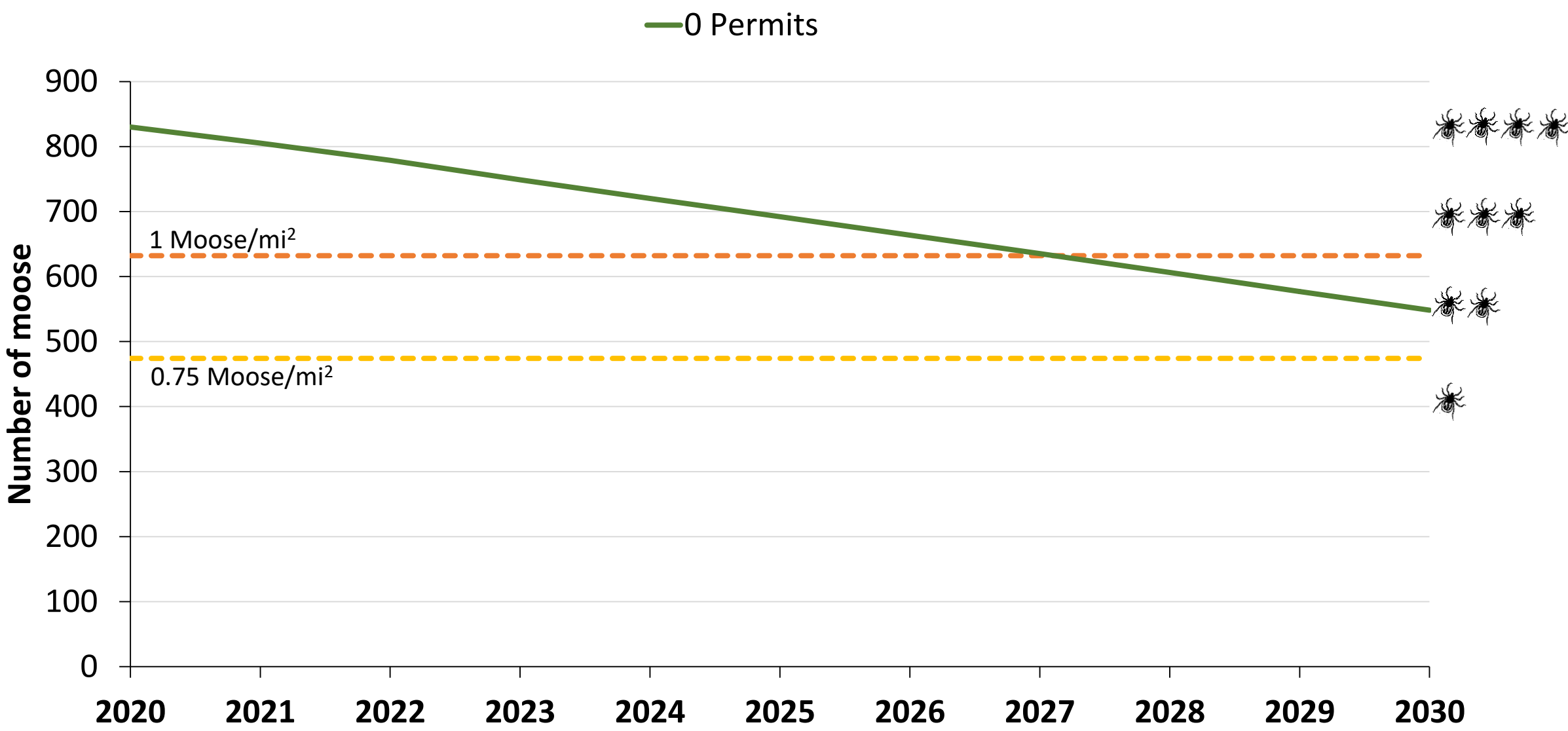
Health Comparison



Population Trend in WMU E



Population Projection

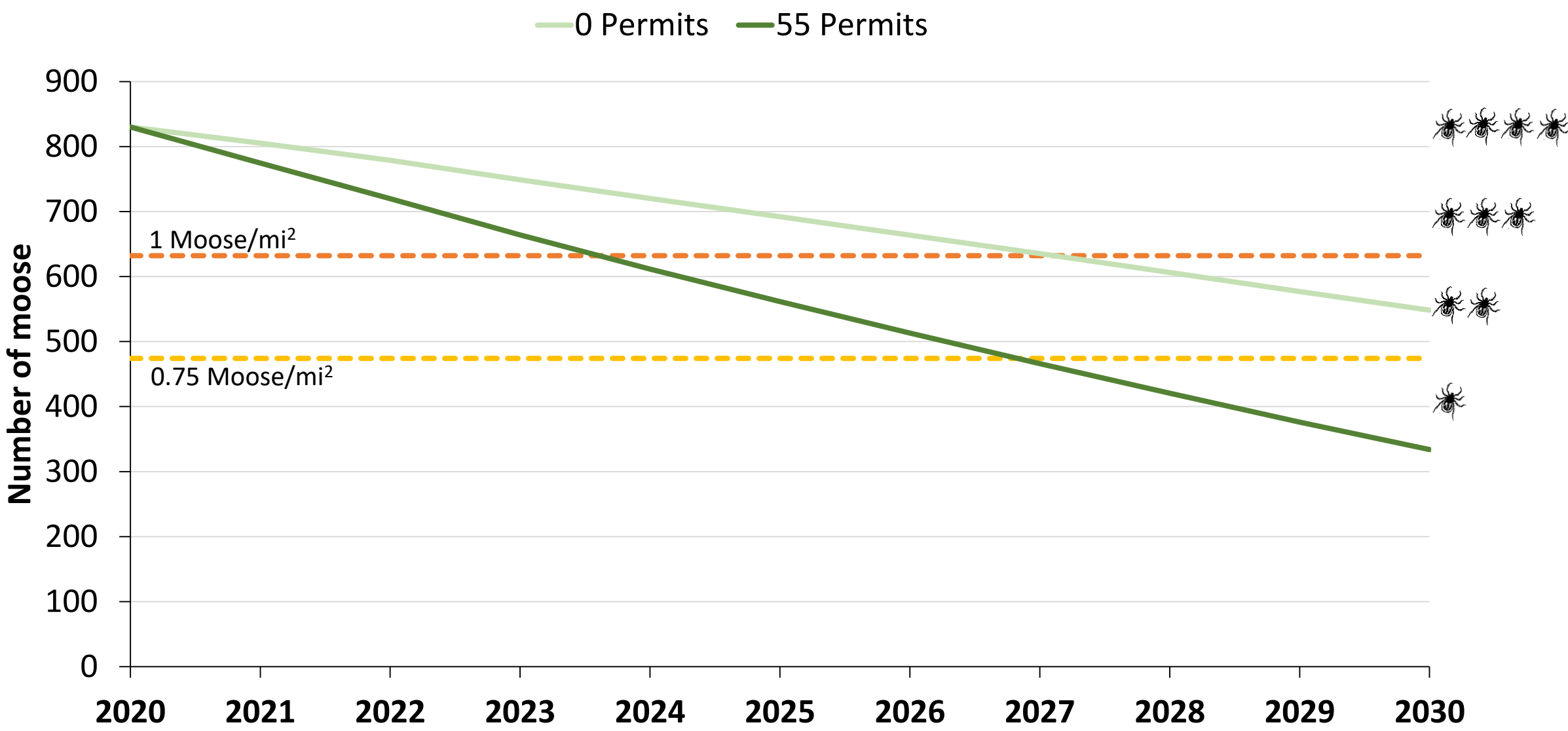


Population Projection

Permit Recommendation

	Total	E1	E2
Regular Season	34	24	15
Veteran	5		
Archery Season	10	6	4
Auction	3	choice	
Special Opportunity	3	choice	
TOTAL	**55**	**30-36**	**19-25**

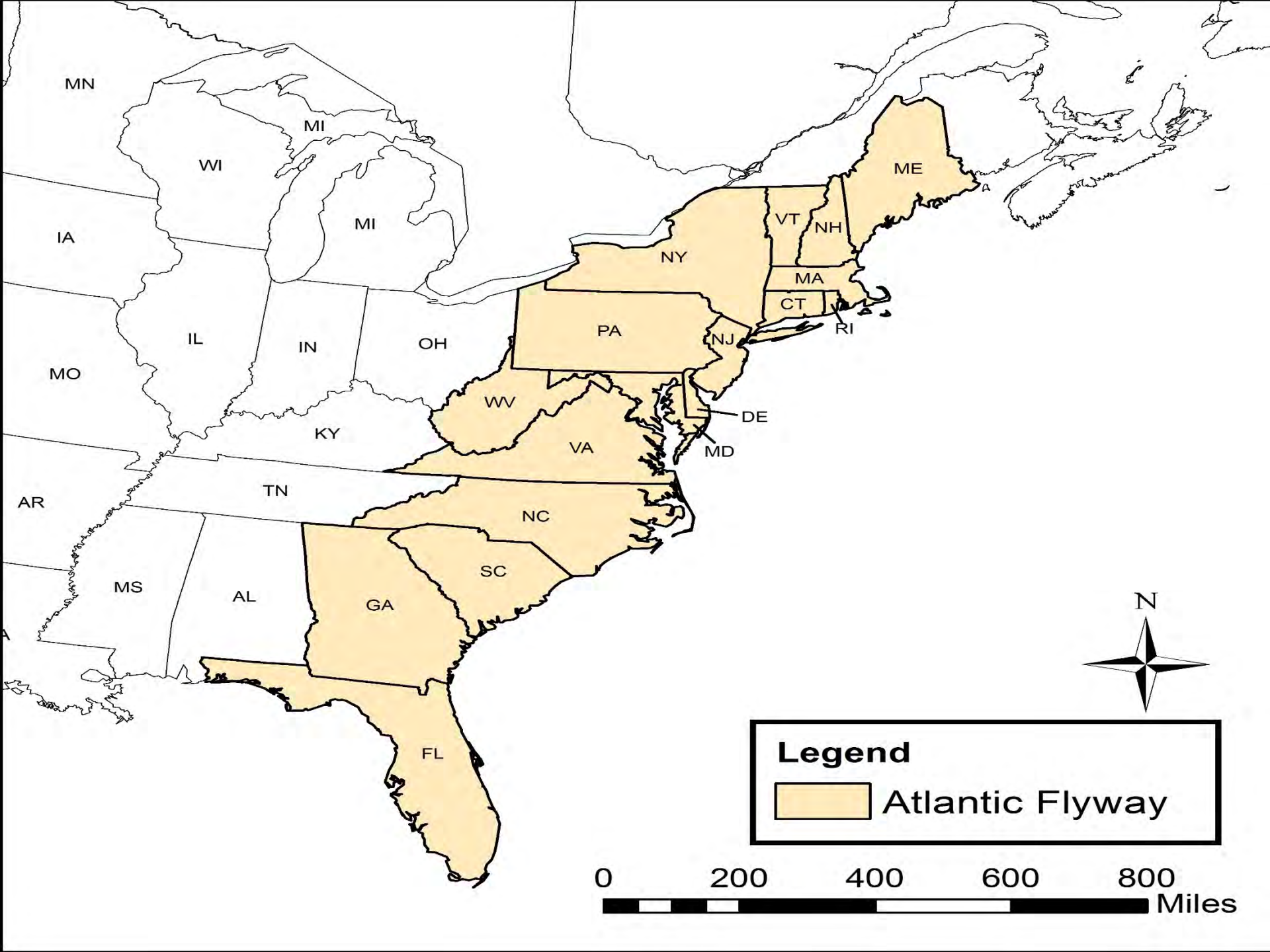
Population Projection




12

Attachment 4

2020 Migratory Game Bird Hunting Seasons and Bag Limits Recommendations


MN
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SC
NC
VA
WV
PA
NY
ME
VT
NH
MA
CT
RI
NJ
DE
MD
N
Legend
Atlantic Flyway
0
200
400
600
800
Miles

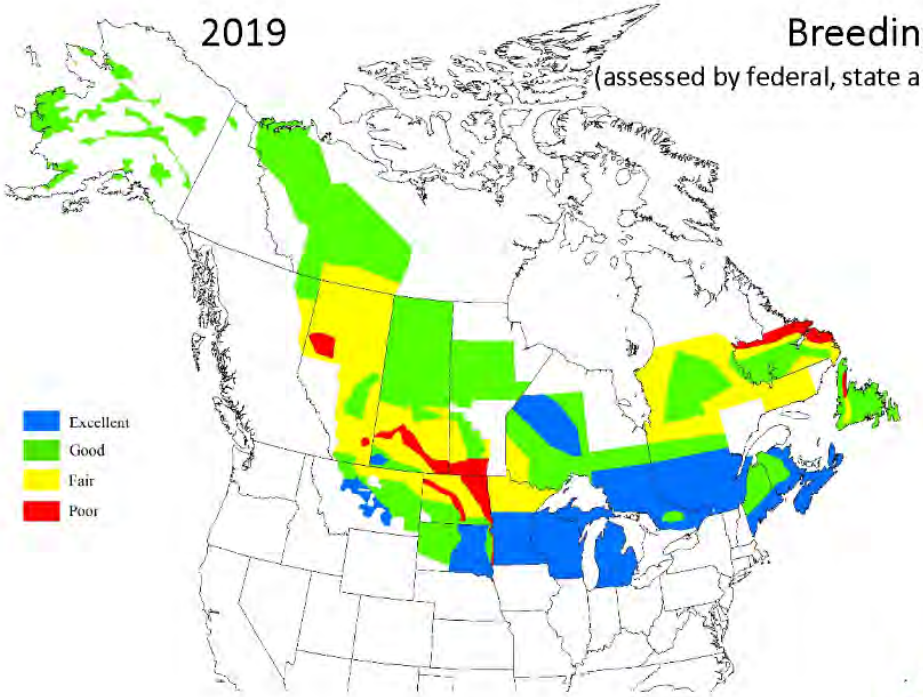
Duck Breeding Populations in Eastern Survey Areas

- Breeding habitat conditions ranged from fair to excellent.
- Total duck breeding population in the N.E. US decreased by 10% from 2018.
- Mallard breeding populations in AF was 2% lower than 2018 and 16%) below the long term average.

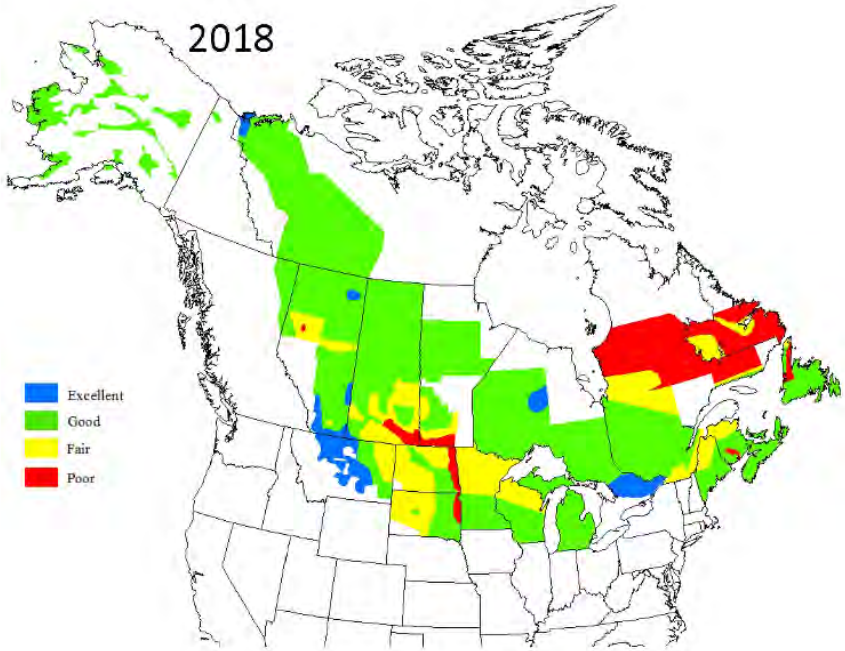
Breeding Waterfowl Habitat Conditions

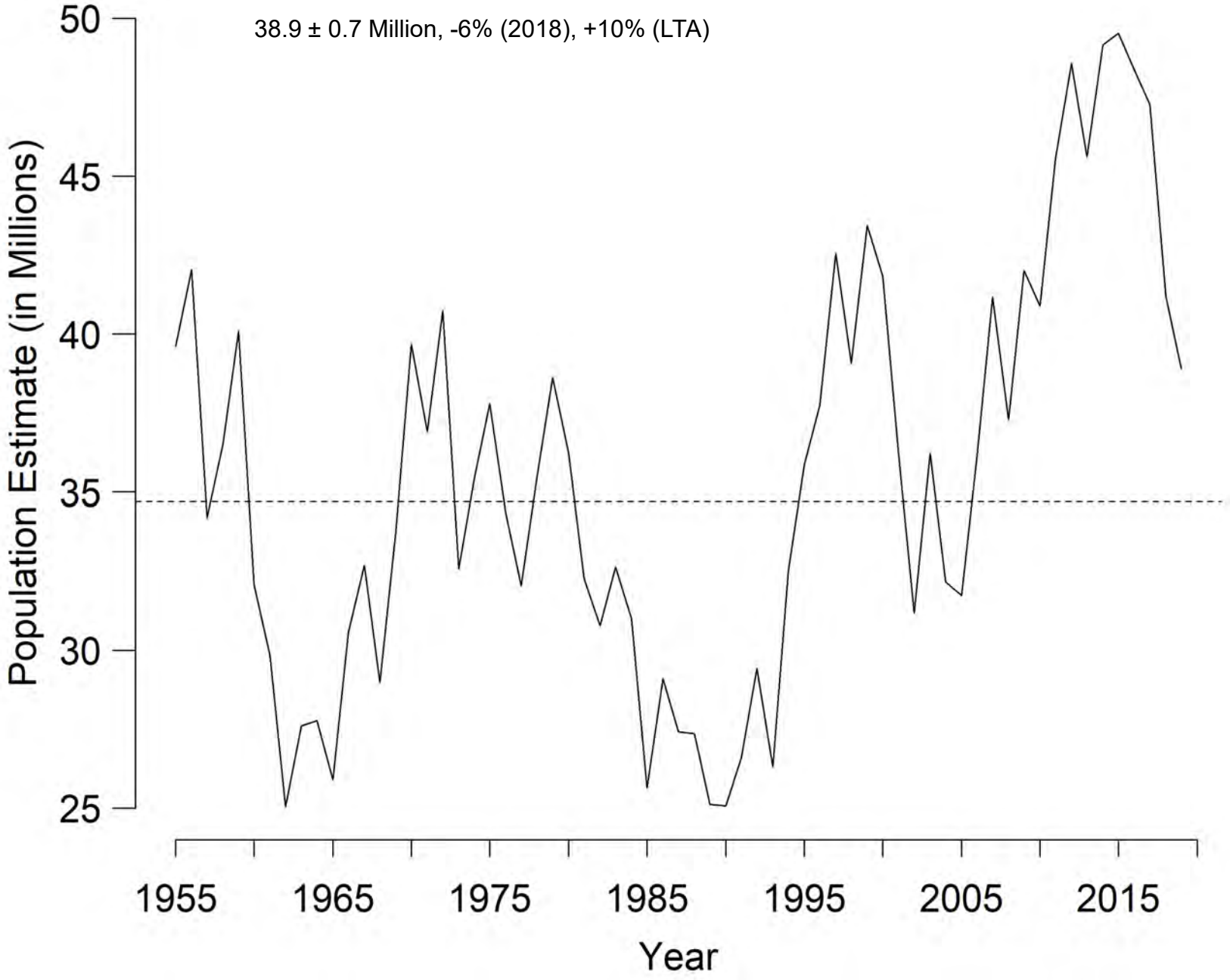
(assessed by federal, state and Canadian wildlife biologists during spring waterfowl surveys)

2019



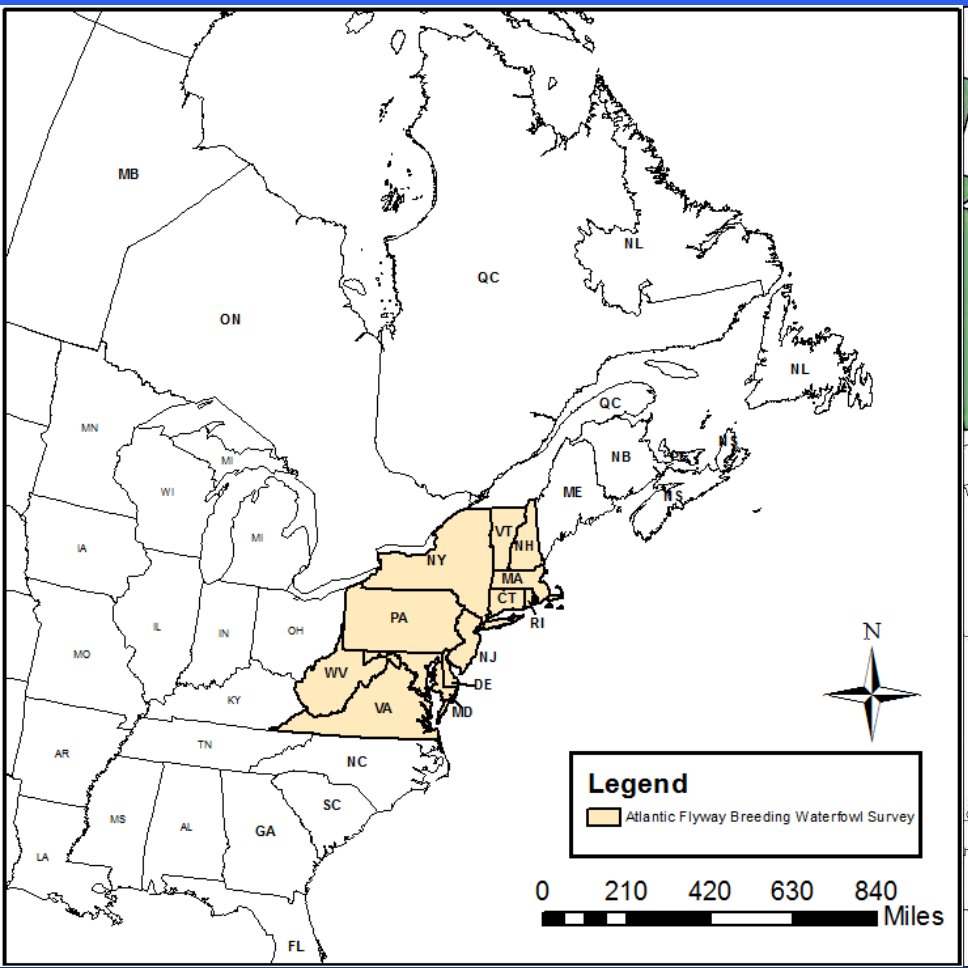
2018

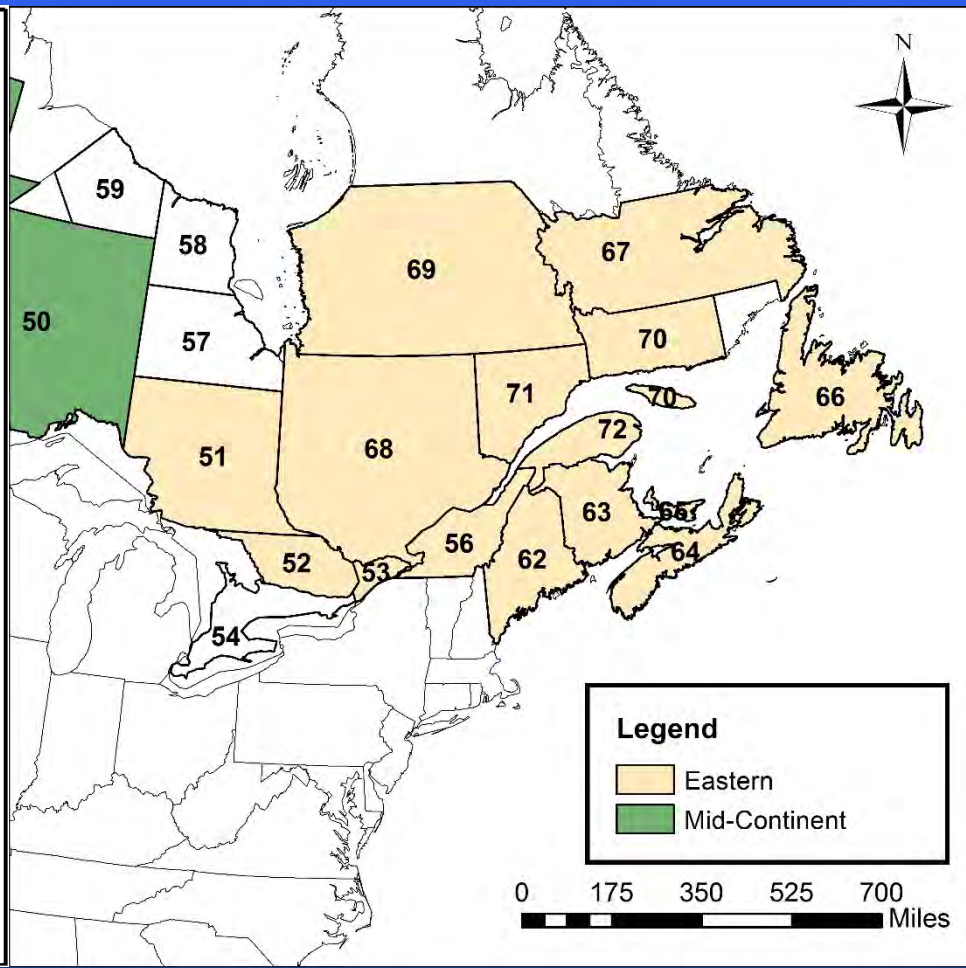



38.9 ± 0.7 Million, -6% (2018), +10% (LTA)
Population Estimate (in Millions)
50
45
40
35
30
25
1955
1965
1975
1985
1995
2005
2015
Year

Atlantic Flyway Breeding Waterfowl Survey Area

Eastern Survey Area

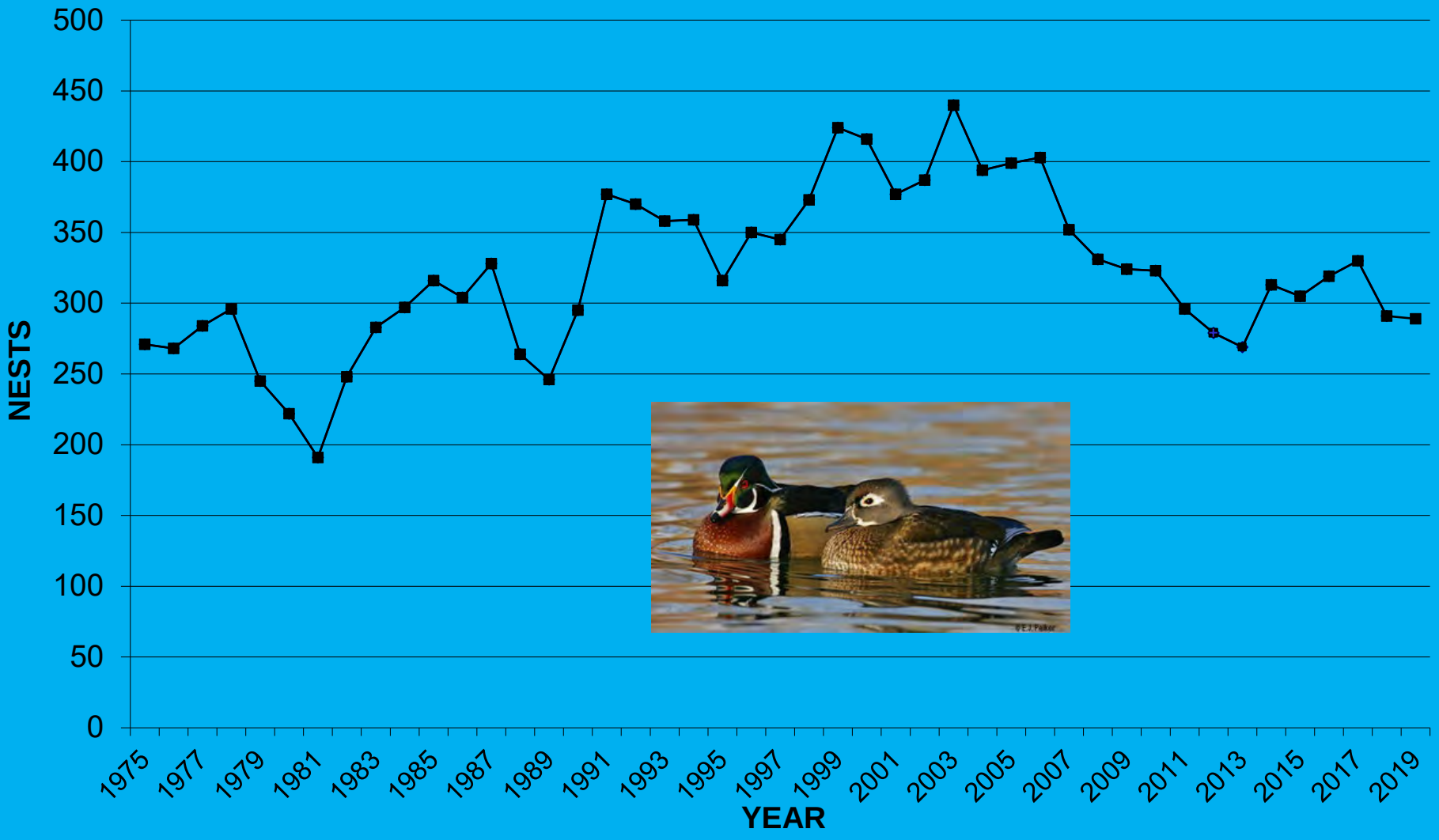




Vermont Waterfowl Production 2019

- Wood duck breeding population decreased in 2019
- Mallard breeding population slightly higher in 2019
- Resident geese were higher in 2019
- Good brood rearing cover

WOOD DUCK NESTS OBSERVED IN NEST BOXES ON 14 SELECTED MARSHES

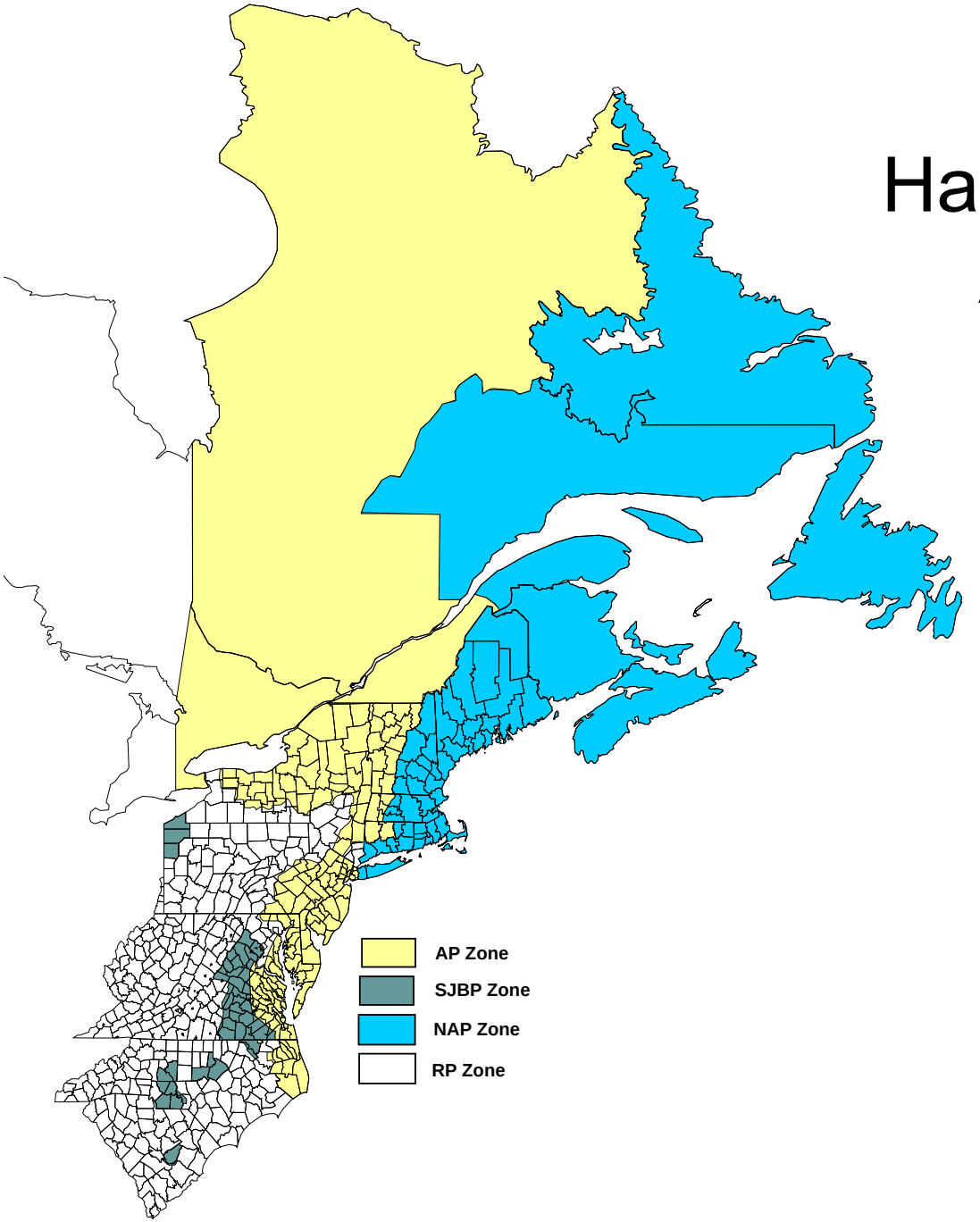


Vermont Resident Canada Geese Breeding Pair Estimates

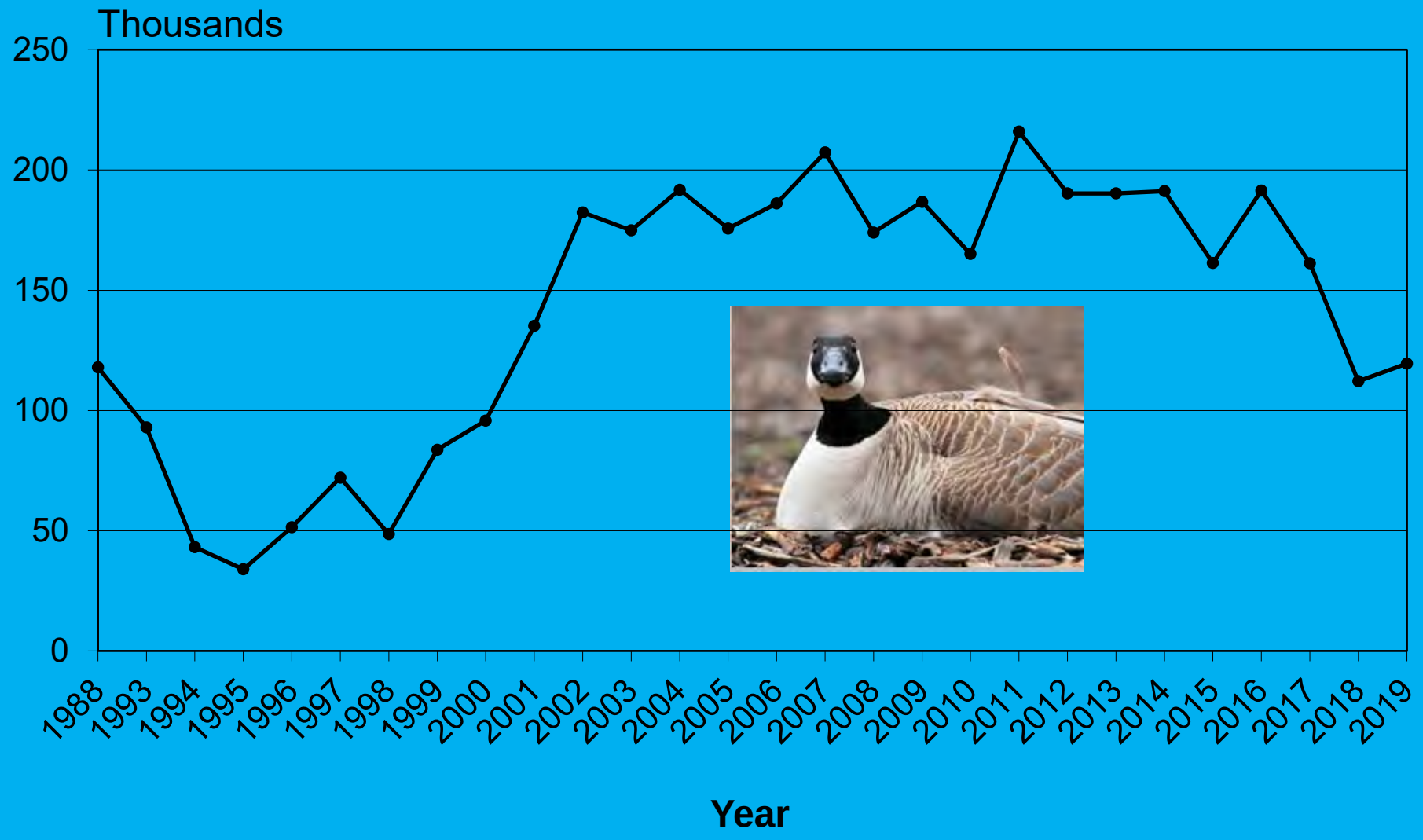
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0

1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

Canada Goose Harvest Zones in the Atlantic Flyway



Atlantic Population Canada Geese Breeding Pairs 1988-2019



Vermont Waterfowl Hunting and Harvest Data Comparisons

	No. of Active Adult Duck Hunters	Average Seasonal Duck Bagged Per Hunter	Total Season Estimated Duck Harvest	Total Season Estimated Canada Goose Harvest	Total Season Estimated Snow Goose Harvest	Vermont Duck Stamp Sales
2009	2,400	10.7	25,500	11,500	90	6,051
2010	2,700	8.5	22,900	9,600	0	6,065
2011	2,600	9.0	23,000	8,300	134	4,872
2012	2,100	10.0	20,500	8,600	34	5,882
2013	4,000	8.0	31,900	9,600	0	6,436
2014	2,600	6.8	17,800	12,300	46	6,635
2015	2,800	5.8	14,700	6,733	30	6,244
2016	3,400	5.2	17,600	8,800	0	6,016
2017	2,500	7.9	19,900	15,900	0	5,954
2018	2,100	7.8	16.200	7,400	0	5,725
2019	--	--	--	--	--	5,620

Harvest Information Program (HIP)

Hunt

White-tailed Deer
Black Bear
Moose
Wild Turkey
Small Game
Upland Game Birds
Waterfowl
Harvest Information Program (HIP)
Furbearers and Trapping
Seasons
Hunter Education
Hunting Regulations
Youth Hunting
Find A Place To Hunt
Shooting Ranges

Quick Links

Buy a License
Migratory Bird Hunting Regulations

Federal law requires migratory bird hunters to register with the Migratory Bird Harvest Information Program (HIP). Migratory game birds include: ducks, geese, brant, coots, snipe, and woodcock.

How do I register?

Registering is easy. You will be asked for your name, address, date of birth and a brief summary of last year's hunting activity. There is **no charge** for a HIP registration number.

There are two ways to get a HIP registration number:

1. Get your HIP number by registering online.
2. Call 1-877-306-7091 Monday Friday, 7:45 am to 4:30 pm EST. A live operator will give you a HIP registration number.

You must write the HIP registration number in the Harvest Information Program section of your hunting license.

Permanent or lifetime license holders should print the response form with your HIP registration number and carry it with you while hunting migratory birds.

Please remember Vermont and federal migratory waterfowl stamps are also needed to hunt ducks or geese, if you are 16 years old or older.

Hunters must re-register annually.

Forgot your HIP registration number?

look up your h.i.p. registration number

Controlled Hunting Areas
2020

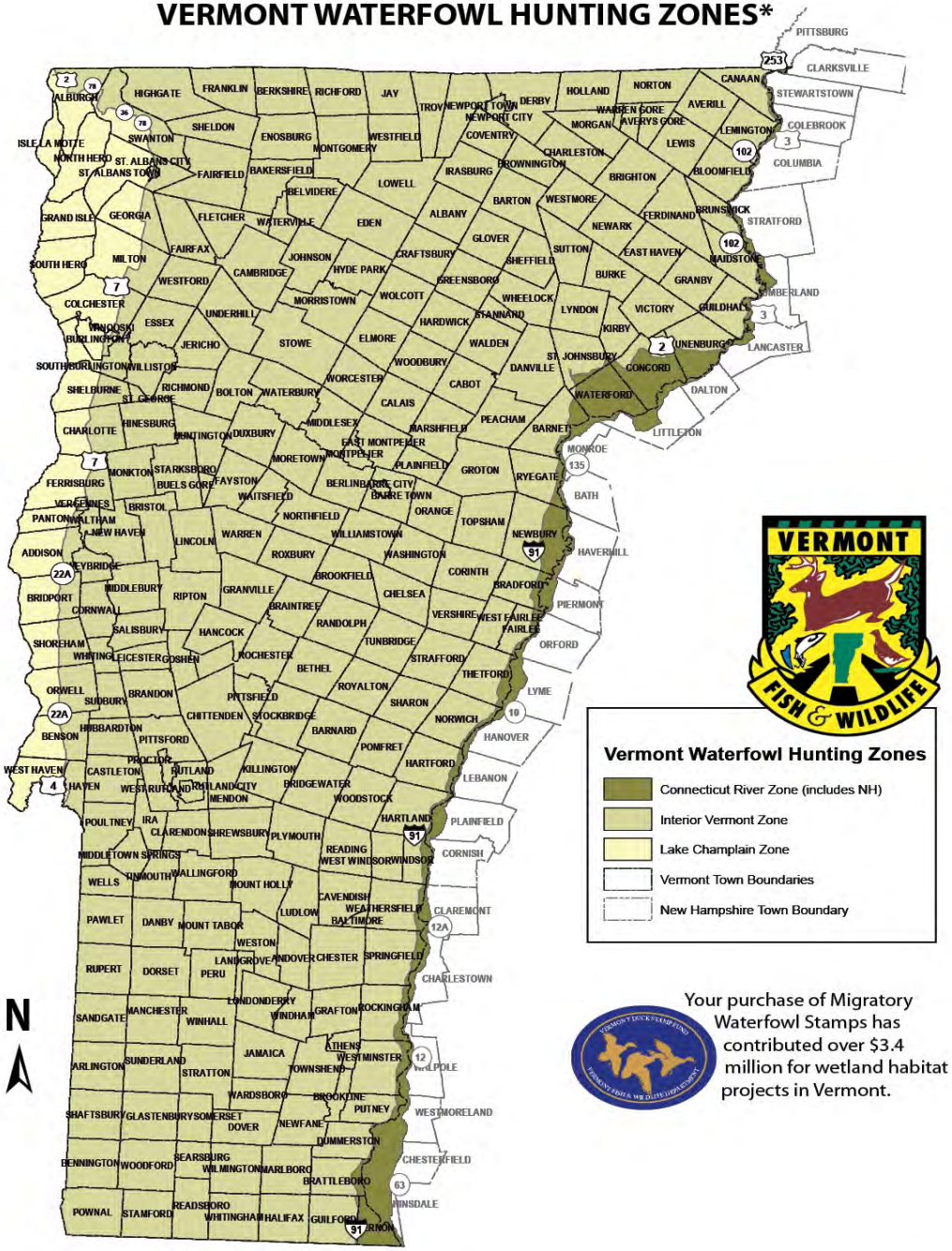
Mud Creek Controlled Hunt Area

- **Tuesday, Thursday & Saturday**
- **First two hunting days by lottery and blinds will be assigned**
- **Self registration after first two days**

Dead Creek Goose Management Area

- **Tuesdays and Thursdays (except Friday, Oct. 16)**
- **5 Hunting Zones**
- **Hunters supply their own blinds**
- **All hunting is self registration beginning 1.5 hours prior to shooting**
- **Staff will be present the first two days of hunting**
- **September hunting may be an option for youth and first time hunters**

VERMONT WATERFOWL HUNTING ZONES*



Your purchase of Migratory Waterfowl Stamps has contributed over $3.4 million for wetland habitat projects in Vermont.

Guidelines for Duck Zone and Split Seasons

- Rules apply only for the regular duck season.

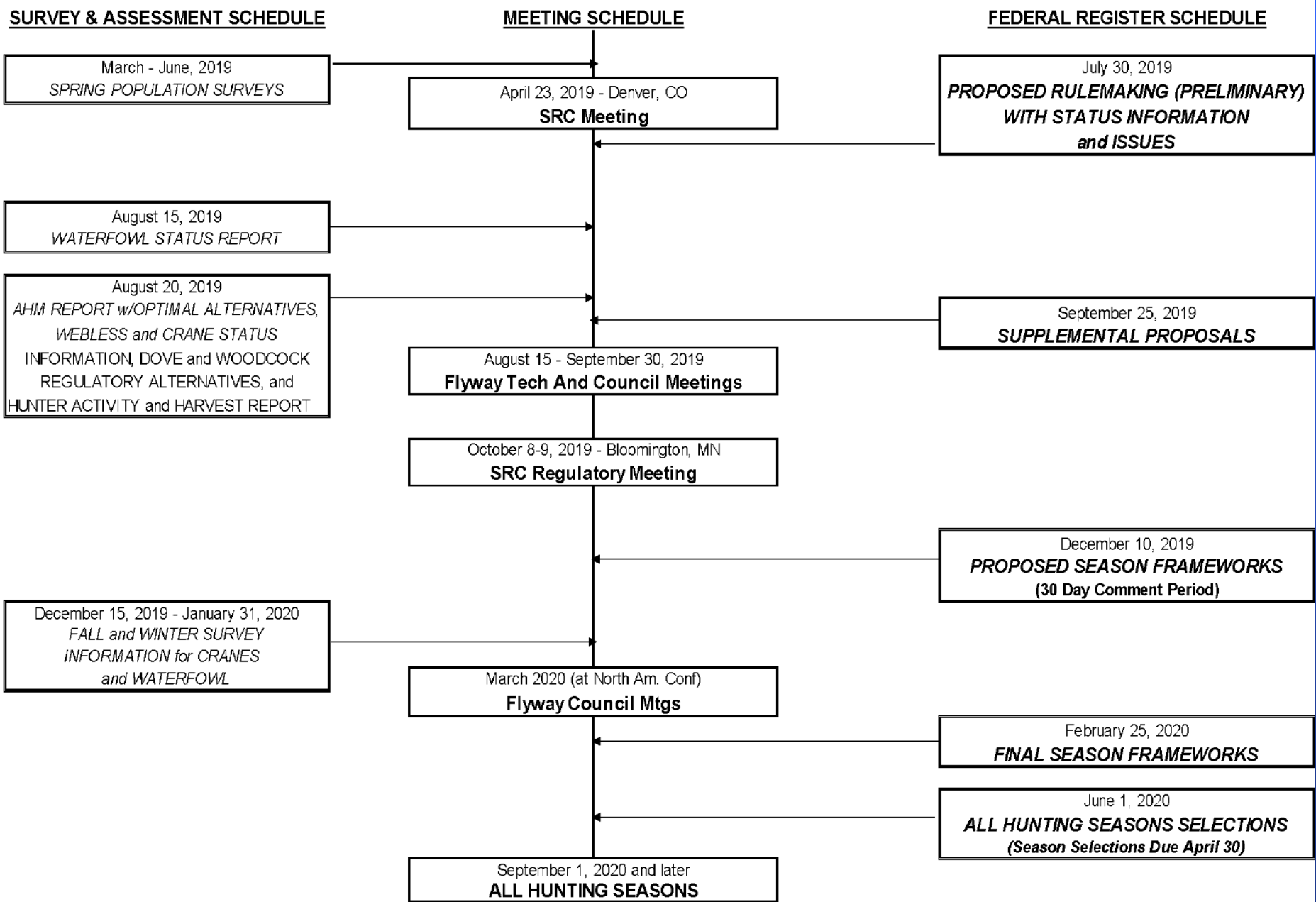
- Once a zone and split option is selected during an open season, it must remain in place for the following 5 years.

- If changes are made during the rules open season, the zone and split-season configuration must conform to one of the following options:

(1) No more than four zones with no splits,
(2) Split seasons (no more than 3 segments) with no zones, or
(3) No more than three zones with the option for 2-way (2-segment) split seasons in one, two, or all zones.

2020 Hunting Seasons and Bag Limits Recommendations

SCHEDULE OF BIOLOGICAL INFORMATION AVAILABILITY, REGULATIONS MEETINGS AND FEDERAL REGISTER PUBLICATIONS FOR THE 2020-21 SEASONS



September
Canada Goose Hunting Seasons
Recommendation

Season Dates:

Lake Champlain, Interior Vermont and Connecticut River Zones

Sept. 1 - 25

Daily Bag Limit:

8 geese/day Lake Champlain and Interior Zones

5 geese/day Connecticut River Zone

Youth Waterfowl Hunting Days Recommendation

Season Dates:

Lake Champlain, Interior Vermont, and Connecticut River Zones

Sept. 26 & 27

Legal Species: Ducks, geese, mergansers, and coots.

Other Requirements:

Youth hunter must be accompanied by an unarmed, adult at least 18 years old

Adult may assist in calling, setting decoys, retrieving downed birds

Veterans and Active Military Personnel Days

- The State is allowed to select two days for Veterans (as defined in section 101 of title 38, U.S. Code) and members of the armed forces on active duty.
- The days will be separate from and in addition to the annual season length.
- May be placed 14-days before or after the federal framework or during a zone split.
- The days must not causes any species to be hunted more than 107 days of the year.
- The days may be combined with the youth days or held independently.

Woodcock Season Recommendation

Season Dates:

Oct. 1 – Nov. 14

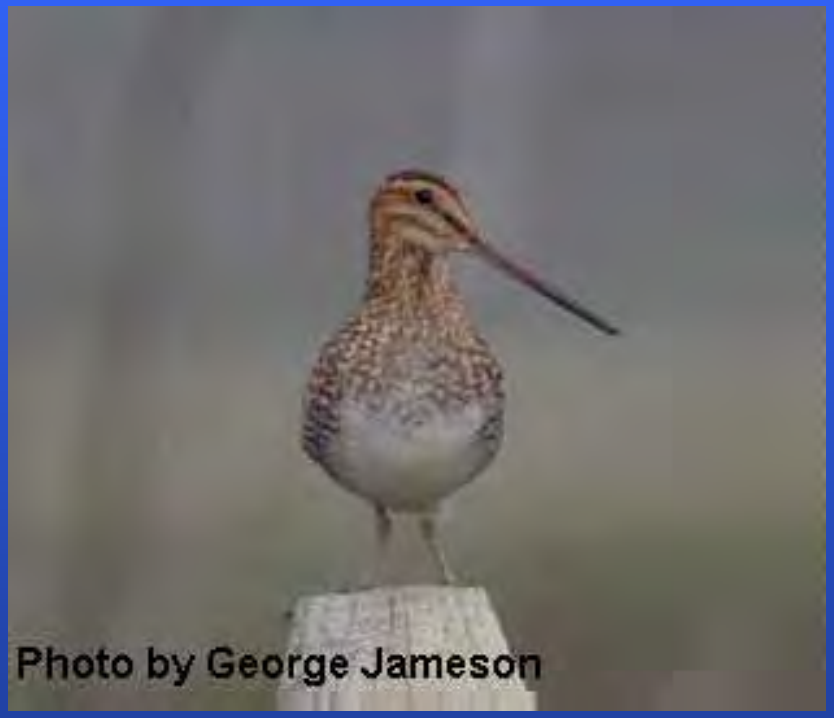
Daily Bag Limit: 3

Common Snipe Season Recommendation

Season

Season Dates: Oct. 1 – Nov. 14

Daily Bag Limit: 8



Duck Hunting Season Recommendations

Federal Frameworks

Season length: 60 days

Framework Dates: Sept. 26 – Jan. 31

Daily Bag Limit: 6

Recommendation

Season Dates:

Interior Vermont Zone

Oct. 10 – Dec. 8

Lake Champlain Zone

Oct. 10 – Nov. 1;

Nov. 21 – Dec. 27

Connecticut River Zone

Oct. ? – Nov. ?

Nov. ?? – Dec. ??

Bag Limit: 6

Daily bag may include no more than, 2 Mallards (1 hens), 3 Wood Ducks, 2 Canvasback, 2 Redheads, 2/20 & 1/40 Scaup, 1 Pintail, 2 Black Duck, 2 Hooded Mergansers,4 Scoters, 4 Eiders, 4 Long-tailed duck, and no Harlequin.

Merganser Hunting Season Recommendations

Federal Frameworks

Season length: 60 days

Daily Bag Limit: 5*

* 6 if included in the regular duck bag limit

Recommendation

Season Dates:

Interior Vermont Zone

Oct. 10 – Dec. 8

Lake Champlain Zone

Oct. 10 – Nov. 1

Nov. 21 – Dec. 27

Connecticut River Zone

Oct. ? – Nov. ?

Nov. ?? – Dec. ??

Bag Limit: 5

Daily bag may include no more than, 2 Hooded Mergansers

AP Canada Goose Hunting Season

Federal Framework

Season Length: 30 days

Outside Dates: Oct. 10 – Feb. 5 (LCZ, IVZ Oct. 10)

Bag Limit: 2 per day

Recommendation

Interior Vermont and Lake Champlain Zones

Season Dates:
Oct. 10 – Nov. 8

Bag Limit: 2 per day

Greater Snow Goose Hunting Season

Federal Framework

Season Length: 107 days

Framework Dates: Oct. 1 – March 10

Daily Bag Limit: 25

Proposed Season

Season Dates:
Oct. 1 -- Dec. 31, 2020

Feb. 24 – Mar. 10, 2021

Mar. 11 – Apr. 23, 2021

Daily Bag Limit: 15-25
Possession limit: No limit

Atlantic Brant Hunting Season Recommendation

Federal Framework

Season Length: 50 days

Daily Bag Limit: 2

Recommendation

Lake Champlain and Interior Vermont Zones

Oct. 10 – Nov. 28

CT River Zone

Oct. ? – Nov. ? & Nov. ?? – Dec.??

Daily Bag Limit: 2

Jim McKnight Photo

Falconry Season

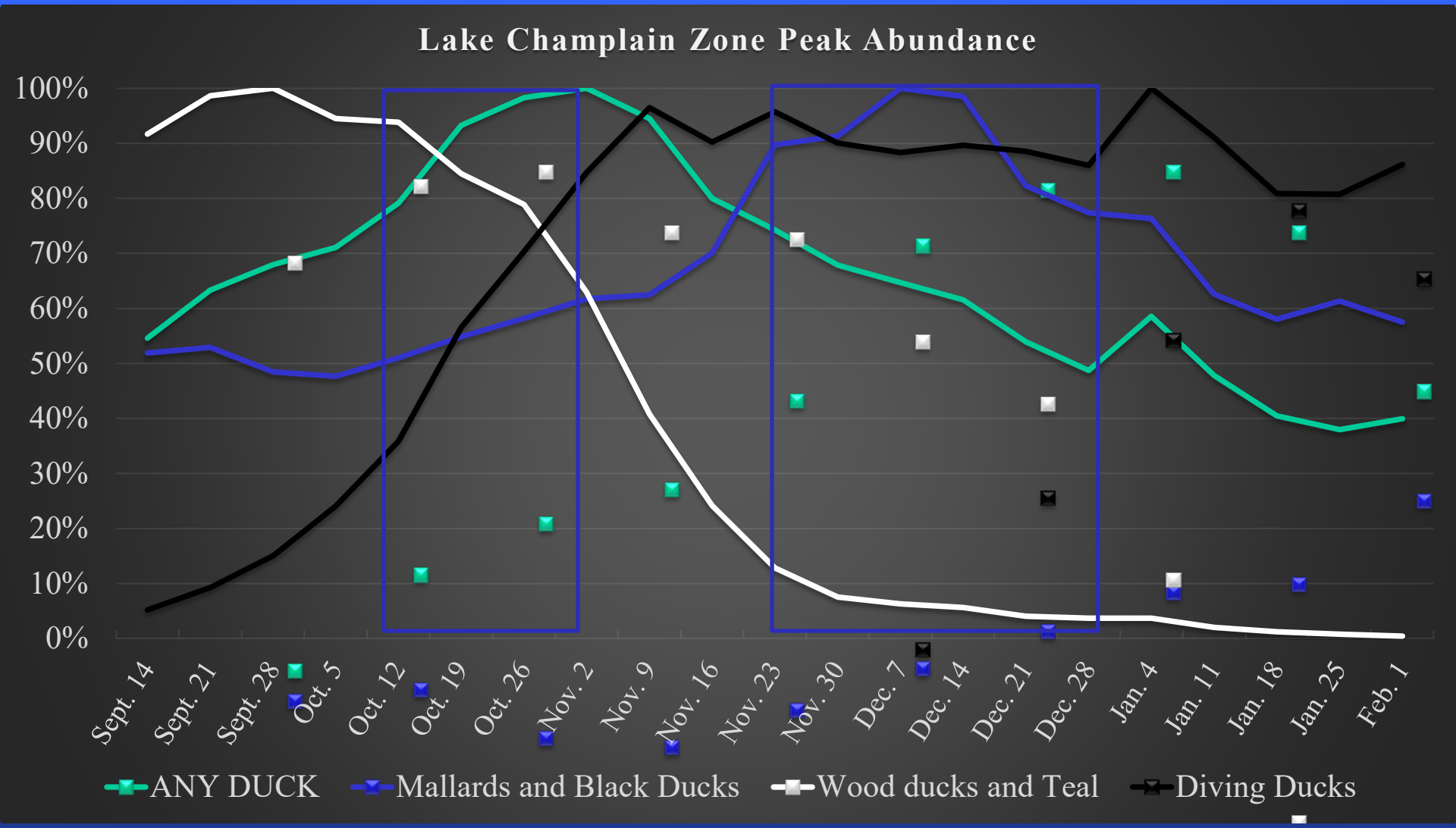
Recommendation

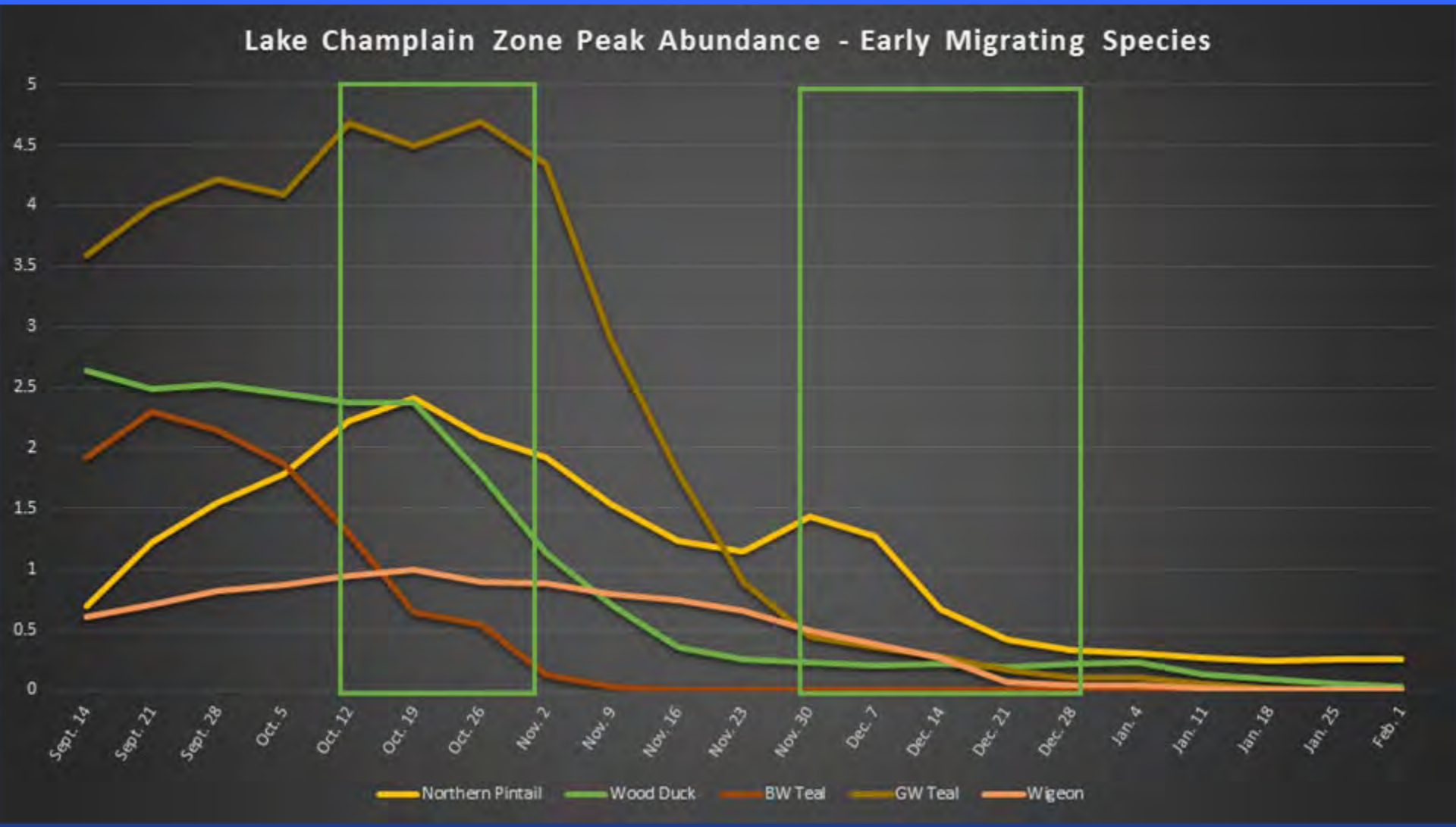
Season Dates: Coincides with established seasons for each migratory bird species.

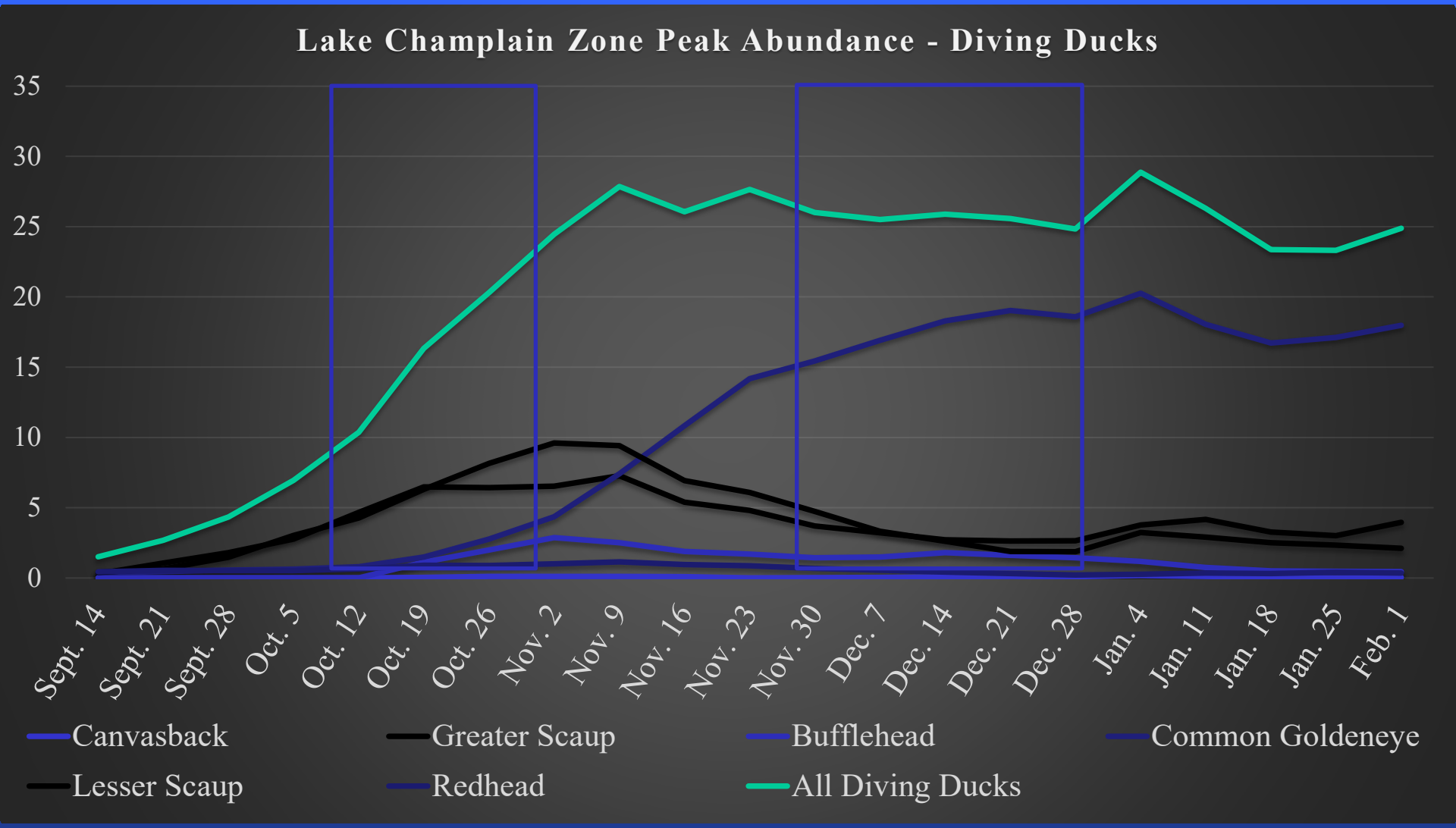
Legal Species: All legal migratory game bird species which have a current open season in Vermont (woodcock, snipe, ducks, geese, mergansers, and coots)

Shooting Hours: Same as established open seasons for each migratory game bird species.

Bag Limit: Three (3) migratory game birds; singly or in an aggregate of species, but not to exceed established restrictions which currently exist.


Lake Champlain Zone Peak Abundance
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Sept. 14
Sept. 21
Sept. 28
Oct. 5
Oct. 12
Oct. 19
Oct. 26
Nov. 2
Nov. 9
Nov. 16
Nov. 23
Nov. 30
Dec. 7
Dec. 14
Dec. 21
Dec. 28
Jan. 4
Jan. 11
Jan. 18
Jan. 25
Feb. 1
ANY DUCK
Mallards and Black Ducks
Wood ducks and Teal
Diving Ducks


Lake Champlain Zone Peak Abundance - Early Migrating Species
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Sept. 14
Sept. 21
Sept. 28
Oct. 5
Oct. 12
Oct. 19
Oct. 26
Nov. 2
Nov. 9
Nov. 16
Nov. 23
Nov. 30
Dec. 7
Dec. 14
Dec. 21
Dec. 28
Jan. 4
Jan. 11
Jan. 18
Jan. 25
Feb. 1
Northern Pintail
Wood Duck
BW Teal
GW Teal
Wigeon


Lake Champlain Zone Peak Abundance - Diving Ducks
35
30
25
20
15
10
5
0
Sept. 14
Sept. 21
Sept. 28
Oct. 5
Oct. 12
Oct. 19
Oct. 26
Nov. 2
Nov. 9
Nov. 16
Nov. 23
Nov. 30
Dec. 7
Dec. 14
Dec. 21
Dec. 28
Jan. 4
Jan. 11
Jan. 18
Jan. 25
Feb. 1
Canvasback
Greater Scaup
Bufflehead
Common Goldeneye
Lesser Scaup
Redhead
All Diving Ducks

Vermont Duck Stamp Fund

Established by Legislature in 1985

First Duck Stamp in 1986

Raised $5.10 million

Spent $2.3 million on Projects

Current Balance of $ 2.982 million

Interest Balance of $529,300

Completed 99 Projects involving 12,260 acres

Long-tailed Duck
2001 VT Stamp Image

VERMONT WATERFOWL FUND
VERMONT DEPARTMENT OF FISH & WILDLIFE

EPA Wetland Funds -Lake Champlain Basin Program

Program to Expand and Accelerate Wetland Conservation and Restoration in Vermont's Lake Champlain Basin

Tasks

- Create a focused wetland acquisition program within the VFWD to enhance wetland acquisition projects in the Lake Champlain Basin.
- Implement contractual agreements that include but not limited to appraisals, surveys, title work and administrative support.
- Coordinate with key wetland conservation partners to strategically identify and acquire wetland conservation projects.
- Implement wetland restoration projects on VFWD-owned land through the development of a wetland restoration program.

Outputs

- Completion of 3-5 wetland acquisition projects, with a minimum of 40% of the land restored to natural conditions.
- Hydrologically restore 100 acres through the implementation of a restoration program.

Outcomes

Anticipated outcomes of the project include:

- Improving functions and values of existing, degraded wetland acres, such as surface water nutrient retention, stormwater retention, filtration, and gradual discharge, groundwater recharge, reduced soil erosion, floodwater attenuation, and habitat for diverse communities of wildlife, fish, and plants.
- Increasing the myriad of benefits these projects have on the landscape including enhancement of wildlife habitat, public access, flood protection, and wildlife-based recreation.

Timeframe

Year one: October 1, 2019 – September 30, 2020 $1.75 Million
Year two: October 1, 2020 – September 30, 2021 $2.00 Million

Attachment 5

2020 MIGRATORY GAME BIRD SEASON PREVIEW

Summary of Issues for Consideration:

The majority of Vermont's waterfowl season is driven by the federal framework for the Atlantic Flyway. Below are a few issues that must be decided for the 2020 hunting season. The Department would like the Board to consider the following:

- Hold the liberal season allowed under the federal framework related to season lengths and daily bag limits. The Board has the option to be more conservative.
- For the 2020 Duck Season.
    - Open the 2020 duck season on a Saturday, October 10. The change to opening every other year on a Saturday and Wednesday is consistent with hunter preferences of moving to alternating year approach for openings.
    - Any splits within seasons to create segments should be considered for the Lake Champlain and Interior Vermont zones.
    - Interior Zone: October 10 and run through December 8.
    - Lake Champlain Zone: October 10 - Nov. 1 and Nov. 21 - Dec. 27.

- For the 2020 Goose Seasons
    - Open the resident Canada goose season September 1st and continue through September 25.
    - Open the migratory Canada goose season on October 10.
    - Opening the Snow goose season on October 1.
- Hold youth hunting weekend – September 26-27.
- Hold woodcock/snipe season: October 1- November 14.
- Board has option to have a two-day active duty/veterans hunt. Currently, the Department does not propose doing this.

Background

In 2016 the Department began fully reviewing the migratory game bird season options with the Board without being under a very short time constraint. As part of the United States Fish and Wildlife Service (USFWS) of the Department of Interior's retrospective regulatory review, they developed a schedule for migratory game bird hunting regulations that was more efficient and provided season dates much earlier than was possible under the old process. There are no longer seasons referred to as "early" (September Canada Goose, Woodcock and Snipe seasons) and "late" (migrant Canada Goose, Snow Goose, Brant and Duck seasons) season frameworks and selections to work through. With the changes that occurred within the federal framework setting process, we now combine late and early season selections into a single process. Under the current process, USFWS will develop proposed hunting season frameworks for a given year in the fall of the prior year and finalize those frameworks a few months later. We also have a final selection deadline of April 30th instead of August, allowing us more time to announce seasons to

hunters and to have the syllabus with regulations easily printed and distributed prior to the start of any migratory game bird hunting season.

Migratory game bird managers currently base the migratory bird population estimates and recommendations on predictions derived from long-term biological information and harvest strategies instead of current year surveys.

In 2018 the Atlantic Flyway region implemented a Multi-Stock Adaptive Harvest Management Strategy based on a suite of four duck species that represent the population dynamics and various habitat types used by waterfowl throughout the flyway, in lieu of relying solely upon the status of eastern mallards. The four species include green-winged teal, common goldeneye, ring-necked duck, and wood ducks. These species compose more than 40% of the harvest within the flyway and supply a sufficient time series of estimates of annual abundance, harvest rates and harvest to monitor population trends. This was necessary because one species, the mallard, was driving all the seasons, which had an effect on multiple species. Within this system, species of concern such as mallard and black duck are also evaluated separately with an assessment under the adaptive harvest management strategies developed for the target species. The objectives are to sustain duck populations for all and to allow harvest where appropriate. The strategy will allow for liberal seasons on species above long-term goals, while maintaining restrictions on populations that we wish to allow growth in.

Beginning in 2015 the Board was given authority by Legislature to set the migratory bird hunting regulations by procedure instead of rule. Part of Title 10 § 4082 reads:

(b)(1) Except as provided for under subdivision (2) of this subsection, the Board annually may adopt rules relating to the management of migratory game birds and shall follow the procedures for rulemaking contained in 3 V.S.A. chapter 25. For each such rule, the Board shall conduct a hearing but, when necessary, may schedule the hearing for a day before the terms of the rule are expected to be determined.

(2) Beginning with the 2015 hunting season, the Board may set by procedure the daily bag and possession limits of migratory game birds that may be harvested in each Waterfowl Hunting Zone annually without following the procedures for rulemaking contained in 3 V.S.A. chapter 25. The annual daily bag and possession limits of migratory game birds shall be consistent with federal requirements. Prior to setting the migratory game bird daily bag and possession limits, the Board shall provide a period of not less than 30 days of public notice and shall conduct at least two public informational hearings. The final migratory game bird daily bag and possession limits shall be enforceable by the Department under its enforcement authority in part 4 of this title.

Tables 1 and 2 provide background information on past migratory game bird hunting seasons. Table 1 shows the hunting seasons approved during 2019 and is provided as a reference while considering bag limits and the seasons frameworks for 2020. Appendix B provides the history, 1942-2019, of Vermont's waterfowl seasons broken down into season type, season length, dates and bag limits. This may help one's understanding of how Vermont arrived at our current zones and season types.

Table 2 provides a historic look at waterfowl hunter participation and estimated harvest levels, Vermont waterfowl stamps sold, and the number of individuals that registered with the Harvest Information Program (HIP). HIP is a method used to generate more reliable estimates of hunting activity and number of all migratory birds harvested. The HIP program numbers include youth and adult waterfowl hunters, woodcock and snipe hunters. Only adult waterfowl hunters, 16 years of age and older, are required to purchase the state waterfowl stamp. The Department will populate the remaining portions of the table this summer after the USFWS examines wings collected randomly from hunters and harvest estimates are completed.
Vermont currently has three waterfowl zones (Figure 1):

- Lake Champlain Zone that we share with New York. Vermont sets the dates for this zone.
- Interior Zone that is entirely within Vermont.
- Connecticut River Zone that we share with New Hampshire. New Hampshire sets the dates for this zone as an extension of their inland zone.

Under Vermont's current three zones, Vermont can split any zone once to create two hunting segments. Vermont currently has sixty days to divide between the two segments in an effort to accommodate the diverse desires of the variety of Vermont waterfowl hunters. The zones were also set up to take into consideration the differences in the physiographic regions of the state and the climatic differences each has. Vermont's next opportunity to adjust zone boundaries and splits is in 2020, by May 1, 2020. Any changes will take effect in the 2021-2022 season and be in effect for 5-years.

For your information, included below is the segment of the federal register that pertains to establishing zones and splits. The information below only applies to the regular duck season.

Federal Register */Vol. 84, No. 199 /Tuesday, October 15, 2019 / Proposed Rules* ***55126-27***
Guidelines for Duck Zones and Split Seasons
The following zone and split-season guidelines apply only for the regular duck season:
(1) A zone is a geographic area or portion of a State, with a contiguous boundary, for which independent dates may be selected for the regular duck season.
(2) Consideration of changes for management-unit boundaries is not subject to the guidelines and provisions governing the use of zones and split seasons for ducks.
(3) Only minor (less than a county in size) boundary changes will be allowed for any grandfathered arrangement and changes are limited to the open season.
(4) Once a zone and split option is selected during an open season, it must remain in place for the following 5 years.
Any State may continue the configuration used in the previous 5-year period. If changes are made, the zone and split-season configuration must conform to one of the following options:
(1) No more than four zones with no splits,
(2) Split seasons (no more than 3 segments) with no zones, or
(3) No more than three zones with the option for 2-way (2-segment) split seasons in one, two, or all zones.
Grandfathered Zone and Split Arrangements
When we first implemented the zone and split guidelines in 1991, several States had completed experiments with zone and split arrangements different from our original options. We offered

those States a one-time opportunity to continue (''grandfather'') those arrangements, with the stipulation that only minor changes could be made to zone boundaries. If any of those States now wish to change their zone and split arrangement:
(1) The new arrangement must conform to one of the 3 options identified above; and
(2) The State cannot go back to the grandfathered arrangement that it previously had in place.
Management Units
We will continue to utilize the specific limitations previously established regarding the use of zones and split seasons in special management units, including the High Plains Mallard Management Unit. We note that the original justification and objectives established for the High Plains Mallard Management Unit provided for additional days of hunting opportunity at the end of the regular duck season. In order to maintain the integrity of the management unit, current guidelines prohibit simultaneous zoning and/or 3-way split seasons within a management unit and the remainder of the State. Removal of this limitation would allow additional proliferation of zone and split configurations and compromise the original objectives of the management unit.

Throughout the development of the season recommendations, the Department relied on findings from the Fall 2015 Waterfowl Hunter Survey Summary. The final summary was delivered to the Department in June of 2017. Department staff weighed the survey results heavily while considering recommendations. As stated in the summary, **"survey responses came from waterfowl hunters with a broad background that varied greatly by age, hunting experience, educational and economic background. Therefore, our results and summaries represent the variation in the entire waterfowl hunting user group, not just those who are vocal at public meetings"**. We used the results to:

- Decide when to place the majority of duck hunting days by month. Most hunters prefer October to have the most waterfowl hunting opportunity.
- Determine what day of the week to open the season. Regardless of hunting zone, few (< 12%) hunters do most of their hunting on weekdays. Hunters either hunt weekends or split their time equally between weekdays and weekend hunting.
- Determine when to have the opening day of duck season, Saturday or Wednesday.
- Determine what week to recommend opening the season. Vermont hunters chose the second week in October as their preferred opening week for ducks and geese.
- Decide which zones to propose for splits and in which seasons. "Goose hunters in the Lake Champlain zone, regardless of residency, chose straight season more than split seasons. For the Interior Vermont zone, Vermont residents chose straight seasons most commonly for duck and goose seasons".
- Decide on the length of the Lake Champlain Zone split. Vermont hunters preferred a two-week season split length if one is to be used.

<u>2020 Migratory Game Bird Season</u>

Tables 3 and 4 provide the USFWS season frameworks for the 2020 duck and goose seasons, respectively, the latter including other migratory game birds as well. Potential changes from 2019 hunting seasons shown on Table 3 includes a hybrid scaup season where we are allowed two birds per day for 20 days and one bird per day for the remaining 40 days. The brant season and daily bag limit will be dependent on the number of birds found during the mid-winter

survey. Tables 5 and 6 provide the Department's 2020 hunting season proposal as a starting point for the Board to consider.

2020 Duck Season: The 2020 duck season options allow the opportunity to utilize a 60-day season within the dates of September 26, 2020 to January 31, 2021. The allowed daily bag limit is six birds, with species specific limits listed on Table 3. Vermont may allow a possession limit of 18 ducks total. The Board may be more restrictive on the length of the season and bag limits if desired, but the Board cannot set regulations more liberal. The Department recommends taking the liberal hunting option allowed under the federal framework.

The Board has also traditionally held the youth waterfowl weekend the last weekend in September. The Department has withheld any fishing tournament permits for that weekend to reduce conflicts between anglers and youth waterfowlers. The youth weekend must be within 14 days of either end of the federal framework dates.

With information from the 2015 Waterfowl Hunters Survey, the Department would like to recommend changing the opening day schedule to Wednesday and Saturday on an every other year basis. The survey showed Lake Champlain zone hunters preferred a Wednesday opening day 45%, Saturday 33%, and no preference 22%. The Interior zone hunters preferred opening day to be Wednesday 44%, Saturday 26%, and no preference 30%. An increase in Saturday opening days may allow additional school aged hunters to participate prior to the early season burn out period. One of the Department's goals is to increase the participation of youth hunters and younger adults that may not have leave time built up to allow for mid-week participation.

2020 Goose, Brant, Mergansers, Coots. Snipe, and Woodcock Seasons: Table 4 lays out the season options for geese, brant, mergansers, coots, snipe and woodcock. The available season lengths, outside dates for the seasons, daily bag limits and possession limits are broken down by species. The options for brant is dependent on the mid-winter survey numbers that were flown the first week in January.

We often receive requests to open the migratory Canada goose season in early October. We are not allowed to open the season on migratory Canada geese until October 10th to reduce hunting pressure on the Atlantic population that is flying through the state. Prior to 2010 we were unable to open the season until October 20th. This change came about because of efforts pursued by Vermont and some other New England states. The number of breeding pairs of the Atlantic Population of Canada geese increased slightly over last year from 112,200 to 119,500, while the total number of birds has decreased from 1.35 million to 622,000 from 2003 to 2019. This was a similar population size to 2018. The overall population has seen an annual decrease of 4% per year, primarily due to low production caused by weather conditions during the nesting and hatching periods.

2020 Youth Waterfowl Hunting Days: The Department and Board may select two days per duck-hunting zone, designated as ''Youth Waterfowl Hunting Days,'' in addition to the regular duck seasons. The days must be held outside any regular duck season on a weekend, holiday, or other non-school days when youth hunters would have the maximum opportunity to participate. The days may be held up to 14 days before or after any regular duck-season frameworks or within

any split of a regular duck season, or within any other open season on migratory birds. The daily bag limits may include ducks, geese, mergansers and coots, and would be the same as those allowed in the regular season. Flyway species and area restrictions would remain in effect.

The age of youth hunter eligibility changed in 2016 at the federal level, which allowed the Board to consider changing the youth waterfowl hunter age. States were allowed to use their established definition of age for youth hunters. However, youth hunters may not be 18 years of age or older. In addition, an adult at least 18 years of age must accompany the youth hunter into the field. This adult may not duck hunt but may participate in other seasons that are open on the special youth day. Youth hunters 16 years of age and older must possess a Federal Migratory Bird Hunting and Conservation Stamp (also known as Federal Duck Stamp). In 2016 Vermont changed the youth waterfowl hunters age to 17 and younger. Vermont also requires all hunters 16 years of age and older to have a state duck stamp. Historically, Vermont has been more restrictive than the federal law, by not allowing adults to hunt other species on youth hunting weekends while in the presence of a youth hunter who is hunting under the youth weekend regulations (ex. resident Canada geese). In some years, the end of the resident Canada goose season overlaps the youth waterfowl hunting weekend. This will not occur in 2020 if we choose September 26th and 27th as the youth days.

Active Duty Military Personnel and Veteran Days: The Department was authorized in April of 2019 to allow two days for veterans (as defined in section 101 of title 38, United States Code) and members of the armed forces on active duty, including members of the National Guard and Reserves on active duty (other than for training), to hunt eligible waterfowl species. These days are treated as separate and in addition to the annual hunting season lengths. Chosen days cannot be more than 14 days before or after the federal framework for duck season. We are not allowed to hunt any species for more than 107 days total, which will only affect the snow goose season. The days may be combined with the youth days or maintained as independent. States are not allowed to have more than 4 additional days combined added to its regular hunting seasons. Hunters on these days are required to have a state license, federal and state waterfowl stamp and HIP number. As stated earlier, the Department does not currently recommend this additional hunting season.

Special Falconry Regulations: Falconry is a permitted means of taking migratory game birds in any State meeting Federal falconry standards in 50 CFR 21.29. These States may select an extended season for taking migratory game birds in accordance with the following:
Extended Seasons: For all hunting methods combined, the combined length of the extended season, regular season, and any special or experimental seasons must not exceed 107 days for any species or group of species in a geographical area. Each extended season may be divided into a maximum of 3 segments. Framework Dates: Seasons must fall between September 1 and March 10.

Daily Bag Limits: Falconry daily bag limits for all permitted migratory game birds must not exceed 3 birds, singly or in the aggregate, during extended falconry seasons, any special or experimental seasons, and regular hunting seasons in all States, including those that do not select an extended falconry season.

Regular Seasons: General hunting regulations, including seasons and hunting hours, apply to falconry in each State listed in 50 CFR 21.29. Regular season bag limits do not apply to falconry. The falconry bag limit is not in addition to gun limits.

Vermont has traditionally run the falconry season during any open migratory game bird season. Last year falconers had the opportunity to begin on September 1st with the resident Canada goose season and ended their season on December 31st. A three-bird daily bag limit was in effect.

Public Input and Outreach

The Department, in conjunction with the Board, is currently planning to hold two public hearings in 2020. Meetings are tentatively planned for the evenings of March 10 and 12, beginning at 6:30pm, in Whitehall, New York and Winooski, Vermont, respectively. At the Winooski hearing, it will be streamed live on Facebook. During the hearings, the Department will review the season options, recommendations, current biological information, answer questions, and record public comments for the Board. The Department also intends to break the meetings into small groups and have staff and board members act as facilitators for the breakout groups. The Department will also supply comment cards that can be dropped off at the end of the meeting for those that do not wish to make public comments verbally. The public will also be encouraged to submit comments directly to any Board member or email them to the Department. Hearing times and places will be advertised on the Department website and through news releases.

After the Board approves final season dates and bag limits (scheduled for April 1, 2020 Board meeting), the Department will submit selections to the U.S. Fish and Wildlife Service by April 30th and the information will be sent to a printer for production of the 2020 syllabus of state and federal hunting regulations. The early decision deadlines will allow the Department to have the syllabus available to the public in print version by August 1st, a full month prior to any migratory bird hunting season. Approved seasons will be placed on the Department's website within days after the Board's vote.

Hosting the Summer 2020 Atlantic Flyway Council and Technical Section

The Vermont Fish and Wildlife Department is hosting the Summer meeting of the Atlantic Flyway Council and Technical Section at the Double Tree by Hilton located in Burlington, from September 20-25, 2020. The Council and Technical Section consists of Biologists and Agency Directors from the 17 eastern States, Federal government, Puerto Rico, Virgin Islands, and 6 Canadian Provinces. The Council is responsible for the cooperative management of migratory wildlife species within the Atlantic Flyway of North America. We anticipate between 75-100 plus participants over the week. The Department will keep you updated as the agenda is developed and would like to invite you to attend selected portions or all the general sessions and committee meetings.

Table 1. 2019 Migratory Bird Hunting Seasons

2019-2020 VERMONT MIGRATORY GAME BIRD HUNTING SEASONS

(regulations in effect September 1, 2019 through April 24, 2020)

Species	Lake Champlain Zone	Interior Vermont Zone	Connecticut River Zone
Ducks, Coots and Mergansers	**Oct. 10 – Nov. 1** **Nov. 23 – Dec. 29**	**Oct. 10 – Dec. 8**	**Oct. 2 – Nov. 3** **Nov. 20 – Dec. 16**
Canada Geese	**Sept. 1 – Sept. 25** **Oct. 10 – Nov. 8**	**Sept. 1 – Sept. 25** **Oct. 10 – Nov. 8**	**Sept. 1 – Sept. 25** **Oct. 2 – Nov. 3** **Nov. 20 – Dec. 16**
Snow Geese **(includes blue geese)**	**Oct. 1 - Dec. 31, 2019** **Feb. 27 - Mar. 10, 2020** **Mar.11 – Apr 24, 2020**	**Oct. 1 - Dec. 31, 2019** **Feb. 27 - Mar. 10, 2020** **Mar.11 – Apr 24, 2020**	**Oct. 2 – Dec. 16** **Mar. 11-Apr 24, 2020 applies to land , not CT River waters**
Brant	**Oct. 10 – Nov. 8**	**Oct. 10 – Nov. 8**	**Oct. 2 – Oct. 31**
Woodcock	**Statewide**	**Oct. 1 – Nov. 14**	
Common Snipe	**Statewide**	**Oct. 1 – Nov. 14**	

Youth Waterfowl Hunting Weekend – September 28 & 29

BAG LIMITS

The daily bag limit is the maximum number of birds of each species that any person may take (or possess in the field) during any one day. The possession limit is three times the daily bag limit for all waterfowl species except snow geese.

Species	Daily Limit	Possession Limit
Ducks *	6	18
Mergansers **	5	15
Coot	15	45
Canada Geese		
September season		
Lake Champlain Zone	8	24
Interior Vermont Zone	8	24
Connecticut River Zone	5	15
Oct. - Dec. season		
Lake Champlain Zone	2	6
Interior Vermont Zone	2	6
Connecticut River Zone	2	6
Snow Geese	25	No limit
Mar. 11 – Apr. 24, 2020	15	No limit
Brant	2	6
Woodcock	3	9
Common Snipe	8	24

* The daily limit of 6 ducks may include no harlequin, and no more than 2 mallards (1 of which may be hens), 2 black duck, 3 wood ducks, 1 pintail, 2 canvasback, 2 redheads, 2 scaup, 4 scoters, 4 eiders, and 4 long-tailed duck.

** The daily limit of 5 mergansers is in addition to the regular duck bag, and together may include no more than 2 hooded mergansers.

Table 2. Vermont Waterfowl Hunting and Harvest Data Comparisons (Lake Champlain and Interior Vermont Zones Combined)

	Federal Duck Stamp Sales	Vermont Duck Stamp Sales	Vermont HIP Registration	No. of Active Adult Duck Hunters	Average Seasonal Duck Bagged Per Hunter	Total Season Estimated Duck Harvest	Total Season Estimated Canada Goose Harvest	Total Season Estimated Snow Goose Harvest
1995	4,695	6,715		3,955	6.97	31,700	0*	1,800
1996	4,812	7,023		3,807	9.35	40,000	0*	3,600
1997	3,791	6,644		2,981	7.85	21,600	0*	1,300
1998	4,345	6,725		3,132	5.78	24,000	2,700	3,300
1999	4,542	6,320		1,600	11.9	25,000	4,100	1,700
2000	4,741	5,418		1,700	10.4	17,700	3,600	4,200
2001	4,824	5,685		1,700	10.4	17,600	4,300	2,200
2002	5,201	5,722		2,600	9.6	26,800	7,100	1,300
2003	5,242	6,012		1,300	12.6	16,300	3,600	3,400
2004	4,723	6,242		2,600	9.3	24,300	7,100	1,700
2005	4,956	5,682		2,400	10.6	25,400	9,300	400
2006	3,391	5,581		2,000	9.9	19,600	7,800	100
2007	3,193	6,137		2,300	9.2	16,700	6,300	500
2008	3,391	5,746	⇧$5-$7.50	2,900	11.9	34,800	12,300	2,100
2009	not available	6,051		2,400	10.7	25,500	11,500	90
2010	not available	6,065 Last Stamp	5,404***	2,700	8.5	22,900	9,600	0
2011	not available	4,872 First Tag	4,949***	2,600	9.0	23,000	8,300	134
2012	not available	5,882	6,283***	2,100	10.0	20,500	8,600	34
2013	not available	6,436	8,719***	4,000	8.0	31,900	9,600	0
2014	not available	6,635	9,913***	2,600	6.8	17,800	12,300	46
2015	not available	6,244	11,122***	2,600	5.8	14,700	6,733	0
2016	not available	6,016	18,598***	3,400	5.2	17,600	8,800	0
2017	not available	5,954	7,006***	2,500	7.9	19,900	15,900	0
2018	not available	5,725	10,541***	2,100	7.8	16,200	7,400	0
2019	not available	5,620	10,359***	To date not available	To date not available	To date not available	To date not available	To date not available

* Harvest restrictions in effect

** Figures Preliminary

*** Includes youth hunters and woodcock/snipe hunters

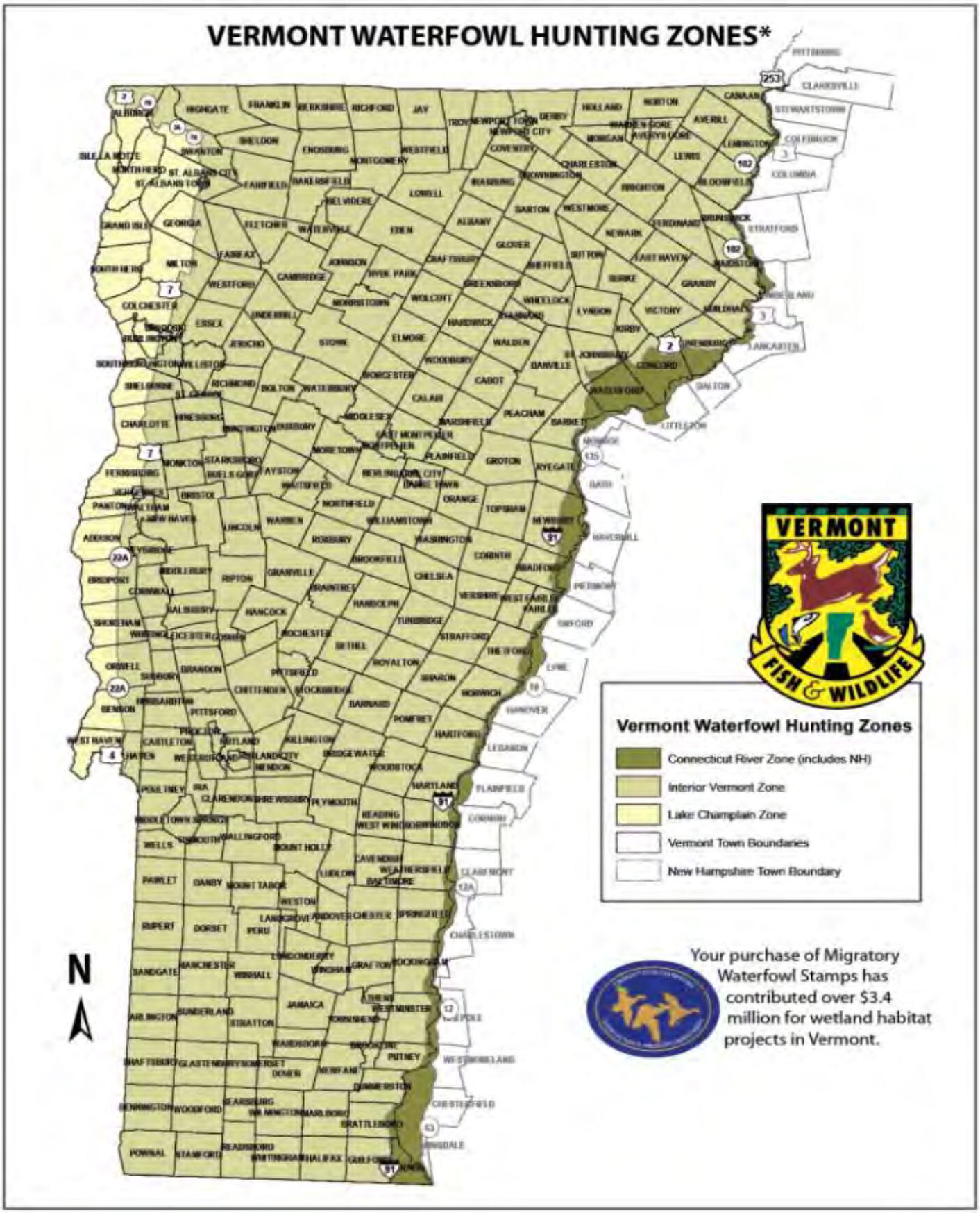


Figure 1. Vermont waterfowl hunting zones

Table 3. USFWS Framework for 2020 Duck Seasons*

LENGTH	OUTSIDE DATES	DAILY BAG	POSSESSION LIMIT**
60 Days	Sept. 26 – Jan. 31	6	18

SPECIES RESTRICTIONS -	Daily Bag
MALLARD	2 (only 1 hen)
WOOD DUCK	3
BLACK DUCK	2
PINTAIL	1
REDHEAD	2
SCAUP	2/day for 20-days 1/day for 40-days
SCOTER	4
EIDERS	4
LONG-TAILED DUCK	4
CANVASBACK	2
HARLEQUIN	CLOSED
MOTTLED DUCK	1
FULVOUS WHISTLING DUCK	1
HOODED MERGANSER	2

* Apply to Lake Champlain, Interior Vermont, and Connecticut River Zones.

** Possession limit is equal to three times the daily bag limit for these species.

SHOOTING HOURS - ½ HOUR BEFORE SUNRISE TO SUNSET (all days – all species)

Table 4. USFWS Framework for 2020 Geese, Brant, Merganser, Coot, Snipe, and Woodcock Seasons

SPECIES	SEASON LENGTH	OUTSIDE DATES	DAILY POSSESSION BAG	LIMIT**
Canada Geese				
Resident	25 days	Sept. 1 – Sept. 25	15	45
Regular	30 days	Oct. 10 – Feb. 5	2	6
Snow & Blue Geese	107 days	Oct. 1 – Mar. 10	25	NONE
Brant	30 days	Sept. 26 – Jan. 31	2	6 (dependent on Mid-Winter Survey)
Mergansers*	60 days	Sept. 26 – Jan. 27	5	15
(Hooded Mergansers)			(2)	(6)
Coots**	60 days	Sept. 26 – Jan. 27	15	45
Snipe	107 days	Sept. 1 – Jan. 31	8	24
Woodcock	45 days	Oct. 1 – Jan. 31	3	9

* Season length for mergansers equals season option chosen for ducks. Mergansers may be included as part of the daily duck bag, in which case the limit would be 6 mergansers/day. Of total merganser bag, only 2 daily and 6 in possession may be Hooded Mergansers.

** Season length for coots equals season option chosen for ducks.

SHOOTING HOURS - ½ HOUR BEFORE SUNRISE TO SUNSET (all days – all species)

Table 5.

2020-2021 WATERFOWL SEASON RECOMMENDATION

LAKE CHAMPLAIN ZONE

	SEASON TYPE	SEASON LENGTH	INCLUSIVE DATES	DAILY LIMIT	POSSESSION LIMIT
DUCKS *	Split	60 Days	Oct. 10 - Nov. 1 & Nov 21 - Dec. 27	6	18
SCAUP*	Split	20 Days	Oct. 10 – Oct. 29	2	6
	Hybrid	40 Days	Oct. 30–Nov.1/Nov.21–Dec. 27	1	3
MERGANSERS *	Split	60 Days	Oct. 10 - Nov. 1 & Nov 21 - Dec. 27	5	15
COOTS	Split	60 Days	Oct. 10 - Nov. 1 & Nov 21 - Dec. 27	15	45
GEESE					
Canada Geese	Straight	25 Days	Sept. 1 - Sept. 25	8	24
	Straight	30 Days	Oct. 10 – Nov. 8	2	6
Snow Geese **					
	Split	107 Days	Oct. 1 - Dec.31, 2020 Feb. 24 – Mar. 10, 2021	25	NONE
	Straight(CO)		Mar. 11 – Apr. 23, 2021	15	NONE
Brant	Straight	30 Days	Oct. 10 – Nov. 8	2	6

SHOOTING HOURS - All Waterfowl - All Days - ½ hour before sunrise to sunset

CO: Conservation Order
* Federal species restrictions apply.
** Includes blue geese also.

Table 6.

2020-2021 WATERFOWL SEASON RECOMMENDATION

VERMONT INTERIOR ZONE

	SEASON TYPE	SEASON LENGTH	INCLUSIVE DATES	DAILY LIMIT	POSSESSION LIMIT
DUCKS *	Straight	60 Days	Oct. 10 - Dec. 8	6	18
SCAUP*	Straight	20 Days	Oct. 10 – Oct. 29	2	6
		40 Days	Oct. 30 – Dec. 8	1	3
MERGANSERS *	Straight	60 Days	Oct. 10 - Dec. 8	5	15
COOTS	Split	60 Days	Oct. 10 - Dec. 8	15	45
GEESE					
Canada Geese	Straight	24 Days	Sept. 1 - Sept. 25	8	24
	Straight	30 Days	Oct. 10 – Nov. 8	2	6
Snow Geese **					
	Straight	107 Days	Oct. 1 - Dec.31, 2020 Feb. 24 – Mar. 10, 2021	25	NONE
	Straight(CO)		Mar. 11 – Apr. 23, 2021	15	NONE
Brant	Straight	30 Days	Oct. 10 – Nov. 8	2	6

SHOOTING HOURS - All Waterfowl - All Days - ½ hour before sunrise to sunset

CO: Conservation Order
* Federal species restrictions apply.
** Includes blue geese also.

Table 7.

2020-2021 VERMONT MIGRATORY GAME BIRD HUNTING SEASONS
(regulations in effect September 1, 2020 through April 23, 2021)

Species	Lake Champlain Zone	Interior Vermont Zone	Connecticut River Zone
Ducks, Coots and Mergansers	**Oct. 10 – Nov. 1** **Nov. 21 – Dec. 27**	**Oct. 10 – Dec. 8**	**Oct. ? – Nov. ?** **Nov. ? – Dec. ?**
Canada Geese	**Sept. 1 – Sept. 25** **Oct. 10 – Nov. 8**	**Sept. 1 – Sept. 25** **Oct. 10 – Nov. 8**	**Sept. ? – Sept. ?** **Oct. ?2 – Nov. ?** **Nov. ? – Dec. ?**
Snow Geese **(includes blue geese)**	**Oct. 1 - Dec. 31, 2020** **Feb. 24 - Mar. 10, 2021** **Mar.11 – Apr 23, 2021**	**Oct. 1 - Dec. 31, 2020** **Feb. 24 - Mar. 10, 2021** **Mar.11 – Apr 23, 2021**	**Oct. ? – Dec. ?**
Brant	**Oct. 10 – Nov. 8**	**Oct. 10 – Nov. 8**	**Oct. ? – Oct. ?**
Woodcock	**Statewide**	**Oct. 1 – Nov. 14**	
Common Snipe	**Statewide**	**Oct. 1 – Nov. 14**	

Youth Waterfowl Hunting Weekend – September 26 & 27

BAG LIMITS

The daily bag limit is the maximum number of birds of each species that any person may take (or possess in the field) during any one day. The possession limit is three times the daily bag limit for all waterfowl species except snow geese.

Species	Daily Limit	Possession Limit
Ducks *	6	18
Mergansers **	5	15
Coot	15	45
Canada Geese		
September season		
Lake Champlain Zone	8	24
Interior Vermont Zone	8	24
Connecticut River Zone	5	15 ?
Oct. - Dec. season		
Lake Champlain Zone	2	6
Interior Vermont Zone	2	6
Connecticut River Zone	2	6
Snow Geese	25	No limit
Mar. 11 – Apr. 23, 2021	15	No limit
Brant	2	6
Woodcock	3	9
Common Snipe	8	24

* The daily limit of 6 ducks may include no harlequin, and no more than 2 mallards (1 of which may be hens), 2 black duck, 3 wood ducks, 1 pintails, 2 canvasback, 2 redheads, 2 or 1 scaup depending on dates, 4 scoters, 4 eiders, and 4 long-tailed duck.

** The daily limit of 5 mergansers is in addition to the regular duck bag, and together may include no more than 2 hooded mergansers.

APPENDIX A

2020 FALL CALENDAR

	SUN	MON	TUES	WED	THUR	FRI	SAT
SEPTEMBER			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30			
OCTOBER					1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
NOVEMBER	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30					
DECEMBER			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		

APPENDIX B

Vermont Waterfowl Seasons				
YEAR	**SEASON TYPE**	**SEASON LENGTH**	**SEASON DATES**	**GENERAL BAG LIMIT**
1942	Straight	70	Sept. 26 – Dec. 4	10-20
1943	Straight	70	Sept. 25 – Dec. 3	10-20
1944	Straight	80	Sept. 20 – Dec. 8	10-20
1945	Straight	80	Sept. 20 – Dec. 8	7-14
1946	Straight	45	Oct. 5 – Nov. 18	7-14
1947	Straight	30	Oct. 21 – Nov. 19	3-6
1948	Straight	30	Oct. 15 – Nov. 13	3-6
1949	Straight	40	Oct. 21 – Nov. 29	3-6
1950	Straight	40	Oct. 20 – Nov. 28	3-6
1951	Straight	45	Oct. 12 – Nov. 25	3-6
1952	Straight	55	Oct. 7 – Nov. 11	3-6
1953	Straight	60	Oct. 5 – Dec. 3	3-6
1954	Straight	60	Oct. 10 – Dec. 8	3-6
1955	Straight	70	Oct. 5 – Dec. 13	3-6
1956	Straight	70	Oct. 5 – Dec. 13	3-6
1957	Straight	70	Oct. 10 – Dec. 18	3-6
1958	Straight	60	Oct. 10 – Dec. 8	3-6
1959	Straight	50	Oct. 10 – Nov. 28	3-6
1960	Straight	50	Oct. 7 – Nov. 25	3-6
1961	Straight	40	Oct. 14 – Nov. 22	3-6
1962	Straight	40	Oct. 12 – Nov. 20	3-6
1963	Split	45	Oct. 11 – Oct. 27 / Nov. 11 – Dec. 8	3-6
1964	Straight	50	Oct. 10 – Nov. 28	3-6
1965	Straight	50	Oct. 16 – Dec. 4	3-6
1966	Straight	55	Oct. 8 – Dec. 1	3-6
1967	Split	45	Oct. 7 – Nov. 4 / Nov. 25 – Dec. 10	3-6
1968	Straight	50	Oct. 12 – Nov. 30	3-6
1969	Straight	50	Oct. 11 – Nov. 29	3-6
1970	Straight	50	Oct. 10 – Nov. 28	4-8
1971	Straight	50	Oct. 9 – Nov. 27	4-8
1972	Split	50	Oct. 7 – Oct. 15 / Oct. 28 – Dec. 7	4-8
1973	Split	45	Oct. 6 – Oct. 21 / Nov. 3 – Dec. 1	4-8
1974	Straight	50	Oct. 9 – Nov. 27*	4-8
1975	Straight	50	Oct. 8 – Nov. 26*	4-8
1976	Straight	50	Oct. 6 – Nov. 24*	4-8
1977	Straight	50	Oct. 5 – Nov. 23*	4-8
1978	Straight	50	Oct. 4 – Nov. 22*	4-8
1979	Split	50	Oct. 3 – Oct. 14 / Oct. 27 – Dec. 3*	4-8
1980	Straight	50	Oct. 8 – Nov. 26*	4-8
1981	Straight	50	Oct. 10 – Nov. 28*	4-8

Vermont Waterfowl Seasons – Page 2

YEAR	SEASON TYPE	SEASON LENGTH	SEASON DATES	GENERAL BAG LIMIT
1982	Split	50	Oct. 2 – Oct. 10 / Oct. 16 – Nov. 25*	5-10
1983	Split	50	Oct. 8 – Oct. 16 / Oct. 22 – Dec. 1*	5-10
1984	Straight	50	Oct. 10 – Nov. 28*	5-10
1985	Zoned**	40	Oct. 9 – Oct. 13 / Oct. 26 – Nov. 29 (LCZ)* Oct. 9 – Nov. 17 (IVZ)	5-10 5-10
1986	Zoned**	40	Oct. 8 – Oct. 12 / Oct. 25 – Nov. 28 (LCZ)* Oct. 8 – Nov. 16 (IVZ)	5-10 5-10
1987	Zoned**	40	Oct. 7 – Oct. 11 / Oct. 24 – Nov. 27 (LCZ)* Oct. 7 – Nov. 15 (IVZ)	4-8 4-8
1988	Zoned/Split	30	Oct. 8 – Oct. 23 / Nov. 24 – Dec. 7 (LCZ)* Oct. 8 – Oct. 30 / Nov. 24 – Nov. 30 (IVZ)	3-6 3-6
1989	Zoned/Split	30	Oct. 11 – Oct. 29 / Nov. 23 – Dec. 3 (LCZ) Oct. 11 – Nov. 5 / Nov. 23 – Nov. 26 (IVZ)	3-6 3-6
1990	Zoned/Split	30	Oct. 10 – Oct. 21 / Nov. 15 – Dec. 2 (LCZ) Oct. 10 – Nov. 4 / Nov. 22 – Nov. 25 (IVZ)	3-6 3-6
1991	Zoned/Split	30	Oct. 12 – Oct. 27 / Nov. 23 – Dec. 6 (LCZ) Oct. 12 – Nov. 3 / Nov. 25 – Dec. 1 (IVZ)	3-6 3-6
1992	Zoned/Split	30	Oct. 7 – Oct. 11 / Nov. 7 – Dec. 1 (LCZ) Oct. 7 – Nov. 1 / Nov. 26 – Nov. 29 (IVZ)	3-6 3-6
1993	Zoned/Split	30	Oct. 20 – Nov. 7 / Nov. 25 – Dec. 5 (LCZ) Oct. 13 – Nov. 7 / Nov. 25 – Nov. 28 (IVZ)	3-6 3-6
1994	Zoned/Split	40	Oct. 15 – Nov. 6 / Nov. 19 – Dec. 5 (LCZ) Oct. 8 – Nov. 9 / Nov. 21 – Nov. 27 (IVZ)	3-6 3-6
1995	Zoned/Split	50	Oct. 11 – Oct. 22 / Nov. 4 – Dec. 11 (LCZ) Oct. 4 – Nov. 12 / Nov. 18 – Nov. 27 (IVZ)	4-8 4-8
1996	Zoned/Split	50	Oct. 9 – Oct. 20 / Nov. 2 – Dec. 9 (LCZ) Oct. 2 – Nov. 11 / Nov. 23 – Dec. 1 (IVZ)	5-10 5-10
1997	Zoned**	60	Oct. 4 – Oct. 19 / Oct. 25 – Dec. 7 (LCZ) Oct. 4 – Dec. 2 (IVZ)	4-8*** 4-8***
1998	Zoned**	60	Oct. 7 – Oct. 11 / Oct. 17 – Dec. 10 (LCZ) Oct. 7 – Dec. 5 (IVZ)	6-12 6-12
1999	Zoned**	60	Oct. 6 – Oct. 11 / Oct. 23 – Dec. 15 (LCZ) Oct. 6 – Dec. 4 (IVZ)	6-12 6-12
2000	Zoned/Split	60	Oct. 7 – Oct. 9 / Oct. 21 – Dec. 16 (LCZ) Oct. 7 – Nov. 12 / Nov. 18 – Dec. 10 (IVZ)	6-12 6-12
2001	Zoned/Split	60	Oct. 10 – Oct. 14 / Oct. 20 – Dec. 13 (LCZ) Oct. 10 – Dec. 8 (IVZ) Oct. 2 – Nov. 4 / Nov. 21 – Dec. 16 (CRZ)****	6-12 6-12 6-12
2002	Zoned/Split	60	Oct. 9 – Oct. 13 / Oct. 22 – Dec. 15 (LCZ) Oct. 9 – Nov. 14 / Nov. 23 – Dec. 15 (IVZ) Oct. 2 – Nov. 5 / Nov. 27 – Dec. 21 (CRZ)****	6-12 6-12 6-12

Vermont Waterfowl Seasons – Page 3

YEAR	SEASON TYPE	SEASON LENGTH	SEASON DATES	GENERAL BAG LIMIT
2003	Zoned**	60	Oct. 11 - Oct. 13 / Oct. 25 - Dec. 20 (LCZ)	6-12
			Oct. 11 - Dec. 9 (IVZ)	6-12
			Oct. 7 - Nov. 9 / Nov. 26 - Dec. 21 (CRZ)****	6-12
2004	Zoned**	60	Oct. 6 - Oct. 10 / Oct. 23 - Dec. 16 (LCZ)	6-12
			Oct. 6 - Dec. 4 (IVZ)	6-12
			Oct. 5 - Nov. 14 / Nov. 24 - Dec. 12 (CRZ)****	6-12
2005	Zoned**	60	Oct. 5 – Oct. 10 / Oct. 26 – Dec. 18 (LCZ)	6-12
			Oct. 5 – Dec. 3 (IVZ)	6-12
			Oct. 4 – Nov.13/ Nov. 23 - Dec. 11 (CRZ)****	6-12
2006	Zoned**	60	Oct. 7- Oct. 15/ Oct. 25 - Dec. 14 (LCZ)	6-12
			Oct. 7 - Dec. 5 (IVZ)	6-12
			Oct. 3 - Nov. 5/ Nov. 22 - Dec. 17 (CRZ)****	6-12
2007	Zoned**	60	Oct. 10- Oct. 14/ Oct. 27 - Dec. 20 (LCZ)	6-12
			Oct. 10- Dec. 8 (IVZ)	6-12
			Oct. 3- Nov. 4/ Nov. 21 - Dec. 17 (CRZ)****	6-12
2008	Zoned**	60	Oct. 8- Oct. 12/ Oct. 25 - Dec. 18 (LCZ)	6-12
			Oct. 8- Dec. 6 (IVZ)	6-12
			Oct. 2- Nov. 2/ Nov. 23 - Dec. 20 (CRZ)****	6-12
2009	Zoned**	60	Oct. 10- Oct. 13/ Oct. 24 - Dec. 18 (LCZ)	6-12
			Oct. 10- Dec. 8 (IVZ)	6-12
			Oct. 6- Nov. 8/ Nov. 25 - Dec. 20 (CRZ)****	6-12
2010	Zoned**	60	Oct. 6-Oct. 10/Oct. 23 - Dec. 16 (LCZ)	6-12
			Oct. 6-Dec. 4 (IVZ)	6-12
			Oct. 5-Nov. 7/ Nov. 24 – Dec. 19 (CRZ)	6-12
2011	Zoned**	60	Oct. 12-Oct. 16/Oct. 29 - Dec. 22 (LCZ)	6-12
			Oct. 12-Dec 10 (IVZ)	6-12
			Oct. 4-Nov. 6/Nov. 23- Dec. 18 (CRZ)****	6-12
2012	Zoned**	60	Oct. 13-Oct. 17/Oct. 27 - Dec. 20 (LCZ)	6-12
			Oct. 13-Dec 11 (IVZ)	6-12
			Oct. 2-Nov. 4/Nov. 21- Dec. 16 (CRZ)****	6-12
2013	Zoned**	60	Oct. 9-Oct. 13/Oct. 26 - Dec. 19 (LCZ)	6-18
			Oct. 9-Dec 7 (IVZ)	6-18
			Oct. 2-Nov. 3/Nov. 19- Dec. 15 (CRZ)****	6-18
2014	Zoned**	60	Oct. 8-Oct. 12/Oct. 25- Dec. 18 (LCZ)	6-18
			Oct. 8-Dec. 6 (IVZ)	6-18
			Oct. 2-Nov. 2/Nov. 16- Dec. 13 (CRZ)****	6-18
2015	Zoned**	60	Oct. 10-Oct. 14/Oct. 24- Dec. 17 (LCZ)	6-18
			Oct. 10-Dec. 8 (IVZ)	6-18
			Oct. 6-Nov. 5/Nov. 15- Dec. 13 (CRZ)****	6-18
2016	Zoned**	60	Oct. 12-Oct. 16/Oct. 29- Dec. 22 (LCZ)	6-18
			Oct. 12-Dec. 10 (IVZ)	6-18
			Oct. 4-Nov. 6/Nov. 22- Dec. 22 (CRZ)****	6-18
2017	Zoned**	60	Oct. 11-Oct. 15/Nov. 7 - Dec. 31 (LCZ)	6-18
			Oct. 11-Dec. 9 (IVZ)	6-18
			Oct. 3-Nov. 5/Nov. 22- Dec. 17 (CRZ)****	6-18

2018	Zoned**	60	Oct. 13-Oct. 21/Nov. 10 - Dec. 30 (LCZ) Oct. 13-Dec. 11 (IVZ) Oct. 2-Nov. 4/Nov. 21- Dec. 16 (CRZ)****	6-18 6-18 6-18
2019	Zoned**	60	Oct. 10-Nov. 1/Nov. 23 - Dec. 29 (LCZ) Oct. 10-Dec. 8 (IVZ) Oct. 2-Nov. 3/Nov. 20- Dec. 16 (CRZ)****	6-18 6-18 6-18

* Regular season was followed by a 16-day special goldeneye/scaup season – 3-bird bag

** Lake Champlain Zone – Split Season
Interior Vermont Zone – Straight Season

*** Two teal (either blue-winged or green-winged) allowed in addition to regular bag limit

**** Connecticut River Zone set by New Hampshire Fish and Game Commission, same as NH Inland Zone

Attachment 6

DRAFT
Big Game Management Plan 2020-2030

Comments can be submitted electronically to:
ANR.FWPublicComment@vermont.gov
or by mail to:
Vermont Department of Fish and Wildlife, One National Life Drive, Montpelier, Vermont 05620.

The department would like to receive public comment until Friday, April 3, 2020.

Table of Contents

Executive Summary

Wild animals, by Vermont and Federal law, belong to the people of Vermont. Conserving and managing Vermont's wildlife resources on behalf of the public are obligations of the Vermont Fish & Wildlife Department. The department has a long history of managing Vermont's big game species. For the past twenty years, the management of Vermont's four big game species—white-tailed deer, black bear, moose and wild turkey—has been coordinated by a comprehensive Big Game Management Plan. The plan, updated every decade, identifies issues that these species face, establishes sustainable population and management goals, and then prescribes the strategies needed to achieve these goals. Combining wild turkey management with moose management may seem strange on the face of it, but a multi-species approach is appropriate and necessary because all four species face overlapping challenges and, as a group, represent the backbone of Vermont's hunting and wildlife-viewing opportunities. In addition, wild turkey's status as a big game species reflects the elevated focus it's received in wildlife restoration efforts in the last 50 years.

Overarching Goal

Maintain abundant and healthy big game populations within their ecological and social carrying capacities for Vermonters.

Overarching Issues of Significant Management Concern

- Habitat Loss
- Declining Hunter Numbers
- Human – Wildlife Conflicts
- Access to Land
- Impacts of Suburbanization on Public Attitudes
- Climate Change
- Collection of Biological Data
- Climate Change
- Promoting Utilization

Overarching Management Objectives and Strategies

1. Recruit new hunters with the primary purpose of introducing new, diverse audiences to, and maintaining support for, hunting.
2. Use Vermont Conservation Design to identify priority big game habitat for conservation, such as young forests and habitat connectivity
3. Advocate for public hunting access for lands enrolled in the Use Value Appraisal Program (UVA; Current Use) and conserved lands.
4. Maximize opportunity for big game hunters, including liberalizing season length and bag limits, where possible, while still maintaining big game population objectives.
5. Continue outreach to private landowners, municipalities, non-profits and other landowners on the value of allowing hunting access.
6. Develop a single, comprehensive database to track and record human-wildlife conflicts, including those involving big game species, to more efficiently address conflicts at a district level.
7. Maintain mandatory big game reporting but investigate ways to make it easier for hunters to check their game in, particularly with the use of technology.
8. Continue to provide outreach on the impacts of climate change on big game species.
9. Encourage the responsible utilization of big game species with a primary purpose of increasing support for, and promoting an understanding of, hunting. This could include increasing the amount of utilization-related content on the website and reviewing the current statutory window to sell big game carcasses during the open season and 20 days thereafter to connect the public to hunting and wild game.

2020 – 2030 Big Game Species-specific Management Goals, Objectives, and Strategies

WHITE-TAILED DEER

ISSUE 1. Disease

GOAL: To maintain an abundant and healthy deer population

Management Objectives and Strategies

1.1 Enhance the department's disease surveillance, particularly for Chronic Wasting Disease (CWD).
1.2 Continue to emphasize, improve, and monitor CWD prevention efforts.
1.3 Consider improving restrictions on importation of cervids.
1.4 Develop a CWD response plan, including all necessary approvals and authorities.
1.5 Increase public outreach regarding CWD.
1.6 Continue monitoring other diseases with potential to impact the deer population.

ISSUE 2. Deer Wintering Areas

GOAL: To maintain adequate quantity and quality of deer wintering areas (DWA) to sustain the population at regionally established population objectives.

Management Objectives and Strategies

2.1 Continue to protect DWAs through regulatory review.
2.2 Continue to update the department's inventory of DWAs opportunistically.
2.3 Develop a remote sensing approach to aid in identification of unknown or unmapped DWAs.
2.4 Conduct outreach to landowners, land managers, and partner state and federal agencies / organizations about the importance of DWA conservation.
2.5 Continue to work with the Vermont Department of Forest Parks and Recreation (FPR) and foresters to ensure that habitat is adequately managed under the UVA program.
2.6 Work with FPR to develop guidelines for the management of hemlock DWAs given the potential impacts of hemlock wooly adelgid.
2.7 Continue to work with conservation partners that own or manage conserved land to ensure that DWAs and other habitats are properly managed.

ISSUE 3. Population Objectives

GOAL: Maintain the deer population at levels that are socially acceptable and ecologically sustainable.

Management Objectives and Strategies

3.1 Manage deer densities using Wildlife Management Unit (WMU)-specific density and physical condition objectives.
3.2 Monitor characteristics of deer and habitat that can change in response to deer abundance.
3.3 Continue to collect physical condition data including yearling antler beam diameter, fawn and yearling body weight and reproductive data.
- Consider collecting data on fawn recruitment to better inform population models.
- Work with foresters to monitor deer impacts to forest health.

3.4 Work with landowners and land managers to encourage hunting and inform them about the need to manage deer abundance.
3.5 Adjust antlerless deer harvests as necessary to achieve density and physical condition objectives.
- Monitor the effects of recent changes to deer hunting regulations on the antlerless harvest.
- Consider additional liberalization of antlerless harvest, where necessary, to achieve annual harvest objectives.

ISSUE 4. Deer–Human Conflicts

GOAL: Minimize the number of deer-human conflicts.

Management Objectives and Strategies

4.1 Maintain the deer population at socially acceptable levels.
4.2 Demonstrate the effectiveness of archery hunting to reduce locally overabundant deer in developed areas.

4.3 Work with communities to address locally overabundant deer in developed areas, including establishment of expanded archery zones.
4.4 Encourage communication and cooperation between antlerless deer hunters and landowners seeking relief from deer damage.

ISSUE 5. Hunter Satisfaction

GOAL: Provide a quality deer hunting experience for as many hunters as possible.

Management Objectives and Strategies

5.1 Maximize hunting opportunity by providing longer hunting seasons and opportunities to hunt multiple seasons.
5.2 Maximize opportunity to harvest a deer.
5.3 Ensure there are enough older bucks on the landscape to provide hunters a reasonable chance of seeing one.
5.4 Ensure that the proportion of yearlings in the total buck harvest not exceed 50% in any WMU.
5.5 Continue to regularly survey hunters and involve them in the rule-making process.
5.6 Maximize the accessibility of hunting to recruit, retain, and reactivate new and existing hunters.

BLACK BEAR

ISSUE 1. Bear–Human Conflicts

GOAL: Minimize the total number of negative interactions occurring between bears and humans to achieve acceptable levels of human safety and acceptance.

Management Objectives and Strategies

1.1 Continue to work with partners to increase public awareness of the factors that lead to human-bear conflicts and the legal and appropriate actions to take to avoid negative interactions.
1.2 Continue outreach and education efforts that include improving the bear section of the department's web page and creating additional "how to" videos to help reach a larger segment of the public.
1.3 Better define and clarify existing bear feeding regulations; provide clear guidelines on the appropriate actions to take when encountering a bear; reinforce the department's position on relocating bears; and, specify when it is appropriate to euthanize a bear that has caused extensive property damage or is a threat to human safety.
1.4 "Raise the bar" on getting the public to take more responsibility for addressing local bear-human conflicts rather than depending on department staff to address all problems.
1.5 Assist communities experiencing the greatest number of conflicts with creative ways in addressing bear-human conflicts.
1.6 Continue to work with the Vermont Department of Environmental Conservation (DEC) to improve their outreach on universal recycling of food scraps to reduce conflicts with bear.

ISSUE 2. Bear Population Size and Distribution

GOAL: Maintain the bear population at levels that are socially acceptable and ecologically sustainable.

Management Objectives and Strategies

2.1 Maintain a bear population of between 3,500 and 5,500 allowing for wider fluctuations in annual population estimates and confidence intervals resulting from improvements to the population model.
2.2 Continue to use season length, especially during the overlap with the November deer season, as the primary method of adjusting the size of the bear population.
2.3 Consider managing bears regionally rather than statewide to address conflict and more specifically manage bears in areas where they are expanding their range beyond forested habitat.

ISSUE 3. Bear Habitat Conservation

GOAL: Maintain no-net-loss of function and value of existing bear habitat.

Management Objectives and Strategies

3.1 Continue to work with Vermont's regulatory process to maintain functional bear habitat and reduce human-bear conflicts arising from new commercial and residential developments.

3.2 Update the Black Bear Habitat Mitigation Guidelines reflecting advances in habitat mitigation strategies as a result of recent research
3.3 Work with Vermont Conservation Design to prioritize the protection of bear travel corridors and linkage habitat while also working to increase the amount of young forest habitat throughout the state.

ISSUE 4. Bear Management Strategies and Season Structure

GOAL: Optimize public hunting opportunity for the utilization of bears for food and other uses, ensure hunter satisfaction within biologically sustainable regulations and continue to use public hunting to meet black bear population objectives.

Management Objectives and Strategies

4.1 Use hunter effort surveys and harvest data collected at a regional scale to inform regional population management.
4.2 Continue to promote the hunting of bears for food and increase outreach efforts to improve accessibility of bear hunting to a wider audience.
4.3 Continue to work with the Vermont Bear Hound Association to address issues that could possibly restrict bear hunting with hounds in Vermont.
4.4 Begin outreach that stresses declining hunter participations will likely necessitate changes in bear season structure and overall bear management.
4.5 Evaluate and monitor impacts the new deer season structure may have on the bear harvest and population size.

MOOSE

ISSUE 1. Regional Population Goals

GOAL: Maintain a healthy moose population at or below ecological and/or socially acceptable carrying capacities in Vermont's moose management regions.

Management Objectives and Strategies

1.1 Maintain the moose population within density targets in North Central, East Central and Green Mountain moose management regions.
1.2 Provide quality hunting opportunity in all WMUs when appropriate.
1.3 Improve current and explore new population monitoring methods. They may include expanding annual deer hunter effort surveys, developing a camera trap network and monitoring snow urine (urea nitrogen/creatinine ratio) to gauge the impact of winter ticks on moose health.

ISSUE 2. Hunting Permit Thresholds

GOAL: Establish moose density thresholds in Wildlife Management Units that would dictate hunting closures or re-openings.

Management Objectives and Strategies

2.1 Hunting Permit thresholds
- No permits if less than 75% of target density for 2 consecutive years
- Resume permits if within 25% of target density for 2 consecutive years

ISSUE 3. Disease

GOAL: Better understand and address the impacts of parasites and disease on the long-term viability of moose in Vermont

Management Objectives and Strategies

3.1 Implement a density goal of 1.0 moose/square mile, or lower, for any WMU where winter ticks persist at epizootic levels or are driving population decline by lowering calf survival to an unsustainable level.
3.3 Explore the use of snow urine to monitor nutritional status.
3.4 Monitor tick load and hair loss on all incidental or legally killed moose, when available, and consider other options, such as hair loss via salt-lick camera traps, when appropriate.

3.5 Evaluate methods to supplement and improve population model estimates. These could include using camera traps to compare trends in deer hunter moose sighting rates, calf-cow ratios, using genetic information to estimate population trends, and considering various trend estimation time frames (i.e. yearly, every 3 years, etc.).
3.6 Submit blood serum form euthanized sick-acting moose for ELISA test, and consider the same for all incidental moose mortalities and harvested moose for brainworm screening.
3.8 Evaluate the need and feasibility of field necropsies of all incidental moose mortalities.
3.9 Maintain WMU E1 and E2 deer density at 10 per square mile or fewer.

ISSUE 4. Moose–Human Conflicts

GOAL: Minimize motor vehicle - moose collisions and other forms of damage caused by moose.

Management Objectives and Strategies

4.1 Continue to improve the protocol for moose/human conflicts.
4.2 Consider revising the moose doing damage rule in light of the declining moose population (i.e. sap tubing damage only during sugaring season).
4.3 Continue to work with the Vermont Agency of Transportation (VTRANS) to erect and maintain warning signs at traditional moose highway crossings.
4.4 Continue to work with VTRANS in implementing roadside brush-clearing projects to improve visibility at the most dangerous moose crossings, when feasible.
4.5 Cooperate with VTRANS to investigate the use of new technology that may help reduce moose/vehicle collisions.
4.6 Cooperate with VTRANS on the Installation of wildlife crossing culverts or travel lanes during interstate and Vermont Highway bridge replacements, when feasible.
4.7 Issue annual press releases to remind motorists of moose hazards during seasons of increased moose movement.

ISSUE 5. Moose Habitat and Carrying Capacity

GOAL: Maintain necessary habitat to support regional moose density objectives.

Management Objectives and Strategies

5.1 Enhance moose habitat on State and Federal lands, especially in regions where young forest comprises less than 10% of forestland.
5.2 Support and monitor research into moose and parasite dynamics.

WILD TURKEY

ISSUE 1. Turkey Population Objectives

GOAL: Maintain a healthy, sustainable wild turkey population in Vermont.

Management Objectives and Strategies

1.1 Annually collect and assess turkey harvest data to monitor disease, health and population trends.
1.2 Continue conducting turkey brood surveys to assess annual poult production using regionally accepted protocols.
1.3 Evaluate and implement new population monitoring and modeling practices (i.e. winter flock surveys, hunter sighting surveys, population models, hunter effort surveys to effectively detect trends in the turkey population and manage it accordingly.
1.4 Improve the regional approach to managing turkeys using appropriate population thresholds and indices (i.e. spring toms harvested per square mile of habitat, turkeys harvested per unit of hunter effort, turkeys harvested per number of licensed hunters per WMU, etc.) evaluated at the WMU scale.

ISSUE 2. Turkey Management Strategies and Season Structure

GOAL: Maximize the ecological and social benefits derived from Vermont's wild turkey population by administering biologically appropriate and sustainable harvest regulations.

Management Objectives and Strategies

2.1 Continue prioritizing quality spring hunting over fall hunting.
2.2 Consider liberalizing fall hunting opportunities when it is sustainable and in accordance with public preference.

2.3 Evaluate and implement methods for using turkey hunting to recruit new hunters such as, but not limited to, the creation of a "novice season" for turkeys like the recently adopted deer novice season.
2.4 Liberalize and simplify shot size regulations including the use of non-lead, tungsten shot.

ISSUE 3. Diseases

GOAL: Safeguard the health of Vermont's wild turkey population through the effective surveillance of and response to disease outbreaks.

Management Objectives and Strategies

3.1 Participate in regional studies designed to facilitate the understanding of wild turkey disease distribution and significance.
3.2 Implement a disease reporting system (i.e. online report form) designed to facilitate the effective monitoring of and response to disease outbreaks in wild turkeys.

ISSUE 4. Turkey–Humans Conflicts

GOAL: Maintain public support for wild turkey conservation by providing technical assistance when conflicts arise and by maintaining the turkey population within its cultural carrying capacity limits.

Management Objectives and Strategies

4.1 Develop standardized protocols for guiding staff response to conflicts caused by wild turkeys.
4.2 Develop and disseminate educational materials designed to inform citizens/farmers about techniques for minimizing conflicts.
4.3 Strengthen outreach efforts aimed at increasing the public's awareness of the importance of reporting conflicts with turkeys
- Develop and implement an online turkey conflict reporting database designed to facilitate the collection, assessment and archiving of conflict data.
- Annually compile and evaluate conflict reports to document problems and inform management decisions.

4.4 Pursue a regional harvest management strategy that strives to minimize conflicts caused by wild turkeys.

ISSUE 5. Habitat Changes and Conservation

GOAL: Maintain the productivity of Vermont's landscape for wild turkeys by working to identify, protect, and enhance key habitats.

Management Objectives and Strategies

5.1 Develop and maintain habitat demonstration sites designed to promote beneficial commercial and non-commercial land management practices.
5.2 Provide information and technical assistance to private landowners and other land managers regarding turkey habitat management.
5.3 Collaborate with key partners (i.e. NWTF, GMNF, etc.) to promote turkey habitat management and conservation.