

Research Project Description

Project Title: Assessing population parameters and habitat use of forest carnivores using non-invasive techniques.

Principal Investigators: Robert Long and Therese Donovan
University of Vermont, Cooperative Fish and Wildlife Research Unit

This project is being developed with the input and participation of the Vermont of Fish and Wildlife Department. We propose to study habitat use, abundance, and population dynamics of northeastern carnivores using a number of new, innovative, non-invasive techniques. These techniques, including the collection of DNA from the hair and feces (scat) of free ranging carnivores, and the measurement of stress hormones in feces, are proving to be more cost and time effective than traditional capture-oriented approaches. These techniques are capable of providing much of the same individual and population data, such as habitat use, homerange size, and disturbance effects, as can be obtained by radio telemetry. Because animals need not be captured, nor even actually observed, non-invasive techniques are less stressful and potentially harmful to the study animals themselves. Currently we are evaluating the feasibility of studying bobcat, black bear, and marten, although it is likely that one species will be chosen as a primary target. A methodology involving scent stations, hair snares, and DNA techniques will allow us to concurrently study habitat use, distribution, abundance, and potentially how anthropogenic disturbance and habitat fragmentation may be affecting the physiology of these species.

We intend to conduct a pilot study in July-August 2001 to:

1. Begin the identification of field sampling sites for such a study;
2. test the hair snare, stress hormone, and genetic methods; and,
3. collect some preliminary data on presence/absence, relative abundance, and stress hormone levels for the target species.

The pilot study will involve the following actions on state lands:

1. Driving and hiking in order to identify appropriate sampling sites;
2. establishing three different types of hair snare device within the sampling sites;
3. baiting each hair snare device with a scent lure to attract the species of interest; and
4. collecting fecal samples along roads, trails, and off-trail transects.

The pilot study will begin on July 1st 2001 and commence by 30 September 2001. If the pilot research suggests that the project is feasible, we plan to conduct more intensive field operations during the summer (and potentially late spring/early fall) of 2002, 2003, and potentially 2004.

Because one objective of the upcoming pilot project will be to identify a number of appropriate sites for the larger, multi-year project, we are uncertain exactly what locations we will be sampling in this summer. We will most likely be evaluating sites within Mt. Mansfield, CC Putnam, Camel's Hump, and Coolidge State forests. Also, there are many smaller state parcels that we may wish to sample. Generally, these areas fall between Mt. Mansfield SF in the north, Coolidge SF in the south, and Lake Champlain in the west (e.g. Pond Woods State Wildlife Management Area, Bomoseen SP).



State of Vermont

AGENCY OF NATURAL RESOURCES

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation

Department of Forests, Parks and Recreation
Att: Michele Guyette, Administrative Assistant
Barre District Office
324 North Main Street
Barre, Vermont 05641
Forests & Parks: (802) 476-0170
Voice Mail: (802) 476-0184
Fax: (802) 479-4272
Email: michele.guyette@anrmail.anr.state.vt.us

July 24, 2001

Mr. Robert Long
UVM
Cooperative Fish & Wildlife Research Unit
3314B Spear Street
Charlotte, VT 05445

Dear Mr. Long:

Enclosed is a fully executed License for a research project on lands of the State of Vermont managed by the Department of Forests, Parks and Recreation and the Department of Fish and Wildlife.

Please contact Sandy Wilmot, VForEM Coordinator (802-879-5687) at the Essex Junction District Office to coordinate your project activities.

As stated in Stipulation #1 of the License, an additional term must be negotiated **before June 1, 2002.**

Sincerely,

A handwritten signature in cursive script that reads 'Michele M. Guyette'.

Michele M. Guyette
District IV License Coordinator

MG

Enclosure

cc Sandy Wilmot ✓
Essex District Office
Bomoseen State Park
Pittsford District Office
Springfield District Office
St. Johnsbury District Office

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF FISH AND WILDLIFE
DEPARTMENT OF FORESTS, PARKS AND RECREATION

LICENSE

This license is made by and between the State of Vermont, hereinafter called "State," by its Departments of Fish and Wildlife and Forests, Parks and Recreation pursuant to 10 V.S.A. §2606(b), and §4147, and Robert Long, Soil Survey Project Leader, UVM, Cooperative Fish & Wildlife Research Unit, 3314B Spear Street, Charlotte, Vermont 05445, hereinafter called "Licensee."

It is mutually agreed by and between the parties, in consideration of, and under, the terms and conditions set forth below that the State grants Licensee the use of the licensed parcel for the sole purpose of the licensed activity as both are described below.

Conduct Graduate Research Projects as outlined on the attached description for the following areas:

Mt. Mansfield State Forest
Camel's Hump State Forest
Coolidge State Forest
Pond Woods WMA
Cornwall Swamp WMA
Lesnewell WMA

C.C. Putnam State Forest
Roxbury State Forest
Camel's Hump State Park
Snake Mountain WMA
Bomoseen State Park

The terms, conditions, and covenants agreed to are:

1. TERM: The term of this license shall commence on July 1, 2001 and terminate on October 1, 2001. The Licensee shall have the option to negotiate renewal for an additional three (3) years to be negotiated before June 1, 2002, upon thirty (30) days written notice to the State. It is understood, however, that the agreement to negotiate shall not be construed as a guarantee by either party that a new license will be executed.
2. FEE: In lieu of a fee, Licensee agrees to provide the State with a yearly status report and final research report. Maps for each of the above-referenced State Forest, State Park or Wildlife Management Area shall also be submitted.
3. SPECIAL TERMS AND CONDITIONS: This license shall be subject to the following terms and conditions:
 - a. While staying at any State Park, the appropriate fees will be the responsibility of the Licensee.

4. MAINTENANCE: The premises being used shall be maintained in a condition satisfactory to the State, including, but not limited to, removal of any trash or rubbish which shall appear within the licensed area. Licensee shall remove any and all equipment and personal property which may have been placed upon the premises promptly upon termination of the license, and shall clean and restore the site to the satisfaction of the State.
5. NON-EXCLUSIVITY: This license shall not be exclusive. The State reserves the right to use, or allow others to use, any part of the licensed area provided such use does not unreasonably interfere with the privileges hereby authorized to Licensee.
6. LIABILITY: The licensee shall indemnify, defend and hold harmless the State from all claims, suits, or demands for payment by any person arising from the Licensee's activities under this license.
7. ASSIGNMENT: This license is issued to the Licensee herein named, and is not assignable.
8. PERMITS, RULES, AND REGULATIONS: The Licensee shall obtain and maintain, at his own expense; all permits or licenses for the licensed activity and the Licensee shall not violate the terms or conditions of any of those permits or licenses.
9. SUITABILITY OF PREMISES: Acceptance of this license by Licensee shall be prima facia evidence that Licensee accepts the suitability of the premises for their purposes, and the use thereof by Licensee shall attest such suitability.
10. BUILDINGS AND STRUCTURES: No buildings or structures shall be erected upon the premises, other than those specifically authorized.
11. HERBICIDES: Licensee shall not use herbicides, other pesticides, growth inhibitors, or other toxic chemicals on the licensed parcel.
12. VEGETATION: No trees or other vegetation may be removed from the site without prior approval from the State.
13. TAXES: Certification under 32 V.S.A. § 3113 - The Licensee hereby certifies, under the pains and penalties of perjury, that Licensee is in good standing with respect to, or in full compliance with a plan to pay, any and all taxes due the State of Vermont as of the date the Licensee signs this contract, and to affirm, in accordance with 15 V.S.A. § 795 (where applicable) that all obligations in regard to child support are in good standing or that there is compliance with a payment plan approved by the Vermont Office of Child Support Services.

- 14. TERMINATION: The State reserves the right to cancel this license at any time if conditions above are not carried out by the Licensee. In addition, the State may without cause cancel this license, or alter the area on any June 1, upon ninety (90) days written notice to the Licensee. If the State cancels this license it shall make a financial adjustment to the Licensee by mutual agreement, but in no event to exceed any payment due the State in the particular license period that such cancellation may occur.
- 15. PREVIOUS AGREEMENTS: This writing supersedes and takes precedence over all other agreements written or oral, regarding the subject matter of this license and it is intended by the parties hereto as the final, complete, and exclusive expression of their agreement.

The State of Vermont, Department of Forests, Parks and Recreation is prohibited by 10 V.S.A. § 2606(b) from granting leases without prior approval of the General Assembly. Such approval has not been granted as of the date hereof. It is understood, therefore, that notwithstanding the terms and conditions set forth herein relating to the term or period of time, that unless or until legislative approval is granted, this instrument shall be construed as a license only, removable at the pleasure of the State at any time. Licensee accepts this instrument subject to this provision, and all expenditures or other actions or steps taken by Licensee in reliance on or expectation of the continuity of occupancy shall be entirely at his own risk.

IN PRESENCE OF:

STATE OF VERMONT
DEPARTMENT OF FORESTS, PARKS
AND RECREATION

Mike L...
Ellen Hammar
Witnesses

Ed Leary
Ed Leary, Operations Director

STATE OF VERMONT)
WASHINGTON COUNTY) § At Waterbury, in said county, this 6th day of July
A.D., 2001, personally appeared Ed Leary, Operations Director for the Department of
Forests, Parks and Recreation, and acknowledged the foregoing instrument by him
subscribed to be his free act and deed and the free act and deed of the State of Vermont.

Before me, Ellen L Hammar
Notary Public
Commission Expires 2/10/03

IN PRESENCE OF:

STATE OF VERMONT
DEPARTMENT OF FISH AND WILDLIFE

Ellen Hummer
Witnesses

Ronald Regan
Ronald Regan, Commissioner

STATE OF VERMONT)
WASHINGTON COUNTY) § At Waterbury, in said county, this 23rd day of July
A.D., 2001, personally appeared Ronald Regan, Commissioner of the Department of Fish
and Wildlife, and acknowledged the foregoing instrument by him subscribed to be his free
act and deed and the free act and deed of the State of Vermont.

Before me, Ellen L. Hummer
Notary Public
Commission Expires 2/10/03

Mary A. Mead
Heather J. Manning
Witnesses

Robert Long
Robert Long
Authorized Representative
Fed ID/SS # 565-55-6478

CHITTENDEN COUNTY) § At Charlotte, in said county, this 29th day of
June A.D. 2001, personally appeared Robert Long, and acknowledged
the foregoing instrument by him to be his free act and deed and the free act and deed
of Robert Long.

Before me, Mary A Mead
Notary Public
Commission Expires 2-10-03

Approved as to Form