

**THE NORTH AMERICAN MODEL OF WILDLIFE CONSERVATION: RELEVANCE,
EFFICACY AND APPLICABILITY IN THE MODERN ERA OF WILDLIFE
MANAGEMENT**

Proposal Submitted On:

February 17, 2017

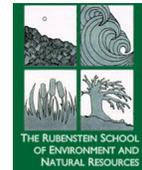
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Problem Assessment and Opportunity Statement

North American Model of Wildlife Conservation Background

In the mid-1800's, many species found in North America -- elk (*Cervus canadensis*), bison (*Bison spp.*), bighorn sheep (*Ovis canadensis*), American black bear (*Ursus americanus*), and white-tailed deer (*Odocoileus virginianus*) -- were subject to rapid population decline as a result of continued overharvest (RMEF, 2016). In response to this decline in species population numbers, many hunting enthusiasts, like Theodore Roosevelt and George Bird Grinnell, began to organize and advocate for the conservation of North America's wildlife (RMEF, 2016). Conservationists would later advocate successfully for multiple pieces of legislation, such as The Wilderness Act, protecting wilderness areas in the United States (Nelson et al. 2011).

Although not formally articulated until 2001, The North American Model of Wildlife Conservation was undoubtedly influenced by the early conservation movements surrounding wilderness and wildlife, and mirrors the sentiments of many earlier wildlife conservation advocates. It urged for proper management of wildlife for non-commercial use by citizens, and the continued stability of game species populations. The framework of the Model, by John Geist and Valerius Organ, includes seven guiding tenets (Appendix I), mostly related to consumptive uses of wildlife (i.e. hunting), that attempt to offer a framework for all possible wildlife management situations (Organ et al. 2012). The Model is now regarded as the backbone of North American wildlife management, and informs many decisions concerning wildlife conservation (Organ et al. 2012).

While the North American Model of Wildlife Conservation offers a guiding hand in management decisions, many argue that the Model has lost applicability in modern wildlife conservation, or that the Model is too narrow in its scope (Nelson et al. 2011). In addition, the Model's focus on game species excludes many forms of wildlife, such as non-game species and fish, and limits its ability to address current habitat conservation issues.

Relevance of the Model

While the Model faces criticism for its focus on hunting, certain tenets, such as the ones pertaining to scientific discharge of wildlife policy and wildlife being killed for a legitimate purpose, are generally seen as applicable ideas in modern conservation practices. Despite this, Vermont Fish and Wildlife, in collaboration with our group, has decided that certain tenets are outdated, or do not accurately represent the current state of wildlife conservation in North America. For example, we believe that tenet four, *wildlife can only be killed for a legitimate purpose*, while admirable in intention, is much too ambiguous. Who decides what a "legitimate" purpose is? Is protection of property from wildlife "legitimate"?

Additionally, some say that certain tenets may create a misguided view of conservation (Nelson et al. 2011). For example, game markets have not been eliminated as tenet two recommends, but are often regulated and play a large role in many conservation/management efforts. Hunting, in many places, is not democratic as tenet seven suggests. Places like Vermont, where moose hunting permits go to the highest bidder instead of the winner of a lottery drawing, exemplify this (VTFW, 2016).

This Model was created in the vision of North America's now dated model of wildlife conservation, and we believe it is subject to a review in the context of modern wildlife conservation, which considers nongame species as well as habitat conservation. With an ever-growing human population, habitat availability is a major concern for almost every species of conservation concern, yet the original model relates more to appropriate hunting methods as opposed to habitat conservation practices.

Opportunity Statement

To collaborate with Vermont Department of Fish and Wildlife in creating a revitalized model of wildlife management that is more applicable to modern day wildlife and fisheries conservation efforts with revised tenets that are more understandable to the general public, less vague, and appropriate for nationwide use.

Tenets in Focus

Below, you will find the four tenets that we chose to examine, as well as prompts given by Tom Rogers and Kim Royar of the Vermont Fish and Wildlife Department to guide our analysis of each tenet's real world application. Next to each tenet are the group members responsible for its analysis.

1. Wildlife Resources Are a Public Trust

- *How many states permit private ownership of wildlife such as game farms or the wild pet trade?*

3. Allocation of Wildlife Is by Law

- *How many states allocate wildlife by law beyond game or protected species, for species such as herptiles, small mammals?*

4. Wildlife Can Be Killed Only for a Legitimate Purpose

- *How many states define a legitimate purpose or mandate that wildlife only be killed for a legitimate purpose?*
- *What is legitimacy?*

7. Democracy of Hunting Is Standard

- *How many states hold auctions for hunting permits and give the permits to the highest bidders? Additionally, in how many states is access to hunting grounds privatized, meaning that hunters must pay private landholders for hunting access?*

Goals and Objectives

We have identified three goals we hope to achieve while working with our community partners at Vermont Fish & Wildlife:

1. Vermont Fish and Wildlife Department has a database regarding how state wildlife agencies across the U.S. are implementing the current North American Model of Wildlife Conservation.

Objectives:

- Assess the benefits of the current model.
 - Review state wildlife agency websites to attain available information.
 - Create a questionnaire concerning the ways in which the current model is being implemented, with focus on the four tenets of interest, to be sent to all fifty state Fish and Wildlife agencies (*by Feb. 20.*)
 - Meet with Brendan Fisher to review survey questions (*by Feb. 20-21.*)
 - Compile a list of Fish and Wildlife contacts for all 50 states (*by Feb. 21.*)
 - Have community partners send the survey to all state agencies (*by Feb. 24.*)
 - Compile the information acquired from survey responses and research which states are currently incorporating non-game species and habitat into their management plans (*by March 31.*)
 - Write report on findings (*by April 3.*)
2. Vermont Fish and Wildlife Department has a revised set of tenets for the North American Model of Wildlife Conservation that will incorporate the management of nongame species in terrestrial and aquatic habitats.

Objectives:

- Utilize compiled data to make informed revisions on the four focus tenets
- Suggest additional tenets based on management practices implemented in the states assessed if necessary

3. Possess an understanding surrounding how the North American Model of Wildlife Conservation is applied in the state of Vermont.

Objectives:

- Shadow Vermont wildlife biologists in the field to become better acquainted with the practical application of the tenets of the model.

March 1: Attend necropsy workshop with various biologists

March 4: Visit black bear den with state bear biologists, Jaclyn Comeau and Forrest Hammond

TBD: Ride-alongs with various game wardens

Approach and Methodology

Research State Agency Websites and Publications

Research will be conducted on how each of the state wildlife agencies in the US implement the current Model. This will be done by observing state websites, events, and management plan publications to determine if the current Model is being addressed. Surveys will also act as a basis for the evaluation of the current model and how it is implemented in each state.

State Wildlife Agency Surveys

Our group will develop a survey to send out to state wildlife agencies in each of the fifty US states. This survey will ask questions about how the current North American Model of Wildlife Conservation is implemented in their respective state, and will be broken down by the four tenets of focus in this project. For each of the four tenets, open-ended questions will be accompanied by a scale of relevance within their agency. Surveys will be sent to one individual of each state department, along with a request for them to distribute amongst relevant department members. If a response is not received within two weeks, a follow-up phone call will be made. Once completed surveys are received, responses will be categorized and compared.

Field Work with Vermont Fish & Wildlife

Throughout the time period allocated to this project, we will each have opportunities to work closely with Vermont Fish & Wildlife biologists. These hands-on experiences will include a necropsy workshop, a black bear den visit, ride alongs with game wardens and moose telemetry. During this time, we will ask biologists and wardens about how the Model is being implemented in Vermont's state agency.

Reporting of Findings

Information obtained through surveys, personal research, as well as first hand experience will be compiled and reported back to Tom and Kim. The information desired will revolve around the four tenets of focus.

Evaluation and Assessment

In order to evaluate our progress and success throughout this project, we will keep up with regular meetings with our community partners (either in person, or with phone conferences every two weeks.) Tom Rogers and Kim Royar will be in close contact with us throughout the project, as our timeline is accelerated to accommodate the presentation at the North Eastern Fish and Wildlife Conference. We will follow and reference our timeline (Appendix I.) closely to remain on schedule.

The evaluation of our survey will be based on an analysis of survey response rate and thoroughness of responses. To stay on track, we will follow up with each agency that does not respond to our surveys by calling two weeks after the initial survey is sent out.

The willingness of community partners to present our analysis and the feedback received following the regional conference for fish and wildlife agencies will also act as a means of assessment. Additionally, the feedback received at our group presentation before Vermont Fish and Wildlife staff members will allow us to assess our success.

References

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APPENDICES

Appendix I. The Seven Tenets

Tenet One: *wildlife as a public trust resource*, puts all wildlife in the ownership of the people, and aims to prevent unlawful and unregulated ownership or sale of wildlife (Organ et al. 2012).

Tenet Two: *advocates against markets for game species*. This tenet likely came about as a result of the overharvest of many game species (Ie. American bison, passenger pigeon), and is meant to limit the commercial trade of game species (Organ et al. 2012).

Tenet Three: *wildlife is to be allocated by law*, meaning that the “law” has the final say over what is deemed a reasonable and sustainable harvest of a wildlife species (Organ et al. 2012).

Tenet Four: *wildlife should only be killed for a legitimate purpose*, a self explanatory idea, but one that comes with its own set of problems (Organ et al. 2012).

Tenet Five: *wildlife should be considered an international resource* -- this tenet hints at the reality of the real world, and suggests that international collaboration is necessary for the protection and management of some species (Organ et al. 2012). This idea is very applicable to migratory birds.

Tenet Six: *science, and unbiased data analysis should be the major tool through which wildlife policy is created*, and disseminated to the public (Organ et al. 2012).

Tenet Seven: the *democracy of hunting* to be constant, with all North Americans having equal access to hunting opportunities in their respective nations (Organ et al. 2012).

Appendix II. Timeline

MONTH	TASKS
February	<p>Feb. 20: Survey draft developed</p> <p>Feb. 20-21: Meet with Brendan Fisher to review survey questions and finalize survey</p> <p>Feb. 21: List of state wildlife agency contacts developed</p> <p>Feb. 24: Survey sent out by community partners</p>
March	<p>March 1: Attend necropsy workshop with VFWD biologists</p> <p>March 4: Visit to a bear den with VFWD biologists</p> <p>March 6: Follow-up phone calls for states with no responses</p> <p>Various dates: Ride-alongs with VFWD Game Wardens</p> <p>March 31: Review survey responses, organize data</p>
April	<p>April 3 (week of): Present findings to VFWD</p> <p>April 3: Write report on findings</p> <p>April 7: Meeting with Tom and Kim (invite Jed and Michael)</p> <p>April 9-11: North American Model of Wildlife Conservation report finalized for regional wildlife agency meeting</p> <p>April 11: Tom and Kim present</p> <p>April 25: NR 206 group presentation</p>

DELIVERABLES

May 2, 2017

NORTH AMERICAN MODEL OF WILDLIFE CONSERVATION SURVEY

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METHODS

A nine question survey (Appendix I.) was developed by the Vermont Fish and Wildlife Department and UVM NR 206 students. The goal of the survey was to gather information on wildlife regulations across all fifty U.S. states. Questions related to captive game hunting, the use of auctions for game permits, fees for hunting, and how regulations are set.

Surveys were sent via email to all fifty state fish and wildlife management agencies on March 8, 2017. States that had not responded by March 28 were contacted via phone call, and the survey was conducted either over the phone or through online survey.

RESULTS

Responses were received from 48 states (Appendix II.) Eleven of these states had multiple staff provide responses.

Question Responses

In your state, can native wildlife be enclosed and considered private property?

19 of the 48 states that responded to this question allow for wildlife to be enclosed and considered private property. For some of these states this practice is highly regulated and permits are required, and for some there are limits to the types of species or numbers of individuals that can be considered private property (e.g. Arkansas.). The other 29 states indicated that native wildlife could not be enclosed and considered private property.

Does your state allow the hunting of captive/fenced native wildlife?

30 out of 48 states that responded to this question said that their the hunting of captive wildlife is permitted, while 18 of those 48 respondents said that it is not permitted. The most common example of captive hunting that respondents gave was fenced hunting of cervid species such as deer and elk.

Does your agency set any hunting, fishing, or trapping regulations directly, or are they all set by an external body representing the public (i.e. a board or state legislature)?

When asked whether hunting, trapping, or fishing regulations are set directly by the agency or by an external body representing the public (such as a board or state legislature), 26 of 48 responding states said that some regulations are set directly by their agency, while 15 said all regulations are set by their agency, and 7 said an external body sets all hunting, fishing, and trapping regulations. In most states where an external body sets hunting, fishing, and trapping regulations, fish and wildlife agencies advise and provide recommendations for the external body when setting regulations.

In your state, are there species that can be harvested without a permit/license (e.g. turtles, frogs)?

When asked whether any species can be hunted without a permit or license, 34 of 48 responding states said some species do not require a permit or license to be hunted, while 14 states said that all species require a permit or a license to be hunted in their state. The most common species that were able to be hunted without a license or permit were nuisance species (those animals doing harm to property), turtles, frogs, house sparrows, starlings, feral pigs, and certain unprotected species like coyote and small game species like raccoon.

Does your state have any kind of wanton waste law (excluding federal laws)?

17 of 48 responding states indicated that their state has some form of wanton waste law in place for all legally harvested species. 18 of the 48 responding states said that they had wanton waste laws only for certain species, while 13 said that their state has no wanton waste law for any wildlife species. States who had wanton waste laws for some species often cited game species as those under protection by this type of legislature.

Does your state auction off any big game hunting permits to bidders?

When asked if the state auctioned off big-game hunting permits to bidders, 23 out of 48 states said yes, and 25 said no. It was noted that many of the states who responded yes to this question that many of the species permits auctioned off in the raffle were either non-native species, bighorn sheep, or elk. It was also noted that many of the auctions are held through NGO's and profits obtained are used directly towards management or charitable organizations

In your state, do hunters typically need to pay a fee to hunt on private land they do not own?

When asked whether people in their state typically pay a fee to hunt on private land, 21 of 48 states said that people do typically pay to hunt on private land, while the other 27 states said that people did not typically pay those fees. Those who said yes often noted that people in their state hunt private lands by permission.

Note: Some survey respondents who said that private lands are hunted on a pay-to-use basis also noted the use of some private lands by hunters who had not paid a fee, but instead got the permission of the landowner. Alternatively, some respondents noted that hunting private lands

was typically free in their state, but that there were instances of private ranches charging individuals to hunt on the land, or in some cases, the lease of property with the intent of providing the lessor a location for hunting.

PROPOSED TENETS FOR VERMONT

1. Proper assessment and mitigation of critical fish and wildlife habitat before development
2. Equal opportunity for hunting and fishing
3. Killing of wildlife has to have a legitimate purpose (i.e. removal of nuisance species, population control)
4. Markets for game *remain* eliminated
5. Local scale conservation is important, and should be guided by local scale observations
6. Wildlife as an international resource

APPENDICES

Appendix I. Survey sent out to all fifty U.S. state fish and wildlife management agencies in March 2017.

1. Your state

2. Your job title

3. In your state, can native wildlife be enclosed and considered private property?

No

Yes

Comments (optional)

4. Does your state allow the hunting of captive/fenced native wildlife?

No

Yes

Comments (optional)

5. Does your agency set any hunting, fishing, or trapping regulations directly, or are they all set by an external body representing the public (i.e. a board or state legislature)?

Some regulations are set directly by our agency

All hunting, fishing, and trapping regulations are set by an external body

Comments (optional)

6. In your state, are there species that can be harvested without a permit/license (e.g. turtles, frogs)?

No

Yes (please give a couple of examples)

7. Does your state have any kind of wanton waste law (excluding federal laws)?

- Yes, for all legally harvested species
- No
- Yes, but only for some species (please list below)

8. Does your state auction off any big game hunting permits to bidders?

- No
- Yes (Please give examples)

9. In your state, do hunters typically need to pay a fee to hunt on private land they do not own?

- Yes
- No

Comments (optional)

Appendix II. States that responded to the survey, and the amount of responses received from each state.

State	Responses Received
AL	2
AK	1
AZ	2
AR	2
CA	1
CO	1
CT	2
DE	1
FL	1
GA	1
HI	1
ID	1
IN	1
IA	2
KS	1
KY	1
LA	1
ME	2
MD	1
MA	1
MI	1
MN	1
MS	1
MO	2
MT	1
NE	1
NV	1
NH	1
NJ	2
NM	1
NY	2
ND	3
OH	2
OK	1
OR	2
PA	1
RI	1
SC	2
SD	2
TN	1
TX	1
UT	2
VT	1
VA	2
WA	1
WV	1
WI	2
WY	2