



LAKE COUNTY FOREST PRESERVES
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Preservation, Restoration, Education and Recreation

DATE: April 3, 2017

MEMO TO: Craig Taylor, Chair
Operations Committee

FROM: James L. Anderson
Director of Natural Resources

RECOMMENDATION: Recommend approval of a Resolution awarding a Contract for Wildlife Reintroduction & Post-Release Monitoring in Lake County Forest Preserves to The Chicago Academy of Sciences / Peggy Notebaert Nature Museum in the Contract Price and not to exceed amount \$56,000.00.

STRATEGIC DIRECTIONS SUPPORTED: Conservation; Leadership

FINANCIAL DATA: The total cost of this project is \$87,249.00. Funding for this project was obtained from the Preservation Foundation of the Lake County Forest Preserves, which includes a \$28,000.00 grant of unrestricted funds and a \$28,000.00 donation from Citizens for Conservation. The Chicago Academy of Sciences / Peggy Notebaert Nature Museum will contribute in-kind expenses of \$31,249.00 for personnel and other related costs. The contractual cost, up to \$56,000.00, will be charged to the Natural Resources Grant Fund (69644000-709000-56033). No District Funds are being expended.

BACKGROUND: The District has restored forested flatwoods wetlands and grassland habitats for many decades, supporting greater biodiversity. The District's Wildlife Monitoring Program, implemented in 2008, provides the groundwork for identifying which species have not recolonized restoration sites, and for identifying rare species that are in need of further habitat management or population supplementation. Through a conservation partnership with The Chicago Academy of Sciences / Peggy Notebaert Nature Museum, the District and researchers have contributed to the supplementation and reestablishment of locally rare and extirpated species including the wood frog, spring peepers, and the smooth green snake. The previous work of the partnership has focused on identifying and monitoring remnant populations of these rare species, establishing protocols for breeding programs, evaluating efficacy of wildlife head-starting and translocation techniques, and monitoring the preliminary outcomes of such applied wildlife conservation approaches.

Intensive follow-up monitoring data is necessary to evaluate the success of reintroduction and head starting projects, especially for species with complex life cycles. With the assistance from Citizens For Conservation, the proposed work will build on the previous work of the Wildlife Reintroduction Partnership, examining the persistence of reintroduced forest amphibian and smooth green snake populations, increasing population monitoring efforts in release sites, and expanding head-starting and reintroduction efforts to additional locations (Cuba Marsh and Grassy Lake Forest Preserve) within the District.

The District has negotiated previous contracts with The Chicago Academy of Sciences / Peggy Notebaert Nature Museum to develop captive breeding programs, species recovery plans, and population supplementation and/or reintroduction plans to aid in the recovery of animal species in Lake County.

REVIEW BY OTHERS: Executive Director, Chief Operations Officer, Director of Finance, Corporate Counsel

STATE OF ILLINOIS)
) SS
COUNTY OF LAKE)

**BOARD OF COMMISSIONERS
LAKE COUNTY FOREST PRESERVE DISTRICT
REGULAR APRIL MEETING
APRIL 11, 2017**

MADAM PRESIDENT AND MEMBERS OF THE BOARD OF COMMISSIONERS:

Your **OPERATIONS COMMITTEE** presents herewith a “A Resolution Awarding a Contract for Wildlife Reintroduction and Post-Release Monitoring to The Chicago Academy of Sciences / Peggy Notebaert Nature Museum,” and requests its approval.

OPERATIONS COMMITTEE:

Date: _____ Roll Call Vote: Ayes: _____ Nays: _____
 Voice Vote Majority Ayes; Nays: _____

**LAKE COUNTY FOREST PRESERVE DISTRICT
LAKE COUNTY, ILLINOIS**

**A RESOLUTION AWARDING A CONTRACT FOR WILDLIFE REINTRODUCTION AND
POST RELEASE MONITORING SERVICES TO THE CHICAGO ACADEMY OF
SCIENCES / PEGGY NOTEBAERT NATURE MUSEUM**

WHEREAS, the wood frog, spring peeper, and the smooth green snake (the "Species") are rare wildlife species native to prairie, savanna, and wet meadow habitats and flatwoods of Lake County; and

WHEREAS, the Species have lost a significant amount of their historic range through habitat destruction, conversion of grassland to agriculture, and habitat fragmentation; and

WHEREAS, the Lake County Forest Preserve District (the "District") owns land that contains suitable habitat for the Species, and is aware of several small populations at various forest preserves, but that habitat is lacking in the composition and diversity of wildlife; and

WHEREAS, the Chicago Academy of Sciences / Peggy Notebaert Nature Museum, has provided technical and field assistance to the District for the recovery of wildlife populations in urban settings; and

WHEREAS, the District has collaborated with The Chicago Academy of Sciences / Peggy Notebaert Nature Museum since 2006 to recover the Species in its forest preserves through the development of a recovery, captive breeding, and population supplementation and/or reintroduction plan (the "Program"); and

WHEREAS, the Program is locally and regionally important for the recovery effort of the Species, which are in great need of conservation; and

WHEREAS, the District desires to purchase services to further the Program and assess and provide consulting services for the recovery of populations of the Species (collectively, the "Services"); and

WHEREAS, the Director of Natural Resources and the Purchasing Manager have determined that the Services require personal confidence; and

WHEREAS, the Purchasing Manager has solicited a proposal for the Services from the Chicago Academy of Sciences / Peggy Notebaert Nature Museum; and

WHEREAS, the District's staff, the Purchasing Manager, the Director of Natural Resources, and the Operations Committee have reviewed the proposal and recommend that the Board of Commissioners (i) find that the proposal submitted by The Chicago Academy of Sciences / Peggy Notebaert Nature Museum be determined to be the proposal that is most advantageous to the District; and (ii) award a contract for the Services to The Chicago Academy of Sciences / Peggy Notebaert Nature Museum (the "Contract") in the amount not to exceed \$56,000.00 (the "Contract Price"); and

WHEREAS, the Board of Commissioners hereby finds that the proposal for the Services submitted by The Chicago Academy of Sciences / Peggy Notebaert Nature Museum is the proposal that is most advantageous to the District;

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of the Lake County Forest Preserve District, Lake County, Illinois **THAT**:

Section 1. Recitals. The recitals set forth above are incorporated as a part of this Resolution by this reference.

Section 2. Award of Contract. A Contract for the Services in the amount of the Contract Price, in substantially the form attached hereto, is hereby awarded to The Chicago Academy of Sciences / Peggy Notebaert Nature Museum.

Section 3. Execution of Contract. The Executive Director of the District is hereby authorized and directed to execute the Contract for the Services in the amount of the Contract Price.

Section 4. Payments. The Treasurer shall make payments under the Contract only pursuant to and in accordance with the Contract terms.

Section 5. Effective Date. This Resolution shall be in full force and effect from and after its passage and approval in the manner provided by law.

PASSED this ____ day of _____, 2017

AYES:

NAYS:

APPROVED this ____ day of _____, 2017

ATTEST:

Ann B. Maine, President
Lake County Forest Preserve District

Julie Gragnani, Secretary
Lake County Forest Preserve District

Exhibit _____



CONTRACT BETWEEN

LAKE COUNTY FOREST PRESERVE DISTRICT

AND

THE CHICAGO ACADEMY OF SCIENCES /

PEGGY NOTEBAERT NATURE MUSEUM

FOR THE

WILDLIFE REINTRODUCTION &

POST-RELEASE MONITORING IN

LAKE COUNTY FOREST PRESERVES

TABLE OF CONTENTS

<u>ARTICLE I - THE SERVICES</u>	1
<u>1.1 Performance of the Services</u>	1
<u>1.2 Commencement and Completion Dates</u>	1
<u>1.3 Required Submittals</u>	2
<u>1.4 Review and Incorporation of Contract Provisions</u>	2
<u>1.5 Financial and Technical Ability to Perform</u>	2
<u>1.6 Time</u>	2
<u>1.7 Consultant’s Personnel and Sub-Consultants</u>	2
<u>1.8 Owner’s Responsibilities</u>	3
<u>1.9 Owner’s Right to Terminate or Suspend Services for Convenience</u>	3
<u>ARTICLE II - CHANGES AND DELAYS</u>	4
<u>2.1 Changes</u>	4
<u>2.2 Delays</u>	4
<u>2.3 No Constructive Change Orders</u>	4
<u>ARTICLE III - CONSULTANT’S RESPONSIBILITY FOR DEFECTIVE SERVICES</u>	5
<u>3.1 Representation of Compliance</u>	5
<u>3.2 Corrections</u>	5
<u>3.3 Risk of Loss</u>	5
<u>ARTICLE IV - INSURANCE; INDEMNIFICATION</u>	5
<u>4.1 Insurance</u>	5
<u>4.2 Indemnification</u>	6
<u>ARTICLE V - PAYMENT</u>	6
<u>5.1 Contract Price</u>	6
<u>5.2 Taxes, Benefits and Royalties</u>	6
<u>5.3 Progress Payments</u>	6
<u>5.4 Final Acceptance and Final Payment</u>	7
<u>5.5 Deductions</u>	7
<u>5.6 Accounting</u>	7

<u>ARTICLE VI - REMEDIES</u>	8
<u>6.1 Owner’s Remedies</u>	8
<u>6.2 Terminations and Suspensions by Owner Deemed for Convenience</u>	8
<u>ARTICLE VII - LEGAL RELATIONSHIPS AND REQUIREMENTS</u>	8
<u>7.1 Binding Effect</u>	8
<u>7.2 Relationship of the Parties</u>	9
<u>7.3 No Collusion</u>	9
<u>7.4 Assignment</u>	9
<u>7.5 Confidential Information</u>	9
<u>7.6 No Waiver</u>	10
<u>7.7 No Third Party Beneficiaries</u>	10
<u>7.8 Notices</u>	10
<u>7.9 Governing Laws</u>	10
<u>7.10 Changes in Laws</u>	11
<u>7.11 Compliance with Laws and Grants</u>	11
<u>7.12 Ownership of Documents</u>	11
<u>7.13 Time</u>	11
<u>7.14 Severability</u>	11
<u>7.15 Entire Agreement</u>	12
<u>7.16 Amendments</u>	12

ATTACHMENT A – SUPPLEMENTAL SCHEDULE OF CONTRACT TERMS

ATTACHMENT B – CONSULTANT’S SCOPE OF WORK

ATTACHMENT C – KEY PERSONNEL

**CONTRACT BETWEEN
LAKE COUNTY FOREST PRESERVE DISTRICT
AND
THE CHICAGO ACADEMY OF SCIENCES / PEGGY NOTEBAERT NATURE MUSEUM
FOR THE
WILDLIFE REINTRODUCTION & POST-RELEASE MONITORING IN
LAKE COUNTY FOREST PRESERVES**

In consideration of the agreements set forth below, the Lake County Forest Preserve District, a body corporate and politic and unit of local government organized and existing under the Downstate Forest Preserve District Act, 70 ILCS 805/.001 et seq., 1899 West Winchester Road, Libertyville, Illinois 60048, ("Owner") and The Chicago Academy of Sciences / Peggy Notebaert Nature Museum a(n) Illinois 501c3 corporation, 2430 North Cannon Drive, Chicago, IL 60614, ("Consultant") make this Contract as of April 11, 2017 and hereby agree as follows:

ARTICLE I - THE SERVICES

1.1 Performance of the Services

Consultant shall, at its sole cost and expense, provide, perform, and complete all of the following professional wildlife reintroduction and post-release monitoring services, all of which is referred to in this Agreement as the "Services":

- A. Professional Services. Provide, perform, and complete, in the manner described and specified in this Contract, all professional services necessary to accomplish the "Project," as defined in Attachment A, in accordance with the Scope of Services attached hereto as Attachment B.
- B. Approvals. Procure and furnish all approvals and authorizations specified in Attachment A.
- C. Insurance. Procure and furnish all required certificates and policies of insurance specified in Attachment A.
- D. Standard of Performance. Provide, perform, and complete all of the foregoing in full compliance with this Contract, in a professional manner, and in accordance with the standards of professional practice, care, and diligence in existence at the time of performance of the Services applicable to recognized and qualified consulting firms in the Chicago Metropolitan Area (the "Standard of Performance").

1.2 Commencement and Completion Dates

Consultant shall commence the Services not later than the "Commencement Date" set forth in Attachment A, and shall diligently and continuously prosecute the Services at such a rate as will allow the Services to be fully provided, performed and completed in full compliance with this Contract not later than the "Completion Date" or, if the Services are to be performed in separate phases, the "Completion Dates," set forth in Attachment A. The time of commencement, rate of progress, and time of completion are referred to in this Contract as the "Contract Time."

1.3 Required Submittals

A. Submittals Required. Consultant shall submit to Owner all reports, documents, data, and information required to be submitted by Consultant under this Contract (“Required Submittals”).

B. Time of Submission and Owner’s Review. All Required Submittals shall be provided to Owner no later than the time, if any, specified in Attachment A, or otherwise in this Contract. If no time for submission is specified for any Required Submittal, then that Submittal shall be submitted within a reasonable time in light of its purpose and, in all events, in sufficient time, in Owner’s opinion, to permit Owner to review that Submittal same prior to the commencement of any part of the Services to which that Submittal may relate. Owner shall have the right to require such corrections as may be necessary to make any Required Submittal conform to this Contract. No Services related to any Required Submittal shall be performed by Consultant until Owner has completed review of such Required Submittal with no exception noted. Owner’s review and approval of any Required Submittal shall not relieve Consultant of the entire responsibility for the performance of the Services in full compliance with, and as required by or pursuant to this Contract, and shall not be regarded as any assumption of risk or liability by Owner. The Consultant shall not be held liable for claims of delay caused by the Owner’s failure to timely review and approve any Required Submittal.

C. Responsibility for Delay. Consultant shall be responsible for any delay in the Services resulting from Consultant’s, or its Sub-consultant’s, delay in providing Required Submittals conforming to this Contract.

1.4 Review and Incorporation of Contract Provisions

Consultant represents and declares that it has carefully reviewed, and fully understands, this Contract, including all of its Attachments, all of which are by this reference incorporated into and made a part of this Contract.

1.5 Financial and Technical Ability to Perform

Consultant represents and declares that it is financially solvent, and has the financial resources necessary, and has sufficient experience and competent, and has the necessary capital, facilities, organization, and staff necessary to provide, perform, and complete the Services in full compliance with, and as required by or pursuant to, this Contract.

1.6 Time

Consultant represents and declares that the Contract Time is sufficient time to permit completion of the Services in full compliance with, and as required by or pursuant to, this Contract for the Contract Price.

1.7 Consultant’s Personnel and Sub-Consultants

A. Consultant’s Personnel. Consultant shall provide all personnel necessary to complete the Services, including without limitation, the “Key Project Personnel” identified in Attachment C. Consultant shall provide to Owner telephone numbers at which the Key Personnel can be reached on a 24-hour basis. Consultant and Owner may, by mutual agreement, make changes and additions to the designations of Key Project Personnel. Consultant shall have no claim for a Change Order, for compensation in excess of the Contract Price, or for a delay or extension of the Contract Time as a result of any such termination, reassignment, resignation, or substitution of Key Project Personnel.

B. Approval and Use of Sub-Consultants. Consultant shall perform the Services with its own personnel and under the management, supervision, and control of its own organization unless otherwise approved by Owner in writing. All sub-consultants and subcontracts used by Consultant shall be acceptable to, and approved in advance by, Owner. Owner's approval of any sub-consultant or subcontract shall not relieve Consultant of full responsibility and liability for the provision, performance, and completion of the Services in full compliance with, and as required by or pursuant to, this Contract. All Services performed under any subcontract shall be subject to all of the provisions of this Contract in the same manner as if performed by employees of Consultant. Every reference in this Contract to "Consultant" shall be deemed also to refer to all sub-consultants of Consultant. Every subcontract shall include a provision binding the sub-consultant to all provisions of this Contract.

C. Removal of Personnel and Sub-Consultants. If any personnel or sub-consultant fails to perform the part of the Services undertaken by it in compliance with this Contract or in a manner reasonably satisfactory to Owner, Consultant, immediately upon notice from Owner, shall remove and replace such personnel or sub-consultant. Consultant shall have no claim for damages, for compensation in excess of the Contract Price, or for a delay or extension of the Contract Time as a result of any such removal or replacement.

1.8 Owner's Responsibilities

Owner shall, at its sole cost and expense: (i) designate in writing a person with authority to act as Owner's representative and on Owner's behalf with respect to the Services except those matters that may require approval of Owner's Board of Commissioners; (ii) provide to Consultant all criteria and full information as to Owner's requirements for the Project or work to which the Services relate, including Owner's objectives and constraints, schedule, space, capacity and performance requirements, and budgetary limitations relevant to the Project; (iii) provide to Consultant all existing studies, reports, and other available data relevant to the Project; (iv) arrange for access to and make all provisions for Consultant to enter upon public and private property as reasonably required for Consultant to perform the Services; (v) provide surveys describing physical characteristics, legal limitations, and utility locations for the Project and the services of geotechnical engineers or other consultants when such services are reasonably requested by Consultant and are necessary for the performance of the Services, and are not already provided for in this Contract; (vi) provide structural, mechanical, chemical, air and water pollution tests, test for hazardous materials, and other laboratory and environmental tests, inspections, and reports required by law to be provided by Owner in connection with the Project; (vii) review Required Submittals and other reports, documents, data, and information presented by Consultant as appropriate; (viii) except as otherwise provided in Attachment A, provide approvals from all governmental authorities having jurisdiction over the Project when such services are reasonably requested by Consultant; (ix) attend Project related meetings; and (x) give prompt written notice to Consultant whenever Owner observes or otherwise becomes aware of any development that affects the scope or timing of the Services, provided, however, that failure to give such notice shall not relieve Consultant of any of its responsibilities under this Contract.

1.9 Owner's Right to Terminate or Suspend Services for Convenience

A. Termination or Suspension for Convenience. Owner shall have the right, at any time and for its convenience, to terminate or suspend the Services in whole or in part at any time by written notice to Consultant. Every such notice shall state the extent and effective date of such termination or suspension. On such effective date, Consultant shall, as and to the extent directed, stop Services under this Contract, cease all placement of further orders or subcontracts, terminate or suspend Services under existing orders and subcontracts, and cancel any outstanding orders or subcontracts that may be canceled.

B. Payment for Completed Services. In the event of any termination pursuant to Subsection 1.9A above, Owner shall pay Consultant (i) such direct costs, including overhead, as Consultant shall have paid or incurred for all Services done in compliance with, and as required by or pursuant to, this Contract up to the effective date of termination; and (ii) such other costs pertaining to the Services, exclusive of overhead and profit, as Consultant may have reasonably and necessarily incurred as the result of such termination. Any such payment shall be offset by any prior payment or payments and shall be subject to Owner's rights, if any, to withhold and deduct as provided in this Contract.

ARTICLE II - CHANGES AND DELAYS

2.1 Changes

Owner shall have the right, by written order executed by Owner, to make changes to the timing or scope of the Services to be provided pursuant to this Contract (a "Services Change Order"). When a Change Order causes an increase or decrease in the amount of the Services, an equitable adjustment in the Contract Price or Contract Time may be made. No decrease in the amount of the Services caused by any Change Order shall entitle Consultant to make any claim for damages, anticipated profits, or other compensation. Consultant shall not undertake any change in the Services without receipt of an executed Change Order from Owner.

2.2 Delays

For any delay resulting from a cause that Consultant could not reasonably avoid or control, Consultant, upon timely written application, shall be entitled to issuance of a Change Order providing for an extension of the Contract Time for a period of time equal to the delay resulting from such unavoidable cause. No extension of the Contract Time shall be allowed for any other delay in completion of the Services.

2.3 No Constructive Change Orders

No claims for equitable adjustments in the Contract Price or Contract Time shall be made or allowed unless embodied in a Change Order. If Owner fails to issue a Change Order including or fully including an equitable adjustment in the Contract Price or Contract Time to which Consultant claims it is entitled or, if Consultant believes that any requirement, direction, instruction, interpretation, determination or decision of Owner entitles Consultant to an equitable adjustment in the Contract Price or Contract Time that has not been included or fully included in a Change Order, then Consultant shall submit to Owner a written request for the issuance of or revision of a Change Order including the equitable adjustment or the additional equitable adjustment in the Contract Price or Contract Time that Consultant claims has not been included or fully included in a Change Order. Such request shall be submitted before Consultant proceeds with any Work for which Consultant claims an equitable adjustment is due and shall, in all events, be submitted no later than two (2) business days after receipts of such Change Order or receipt of notice of such requirement, direction instruction, interpretation, determination or decision. Notwithstanding the submission of any such request, Consultant shall, unless otherwise directed by Owner within two (2) business days after receipt by Owner of such request, proceed without delay to perform the Work in compliance with the Change Order or as required, directed, instructed, interpreted or decided by Owner, and shall, pending a final resolution of the issue, keep a daily record of such Work. Unless Consultant submits such a request within two (2) business days after receipt of such Change Order or receipt of notice of such requirement, direction, instruction, interpretation, determination or decision, Consultant shall be conclusively deemed (i) to have agreed that such Change Order, requirement, direction, instruction, interpretation, determination or decision does not entitle Consultant to an equitable adjustment in the Contract Price or Contract Time; and (ii) to have waived all claims based on such Change Order, requirement, direction, instruction, interpretation, determination or decision.

ARTICLE III - CONSULTANT'S RESPONSIBILITY FOR DEFECTIVE SERVICES

3.1 Representation of Compliance

A. Scope of Representation. Consultant shall perform all Services in conformance with this Contract, free from defects and flaws in design, and in accordance with the Standard of Performance (the "Representation of Compliance").

B. Opinions of Cost. It is recognized that neither Consultant nor Owner has control over the costs of labor, material, equipment or services furnished by others or over competitive bidding, market or negotiating conditions, or construction contractors' methods of determining their prices. Accordingly, any opinions of probable Project costs or construction costs provided for herein are estimates only, made on the basis of Consultant's experience and qualifications and represent Consultant's best judgment as an experienced and qualified professional, familiar with the industry. Consultant does not guarantee that proposals, bids or actual Project costs or construction costs will not vary from opinions of probable cost prepared by Consultant.

3.2 Corrections

Consultant shall be responsible for the quality, technical accuracy, completeness and coordination of all Services under this Contract. Consultant shall correct and remedy all of its errors, omissions, and negligent acts related to the Services, promptly and without charge.

3.3 Risk of Loss

The Services shall be provided, performed, and completed at the risk and cost of Consultant. Consultant shall be responsible for any and all damages to property or persons as a result of Consultant's errors, omissions, or negligent acts and for any losses or costs to repair or remedy any work undertaken by Owner based on the Services as a result of any such errors, omissions, or negligent acts. Notwithstanding any other provision of this Contract, Consultant's obligations under this Section 3.3 shall exist without regard to, and shall not be construed to be waived by, the availability or unavailability of any insurance, either of Owner or Consultant, to indemnify, hold harmless, or reimburse Consultant for such damages, losses, or costs.

ARTICLE IV - INSURANCE; INDEMNIFICATION

4.1 Insurance

Contemporaneous with Consultant's execution of this Contract, Consultant shall provide certificates and policies of insurance evidencing at least the minimum insurance coverage and limits set forth in Attachment A. For good cause shown, Owner may extend the time for submission of the required policies of insurance upon such terms, and with such assurances of complete and prompt performance, as Owner may impose in the exercise of its sole discretion. Such policies shall be in a form reasonably acceptable to Owner and from companies with a general rating of A-, and a financial size category of Class V or better, in Best's Insurance Guide and otherwise reasonably acceptable to Owner. Such insurance shall provide that no change to or cancellation of any insurance, nor any reduction in limits or coverage or other modifications affecting this Agreement, shall become effective until the expiration of thirty (30) days after written notice thereof shall have been given by the insurance company to Owner. Consultant shall, at all times while providing, performing, or completing the Services, including without limitation at all times while providing corrective Services pursuant to Section 3.2 of this Contract, maintain and keep in force, at Consultant's expense, at least the minimum insurance coverage and limits set forth in Attachment A.

4.2 Indemnification

Consultant, without regard to the availability or unavailability of any insurance, either of Owner or Consultant, shall, to the fullest extent permitted by law, indemnify, save harmless, and reimburse Owner against any and all lawsuits, claims, demands, damages, liabilities, losses, and expenses, including reasonable attorneys' fees, that may arise or be alleged to have arisen out of or in connection with Consultant's negligent acts, errors, or omissions, except only to the extent caused by the negligence of Owner.

Owner, without regard to the availability or unavailability of any insurance, either of Owner or Consultant, shall, to the fullest extent permitted by law, indemnify, save harmless, and reimburse Consultant against any and all lawsuits, claims, demands, damages, liabilities, losses, and expenses, including reasonable attorneys' fees, that may arise or be alleged to have arisen out of or in connection with Owner's negligent acts, errors, or omissions, except only to the extent caused by the negligence of Consultant.

ARTICLE V - PAYMENT

5.1 Contract Price

Owner shall pay to Consultant, in accordance with and subject to the terms and conditions set forth in this Article V and Attachment A, and Consultant shall accept in full satisfaction for providing, performing, and completing the Services, the amount or amounts set forth in Attachment A ("Contract Price"), subject to any additions, deductions, or withholdings provided for in this Contract.

5.2 Taxes, Benefits and Royalties

The Contract Price includes applicable federal, state, and local taxes of every kind and nature applicable to the Services as well as all taxes, contributions, and premiums for unemployment insurance, old age or retirement benefits, pensions, annuities, or other similar benefits and all costs, royalties, and fees arising from the use on or the incorporation into the Services of patented equipment, materials, supplies, tools, appliances, devices, processes, or inventions. Consultant waives and releases any claim against Owner arising from the payment of any such tax, contribution, premium, benefit, cost, royalty, or fee.

5.3 Progress Payments

A. Payment in Installments. The Contract Price shall be paid in installments in the manner set forth in Attachment A ("Progress Payments").

B. Pay Requests. Consultant shall, as a condition precedent to its right to receive each Progress Payment, submit to Owner an invoice accompanied by such receipts, vouchers, and other documents as may be necessary to reasonably establish Consultant's prior payment for all labor, material, and other things covered by the invoice and the absence of any lien or other interest of any party in regard to the Services performed under this Contract. In addition to the foregoing, such invoice shall include (i) employee classifications, rates per hour, and hours worked by each classification, and, if the Services are to be performed in separate phases, for each phase; (ii) total amount billed in the current period and total amount billed to date, and, if the Services are to be performed in separate phases, for each phase; (iii) the estimated percent completion, and, if the Services are to be performed in separate phases, for each phase; and (iv) Consultant's certification that all prior Progress Payments have been properly applied to the Services with respect to which they were paid. Owner may, by written notice to Consultant, designate a specific day of each month on or before which pay requests must be submitted.

5.4 Final Acceptance and Final Payment

The Services or, if the Services are to be performed in separate phases, each phase of the Services, shall be considered complete on the date of final written acceptance by Owner of the Services or each phase of the Services, as the case may be, which acceptance shall not be unreasonably withheld or delayed. The Services or each phase of the Services, as the case may be, shall be deemed accepted by Owner if not objected to in writing within sixty (60) days after submission by Consultant of the Services or such phase of Services for final acceptance and payment plus, if applicable, such additional time as may be considered reasonable for obtaining approval of governmental authorities having jurisdiction to approve the Services, or phase of Services, as the case may be. Within thirty (30) days after final acceptance, Owner shall pay to Consultant the balance of the Contract Price or, if the Services are to be performed in separate phases, the balance of that portion of the Contract Price with respect to such phase of the Services, after deducting therefrom charges, if any, against Consultant as provided for in this Contract ("Final Payment"). The acceptance by Consultant of Final Payment with respect to the Services or a particular phase of Services, as the case may be, shall operate as a full and complete release of Owner of and from any and all lawsuits, claims, or demands for further payment of any kind for the Services or, if the Services are performed in separate phases, for that phase of the Services.

5.5 Deductions

A. Owner's Right to Withhold. Notwithstanding any other provision of this Contract and without prejudice to any of Owner's other rights or remedies, Owner shall have the right at any time or times, whether before or after approval of any pay request, to deduct and withhold from any Progress or Final Payment that may be or become due under this Contract, such amount as may reasonably appear necessary to compensate Owner for any actual or prospective loss due to: (i) Services that are defective, damaged, flawed, unsuitable, nonconforming or incomplete; (ii) damage for which Consultant is liable under this contract; (iii) liens or claims of lien, regardless of merit; (iv) claims of Sub-consultants, suppliers or other persons, regardless of merit; (v) delay in the progress or completion of the Services; (vi) inability of Consultant to complete the Services; (vii) failure of Consultant to perform any of its obligations under this Contract; (viii) any other failure of Consultant to perform any of its obligations under this Contract; (ix) the cost to Owner including attorneys' fees and administrative costs of correcting any of the aforesaid matters or exercising any one or more of Owner's remedies set forth in Section 6.1 of this Contract.

B. Use of Withheld Funds. Owner shall be entitled to retain any and all amounts withheld pursuant to Subsection 5.5A above until Consultant shall have either performed the obligations in question or furnished security for such performance satisfactory to Owner. Owner shall be entitled to apply any money withheld or any other money due Consultant under this Contract to reimburse itself for any and all costs, expenses, losses, damages, liabilities, suits, judgments, awards, attorneys' fees and administrative expenses incurred, suffered or sustained by Owner and chargeable to Consultant under this Contract.

5.6 Accounting

Consultant shall keep accounts, books, and other records of all its billable charges and costs incurred in performing the Services in accordance with generally accepted accounting practices, consistently applied, and in such manner as to permit verification of all entries. Consultant shall make all such material available for inspection by Owner, at the office of Consultant during normal business hours during this Contract and for a period of three years after termination of this Contract. Copies of such material shall be furnished, at Owner's expense, upon request.

ARTICLE VI - REMEDIES

6.1 Owner's Remedies

If it should appear at any time prior to Final Payment that Consultant has failed or refused to prosecute, or has delayed in the prosecution of the Services with diligence at a rate that assures completion of the Services in full compliance with the requirements of this contract, or has attempted to assign this Contract or Consultant's rights under this contract, either in whole or in part, or has falsely made any representation or warranty in this Contract, or has otherwise failed, refused or delayed to perform or satisfy any other requirement of this Contract, or has failed to pay its debts as they come due ("Event of Default"), and has failed to cure any such Event of Default within five (5) business days after Consultant's receipt of written notice of such Event of Default, Owner shall have the right, at its election and without prejudice to any other remedies provided by law or equity, to pursue any one or more of the following remedies:

- A. Owner may require Consultant, within such reasonable time as may be fixed by Owner, to complete or correct all or any part of the Services that are defective, damaged, flawed, unsuitable, nonconforming or incomplete to accelerate all or any part of the Services, and to take any or all other action necessary to bring Consultant and the Services into strict compliance with this Contract.
- B. Owner may accept the defective, damaged, flawed, unsuitable, nonconforming, incomplete or dilatory Services as part thereof and make an equitable reduction in the Contract Price.
- C. Owner may terminate this Contract without liability for further payment of amounts due or to become due under this Contract.
- D. Owner may withhold from any Progress Payment or Final Payment, whether or not previously approved, or may recover from Consultant any and all costs including attorneys' fees and administrative expenses incurred by Owner as the result of any Event of Default or as a result of actions taken by Owner in response to any Event of Default.
- E. Owner may recover any damages suffered by Owner.

6.2 Terminations and Suspensions by Owner Deemed for Convenience

Any termination or suspension by Owner of Consultant's rights under this Contract for an alleged Event of Default that is ultimately held unjustified shall automatically be deemed to be a termination or suspension for the convenience of Owner under Section 1.9 of this Contract.

ARTICLE VII - LEGAL RELATIONSHIPS AND REQUIREMENTS

7.1 Binding Effect

This Contract shall be binding on Owner and Consultant and on their respective heirs, executors, administrators, personal representatives, and permitted successors and assigns. Every reference in this Contract to a party shall also be deemed to be a reference to the authorized officers, employees, agents, and representatives of such party.

7.2 Relationship of the Parties

Consultant shall act as an independent contractor in providing and performing the Services. Nothing in, nor done pursuant to, this Contract shall be construed (i) to create the relationship of principal and agent, partners, or joint ventures between Owner and Consultant or (ii) to create any relationship between Owner and any sub-consultant of Consultant.

7.3 No Collusion

Consultant hereby represents and certifies that Consultant is not barred from contracting with a unit of state or local government as a result of (i) a delinquency in the payment of any tax administered by the Illinois Department of Revenue unless Consultant is contesting, in accordance with the procedures established by the appropriate revenue Act, its liability for the tax or the amount of the tax, as set forth in 65 ILCS 5/11-42.1-1; or (ii) a violation of either Section 33E-3 or Section 33E-4 of Article 33E of the Criminal Code of 1961, 720 ILCS 5/33E-1 et seq. Consultant hereby represents that the only persons, firms, or corporations interested in this Contract as principals are those disclosed to Owner prior to the execution of this Contract, and that this Contract is made without collusion with any other person, firm, or corporation. If at any time it shall be found that Consultant has, in procuring this Contract, colluded with any other person, firm, or corporation, then Consultant shall be liable to Owner for all loss or damage that Owner may suffer thereby, and this Contract shall, at Owner's option, be null and void.

Consultant hereby represents and warrants that neither Consultant nor any person affiliated with Consultant or that has an economic interest in Consultant or that has or will have an interest in the Work or will participate, in any manner whatsoever, in the Work is acting, directly or indirectly, for or on behalf of any person, group, entity or nation named by the United States Treasury Department as a Specially Designated National and Blocked Person, or for or on behalf of any person, group, entity or nation designated in Presidential Executive Order 13224 as a person who commits, threatens to commit, or supports terrorism, and neither Consultant nor any person affiliated with Consultant or that has an economic interest in Consultant or that has or will have an interest in the Work or will participate, in any manner whatsoever, in the Work is, directly or indirectly, engaged in, or facilitating, the Work on behalf of any such person, group, entity or nation.

7.4 Assignment

Consultant shall not (i) assign this Contract in whole or in part, (ii) assign any of Consultant's rights or obligations under this Contract, or (iii) assign any payment due or to become due under this Contract without the prior express written approval of Owner, which approval may be withheld in the sole and unfettered discretion of Owner; provided, however, that Owner's prior written approval shall not be required for assignments of accounts, as defined in the Illinois Commercial Code, if to do so would violate Section 9-318 of the Illinois Commercial Code, 810 ILCS 5/9-318. Owner may assign this Contract, in whole or in part, or any or all of its rights or obligations under this Contract, without the consent of Consultant.

7.5 Confidential Information

All information supplied by Owner to Consultant for or in connection with this Contract or the Services shall be held confidential by Consultant and shall not, without the prior express written consent of Owner, be used for any purpose other than performance of the Services.

7.6 No Waiver

No examination, inspection, investigation, test, measurement, review, determination, decision, certificate or approval by Owner, nor any order by Owner for the payment of money, nor any payment for or use, occupancy, possession or acceptance of the whole or any part of the Services by Owner, nor any extension of time granted by Owner, nor any delay by Owner in exercising any right under this Contract, nor any other act or omission of Owner shall constitute or be deemed to be an acceptance of any defective, damaged, flawed, unsuitable, nonconforming or incomplete Services, nor operate to waive or otherwise diminish the effect of any warranty or representation made by Consultant or of any requirement or provision of this Contract or of any remedy, power or right of Owner.

7.7 No Third Party Beneficiaries

No claim as a third party beneficiary under this Contract by any person, firm, or corporation (other than Owner and Consultant) shall be made or be valid against Owner or Consultant.

7.8 Notices

All notices required or permitted to be given under this Contract shall be in writing and shall be deemed received by the addressee thereof when delivered in person on a business day at the address set forth below or on the third business day after being deposited in the United States mail, for delivery at the address set forth below by properly addressed, postage prepaid, certified or registered mail, return receipt requested.

Notices and communications to Owner shall be addressed to, and delivered at, the following address:

Lake County Forest Preserve District
1899 West Winchester Road
Libertyville, Illinois 60048
Attention: Gary Glowacki

Notices and communications to Consultant shall be addressed to and delivered at the following address:

NAME The Chicago Academy of Sciences / Peggy Notebaert Nature Museum
ADDRESS 2430 North Cannon Drive
CITY STATE Chicago, IL 60614
Attention: Dr. Allison Sacerdote-Velat

The foregoing shall not be deemed to preclude the use of other non-oral means of notification or to invalidate any notice properly given by any such other non-oral means.

By notice complying with the requirements of this Section 7.8, Owner and Consultant each shall have the right to change the address or addressee or both for all future notices to it, but no notice of a change of address or addressee shall be effective until actually received.

7.9 Governing Laws

This Contract and the rights of Owner and Consultant under this Contract shall be interpreted according to the internal laws, but not the conflict of laws rules, of the State of Illinois.

7.10 Changes in Laws

Unless otherwise explicitly provided in this Contract, any reference to laws shall include such laws as they may be amended or modified from time to time.

7.11 Compliance with Laws and Grants

Consultant shall perform, or cause its Sub-consultants to perform, the Services in accordance with all required governmental permits, licenses, or other approvals and authorizations, and with applicable statutes, ordinances, rules, and regulations. This requirement includes, but is not limited to, compliance with the Fair Labor Standards Act; any statutes regarding qualification to do business; any statutes prohibiting discrimination because of, or requiring affirmative action based on, race, creed, color, national origin, age, sex, or other prohibited classification, including, without limitation, the Americans with Disabilities Act of 1990, 42 U.S.C. §§ 12101 et seq., and the Illinois Human Rights Act, 775 ILCS 5/1-101 et seq. Consultant shall also comply with applicable conditions of any federal, state, or local grant received by Owner or Consultant with respect to this Contract or the Services.

Consultant shall be liable for any fines or civil penalties that may be imposed or incurred by a governmental agency with jurisdiction over the Services as a result of Consultant's or its sub-consultants' improper performance of, or failure to properly perform, the Services or any part thereof.

Every provision of law required by law to be inserted into this Contract shall be deemed to be inserted herein.

7.12 Ownership of Documents

Consultant and Consultant's sub-consultants shall be deemed the original authors and owners respectively of materials produced pursuant to this Contract and shall retain all common law, statutory and other reserved rights, including copyrights. Consultant hereby grants and conveys to Owner perpetual, irrevocable non-exclusive rights and license to use all Required Submittals and other materials produced under this Contract for District purposes and no other purposes. The Owner agrees to defend and hold the Consultant and the Consultant's sub-consultants harmless from any causes of action, claims, losses, damages and expenses of any nature whatsoever, including reasonable attorney's fees, resulting from any unauthorized re-use of the Consultant's and Consultant's sub-consultants' materials.

7.13 Time

The Contract Time is of the essence of this Contract. Except where otherwise stated, references in this Contract to days shall be construed to refer to calendar days.

7.14 Severability

The provisions of this Contract shall be interpreted when possible to sustain their legality and enforceability as a whole. In the event any provision of this Contract shall be held invalid, illegal, or unenforceable by a court of competent jurisdiction, in whole or in part, neither the validity of the remaining part of such provision, nor the validity of any other provisions of this Contract shall be in any way affected thereby.

7.15 Entire Agreement

This Contract sets forth the entire agreement of Owner and Consultant with respect to the accomplishment of the Services and the payment of the Contract Price therefore, and there are no other understandings or agreements, oral or written, between Owner and Consultant with respect to the Services and the compensation therefore.

7.16 Amendments

No modification, addition, deletion, revision, alteration, or other change to this Contract shall be effective unless and until such change is reduced to writing and executed and delivered by Owner and Consultant.

IN WITNESS WHEREOF, Owner and Consultant have caused this Contract to be executed as of the day and year first written above.

(SEAL)

Attest/Witness

LAKE COUNTY FOREST PRESERVE DISTRICT

By: _____
Julie A. Gragnani
Title: Secretary

Alex Ty Kovach
Title: Executive Director

Attest/Witness

THE CHICAGO ACADEMY OF SCIENCES
/ PEGGY NOTEBAERT NATURE MUSEUM

By: _____

Title: _____

By: _____
Deborah Lahey
Title: Chief Executive Officer

By: _____
Sharon Walton
Title: Chief Financial Officer

ATTACHMENT A - SUPPLEMENTAL SCHEDULE OF CONTRACT TERMS

1. Project:
Provide wildlife reintroduction and monitoring services at various preserves throughout Lake County, which services include, but are not limited to, all of the Services provided in Consultant's detailed Scope of Work. See Attachment B.
2. Approvals and Authorizations:
Consultant shall obtain the following approvals and authorizations from the following governmental bodies on or before the following dates:

<u>Approval/Authorization</u>	<u>Date</u>
NONE	N/A

3. Commencement Date:
May 1, 2017
4. Completion Date:
April 30, 2018
5. Insurance Coverage:
 - A. Worker's Compensation and Employer's Liability with limits not less than:
 - (1) Worker's Compensation: Statutory
 - (2) Employer's Liability:
 - a. \$1,000,000.00 injury-per-occurrence
 - b. \$1,000,000.00 disease-per-employee
 - c. \$1,000,000.00 disease-policy limit

Such insurance shall evidence that coverage applies in the State of Illinois.
 - B. Comprehensive Motor Vehicle Liability with a combined single limit of liability for bodily injury and property damage of not less than \$1,000,000.00 for vehicles owned, non-owned or rented. All employees shall be included as insured's.
 - C. Comprehensive General Liability with coverage written on an "occurrence" basis and with limits no less than:
 - (1) General Aggregate: \$2,000,000.00
 - (2) Bodily Injury: \$2,000,000.00 per occurrence
 - (3) Property Damage: \$2,000,000.00 aggregate

Coverages shall include:

 - ❖ Broad Form Property Damage Endorsement
 - ❖ Blanket Contractual Liability (must expressly cover the indemnity provisions of the Contract)
 - D. Umbrella Policy. The required coverages may be in any combination of primary, excess and umbrella policies. Any excess or umbrella policy must provide excess coverage of underlying insurance on a following-form basis such that when any loss covered by the primary policy exceeds the limits under the primary policy, the excess or umbrella policy becomes effective to cover such loss.
 - E. Owner as Additional Insured. Owner shall be named as an Additional Insured on all policies except for:
 - ❖ Worker's Compensation Policy

F. Other Parties as Additional Insured. In addition to Owner, the following parties shall be named as Additional Insured on the following policies:

Additional Insured	Policy or Policies
N/A	N/A

6. Contract Price:

A. Schedule of Prices - Not to Exceed:

For providing, performing, and completing all Services, Consultant shall be compensated for all services rendered by principals and employees directly on the Project at the following rates for the following positions:

POSITION	RATE
Forest Amphibian – Curator of Herpetology	\$21,000.00
Smooth Green Snake – Curator of Herpetology	\$14,000.00
Smooth Green Snake – Field Technician	\$5,460.00

Owner shall also reimburse Consultant for the following (and no other) reimbursable costs and expenses in the following amounts, which shall be reimbursed at the actual out of pocket cost to Consultant:

REIMBURSABLES	AMOUNT
Forest Amphibian - Equipment	\$6,000.00
Forest Amphibian – Mileage	\$1,000.00
Smooth Green Snake - Equipment	\$7,292.00
Smooth Green Snake - Mileage	\$1,248.00

Notwithstanding the foregoing, the total portion of the Contract Price based on Consultant's hourly rates of principals and employees shall not exceed \$40,460.00 and the total portion of the Contract Price based on reimbursable expenses shall not exceed \$ 15,540.00. The total contract price shall not exceed \$56,000.00.

7. Payments:

Regardless of whether the Contract Price is based upon hourly rates or a lump sum, Consultant shall, not later than ten (10) days after execution of the Contract and before submitting its first pay request, submit to Owner a schedule showing the value of each component part or phase of the Services in form and with substantiating data acceptable to Owner (“Breakdown Schedule”). The sum of the items listed in the Breakdown Schedule shall equal the lump sum Contract Price or the not to exceed Contract Price, as the case may be. An unbalanced Breakdown Schedule providing for overpayment of Consultant on component parts or phases of the Services to be performed first will not be accepted. The Breakdown Schedule shall be revised and resubmitted until acceptable to Owner. No payment shall be made for Services until Consultant has submitted, and Owner has approved, an acceptable Breakdown Schedule. When a component or phase of the Services, as identified in the Breakdown Schedule, is complete, Owner will pay Consultant the value of such component or phase as provided in the Breakdown Schedule; however, Owner shall not be required to make payments more frequently than once per month.

All pay requests from Consultant shall be made using the pay request format supplied by Owner.

Owner may require that the approved Breakdown Schedule be revised based on developments occurring during the provision and performance of the Services. If Consultant fails to submit a revised Breakdown Schedule that is acceptable to Owner, Owner shall have the right either to suspend Progress and Final Payments for Services or to make such payments based on Owner’s determination of the value of the Services completed.

ATTACHMENT B - CONSULTANT'S SCOPE OF WORK

Forest Amphibian Conservation in Restored Des Plaines River Flatwoods and Oak Woodlands in the Lake County Forest Preserves

The Lake County Forest Preserve District (the District) has restored forested flatwoods, wetlands, and oak woodlands for many decades, in an effort to preserve regional biodiversity. The District's Wildlife Monitoring Program works to identify species that have not recolonized restored areas or species that require additional habitat management or population supplementation to support recolonization.

Through collaborative research partnerships with Dr. Sacerdote-Velat since 2004 (formerly at Northern Illinois University and Lincoln Park Zoo, now at Chicago Academy of Sciences/Peggy Notebaert Nature Museum), these wildlife monitoring efforts have resulted in projects to supplement and reestablish locally rare and extirpated species, including the wood frog, spring peepers, smooth green snake, and meadow jumping mouse. Our previous research projects focused on identifying and monitoring remnant populations of these rare species, establishing protocols for captive breeding and head-starting programs, evaluating the efficacy of head-starting and translocation techniques, and monitoring the preliminary outcomes of these approaches.

Following hydrologic restoration at MacArthur Woods Forest Preserve, from 2007-2010 the District and Dr. Sacerdote-Velat carried out amphibian egg mass translocations for wood frogs and larval translocations for spring peepers. In 2014, District wildlife biologists and Dr. Sacerdote-Velat documented the first evidence of successful reproduction and population persistence of reintroduced wood frogs in MacArthur Woods. In 2016, our amphibian monitoring efforts, supported by the Preservation Foundation of the Lake County Forest Preserves and an Illinois State Wildlife Grant, documented natural expansion of wood frog populations from two ponds to four breeding ponds within MacArthur Woods. Calls were recorded in each of the ponds, egg masses were observed, hatching was documented, and metamorphs were encountered in drift fence sampling.

Spring peepers quickly established in two ponds following initial translocations in 2008 and 2009. While they persist in MacArthur Woods, 2016 monitoring efforts documented relatively small populations of spring peepers in the same two ponds. These populations may benefit from additional supplementation to improve their long-term viability. During 2016 monitoring in surrounding sites, large, viable spring peeper populations were documented in Ryerson Conservation Area and in Elm Road Woods. These populations could withstand removal of up to 5% of larvae for translocation to supplement the MacArthur Woods populations.

Need

Changes to the woodland understory within the District's Southern Des Plaines Restoration Project sites should improve the amount of preferred available microhabitat for wood frogs by creating light gaps, removing invasive shrubs, and promoting growth of ground cover. Past hydrologic restoration within the flatwoods and invasive shrub management has improved temporary wetland quality, such that restored flatwoods ponds should support recruitment of populations of wood frogs at additional restoration sites within their historic range, such as Ryerson Woods and Elm Road Woods. However, we need to improve our understanding of both aquatic breeding habitat quality and non-breeding terrestrial habitat use by wood frogs to ensure that restoration efforts will support populations throughout all phases of their complex life cycle.

Approach:

Dr. Sacerdote-Velat, curator of Herpetology, Chicago Academy of Sciences/Peggy Notebaert Nature Museum, will work in partnership with the District to accomplish four objectives:

1. Monitor populations of forest amphibians in MacArthur Woods, Grainger Woods, Wright Woods, Elm Road Woods, Ryerson Woods, and Old School Forest Preserve as the Southern Des Plaines Restoration Project (SDPR) progresses. Monitoring will focus on the reintroduced populations of wood frogs and spring peepers, as well as resident amphibian species. The Curator of Herpetology and a technician will monitor resident amphibian community dynamics, health, and stress in the SDPR project sites. 2017 will be the second of a three-year Illinois State Wildlife Grant covering technician wages, project equipment, and disease sampling. The Curator of Herpetology will analyze demographic data for the amphibian communities, and conduct amphibian disease surveillance as restoration measures are implemented.
2. Radio-track up to 20 wood frogs outside of the breeding window to examine microhabitat preference and habitat use through compositional analysis, short-term survival, and movement patterns. Habitat suitability models will be generated in ArcGIS v. 10 to rank potential release sites for expanded reintroductions in Ryerson Woods and Elm Road Woods.
3. Assess feasibility of expanding reintroduction efforts for wood frogs into Ryerson Conservation Area and Elm Road Woods using pond enclosure experiments and habitat suitability models. Ryerson historically supported populations of wood frogs within the flatwood wetlands, as evidenced by museum specimens from "Portwine Road Pond" and "Lake-Cook Pond" during the 1940s.
4. Supplement MacArthur Woods spring peeper population with translocation of larvae using pond enclosures, and examine differences in growth and survival of spring peepers and chorus frogs in MacArthur Woods, Elm Road Woods, and Ryerson Woods.

Deliverables:

The Curator of Herpetology will continue collection of population data and amphibian health data for reintroduced and resident forest amphibians in the SDPR sites. These data will be used to generate estimates of population size, track changes in abundance as translocations of spring peepers and wood frogs are implemented, monitor disease status of Lake County amphibian communities, and examine amphibian community response to restoration management. This information will help the District and other regional conservation organizations evaluate current management techniques and inform future efforts to mitigate persistent threats to amphibians.

The Curator of Herpetology will provide the District with a report detailing execution of each objective, results of radio-tracking, enclosure rearing, assessments for expanding reintroduction, population monitoring, and disease sampling. Project results will be disseminated at professional wildlife conferences, including the Society for the Study of Amphibians and Reptiles, Midwest Partners in Amphibian and Reptile Conservation, and the Midwest Fish and Wildlife Conference. Results of the habitat use study, translocation efforts, and enclosure experiments will be submitted for publication in peer-reviewed journals in collaboration with District biologists.

BUDGET

REQUEST TO THE PRESERVATION FOUNDATION COST

Staff Salaries and benefits

Curator of Herpetology: 30% time for project coordination, data collection:
 624 hours @ \$ 33.65 / hour \$ 21,000

Equipment

Wood frog tracking equipment \$ 3,760
 Dip Nets \$ 314
 Pond Enclosures \$ 400
 Waders (4) \$ 280
 Pathogen DecontaminationSupplies \$ 100
 Tanks and food for tadpoles \$ 1,146

Travel

Mileage for researcher and technician, 1,755 miles @ \$ 0.57 / mile \$ 1,000

Subtotal: Direct Costs \$ 28,000

District Grant Administration: calculated at 5% of grant award \$ 1,474

TOTAL REQUEST TO THE PRESERVATION FOUNDATION \$ 29,474

MATCHING FUNDS

Chicago Academy of Sciences:
 Curator of Herpetology, 520 hours @ \$ 33.65 / hour \$ 17,498

Illinois State Wildlife Grant

Amphibian Field Technician: 980 hours @ \$13 hour + FICA \$ 13,715
 Equipment: drift fence supplies, call recorder supplies \$ 2,065
 Disease and stress hormone sample analysis \$ 6,960

TOTAL MATCHING FUNDS \$ 40,238

Timeline:

Field work for amphibian research will begin in late February/early March 2017 with repair/maintenance of sampling arrays in MacArthur Woods, Old School, Grainger, Ryerson, Elm Road Woods and Wright Woods preserves. Amphibian monitoring will continue through the summer, ending in early September (or earlier in the event of drought conditions). Wood frog egg mass translocation in enclosures will occur in March 2017 as eggs are available. Spring peeper tadpole supplementation and enclosure experiments will occur in March/April 2017 as larvae hatch and can be distinguished to species. Radio-tracking of wood frogs will begin with post-reproductive adults in late March/early April. The summary report for amphibian, smooth green snake, and meadow jumping mice projects will be submitted to The District by December 31, 2017.

IMPACT OF THE PROPOSED PROJECT:

Anticipated impacts of this project include:

- Continued collection and analysis of demographic data to guide future amphibian conservation work in the Southern Des Plaines region, and detail amphibian response to restoration measures.
- Supplementation of spring peepers to improve long-term viability of the reintroduced MacArthur Woods population, and examination pond parameters and the effect of competition on survival and growth of spring peepers as compared to chorus frogs.
- Collection of post-breeding survival and microhabitat use data for reintroduced wood Frogs
- Feasibility assessment for expansion of wood frog reintroduction in Ryerson Woods and Elm Road Woods using enclosed egg mass translocation and habitat suitability modeling.

**Smooth Green Snake Distribution Survey, Conservation Assessment, &
Headstarting in the
Fox River/Flint Creek Watershed
Chicago Academy of Sciences/Peggy Notebaert Nature Museum**

Background

The Smooth Green Snake (*Ophedrys vernalis*), is an Illinois Species in Greatest Conservation Need, and has been designated as one of 12 Chicago Wilderness Priority Species (<http://www.chicagowilderness.org/default.asp?page=PrioritySpecies>). The smooth green snake was once widespread throughout northern Illinois grasslands, open canopy meadow and grassland habitats through the northeastern United States, and disjunct high elevation meadows in several western/Great Plains states. Smooth green snakes have undergone local and range-wide declines driven by the loss of grassland habitats resulting from conversion of prairies into row crop agriculture. As an insectivorous species, smooth green snakes have also declined in areas where heavy application of insecticides has limited their prey base. The species is state endangered in Indiana and Iowa, and considered imperiled or of conservation concern in other range sites.

The smooth green snake's geographic distribution is limited to the Grand Prairie region in northern Illinois, and the loss of grasslands from the combined pressures of agricultural development and urbanization has negatively impacted local populations. Some remnant grassland parcels still support populations, but they are small and isolated by habitat fragmentation. In most remnant populations, shrub encroachment, especially from invasive species, has further reduced the amount of suitable habitat available to the smooth green snake through loss of basking sites and nesting sites with appropriate thermal conditions. In some sites within Chicago Wilderness, smooth green snakes are using marginal habitats such as power line right-of-ways and railroad embankments for nesting and hibernation. While populations are persisting in these sites, nest success is poor. Because of the smooth green snake's remarkable camouflage and small size, it is often overlooked in biological surveys that focus on a wide array of grassland species. As such, we lack detailed information regarding the current geographic distribution of smooth green snakes in Chicago Wilderness.

Since 2010, Lake County Forest Preserve District has partnered with Dr. Sacerdote-Velat ("the Partnership") (formerly at Lincoln Park Zoo, now at Chicago Academy of Sciences / Peggy Notebaert Nature Museum) to conduct intensive surveys for smooth green snakes in restored and remnant grasslands, examining population viability of the remaining populations, and building a headstarting and captive breeding program. The aim of the headstarting and captive breeding program is to provide snakes for supplementation of existing populations and reintroductions in restored tallgrass prairies, wet prairies, savannas, and sedge meadows. Headstarting serves to supplement small populations by increasing survival of young animals in a captive setting, prior to release into a restored site. Thus far, two Lake County sites have served as sources for collection of wild adults for the breeding effort, and three sites have served as sources of nests for headstarting young snakes to adult body size prior to release. Three sites have been supplemented with captive –reared and wild-bred headstarted snakes. In 2011 and 2012, the Partnership examined use of artificial overwintering to improve growth, reproduction, and survival of headstarted snakes. The Partnership also evaluated different release methods for introducing naïve headstarted snakes into restoration sites. The smooth green snake recovery effort expanded geographic scope with McHenry County and DuPage County surveys beginning in 2013. Headstarting began in two sites in McHenry County in 2015 and in two sites in DuPage County in 2016. As additional land management agencies join the Chicago Wilderness Priority Species efforts as partners and stakeholders, we aim to expand the geographic scope of smooth green snake population surveys to new sites. Documenting additional populations will provide headstarting and captive breeding opportunities that will help secure the viability of smooth green snakes in Chicago Wilderness.

Need

Only about 25 preserves in Chicago Wilderness have recent records of the species from the last five years, with seven known sites in Lake County and seven in McHenry County. The remnant population sites are all bound by roads which largely isolate and fragment them, limiting migration and gene flow. However, some of the Lake County sites are connected along the north branch of the Chicago River, railroad tracks, and the Des Plaines River. The acquisition and restoration of preserves along the rivers and railroads has maintained a degree of connectivity for smooth green snakes. Cook County sites have not been surveyed specifically for smooth green snakes in the last decade. In the known sites within Lake County, reproduction has only been documented in four sites in the last six years, and many nests that were monitored in the field failed due to predation and desiccation. In addition to habitat loss and poor nesting success, smooth green snakes may face an additional threat from disease. Snake Fungal Disease, an emerging disease caused by the fungal pathogen *Ophidiomyces ophidiicola*, has been detected in garter snakes and fox snakes in McHenry and DuPage counties, in sites with smooth green snake populations. While the disease has yet to be documented in smooth green snakes, it could pose a potential threat to survival, with the fungus infecting and digesting scales around the jaw and eyes of the snakes. Current smooth green snake survey efforts in the region include surveillance for symptomatic lesions, blisters, and scale loss, and collection of swabs for pathogen screening.

At present, five of the known Lake County populations are located east of the Des Plaines River. Two other sites in the Chain O'Lakes area have had sporadic observations of smooth green snakes in the last six years, with no documentation of reproduction. In McHenry County, three of seven known sites are close to the Fox River. Other known sites in Chicago Wilderness still have remnant grassland/sedge meadow vegetation present, or are connected to sites with remnant vegetation via railroad embankments or power line right-of-ways.

Given the persistence of small populations of smooth green snakes in the Chain O'Lakes region and west of the Fox River in McHenry County, potential exists for locating additional populations in southwestern Lake County/northern Cook County within the Fox River/Flint Creek watershed. Previously, we developed habitat suitability models ranking potential reintroduction sites and serving as predictive models for smooth green snake suitability in Lake County Forest Preserves. We are aware of high suitability areas within Cuba Marsh and Grassy Lake (Fig. 2). These areas may harbor small populations that have not yet been detected, or they may serve as suitable release sites for headstarting and reintroduction efforts. By increasing monitoring efforts for smooth green snakes in Cuba Marsh and Grassy Lake, more small populations may be detected that can provide founders for headstarting.

The Citizens for Conservation land holdings within the Fox River/Flint Creek watershed have not been surveyed for smooth green snakes. These sites, including Flint Creek Savanna (109 acres), Wagner Fen (42 acres), Barrington Bog (45 acres), and Grigsby Prairie (42 acres) may harbor unknown populations of smooth green snakes within remnants or in restoration units along railroad and power line right-of-ways. Further, with the proposed restoration partnership between Lake County Forest Preserve District and Citizens for Conservation in southwestern Lake County, habitat quality will continue to improve for smooth green snakes. The proposed restoration management in Grassy Lake, Cuba Marsh, and the CFC prairie-wetland complexes will directly address the issue of shrub encroachment in mesic and wet prairies, savannas, and wetlands. These restoration measures, coupled with hydrologic restoration efforts in Cuba Marsh and sedge meadow restoration in Grassy Lake, will increase the amount of suitable habitat available to smooth green snakes within the Fox River/Flint Creek watershed. As we have seen in eastern Lake County, the more restored land has been incorporated along a connective corridor such as rivers and creeks, the greater the opportunity for previously fragmented populations to persist.

Proposed Work

We propose to conduct intensive surveys for smooth green snakes in Cuba Marsh and Grassy Lake (LCFPD sites) within the prairie wetland complexes and sedge meadow complexes, and in appropriate grassland and wetland habitats within Flint Creek Savanna, Grigsby Prairie, Wagner Fen, and Barrington Bog (CFC sites). These surveys will aim to determine whether smooth green snake populations persist in any of the sites, and if so, begin demographic survey efforts to determine whether populations are increasing, decreasing, or are stable. Surveys will include nest searches and monitoring of hatching success and nest conditions (temperature and humidity during incubation) should nests be encountered. Surveys will also inform habitat models for CFC land holdings so we may develop suitability models to rank sites for future headstarting and release efforts. Swabs will be collected from snakes of any species encountered, that appear symptomatic for Snake Fungal Disease in order to build surveillance data.

Surveys will utilize an occupancy-based framework where each sampling point is visited multiple times during windows of peak smooth green snake activity (May-September), with equal effort across all sampling points. Sampling points will consist of transects of artificial cover boards spanning 60 meters, with boards spaces 10 meters apart. Each sampling point will be visited twice per week in variable order so sampling visit time does not bias the survey results. The number of transects per site will be based on the acreage in appropriate habitat within each management unit of the sites. All sampling visits will be coded as a "0" if no green snakes were detected or as a "1" if green snakes were detected. Because smooth green snakes may be missed during sampling events, each site will have an encounter history from which we can calculate the detection probability of smooth green snakes (or the likelihood of encountering them when they are present). Using the detection probability, we can adjust the proportion of sites where green snakes have been found by the detection probability to provide the best estimate of the proportion of area occupied. If populations are encountered, over time, we can examine response to restoration (colonization of newly restored habitat patches, local extinction from habitat patches) as habitat management proceeds. The expectation is that colonization will increase as restoration progresses.

In addition to survey work in southwestern Lake County sites, surveys will continue in known population sites such that we can conduct ex situ incubation of nests for headstarting and retain a small number of reproductive snakes for captive breeding. Headstarting takes just under one year from the time of hatching until release of snakes. Nests typically hatch in early August. In our past experience headstarting smooth green snakes, individuals have reached adult body size within about 10 months versus three years in the wild. This increase in growth rate and body size is expected to improve survival and reproductive output in young snakes following release.

Approach

The proposed smooth green snake surveys and expansion of headstarting will be conducted over three years in the following project phases:

Phase I: Intensive Smooth Green Snake Surveys in Restoration Sites (Years 1-3)

- a) Implement occupancy-based cover board surveys in Cuba Marsh, Grassy Lake, Flint Creek Savanna, Grigsby Prairie, Barrington Bog, and Wagner Fen. Each transect in each site will be visited twice per week from early May through September.
- b) Collect demographic and morphometric (body size) data and individually mark all smooth green snakes encountered during surveys
- c) Survey known population sites in Lake County to obtain up to 6 nests for headstarting and up to eight founders for captive breeding at Chicago Academy of Sciences/Peggy Notebaert Nature Museum

- d) Monitor wild nests and deploy temperature and humidity loggers to record incubation conditions and nest fate. This information will aid in identifying sites as either reproductive sources (producing successful nests) or reproductive sinks (producing unsuccessful nests)
- e) Collect microhabitat data in survey locations (percent ground cover, percent canopy cover, soil temperature, relative humidity)

Phase II: Implementation of Headstarting/Captive Breeding and Habitat Suitability Assessment (Year 1-2)

- a) Using our previously developed headstarting and husbandry protocol, we will incubate and hatch up to six wild nests per year with the aim of increasing growth rates, and body size of young snakes prior to release. Eggs incubated during the summer of Year 1 will hatch in August. Headstarted snakes may be released upon reaching adult body size in summer of Year 2.
- b) We will induce artificial overwintering in late fall/early winter to cue reproductive physiology and increase the headstart growth rate in spring. Ovarian reactivation in adult smooth green snakes is triggered by overwintering. Smooth green snakes are known to exhibit increased growth rates or compensatory/catch-up growth following overwintering.
- c) We will aim to induce captive breeding in the wild-caught founders in Year 2 of the project as mating may occur in late summer/early fall of Year 1, with delayed fertilization until spring, or mating may occur following overwintering in spring. Egg-laying typically occurs between late June and early August, with hatching in August.
- d) Using occupancy data from coverboard surveys and associated habitat data from survey sites, we will develop habitat models for restored areas of Cuba Marsh, Grassy Lake, and the CFC preserve sites.

Phase III: Supplementation/Reintroduction of Smooth Green Snakes (Years 2-3+)

- a) If additional smooth green snake populations are located within the survey sites in southwestern Lake County, we will prioritize supplementation of these sites to secure and enhance remaining populations.
- b) If no additional smooth green snake populations are located during the Year 1 surveys, we will use the habitat suitability models developed during Year 2 to rank candidate release sites within the Fox River/Flint Creek watershed for reintroduction.
- c) Supplementation and reintroduction of smooth green snakes will entail construction of soft release enclosures to improve site fidelity of naïve snakes. Headstarts will be initially released into field enclosures for two weeks, and then will be fully released into the sites.
- d) Five years of post-release monitoring is required for all wildlife reintroduction efforts in Illinois. Supplemented sites will continue to be monitored for at five years following initial releases, and additional snakes will be released to attain minimum population sizes of 100 adult snakes per release site. Post-release monitoring entails an increased density of cover boards in the release site to conduct passive sampling of snakes. This approach has been effective for documenting survival in two other Lake County Forest Preserve release sites. Depending on the sensitivity of plant communities in the release area, drift fences may be used to increase capture rates in the immediate release area through active trapping. However, passive sampling via coverboard surveys yield increased captures of reproductive females and often serve as nesting sites. As such, cover boards facilitate documentation of reproduction in release sites.

**Budget for
Smooth Green Snake Distribution Survey,
Conservation Assessment, & Headstarting in the
Fox River/Flint Creek Watershed**

**BUDGET:
FUNDING REQUESTED:
YEAR 1**

Personnel / Related Costs:

Curator of Herpetology (20% of time): Project Coordination, Data Collection, Analysis, Snake Husbandry, Reporting	\$ 14,000
Field Technician	\$ 5,460
Project Mileage (2400 miles @ \$0.535 / mile)	\$ 1,248

Equipment:

Coverboards and Drift Fence Material for snakes	\$ 1,350
Headstarting and Captive Husbandry Supplies	\$ 5,942
<hr/> <i>Year 1 Funding Need</i>	<hr/> \$ 28,000

**MATCHING CONTRIBUTIONS:
Chicago Academy of Sciences / Peggy Notebaert Nature Museum**

Year 1	
Curator of Herpetology (50% of time)	\$ 35,000
Animal Care Time and Veterinary Costs	\$ 3,000
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ATTACHMENT C - KEY PERSONNEL

1. Key Project Personnel – Owner

NAMES	TELEPHONE NUMBERS
Gary Glowacki, Wildlife Biologist	847-968-3264
Andrew Rutter, Wildlife Biologist	847-968-3283
Debbie Maurer, Natural Resource Manager	847-968-3285

2. Key Project Personnel – Consultant

NAMES	TELEPHONE NUMBERS
Allison Sacerdote-Velat, Curator of Herpetology	773-755-5107
Doug Taron, Chief Curator	773-755-5166