SEALED BID

Buyer: West Virginia Division of Natural Resources

SOLICITATION NO: DNR214057

BID OPENING DATE: March 27, 2014

BID OPENING TIME: 1:30pm

FAX NUMBER: (304) 558-3970

03/27/14 09:54:37AM
West Virginia Purchasing Division

VirginiaTech

Office of Sponsored Programs (MC 0170)
North End Center, Suite 4200, Virginia Tech
300 Turner Street NW
Blacksburg, Virginia 24061
540-231-5281 Fax: 540-231-3599
www.osp.vt.edu

March 26, 2014

Mr. Dean Wingerd
West Virginia Division of Natural Resources
2019 Washington St. E.
Charleston, WV 25305-0130

Subject: Virginia Polytechnic Institute and State University Proposal 14-2156-03

Dear Mr. Wingerd:

In response to Solicitation DNR 214057, enclosed please find the proposal entitled, "West Virginia Bobcat Population Ecology Project". This proposal is being submitted by Dr. Marcella Kelly in our Department of Fish and Wildlife Conservation. The proposed period of performance for this effort is 08/15/14 through 08/14/19 with a funding requirement of $960,581.

All correspondence related to this proposal should reference Proposal Number **14-2156-03.**

This proposal is considered confidential/proprietary information of Virginia Tech and is being provided to you for evaluation purposes for funding this work at Virginia Tech. No other use of the information contained in this proposal is authorized until such time as an award is made.

Virginia Tech reserves the right to negotiate mutually agreeable terms and conditions at the time of award and a list of specific exceptions and clarifications to the subject solicitation are attached.

The University appreciates the opportunity to submit this proposal. If fiscal or budgetary questions arise please contact the undersigned (540) 231-6042 or rcb05@vt.edu. Technical questions should be directed to Dr. Kelly at 540-231-1734 or makelly2@vt.edu.

Sincerely,

Robert C. Blackwell

Robert C. Blackwell
Pre-Award Administrator, Office of Sponsored Programs

Enclosures
Cc:
University File

General Terms and Conditions

Article 9: Litigation Bond. Please remove this article. Virginia Tech is a state educational institution and cannot agree to submit a litigation bond. As a non-profit state educational institution we do not have the funds available for this type of payment.

Article 12: Liquidated Damages. Please remove this article. Virginia Tech is a non-profit state educational institution and cannot agree to pay liquidated damages. As a non-profit state educational institution we do not have the funds available for this type of payment.

Article 14: Registration. Is this $125 fee applicable to Virginia Tech?

Article 17: Payment. Please remove the work "acceptance" from this article. As a state educational institution Virginia Tech performs work on a best effort basis and not upon acceptance of the work.

Article 23 Taxes: Virginia Tech is a tax exempt organization. This clause is not applicable.

Article 24 Cancellation: Please add the following to this article: "Performance may be terminated by Vendor if circumstances beyond its reasonable control preclude continuation of the Research. Upon termination, Vendor will be reimbursed for all costs and non-cancellable commitments incurred in the performance of the Research to the date of termination, such amount not to exceed the total estimated cost."

Article 27 Applicable Law: Please remove this article. As a stated educational institution and a State Agency of the Commonwealth of Virginia Virginia Tech can only agree to those actions which the State legislature has authorized. The University has no authorizing legislation which would allow it to be bound by the laws of any state other than the Commonwealth of Virginia. I propose that we remove this article from the agreement and remain silent on applicable law.

Article 35: Warranty. Virginia Tech cannot warrant parts (b) and (c) of article 35. Please remove (b) and (c). As a state educational institution we perform research on a best efforts basis and cannot warrant that the results will be merchantable fit for the purpose intended or be free from defect in material or workmanship.

Article 44: Purchasing Card Acceptance. Please remove this requirement. This should not be applicable to Virginia Tech because we are a Virginia State Agency.

Article 45: Please remove the last sentence of this article. As a State Agency of the Commonwealth of Virginia we cannot agree to hold harmless or defend against the claims in this sentence.

Article 46 Indemnification: Please remove this article from the terms. As a state agency, Virginia Tech is prohibited from indemnifying other parties without approval from the Governor [see Va Code section 2.2-1837]. The basis for an agency's inability to agree to an indemnification agreement or the payment of attorney's fees and court costs is rooted in Virginia Constitution Article X, Section 9, which prohibits any debt other than (1) debts to meet emergencies and redeem previous debt obligations, (2) general

obligation debt for capital projects and sinking fund, or (3) debts for certain revenue-producing capital projects.

Article 51 Background Checks. Please remove this article. I believe that this will not be applicable to our work because we will not have access to the Capitol complex or have access to sensitive or critical information.

Specifications – Request for Quotation

Article 7 Payment: Please remove the work "acceptance" or "accept", "accepted" from this article. As a state educational institution Virginia Tech performs work on a best effort basis and not upon acceptance of the work.

Article 10 Vendor Default: Could we add that if there is a default then the Vendor would have 30 days to cure the default before termination.

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Solicitation

NUMBER: DNR214057

PAGE: 1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
DEAN WINGERD
304-558-0468

REQ COPY

VENDOR

Dept. of Fish and Wildlife Conservation
100 Cheatham Hall
Blacksburg, VA 24061

SHIP TO

DIVISION OF NATURAL RESOURCES
PROCUREMENT OFFICE

324 4TH AVENUE
SOUTH CHARLESTON, WV
25303-1228 304-558-3397

DATE PRINTED: 02/25/2014

BID OPENING DATE: 03/27/2014 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT

THE WEST VIRGINIA PURCHASING DIVISION FOR THE AGENCY, WV DIVISION OF NATURAL RESOURCES, IS SOLICITING BIDS TO PROVIDE AN M.S. AND PH.D. STUDENT(S) TO CONDUCT AND PUBLISH A MAJOR BOBCAT POPULATION PROJECT IN WEST VIRGINIA, PER THE ATTACHED SPECIFICATIONS.

ATTACHMENTS INCLUDE:

1. INSTRUCTIONS TO VENDORS SUBMITTING BIDS.
2. GENERAL TERMS AND CONDITIONS.
3. DNR214057 SPECIFICATIONS.
4. CERTIFICATION AND SIGNATURE PAGE.
5. PURCHASING AFFIDAVIT.
6. RESIDENT VENDOR PREFERENCE (RVP) FORM.

0001	1	LS	956-70			

M.S. AND PH.D. STUDENTS FOR BOBCAT POPULATION STUDY

****** THIS IS THE END OF RFQ DNR214057 ****** TOTAL: $960,281

See clarifications/exceptions provided in Virginia Polytechnic Institute and State University (Virginia Tech) Proposal 14-2156-03 dated 3/26/14

SIGNATURE: Lauren P. Maguire for TELEPHONE: 540-231-5281 DATE: 3-26-14

TITLE: Assist VP Office of Sponsored Programs FEIN: 54-6001805

ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. **REVIEW DOCUMENTS THOROUGHLY:** The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. **MANDATORY TERMS:** The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. **PREBID MEETING:** The item identified below shall apply to this Solicitation.

☑ A pre-bid meeting will not be held prior to bid opening.

☐ A **NON-MANDATORY PRE-BID** meeting will be held at the following place and time:

☐ A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing. Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. **VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are non-binding.

Question Submission Deadline: March 14, 2014 at 5:00pm

Submit Questions to: Dean Wingerd
2019 Washington Street, East
Charleston, WV 25305
Fax: 304-558-4115
Email: Dean.C.Wingerd@wv.gov

5. **VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including that made at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

6. **BID SUBMISSION:** All bids must be signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include hand delivery, delivery by courier, or facsimile. The bid delivery address is:

Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

The bid should contain the information listed below on the face of the envelope or the bid maynot be considered:

SEALED BID
BUYER: _____
SOLICITATION NO.: _____
BID OPENING DATE: _____
BID OPENING TIME: _____
FAX NUMBER: _____

In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus _____ convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: ☐ Technical
☐ Cost

7. **BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when time stamped by the official Purchasing Division time clock.

Bid Opening Date and Time: March 27, 2014 at 1:30pm

Bid Opening Location: Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

8. **ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. **BID FORMATTING:** Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

GENERAL TERMS AND CONDITIONS:

1. **CONTRACTUAL AGREEMENT:** Issuance of a Purchase Order signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. **DEFINITIONS:** As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

   2.1 **"Agency"** or **"Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

   2.2 **"Contract"** means the binding agreement that is entered into between the State and the Vendor to provide the goods and services requested in the Solicitation.

   2.3 **"Director"** means the Director of the West Virginia Department of Administration, Purchasing Division.

   2.4 **"Purchasing Division"** means the West Virginia Department of Administration, Purchasing Division.

   2.5 **"Purchase Order"** means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the successful bidder and Contract holder.

   2.6 **"Solicitation"** means the official solicitation published by the Purchasing Division and identified by number on the first page thereof.

   2.7 **"State"** means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

   2.8 **"Vendor"** or **"Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. **CONTRACT TERM; RENEWAL; EXTENSION:** The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☑ **Term Contract**

Initial Contract Term: This Contract becomes effective on Upon Award

and extends for a period of One (1) year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal must be submitted to the Purchasing Division Director thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of this Contract is limited to Three (3) successive one (1) year periods. Automatic renewal of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases. Attorney General approval may be required for vendor terms and conditions.

Reasonable Time Extension: At the sole discretion of the Purchasing Division Director, and with approval from the Attorney General's office (Attorney General approval is as to form only), this Contract may be extended for a reasonable time after the initial Contract term or after any renewal term as may be necessary to obtain a new contract or renew this Contract. Any reasonable time extension shall not exceed twelve (12) months. Vendor may avoid a reasonable time extension by providing the Purchasing Division Director with written notice of Vendor's desire to terminate this Contract 30 days prior to the expiration of the then current term. During any reasonable time extension period, the Vendor may terminate this Contract for any reason upon giving the Purchasing Division Director 30 days written notice. Automatic extension of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases, but Attorney General approval may be required.

Release Order Limitations: In the event that this contract permits release orders, a release order may only be issued during the time this Contract is in effect. Any release order issued within one year of the expiration of this Contract shall be effective for one year from the date the release order is issued. No release order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within days.

☐ **One Time Purchase:** The term of this Contract shall run from the issuance of the Purchase Order until all of the goods contracted for have been delivered, but in no event shall this Contract extend for more than one fiscal year.

☐ **Other:** See attached.

4. **NOTICE TO PROCEED:** Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Purchase Order will be considered notice to proceed

5. **QUANTITIES:** The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☐ **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☑ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. **PRICING:** The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

7. **EMERGENCY PURCHASES:** The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

8. **REQUIRED DOCUMENTS:** All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

☐ **BID BOND:** All Vendors shall furnish a bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

☐ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of . The performance bond must be issued and received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

☐ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be issued and delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under $100,000. Personal or business checks are not acceptable.

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

☑ **WORKERS' COMPENSATION INSURANCE:** The apparent successful Vendor shall have appropriate workers' compensation insurance and shall provide proof thereof upon request.

☐ **INSURANCE:** The apparent successful Vendor shall furnish proof of the following insurance prior to Contract award and shall list the state as a certificate holder:

☐ **Commercial General Liability Insurance:** or more.

☐ **Builders Risk Insurance:** builders risk – all risk insurance in an amount equal to 100% of the amount of the Contract.

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The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed above.

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

☐

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☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

9. **LITIGATION BOND:** The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or $5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

10. **ALTERNATES:** Any model, brand, or specification listed herein establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

11. **EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or

other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

12. **LIQUIDATED DAMAGES:** Vendor shall pay liquidated damages in the amount for

This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy.

13. **ACCEPTANCE/REJECTION:** The State may accept or reject any bid in whole, or in part. Vendor's signature on its bid signifies acceptance of the terms and conditions contained in the Solicitation and Vendor agrees to be bound by the terms of the Contract, as reflected in the Purchase Order, upon receipt.

14. **REGISTRATION:** Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the $125 fee if applicable.

15. **COMMUNICATION LIMITATIONS:** In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

16. **FUNDING:** This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

17. **PAYMENT:** Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears, to the Agency at the address on the face of the purchase order labeled "Invoice To."

18. **UNIT PRICE:** Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

19. **DELIVERY:** All quotations are considered freight on board destination ("F.O.B. destination") unless alternate shipping terms are clearly identified in the bid. Vendor's listing of shipping terms that contradict the shipping terms expressly required by this Solicitation may result in bid disqualification.

20. **INTEREST:** Interest attributable to late payment will only be permitted if authorized by the West Virginia Code. Presently, there is no provision in the law for interest on late payments.

21. **PREFERENCE:** Vendor Preference may only be granted upon written request and only in accordance with the West Virginia Code § 5A-3-37 and the West Virginia Code of State Rules. A Resident Vendor Certification form has been attached hereto to allow Vendor to apply for the preference. Vendor's

failure to submit the Resident Vendor Certification form with its bid will result in denial of Vendor Preference. Vendor Preference does not apply to construction projects.

22. **SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid on or after July 1, 2012, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to submission of its bid to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

23. **TAXES:** The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

24. **CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-7.16.2.

25. **WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

26. **TIME:** Time is of the essence with regard to all matters of time and performance in this Contract.

27. **APPLICABLE LAW:** This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

28. **COMPLIANCE:** Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendors acknowledge that they have reviewed, understand, and will comply with all applicable law.

29. **PREVAILING WAGE:** On any contract for the construction of a public improvement, Vendor and any subcontractors utilized by Vendor shall pay a rate or rates of wages which shall not be less than the fair minimum rate or rates of wages (prevailing wage), as established by the West Virginia Division of Labor under West Virginia Code §§ 21-5A-1 et seq. and available at http://www.sos.wv.gov/administrative-law/wagerates/Pages/default.aspx. Vendor shall be responsible for ensuring compliance with prevailing wage requirements and determining when prevailing wage

requirements are applicable. The required contract provisions contained in West Virginia Code of State Rules § 42-7-3 are specifically incorporated herein by reference.

30. **ARBITRATION:** Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

31. **MODIFICATIONS:** This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary, no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). **No Change shall be implemented by the Vendor until such time as the Vendor receives an approved written change order from the Purchasing Division.**

32. **WAIVER:** The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

33. **SUBSEQUENT FORMS:** The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

34. **ASSIGNMENT:** Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments. Notwithstanding the foregoing, Purchasing Division approval may or may not be required on certain agency delegated or exempt purchases.

35. **WARRANTY:** The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

36. **STATE EMPLOYEES:** State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

37. **BANKRUPTCY:** In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

38. [RESERVED]

39. CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/default.html.

40. DISCLOSURE: Vendor's response to the Solicitation and the resulting Contract are considered public documents and will be disclosed to the public in accordance with the laws, rules, and policies governing the West Virginia Purchasing Division. Those laws include, but are not limited to, the Freedom of Information Act found in West Virginia Code § 29B-1-1 et seq.

If a Vendor considers any part of its bid to be exempt from public disclosure, Vendor must so indicate by specifically identifying the exempt information, identifying the exemption that applies, providing a detailed justification for the exemption, segregating the exempt information from the general bid information, and submitting the exempt information as part of its bid but in a segregated and clearly identifiable format. Failure to comply with the foregoing requirements will result in public disclosure of the Vendor's bid without further notice. A Vendor's act of marking all or nearly all of its bid as exempt is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor's act of marking a bid or any part thereof as "confidential" or "proprietary" is not sufficient to avoid disclosure and WILL NOT BE HONORED. In addition, a legend or other statement indicating that all or substantially all of the bid is exempt from disclosure is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor will be required to defend any claimed exemption for nondisclosure in the event of an administrative or judicial challenge to the State's nondisclosure. Vendor must indemnify the State for any costs incurred related to any exemptions claimed by Vendor. Any questions regarding the applicability of the various public records laws should be addressed to your own legal counsel prior to bid submission.

41. LICENSING: In accordance with West Virginia Code of State Rules §148-1-6.1.7, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

42. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Purchase Order from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired

by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

43. **VENDOR CERTIFICATIONS:** By signing its bid or entering into this Contract, Vendor certifies (1) that its bid was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid for the same material, supplies, equipment or services; (2) that its bid is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this RFQ in its entirety; understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency.

The individual signing this bid on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

44. **PURCHASING CARD ACCEPTANCE:** The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

☐ Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

45. **VENDOR RELATIONSHIP:** The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, *etc.* and the filing of all necessary documents, forms and returns pertinent to all of the foregoing. Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

46. **INDEMNIFICATION:** The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered

by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

47. **PURCHASING AFFIDAVIT:** In accordance with West Virginia Code § 5A-3-10a, all Vendors are required to sign, notarize, and submit the Purchasing Affidavit stating that neither the Vendor nor a related party owe a debt to the State in excess of $1,000. The affidavit must be submitted prior to award, but should be submitted with the Vendor's bid. A copy of the Purchasing Affidavit is included herewith.

48. **ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE:** This Contract may be utilized by and extends to other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"). This Contract shall be extended to the aforementioned Other Government Entities on the same prices, terms, and conditions as those offered and agreed to in this Contract. If the Vendor does not wish to extend the prices, terms, and conditions of its bid and subsequent contract to the Other Government Entities, the Vendor must clearly indicate such refusal in its bid. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

49. **CONFLICT OF INTEREST:** Vendor, its officers or members or employees, shall not presently have or acquire any interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

50. **REPORTS:** Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☑ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.

51. **BACKGROUND CHECK:** In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information

to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision.

The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304)558-9911 for more information.

52. **PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS:** Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.

b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process.

The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

a. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars ($2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

b. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

53. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars ($50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products.

This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

REQUEST FOR QUOTATION
DNR214057 – Bobcat reporting

SPECIFICATIONS

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Division of Natural Resources, hereinafter referred to as DNR, to establish a contract for reporting, analyzing, writing, and publishing scientific results of a major study detailing demographic parameters, parasites, population estimates in different regions, and evaluating the population models of West Virginia bobcats.

   Bobcat biological data has not been updated since the late 1970s. With increasing pelt prices and concomitant prices, the validity of the DNR's population model needs to be examined if the state is to continue to manage bobcats with any confidence. Further complicating population density estimates and usefulness of abundance indices are changing habitats in the form of maturing forests and the documented unreliability of sex data as provided by hunters and trappers at game checking stations.

   The DNR's current model, using outdated data, suggests that West Virginia may be at the upper limit of allowable harvest for bobcats (21%). However, West Virginia has experienced no reduction in harvest in spite of higher pelt prices. From 2010–2013 the DNR has received numerous requests to increase the season bag limit for bobcats. Since this is a CITES listed species and a top tier predator, the DNR is exercising extreme caution before entertaining thoughts of proposing liberalized harvest regulations. Therefore, the DNR wishes to contract with a university to fund a Ph.D. and M.S. student in wildlife management to undertake a large-scale project to examine the population dynamics and modeling of West Virginia's bobcat population.

2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.

   2.1 **"Contract Services"** means reporting, analyzing, writing, and publishing scientific results of a major study detailing demographic parameters, parasites, population estimates in different regions, and evaluating population models of West Virginia bobcats.

   2.2 **"Pricing Page"** means the pages upon which Vendor should list its proposed price for the Contract Services. The Pricing Page is either included on the last page of this RFQ or attached hereto as Exhibit A.

   2.3 **"RFQ"** means the official request for quotation published by the Purchasing Division and identified as DNR214057.

   2.4 **"CITES"** means Convention on International Trade in Endangered Species.

2.5 **"Ph.D. Student"** means a Doctor of Philosophy in Wildlife Management student.

2.6 **"M.S. Student"** means a Master of Science in Wildlife Management student.

2.7 **"PCR"** means Polymerase Chain Reaction.

3. **QUALIFICATIONS:** Vendor shall have the following minimum qualifications:

3.1. Offer a M.S. and Ph.D. major in wildlife management, wildlife biology or wildlife ecology from an accredited university. Documentation will be done by supplying a list of majors within a respective unit of the accredited university.

3.2. Have at least one faculty member within their college or university who has a Ph.D. specialty in genetics and is willing to serve on the student's committee. If the principal investigator is not the faculty with a specialty in genetics, a letter on University letterhead stating their willingness to serve on the committee will serve as documentation.

3.3. Summaries of, and references from at least 5 studies dealing with population dynamics, natural barriers, game animals in the eastern United States, genetic flow or microsatellite loci published in peer reviewed scientific journals by the principal or co-principal investigator. Bidders shall provide the publication name, the date on which the study was published, the name of the study (as published), and the abstract (i.e., scientific citation plus abstract). A full version of each study must be available for review at request of the Agency at no cost (bidders' including full copies or reprints of each study with the bid is acceptable). Bidders should use Attachment B, Study References Sheet, to provide this information or reprints.

3.4. Summaries of and references from at least 2 papers dealing with furbearers published in peer reviewed scientific journals. Bidders shall provide the publication name, the date on which the study was published, the name of the study (as published), and the abstract (i.e., scientific citation plus abstract). A full version of each study must be available for review at request of the Agency at no cost (bidders' including full copies or reprints of each study with the bid is acceptable). Bidders should use Attachment C, Study References Sheet, to provide this information or reprints.

4. **MANDATORY REQUIREMENTS:**

4.1 Mandatory Contract Services Requirements and Deliverables: Contract Services must meet or exceed the mandatory requirements listed below.

4.1.1 The M.S. student must obtain and process bobcat carcasses from trappers and hunters throughout West Virginia.

4.1.1.1 The winning vendor must offer a carcass reward to hunters and trappers of at least $20.00 per animal and must be included in the annual lump sum on the pricing page. The winning vendor must budget for a minimum of 600 collected carcasses. A minimum of 300 carcasses should be budgeted for year 1 and 2, respectively.

4.1.1.2 The winning vendor will conduct mailings to 1,400 known hunters and trappers to increase awareness of the project. The price for mailings must be included in the annual lump sum on the pricing page. A minimum of 500 should be budgeted in years 1 and 2 with 400 in year 3, respectively.

4.1.2 The M.S. student must obtain age structure of harvested bobcats and compare results among West Virginia's five (5) ecological regions.

4.1.2.1 The winning vendor will be responsible for pulling and having age data extracted from all available teeth and must be included in the annual lump sum on the pricing page. A minimum of 600 teeth will be considered for age determination. A minimum of 300 should be budgeted for year 1 and 2, respectively.

4.1.3 The M.S. student must evaluate productivity of bobcats and compare results among West Virginia's five (5) ecological regions.

4.1.3.1 The M.S. student will dissect all available reproductive tracts and use appropriate age data to determine reproductive rates of bobcats in West Virginia.

4.1.4 The M.S. student will conduct and/or facilitate studies on food habits, parasites, diseases, morphometric measurements and physiological condition of bobcats.

4.1.4.1 Feline Panleukopenia PCR testing will be tested on all bobcat carcasses to determine prevalence in West Virginia.

4.1.4.1 The winning vendor must include the Feline Panleukopenia PCR testing in the annual lump sum on the pricing page. A minimum of 600 bobcats must be tested. A minimum of 300 should be budgeted for year 1 and 2, respectively.

4.1.5 An overall view of morphometric measurements and physiological condition will be done and results compared among West Virginia's five (5) ecological regions.

4.1.6 Either the M.S. student or an honor's undergraduate student will use all available carcasses to assess food habits during the hunting and trapping seasons in West Virginia.

4.1.7 The Ph.D. student must coordinate statewide hair snare sampling protocol and design for bobcats.

4.1.7.1 The student will design a sampling protocol that will be used by DNR personnel to collect hair samples across West Virginia's five (5) ecological regions. The DNR will be responsible for running and collecting samples per the student and major advisor's recommendations.

4.1.7.2 The DNR will supply the respective hair samples to the Ph.D. student for analysis.

4.1.8 The Ph.D. student will collect genetic data to use for population estimation and to identify potential migration barriers in the landscape.

4.1.8.1 The winning vendor will be responsible for analyzing all genetic samples collected during the sampling period. Price for genetic analysis must be included in each annual cost on the pricing page.

4.1.9 The Ph.D. student will estimate and compare the relative abundance of bobcats among West Virginia's five (5) ecological regions.

4.1.9.1 Using data collected through hair sampling and occurrence rates, the student will compare abundance estimates in West Virginia.

4.1.10 Ph.D. student will conduct an in-depth study in West Virginia's north central ecological region to determine if population estimates can be refined.

4.1.11 Ph.D. student will refine or verify the DNR's current bobcat population model to evaluate and determine its validity and use in conjunction with harvest data to evaluate potential changes in bag limits or season structure.

4.1.12 Because most universities require Ph.D. students to design and conduct their own research, the student will also be encouraged to develop and test additional hypotheses pertaining to bobcats using either population or genetic data. However, the student's first priority will be to complete the major objectives as listed above.

4.1.12.1 All additional costs for the original research must be included in the amount on the pricing page.

4.2 Publication of results

4.2.1 Either or both of the DNR Furbearer Project Leader or the Supervisor of Game Management Services will be a co-author on all publications or presentations.

4.3 Assignment of committee

4.3.1 Either or both of the DNR Furbearer Project Leader or the Supervisor of Game Management Services will be a member of the student's committee and invited to all committee meetings.

4.4 Annual Reports

4.4.1 Annual reports are due on August 1 of each year to the Supervisor of Game Management Services and Furbearer Project Leader via e-mail in either Word or PDF format and will detail completion percentage of said task that were to be completed during the respective year.

4.5 Performance Schedule

4.5.1 August 2014 Students begin classes.

4.5.2 August – November 2014 Sampling design.

4.5.3 December 2014 Students have first committee meetings and selects committees.

4.5.4 December 1, 2014 report detailing sampling design and protocols due to DNR. Report will be submitted to Supervisor of Game Management Services and Furbearer Project Leader via e-mail in either Word or PDF format and will detail completion percentage of said task.

4.5.5 November 2014 – February 2015 Carcass collection.

4.5.5.1 The M.S. student will be responsible for coordinating and collecting bobcat carcasses. Summary report of progress will be included in annual report.

4.5.6 March 2015 – July 2015 Collect hair snare samples.

4.5.6.1 Ph.D. student will be responsible for organizing sampling collection and analysis. Summary report of progress will be included in annual report.

4.5.7 May 2015 – August 2017 Conduct genetic analyses.

4.5.7.1 Ph.D. student will conduct genetic analyses and include updates with annual report.

4.5.8 November 2015 – February 2016 Carcass collection.

4.5.8.1 The M.S. student will be responsible for coordinating and collecting bobcat carcasses. Summary report of progress will be included in annual report.

4.5.9 March 2016 – July 2016 Collect hair snare samples.

4.5.9.1 Ph.D. student will be responsible for organizing sampling collection and analysis. Summary report of progress will be included in annual report.

4.5.10 August 2017 M.S. student completes all respective contract services.

4.5.10.1 A final report is due to the DNR on September 1, 2017.

4.5.11 July 2018 Ph.D. student completes all respective contract services.

4.5.11.1 A final report is due to DNR by July 31, 2018.

5. CONTRACT AWARD:

5.1 Contract Award: The Contract is intended to provide Agency with a purchase price for the Contract Services. The Contract shall be awarded to the Vendor that provides the Contract Services meeting the required specifications for the lowest overall total cost (Combine All Years), as shown on the Pricing Page. The initial contract shall be awarded for the Year One(1) Total only, effective the first year of the Contract, with Years Two (2) , Three (3) and Four (4) added by subsequent annual renewal change orders.

5.2 Pricing Page: Vendor should complete the Pricing Page by filling in the Annual Cost for each item listed, this Annual Cost shall include all costs related to the project including salaries, fringe benefits, travel, supplies and any other incidentals required. Vendor should complete the Pricing Page in full as failure to complete the Pricing Page in its entirety may result in Vendor's bid being disqualified.

Notwithstanding the foregoing, the Purchasing Division may correct errors as it deems appropriate. Vendor should enter the information into the Pricing Page to prevent errors in the evaluation.

6. **PERFORMANCE:** Vendor and Agency shall agree upon the schedule listed in Section 4.5 for performance of Contract Services and Contract Services Deliverables. In the event that this Contract is designated as an open-end contract, Vendor shall perform in accordance with the release orders that may be issued against this Contract.

7. **PAYMENT:** Agency shall pay, for all Contract Services performed and accepted under this Contract. Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia. Vendor shall bill Agency monthly for costs accrued during that pay period.

8. **TRAVEL:** Vendor shall be responsible for all mileage and travel costs, including travel time, associated with performance of this Contract. Any anticipated mileage or travel costs may be included in the flat fee or hourly rate listed on Vendor's bid, but such costs will not be paid by the Agency separately.

9. **FACILITIES ACCESS:** Performance of Contract Services may require access cards and/or keys to gain entrance to Agency's facilities. In the event that access cards and/or keys are required:

9.1. Vendor must identify principal service personnel which will be issued access cards and/or keys to perform service.

9.2. Vendor will be responsible for controlling cards and keys and will pay replacement fee, if the cards or keys become lost or stolen.

9.3. Vendor shall notify Agency immediately of any lost, stolen, or missing card or key.

9.4. Anyone performing under this Contract will be subject to Agency's security protocol and procedures.

9.5. Vendor shall inform all staff of Agency's security protocol and procedures.

10. **VENDOR DEFAULT:**

10.1. The following shall be considered a vendor default under this Contract.

10.1.1. Failure to perform Contract Services in accordance with the requirements contained herein.

10.1.2. Failure to comply with other specifications and requirements contained herein.

10.1.3. Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.

10.1.4. Failure to remedy deficient performance upon request.

10.2. The following remedies shall be available to Agency upon default.

10.2.1. Cancellation of the Contract.
10.2.2. Cancellation of one or more release orders issued under this Contract.
10.2.3. Any other remedies available in law or equity.

Pricing Sheet
DNR214057 Bobcat Project

YEAR ONE (1)	YEAR TWO (2)	YEAR THREE (3)	YEAR FOUR (4)
Annual Cost	Annual Cost	Annual Cost	Annual Cost
$283,510	$289,882	$233,923	$153,266

TOTAL COST	$960,581

CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration. See exceptions/clarifications contained in Virginia Tech proposal 14-2156-03.

Virginia Polytechnic Institute and State University (Virginia Tech)
(Company)

Laurent P. Maglinde for
(Authorized Signature)

John Rudd, Assistant Vice President, Office of Sponsored Programs
(Representative Name, Title)

540-231-5281 540-231-3599
(Phone Number) (Fax Number)

March 26, 2014
(Date)

PREPARED BY: Bob Blackwell REVISION #: 3f
DATE BUDGET CREATED: 3/25/14 REVISED DATE: 3/25/14
SPONSOR: State of WV
FILENAME: [Budget_Kelly_State of WV_General-SHALL_1-17-14R1.xlsx]Budget
PRIN. INVESTIGATOR: M Kelly
BUDGET PERIOD: 8/15/14 through 8/14/18
DUE DATE: 3/27/14

Internal Use: Banner Codes
112 $38,395
114 $243,764

		08/15/14-08/14/15 Period 1				08/15/15-08/14/16 Period 2:				08/15/16-08/14/17 Period 3:				08/15/17-08/14/18 Period 4:				TOTAL
	NAME/POSITION	% EFFORT	REQUESTED SALARY	CAL MONTHS	FRINGES	% EFFORT	REQUESTED SALARY	CAL MONTHS	FRINGES	% EFFORT	REQUESTED SALARY	CAL MONTHS	FRINGES	% EFFORT	REQUESTED SALARY	CAL MONTHS	FRINGES	REQUESTED SALARY
1.	TBH GRA (Step 4)	100%	$20,892	12.00	$8,254	100%	$21,727	12.00	$8,304	100%	$22,598	12.00	$1,338	100%	$23,503	12.00	$1,410	$88,715
2.	TBH GRA (Step 12)	100%	$23,325	12.00	$9,400	100%	$24,258	12.00	$1,455	100%	$25,228	12.00	$1,514	100%	$26,238	12.00	$1,574	$99,049
3.	Technician Wage effort	0%	$14,000	0.00	$1,190	0%	$23,000	0.00	$2,530	0%	$14,000	0.00	$1,190	0%	$0	0.00		$50,000
4.	Marcella J Kelly (Assoc Prof CY)	8%	$3,571	1.00	$2,807	8%	$8,813	1.00	$2,919	8%	$8,270	1.00	$3,038	8%	$8,841	1.00	$3,157	$29,395
	TOTAL PERSONNEL SALARIES		$58,788				$82,898				$79,094				$59,373			$240,159
	FRINGE BENEFITS:																	
	See rates in table below		$8,859				$9,053				$7,095				$6,141			$27,948
	TOTAL SALARIES AND FRINGES		$73,439				$90,958				$73,190				$65,520			$268,105
	EQUIPMENT (greater than or equal to $5000 per item		$8,000				$0				$0				$0			$8,000
	Computers	$8,000				$0				$0				$0				
	TRAVEL		$2,000				$2,500				$3,000				$6,000			$13,500
	Domestic	$2,000				$2,500				$3,000				$6,000				
	International	$0				$0				$0				$0				
	MATERIALS/SUPPLIES		$73,920				$29,000				$0				$0			$522,580
	Total from Details tab	$73,920				$29,000				$0				$0				
	PUBLICATION COSTS		$0				$0				$2,000				$8,000			$8,000
	Fees	$0				$0				$2,000				$6,000				
	CONSULTANT SERVICES		$0				$0				$0				$0			$0
	ADP/COMPUTER SERVICES		$0				$0				$0				$0			$0
	CONTRACTUAL SERVICES		$5,000				$40,000				$45,000				$0			$90,000
	Total from Details tab	$5,000				$40,000				$45,000				$0				
	FACILITY/EQUIPMENT RENTAL FEES		$3,000				$3,000				$0				$0			$9,000
	Field house rental	$3,000				$3,000				$0				$0				
	ALTERATIONS and RENOVATIONS		$0				$0				$0				$0			$0
	TUITION/OTHER DIRECT COSTS 1 (Line F8 in RR Budget Form		$23,835				$25,323				$26,243				$29,459			$104,530
	OTHER DIRECT COSTS 2 (Line F9 in RR Budget Form)		$0				$0				$0				$0			$0
	OTHER DIRECT COSTS 3 (Line F10 in RR Budget Form)		$0				$0				$0				$0			$0
	PARTICIPANT SUPPORT COSTS		$0				$0				$0				$0			$0
	SUBCONTRACTS		$0				$0				$0				$0			$0
	TOTAL DIRECT COSTS		$189,314				$190,734				$155,438				$105,379			$641,515
	INDIRECT COSTS-On Campus Research, Federal Default Rate		$94,196				$99,098				$78,440				$47,237			$319,021
	Negotiated Rate through Project End, MTDC 61.00%	$94,196				$99,098				$78,440				$47,237				
	TOTAL COSTS		$283,510				$289,832				$233,878				$153,288			$960,536
	Base for Indirect Costs		$154,419				$162,459				$128,590				$77,320			
	UNRECOVERED INDIRECT		$0				$0				$0				$0			$0
	Unrecovered Indirect	$0				$0				$0				$0				

FRINGE RATES	On/After 7/1/14
Regular Faculty	32.75%
Special Research Faculty	33.75%
Part Time Faculty	28.50%
SMR Faculty/Wage Employee	8.50%
GRA	8.00%
Classified Staff	47.25%

03/27/2014 09:11 5402317580 FISHERIES WILDLIFEVT PAGE 32/46

SEALED BID

Buyer: West Virginia Division of Natural Resources

SOLICITATION NO: DNR214057

BID OPENING DATE: March 27, 2014

BID OPENING TIME: 1:30pm

FAX NUMBER: (304) 558-3970

SOLICITATION NO: DNR214057

VENDOR: Virginia Tech is an accredited university. Four majors are offered in the College of Natural Resources and Environment including: Fish and Wildlife Conservation, Forest Resources and Environmental Conservation; Geography: and Sustainable Biomaterials. The Department of Fish and Wildlife Conservation, where this project will be housed, offers M.S. and Ph.D. degrees.

PI: Marcella J. Kelly - Associate Professor - Dept. of Fish & Wildlife Conservation; Wildlife Habitat and Population Analysis Laboratory; Virginia Tech; 146 Cheatham Hall; Blacksburg, VA 24061-0321; PH: (540) 231-1734; FAX: 540-231-7580 makelly2@vt.edu

CO-PI: Lisette Waits: Professor – Department of Fish and Wildlife Sciences; University of Idaho, Laboratory for Evolutionary and Ecological Conservation Genetics; 875 Perimeter Drive MS 1136; Moscow, Idaho 83844-1136; (208) 885-7823; lwaits@uidaho.edu. See attached letter of commitment.

NOTE: If WVDNR requires a geneticist from Virginia Tech we can supply that, however, Drs. Kelly and Waits have a history of collaboration on carnivore population genetic studies including bobcats, coyotes, and bears in VA and serve on each other's graduate student committees. Dr. Kelly did not receive an answer to her question regarding whether an outside geneticist was acceptable despite submitting the question prior to the March 14, 2014 deadline.

Workers' Compensation Insurance: Virginia Tech posesses workers compensation insurance and can provide proof uopn request.

Contract Manager:	Dr. Marcella J. Kelly
Telephone Number:	work: (540) 231-1734;
	cell: (540) 220-0098
Fax Number:	(540) 231-7580
Email address:	makelly2@vt.edu

QUALIFICATIONS OF INVESTIGATORS:

Dr. Kelly directs the Wildlife Habitat and Population Analysis Lab where she and her team specialize in wildlife population dynamics with a particular focus on elusive, wide-ranging carnivores, particularly felids and canids. She specializes in mark-recapture (both traditional and spatially explicit methods) for population abundance, density, occupancy, and survival analyses from remote cameras and from scat and hair detection studies. Dr. Kelly is well-versed in wildlife population demography including population viability analyses and various population modeling techniques. She teaches Population Dynamics and Estimation and Wildlife Field Techniques at the undergraduate level, and Parameter Estimation at the graduate level. She is also the lead assessor for the IUCN red list status of the bobcat, range-wide.

Dr. Waits was a co-founder of the Laboratory for Ecological, Evolutionary and Conservation Genetics and the Center for Research on Invasive Species and Small Populations. Her current research projects use molecular genetic techniques to study a variety of threatened or vulnerable species in Europe, Asia, North and South America. She uses non-invasive genetic sampling from hair and scat to examine hybridization, genetic health, and landscape connectivity. Dr. Waits teaches Conservation Biology at the undergraduate level and Landscape Genetics and Conservation Genetics at the graduate level.

Drs. Kelly and Waits have an estabilised collaboration that includes evaluating population estimators via genetic vs. remote-camera mark-recapture for multiple species including ocelots, pumas, and jaguars in Central America, and bobcats, coyotes, and black bears in the Eastern US. They began work in 2011 on the Virginia Appalachian Coyote Study (VACS), aimed at estimating demographic parameters for coyotes. Genetic analysis of the 1679 scat samples revealed that the highest number of samples came from bobcats (628). All samples were analyzed in the Waits lab. PCR techniques and procedures for bobcat DNA extraction, amplification, species, sex, and individual identification, therefore, are already well-established in the Waits lab, while study design and implementation for bobcat density estimation is well established in the Kelly lab. Dr. Kelly's lab is also analyzing scat samples for parasites and diet content. The proposed West Virginia DNR Bobcat study would provide an excellent comparison to the bobcat results from the VACS project, which will expand in 2015 to more intensively survey bobcats by comparing efficacy of genetic mark-recapture to photographic mark-recapture. The results of the VACS study are are currently be written into publications, but we are willing to supply WVDNR with progress reports if needed (e.g. Kelly et al. 2014, 2013, 2012. Progress Report to Virginia Department of Game and Inland Fisheries – available upon request).

Requested summaries of and references from *at least* 5 studies dealing with population dynamics, natural barriers, game animals in the eastern US, genetic flow or microsattelite loci published in peer reviewed journals. Articles available upon request.

1. Rich, L.; **Kelly**, M.J.; Noss, A.J.; Arispe L., R.; Di Bitetti, M.; De Angelo, C.D.; Paviolo, A.; Di Blanco, Y.E.; and L. Maffei. 2014. Comparing capture-recapture, mark-resight and spatial mark-resight models for estimating puma densities via camera traps. Journal of Mammalogy. In Press (April)

Abstract/Summary:

Camera trapping surveys, in combination with traditional capture-recapture or spatially explicit capture-recapture techniques, have become popular for estimating the density of individually identifiable carnivores. When only a portion of the population is uniquely identifiable, traditional and spatial mark-resight models provide a viable alternative. We re-analyzed a data set that used photographic capture-recapture methods to estimate the densities of pumas (Puma concolor) across 3 study sites in Belize, Argentina, and Bolivia using newer, more advanced modeling including spatial and non-spatial mark-resight techniques. Additionally, we assessed how photo identification influenced density estimates by comparing estimates based on capture histories constructed by 3 independent investigators. We estimated the abundances of pumas using mark-resight models in program MARK and then estimated densities ad hoc. We also estimated densities directly using spatial mark-resight models implemented in a Bayesian framework. Puma densities did not vary substantially among observers but estimates generated from the 3 statistical techniques did differ. Density estimates (pumas/100 km2) from spatial mark-resight models were lower (0.22-7.92) and had increased precision compared to those from non-spatial capture-recapture (0.50-19.35) and mark-resight techniques (0.54-14.70). Our study is the first to estimate the density of a population of carnivores, where only a subset of the individuals are naturally marked, using camera trap surveys in combination with spatial mark-resight models. The development of spatial mark-resight and spatially explicit capture-recapture techniques creates the potential for using a single camera trapping array to estimate the density of multiple, sympatric carnivores, including both partially marked and uniquely marked species.

2. Graves, TA, TN Wasserman, M Ribeiro, EL Landguth, SF Spear, N Balkenhol, CB Higgins ,M-J Fortin, SA Cushman, LP **Waits**. 2012. The influence of landscape characteristics and homerange size on the quantification of landscape-genetics relationships. Landscape Ecology 27: 253-266.

Abstract/Summary

A common approach used to estimate landscape resistance involves comparing correlations of ecological and genetic distances calculated among individuals of a species. However, the location of sampled individuals may contain some degree of spatial uncertainty due to the natural variation of animals moving through their home range or measurement error in plant or animal locations. In this study, we evaluate the ways that spatial uncertainty, landscape characteristics, and genetic stochasticity interact to influence the strength and variability of conclusions about landscape-genetics relationships. We used a neutral landscape model to generate 45 landscapes composed of habitat and non-habitat, varying in percent habitat, aggregation, and structural connectivity (patch cohesion). We created true and alternate locations for 500 individuals, calculated ecological distances (least-cost paths), and simulated genetic distances among

Individuals. We compared correlations between ecological distances for true and alternate locations. We then simulated genotypes at 15 neutral loci and investigated whether the same influences could be detected in simple Mantel tests and while controlling for the effects of isolation-by-distance using the partial Mantel test. Spatial uncertainty interacted with the percentage of habitat in the landscape, but led to only small reductions in correlations. Furthermore, the strongest correlations occurred with low percent habitat, high aggregation, and low to intermediate levels of cohesion. Overall genetic stochasticity was relatively low and was influenced by landscape characteristics.

3. Sunarto, S; **Kelly**, M.J.; Parakkasi, K.; Klenzendorf, S.; Septayuda, E. and H. Kurnlawan. 2012. Tigers Need Cover: Multi-Scale Occupancy Study of the Big Cat in Sumatran Forest and Plantation Landscapes. PLoS One 7: 1-14.

Abstract/Summary

The critically endangered Sumatran tiger (*Panthera tigris sumatrae* Pocock, 1929) is generally known as a forest-dependent animal. With large-scale conversion of forests into plantations, however, it is crucial for restoration efforts to understand to what extent tigers use modified habitats. We investigated tiger-habitat relationships at 2 spatial scales: occupancy across the landscape and habitat use within the home range. Across major landcover types in central Sumatra, we conducted systematic detection, non-detection sign surveys in 47, 17×17 km grid cells. Within each cell, we surveyed 40, 1-km transects and recorded tiger detections and habitat variables in 100 m segments totaling 1,857 km surveyed. We found that tigers strongly preferred forest and used plantations of acacia and oilpalm, far less than their availability. Tiger probability of occupancy covaried positively and strongly with altitude, positively with forest area, and negatively with distance-to-forest centroids. At the fine scale, probability of habitat use by tigers across landcover types covaried positively and strongly with understory cover and altitude, and negatively and strongly with human settlement. Within forest areas, tigers strongly preferred sites that are farther from water bodies, higher in altitude, farther from edge, and closer to centroid of large forest block; and strongly preferred sites with thicker understory cover, lower level of disturbance, higher altitude, and steeper slope. These results indicate that to thrive, tigers depend on the existence of large contiguous forest blocks, and that with adjustments in plantation management, tigers could use mosaics of plantations (as additional roaming zones), riparian forests (as corridors) and smaller forest patches (as stepping stones), potentially maintaining a metapopulation structure in fragmented landscapes. This study highlights the importance of a multi-spatial scale analysis and provides crucial information relevant to restoring tigers and other wildlife in forest and plantation landscapes through improvement in habitat extent, quality, and connectivity

4. Stenglein JL, LP **Waits**, DE Ausband, P Zager, CM Mack. 2011. Using noninvasive genetic sampling at grey wolf (Canis lupus) rendezvous sites to determine pack size, family relationships, and relatedness. Journal of Mammalogy 92:784-795.

Abstract/Summary:

After centuries of population decline and range contraction, gray wolves (*Canis lupus*) are now expanding in Europe. Understanding wolf social structure and population dynamics and predicting their future range expansion is mandatory to design sound conservation strategies, but field monitoring methods are difficult or exceedingly expensive. Noninvasive genetic sampling offers unique opportunities for the reliable monitoring of wolf populations. We conducted a 9-year-long monitoring program in a large area (approximately 19,171 km^2) in northern Italy, aiming to identify individuals, estimate kinship, reconstruct packs, and describe their dynamics. Of 5,065 biological samples (99% scats), we genotyped and sexed 44% reliably using 12 unlinked autosomal microsatellites, 4 Y-linked microsatellites, and a diagnostic mitochondrial DNA control-region sequence. We identified 414 wolves, 88 dogs, and 16 wolf × dog hybrids. Wolves in the study area belonged to at least 42 packs. We reconstructed the genealogy of 26 packs. The mean pack size was 5.6 ± 2.4*SD*, including adoptees, with a mean minimum pack home range of 74 km^2 ± 52 *SD*. We detected turnovers of breeding pairs in 19% of the packs. Reproductive wolves were unrelated and unrelated dispersers founded new packs, except for 1 pack founded by a brother–sister pair. We did not detect multiple breeding females in any packs. Overall, the population was not inbred. We found significant isolation by distance and spatial autocorrelation, with nonrandom genetic structure up to a distance of approximately 17 km. We detected 37 dispersers, 14 of which became breeders in new or already existing packs. Our results can be used to model habitat use by wolves, to estimate survival rates, to predict future expansion of the wolf population, and to build risk maps of wolf–human conflicts.

5. Gerber, B.D.; Karpanty, S.M. and M.J. **Kelly**. 2012. Evaluating the potential bias in carnivore capture-recapture studies associated with the use of lure and varying density estimation techniques using photographic-sampling data of the Malagasy civet. Population Ecology 54: 43-54.

Abstract/Summary

Estimating density of elusive carnivores with capture–recapture analyses is increasingly common. However, providing unbiased and precise estimates is still a challenge due to uncertainties arising from the use of (1) bait or lure to attract animals to the detection device and (2) ad hoc boundary-strip methods to compensate for edge effects in area estimation. We used photographic-sampling data of the Malagasy civet Fossa fossana collected with and without lure to assess the effects of lure and to compare the use of four density estimators which varied in methods of area estimation.

The use of lure did not affect permanent immigration or emigration, abundance and density estimation, maximum movement distances, or temporal activity patterns of Malagasy civets, but did provide more precise population estimates by increasing the number of recaptures. The spatially-explicit capture–recapture (SECR) model density estimates ±SE were the least precise as they incorporate spatial variation, but consistent with each other (Maximum likelihood-SECR = 1.38 ± 0.18, Bayesian- SECR = 1.24 ± 0.17 civets/km2), whereas estimates relying on boundary-strip methods to estimate effective trapping area did not incorporate spatial variation, varied greatly and were generally larger than SECR model estimates. Estimating carnivore density with ad hoc boundary strip methods can lead to overestimation and/or increased uncertainty as they do not incorporate spatial variation. This may lead to inaction or poor management decisions which may jeopardize at-risk populations. In contrast, SECR models free researchers from making subjective decisions associated with boundary-strip methods and they estimate density directly, providing more comparable and valuable population estimates.

6. Balkenhol, N.; **Waits**, L.P. and R.J. Dessani. 2009. Statistical approaches in landscape genetics: an evaluation of methods for linking landscape and genetic data. Ecography 32: 818-830.

Abstract/Summary:

The goal of landscape genetics is to detect and explain landscape effects on genetic diversity and structure. Despite the increasing popularity of landscape genetic approaches, the statistical methods for linking genetic and landscape data remain largely untested. This lack of method evaluation makes it difficult to compare studies utilizing different statistics, and compromises the future development and application of the field. To investigate the suitability and comparability of various statistical approaches used in landscape genetics, we simulated data sets corresponding to five landscape-genetic scenarios. We then analyzed these data with eleven methods, and compared the methods based on their statistical power, type-1 error rates, and their overall ability to lead researchers to accurate conclusions about landscape-genetic relationships. Results suggest that some of the most commonly applied techniques (e.g. Mantel and partial Mantel tests) have high type-1 error rates, and that multivariate, non-linear methods are better suited for landscape genetic data analysis. Furthermore, different methods generally show only moderate levels of agreement. Thus, analyzing a data set with only one method could yield method-dependent results, potentially leading to erroneous conclusions. Based on these findings, we give recommendations for choosing optimal combinations of statistical methods, and identify future research needs for landscape genetic data analyses.

7. **Kelly** M. J. and E.L. Holub. 2008. Camera trapping carnivores: Trap success among camera types and across species, and habitat selection by species on salt pond mountain, Giles Co., VA. Northeastern Naturalist 15:249-262.

Abstract/Summary:

To evaluate trap success among camera types and across species as well as assess habitat selection by target carnivore species, we established 16 infrared-triggered camera stations across a 26.9-km2 study area located on primarily Jefferson National Forest land in Virginia. We monitored camera stations for 72 days (August to October 2005) for a total of 891 trap nights (TN) of effort. Overall trap success for all animals combined was 40.74 captures per 100 TN. Procyon lotor (raccoon) had the highest predator trap success (2.81/100 TN), followed by: Ursus americanus (black bear, 1.91/100 TN); Lynx rufus (bobcat, 1.46/100 TN); Canis latrans (coyote, 1.01/100 TN); and Urocyon cinereoargenteus (gray fox, 0.56/100 TN). Odocoileus virginianus (white-tailed deer) had the highest overall trap success (21.32/100 TN), followed by Sciurus carolinensis (gray squirrel, 6.17/100 TN). Passive camera units, especially DeerCam, had higher trap success than active camera units, and digital camera units (Reconyx) out-performed fi lm cameras. We extracted percent cover of habitat features (% coniferous, % deciduous, % water, % agricultural) from a geographic information system (GIS) using circular buffers around each trap site and compared carnivore-present sites to carnivore-absent sites. We compared carnivore trap success to the distance to the main access road and to trap success of prey species, primarily deer and gray squirrel. We also compared each carnivore's trap success to that of the other carnivore species to determine if carnivore presence or activity levels influenced other carnivores. Black bear, coyote, and raccoon tended to avoid areas with a high percentage of coniferous forest, and only bobcat showed significant avoidance of coniferous forest. Bobcat trap success increased with distance to the main road, and coyote trap success was positively (but weakly) related to gray squirrel trap success. Human foot traffic did not affect carnivore trap success. This study elucidates differences among camera trap systems, and highlights the potential to monitor carnivore species simultaneously and in combination with a GIS to predict occurrence across a landscape.

8. Romain, K, R Wielgus, M Austin, L **Waits**, W Kasworm, W Wakkinen. 2004. Density and population size estimates for North Cascade grizzly bears using DNA hair-sampling techniques. Biological Conservation 117:417-428

Abstract/summary

We used non-invasive DNA hair-sampling and catch per unit effort (CPUE: grizzly bears detected per 1000 trap nights) to estimate relative density and population size for a threatened grizzly bear population in the North Cascade

Ecosystem of Washington and British Columbia. We used linear, logistic, and linear through the origin regression analyses to estimate the relationship between catch per unit effort and grizzly bear density for seven other grizzly populations. One grizzly bear was detected during 5304 trap nights (CPUE=0.19) over 3 years in the North Cascades. This CPUE was much lower than in the other seven populations, including two threatened grizzly populations in the Cabinet-Yaak and Selkirk Mountain Ecosystems. The logistic model (curvilinear relationship) best fit the data ($R2$=0.927), and yielded density and population size estimates of 0.15 bears/100 km2 (90% CI=0.03-0.71) and six bears (90% CI=1-27), respectively. Natural recovery seems unlikely for the North Cascade grizzly bear population because the population has a high likelihood of extinction due to demographic and environmental stochastic effects associated with extremely small population numbers. We recommend population augmentation. DNA hair-sampling and catch per unit effort models can be a useful method to evaluate relative densities and numbers of animals in small, threatened grizzly bear populations when sample sizes are too small to yield traditional mark-recapture analysis.

Requested summaries of *at least* 2 papers dealing with furbearers published in peer reviewed scientific journals.

1. Balkenhol, N, JD Holbrook, D Onorato, P Zager, C White, J Rachael, R DeSimone, LP **Waits**. 2014. Landscape connectivity and gene flow in a highly mobile generalist species: A multimethod approach for analyzing hierarchical genetic structures: a case study with cougars Puma concolor. Ecography (in press)

Abstract/Summary

Genetic data are increasingly used to describe the structure of wildlife populations and to infer landscape influences on functional connectivity. To accomplish this, genetic structure can be described with a multitude of methods that vary in their assumptions, advantages and limitations. While some methods discriminate distinct subpopulations separated by sharp genetic boundaries (i.e. barrier detection or clustering methods), other methods estimate gradient genetic structures using individual-based genetic distances. We present an analytical framework based on individual ancestry values that combines these different approaches and can be used to a) test for local barriers to gene flow and b) evaluate effects of landscape gradients through individual-based genetic distances that account for hierarchical genetic structure. We illustrate the approach with a data set of 371 cougars Puma concolor from a 217 000 km2 study area in Idaho and western Montana (USA) that were genotyped at 12 microsatellite loci. Results suggest that cougars in the region show a complex, hierarchical genetic structure that is influenced by a local barrier to gene flow (an urban population cluster connected by high traffic volumes), different landscape features (the Snake River Plain, forested habitat), and geographic distance. Our novel approach helped to elucidate the relative influence of these factors on different hierarchical levels of population structure, which was not possible when using either clustering methods or standard genetic distances. Results obtained with our analytical framework highlight the need for multi-scale management of cougars in the region and show that landscape heterogeneity can create complex genetic structures, even in generalist species with high dispersal capabilities.

2. Dellinger, J.A.; Proctor, C.; Steury, T.D.; **Kelly**, M.J. and M.R. Vaughan. 2013. Habitat use of a large carnivore, the red wolf, in a human-dominated landscape. Biological Conservation 157: 324-330.

Abstract/Summary:

Large carnivores, with their expansive home range and resource requirements, are a good model for understanding how animal populations alter habitat selection and use as human densities and development increase. We examined the habitat selection of red wolves (Canis rufus) in North Carolina, USA, where the population of red wolves resides in a mosaic of naturally occurring and human-associated land cover. We used locations from 20 GPS-collared red wolves, monitored over 3 years, to develop resource selection functions at the landscape level. Red wolves selected for human-associated land-cover over other land-cover types. Red wolves also selected areas near secondary roads. However, red wolves avoided areas with high human density, and avoidance of natural land-cover types decreased as human density increased; this interaction was strong enough that red wolves selected for natural land-cover types over human-associated land-cover types at relatively high human density. Similarly, avoidance of natural land-cover types decreased when they were near secondary roads. These results suggest that red wolves will use human-associated landscapes, but modify their habitat selection patterns with increased human presence. Such findings suggest that large carnivores such as the red wolf may not strictly require habitats devoid of humans. In a world with rapid human-alteration of habitat, understanding how increasing human density and development impact habitat selection is vital to managing for population persistence of large carnivores and maintaining top-down ecological processes.

3. Ausband, DE, J Young, B Fannin, MS Mitchell, JL Stenglein, LP **Waits**, JA Shivik. 2011. Hair of the dog: obtaining samples from coyotes and wolves noninvasively. Wildlife Society Bulletin 35:105-111.

Abstract/Summary
Canids can be difficult to detect and their populations difficult to monitor. We tested whether hair samples could be collected from coyotes (Canis latrans) in Texas, USA and gray wolves (C. lupus) in Montana, USA using lure to elicit rubbing behavior at both man-made and natural collection devices. We used mitochondrial and nuclear DNA to determine whether collected hair samples were from coyote, wolf, or nontarget species. Both coyotes and wolves rubbed on man-made barbed surfaces but coyotes in Texas seldom rubbed on hanging barbed surfaces. Wolves in Montana showed a tendency to rub at stations where natural-material collection devices (sticks and debris) were present. Time to detection was relatively short (5 nights and 4 nights for coyotes and wolves, respectively) with nontarget and unknown species comprising approximately 26% of the detections in both locations. Eliciting rubbing behavior from coyotes and wolves using lures has advantages over opportunistic genetic sampling methods (e.g., scat transects) because it elicits a behavior that deposits a hair sample at a fixed sampling location, thereby increasing the efficiency of sampling for these canids. Hair samples from rub stations could be used to provide estimates of abundance, measures of genetic diversity and health, and detection–nondetection data useful for cost-effective population monitoring.

4. DeBarba M, LP **Waits**, EO Garton, P Genovesi, E Randi, R Chirichella, E Cetto. 2010. The power of genetic monitoring for studying demography, ecology, and genetics of a reintroduced brown bear population. Molecular Ecology 19, 3938–3951.

Abstract/Summary
Genetic monitoring has rarely been used for wildlife translocations despite the potential benefits this approach offers, compared to traditional field-based methods. We applied genetic monitoring to the reintroduced brown bear population in northern Italy. From 2002 to 2008, 2781 hair and faecal samples collected noninvasively plus 12 samples obtained from captured or dead bears were used to follow the demographic and geographical expansion and changes in genetic composition. Individual genotypes were used to reconstruct the wild pedigree and revealed that the population increased rapidly, from nine founders to >27 individuals in 2008 (λ = 1.17–1.19). Spatial mapping of bear samples indicated that most bears were distributed in the region surrounding the translocation site; however, individual bears were found up to 163 km away. Genetic diversity in the population was high, with expected heterozygosity of 0.74–0.79 and allelic richness of 4.55–5.41. However, multi-year genetic monitoring data showed that mortality rates were elevated, immigration did not occur, one dominant male sired all cubs born from 2002 to 2005, genetic diversity declined, relatedness increased, inbreeding occurred, and the effective population size was extremely small (Ne = 3.03, ecological method). The comprehensive information collected through genetic monitoring is critical for implementing future conservation plans for the brown bear population in the Italian Alps. This study provides a model for other reintroduction programmes by demonstrating how genetic monitoring can be implemented to uncover aspects of the demography, ecology and genetics of small and reintroduced populations that will advance our understanding of the processes influencing their viability, evolution, and successful restoration.

5. Dillon, A.G. and M.J. **Kelly**. 2007. Ocelot activity, trap success, and density in Belize: the impact of trap spacing and animal movement on density estimates. Oryx 41: 469-477.

Abstract/Summary:
We used remote cameras to obtain information on an elusive species and to examine the effects of different camera trapping methodologies on abundance estimates. We determined activity pattern, trail use, trap success, and density of ocelot Leopardus pardalis in seven camera-trap surveys across two habitat types in western Belize: tropical broad-leaf rainforest and tropical pine forest. Ocelots in the rainforest were active mostly at night, in particular immediately after sunset, and they travelled on low-use roads (especially in the wet season) and high-use roads (especially in the dry season) more than established and newly cut trails. Trap success was relatively high in the rainforest (2.11–6.20 captures per 100 trap nights) and low in the pine forest (0.13–0.15 captures per 100 trap nights). Camera trapping combined with mark-recapture statistics gave densities of 25.82–25.88 per 100 km2 in the broad-leaf versus 2.31–3.80 per 100 km2 in the pine forest. Density estimates increased when animals repeatedly captured at the same camera (zero-distance moved animals) were included in the buffer size analysis. Density estimates were significantly negatively correlated with distance between cameras. We provide information on ocelot population status from an unstudied portion of its range and advise that camera trap methodologies be standardized to permit comparisons across sites.

6. Robinson, SJ, LP **Waits**, I Martin. 2007. Evaluating population structure of black bears on the Kenai Peninsula using mitochondrial and nuclear DNA analyses. Journal of Mammalogy 88:1288-1299

Abstract/Summary
Increasing human impacts on the Kenai Peninsula, Alaska, have raised questions about potential implications for genetic diversity and population structure of local taxa. Black bears (Ursus americanus) occupy most of the Kenai Peninsula and are currently a species of public interest and management focus. In this study, we use 13 nuclear DNA (nDNA) microsatellite loci and sequence data from the mitochondrial DNA (mtDNA) control region to investigate

population structure and phylogeographic patterns in black bears on the Kenai and surrounding mainland. We used both aspatial and spatial Bayesian assignment models to evaluate nDNA genetic structure and cluster individuals into genetically distinct groups. Substantial population substructure was detected, indicating restricted gene flow in recent generations as well as signatures of past barriers between the Kenai and mainland. We identified 3 genetically distinct groups that cluster geographically in the Kenai Peninsula, Alaskan mainland, and Prince William Sound areas. Connectivity among genetic groups was moderate, with Fst values ranging from 0.07 to 0.12. Five mtDNA haplotypes were detected, 2 of which were primarily restricted to the Kenai. Our results provide important information about current levels of genetic diversity and connectivity among black bears on the Kenai Peninsula and will provide a baseline for future monitoring.

Other selected relevant references (in reverse chronological order) by Drs. Kelly and Waits – available upon request.

Wultsch, C. **Waits**, L. P. and M.J. **Kelly**. Under review. Effects of storage methods and scat sample location on PCR amplification success, genotyping accuracy, and genotyping error rates for fecal samples of jaguars (Panthera onca) and co-occurring Neotropical felids from two tropical habitats inBelize, Central America. Molecular Ecology Resources.

Wultsch, C. **Waits**, L. P. and M.J. **Kelly**. 2014. Noninvasive individual and species identification of jaguars (Panthera onca), pumas (Puma concolor) and ocelots (Leopardus pardalis) in Belize, Central America using Cross-Species Microsatellites and Fecal DNA. Molecular Ecology Resources (In Press).

Mumma, M, CE Soulliere, SP Mahoney, LP **Waits**. 2014. Enhanced understanding of predator prey relationships using molecular methods to identify predator species, individual and sex. Molecular Ecology Resources 14:100-109.

Andrew, RL, L Bernatchez, A Bonin, CA Buerkle, BC Carstens, BC Emerson, D Garant...LP **Waits**, A Widmer. 2013. A Road Map for Molecular Ecology. Molecular Ecology 22: 2605–2626.

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March 26, 2014

To: WV Division of Natural Resources
Solicitation number DNR214057
RE: Serving on M.S. and PhD. Student committees for bobcat study

Dear WVDNR,

With this letter, I am indicating my willingness to serve on the students' committees for the large scale bobcat population project in West Virginia. I am a wildlife conservation geneticist in the Department of Fish and Wildlife Sciences at the University of Idaho, where I have been since 1997. The WVDNR study proposes to use large scale, state-wide, hair snares for bobcat population assessment and identification of barriers in the landscape. Our laboratory specializes in using noninvasive genetic sampling of hair and scat to study wildlife populations, and we have published over 40 papers using these methods. I have also done extensive work studying connectivity and gene flow of other carnivore species including brown bears, black bears, wolves, wolverines, coyotes, cougars and jaguars.

In addition, I have collaborated with Dr. Kelly in the past on multiple graduate student projects and have hosted three of those students for training in my laboratory. Over the past three years, I have been collaborating with Dr. Kelly on the Virginia Appalachian Coyote Study, and we have analyzed over 1000 scat samples (628 from bobcats) in my lab from that project. During this project, we optimized the genetic methods for identifying individual bobcats from fecal and hair samples and developed a genetic database for bobcats in Virginia. This database will be extremely valuable for the proposed project and also provides significant cost saving to the project since we already have genotypes from bobcats in this region.

In conclusion, my background and previous work makes me highly qualified to conduct this research and I already have a strong working relationship with Dr. Kelly that will make collaboration efficient for this study.

Sincerely,

Lisette Waits, PHD - Professor
Fish and Wildlife Sciences
University of Idaho;
PO Box 441136
Moscow, ID 83844-1136
lwaits@uidaho.edu

RFQ No. DNR214057

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"**Debt**" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"**Employer default**" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"**Related party**" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-3-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Virginia Tech

Authorized Signature: [signature] Date: 3/25/14

State of VA

County of Montgomery, to-wit:

Taken, subscribed, and sworn to before me this 25th day of March

My Commission expires 11-30, 20 14

NOTARY PUBLIC [signature]

DANA T. KEITH NOTARY PUBLIC REG. #155696 MY COMMISSION EXPIRES 11/30/2014 COMMONWEALTH OF VIRGINIA

AFFIX SEAL HERE

DANA T. KEITH NOTARY PUBLIC REG. #155696 MY COMMISSION EXPIRES 11/30/2014 COMMONWEALTH OF VIRGINIA

Purchasing Affidavit (Revised 07/01/2012)

See Attached Budget from Office of Sponsored Programs at Virginia Tech for budget breakdown.

Budget Justification:

Personnel:

- Graduate student stipends for 4 years for MS ($88,715) and PhD student ($99,049): required by the project.
- Technician Wage Support – required for assistance with hair snare sampling, camera trap deployment and monitoring, bobcat necropsies, tissue sampling, parasite analysis, data entry, assessment of food habits from carcasses, DNA extractions, etc. ($56,000).
- 1 month salary for PI (Kelly) for 4 years ($36,395).
- Required Fringe on the above 3 bullets ($27,946)

Equipment

- Computer support. 2 laptops (1 each for MS student and PhD student) and 1 desktop with extra monitors. Dedicated desktop needed to run spatially explicit mark-recapture models with Bayesian algorithms. These models can take days to weeks to run. Extra monitors allow for ease in data entry and data analysis amd modeling. ($8000)
- Travel: funds needed for travel to regional professional meetings and/or organizational meetings in West Virginia and for trips to University of Idaho for genetic analysis. Later in the project, increased funds needed for travel to regional and national meetings (e.g. TWS, SCB, SEAFWA, etc). ($13,500).

Materials and supplies

- Carcass reward. $20 per carcass for 300 in each of first 2 years. ($12,000)
- Remote cameras – needed to assess the best mechanism for surveying for bobcats. Other studies in the west have shown remote cameras to be the most efficient method for bobcat population density assessments in camparison to hair snares and scat detection. This reseach falls under section 4.1.12.1 pertaining to tesing additional hypotheses regarding bobcat populations. Reconyx cameras are needed due to their quick trigger-speed and higher resolution for individual identificatin of bobcats from their coat patters. A comparative assessment of efficacy of obtaining density estimates via remote cameras veruss hair snares and/or scat detection would be very useful for the WVDNR. ($44,000). Replacement cameras to replace malfunctions or vandaliized cameras ($8,000). Camera safe boxes to protect cameras from bears ($4,000)
- Batteries for remote cameras ($2000); SD memory cards for remote cameras ($980)
- GPS units (handheld) needed for extensive field work that may include PI, MS student, PhD student, and technicians will be in the field in different locations simultaneously. ($3000).
- Hair snare equipment. Plywood, stakes, lures (multiple types), carpet, carpet tacks, etc. for creating hair snares. A subset of remote cameras will be used at hair snare locations to determine the response to the hair snares elicited from bobcats to dtermine the most effect lure and hair trapping mechanism. ($7000).
- Miscellaneous field equipment needed for project (hammers, sledge hammers, shovels, markers, clipboards, unforseen project needs, etc.). ($10000).
- Fuel. Approximately $1000 per month for 6 mos per year the first 2 years based on Viginia Appalachian Coyote Project. Assusming we can use VT Dept vehicles or WVDNR vehicles. ($12000).

Publication costs –Budgeted for the last 2 years. ($8000)

Facility/Equimpment Rental Fees - Field House rental fees at $500 per month for 6 mos in first 2 years

Contractual Services

- Genetic analysis – per sample for species, sex, and individual runs ~$30 per sample (much lower rate than the going rate of ~$50 per sample due to past work on bobcats in VA, see letter from Waits). We anticipate obatining over 2500 samples from hair and scat as we would propose conducting a scat survey in targeted areas (alsong with remote cameras and hair snares) in order to compare the 3 methods simultaneously to determine which is more efficient for bobcat population density analyses. ($80000).
- Teeth Aging – teeth aging runs about $5 per tooth at The Mattson Lab. 600 teeth will be anlyzed ($3000)
- Feline Panleukopenia screening runs about $10 per sample at VT in Dr. Alexander's lab. ($6000)
- Hunter surveys – 1400 mailings to hunters and trappers plus material preparations ($1400)

Direct Costs for WVDNR major bobcat study (listed above) = **$641,560**

Indirect costs afixed by Virginia Tech (61%) = **$319,021**

Total budget = $641,560 + $319,021 = **$960,581**

Duplicate from page 27 previous.

Pricing Sheet
DNR214057 Bobcat Project

YEAR ONE (1)	YEAR TWO (2)	YEAR THREE (3)	YEAR FOUR (4)
Annual Cost	Annual Cost	Annual Cost	Annual Cost
283,510.00	289,882.00	233,923.00	153,266.00

TOTAL COST	$960,581.00

See previous pages for budet justification.

See Virginia Tech, Office of Sponsored Programs for budget calculations