



THE RESOURCE PROTECTION GROUP, INC.

REQUEST FOR PROPOSALS

April 26, 2021

Stream RFP #05 – Invasive Species Management in Nontidal Wetland and Stream Mitigation Sites

WSSI #50000.05-E

Due Date/Time: May 31, 2021; 5:00 PM

Location: U.S. Mail/Fed Ex/UPS or Email

Resource Protection Group, Inc.
c/o Michael S. Rolband, PE, PWD, PWS Emeritus
13691 Warrenton Road
Catlett, Virginia 20119

mike@resourceprotectiongroup.org

CONTENTS

	PAGE
I. Background	1
II. Research and Work Topic	2
A. The Basic Issues	2
B. Objectives of this RFP	2
C. Scope of Work and Deliverables	3
D. Schedule	5
E. Budget Range and Funding Limitations	6
III. Submission of Proposals	6
A. Deadline and Delivery	6
B. Questions	7
C. Registration of Proposers	7
IV. Program Funding	7
V. Steps for Proposal Review Process	7
VI. Subcontractors	7
VII. Review Criteria	8
VIII. Submission Requirements	8
A. Solicitation Offer and Award Form	8
B. Table of Contents	8
C. Executive Summary	8
D. Project Team	9
E. Project Description	9
F. Scope of Work	9
G. Budget	9
H. Budget Details	9
I. Proprietary Information	10
J. Organizational Chart	10
K. Curriculum Vitae (CV)	10
L. Research Schedule	10
IX. Payment and Reporting Requirements	10
A. Reporting Requirements	10
B. Payment Requirements	11
X. Budget Sheet	11
XI. Solicitation Offer and Award Form (SOAF)	14

Attachments:

A. Solicitation Offer and Award Form

I. Background

The Resource Protection Group, Inc. (RPG) (www.resourceprotectiongroup.org) is a non-profit 501(c)(3) organization whose mission is to protect, restore, enhance, and increase public awareness and understanding of our natural and cultural resources, including the urban systems where many of us reside. Our work is primarily focused on the protection, restoration, and enhancement of aquatic resources. However, we believe appropriate projects must include the adjacent stream valleys, upland buffers and contributing stormwater systems as much as possible to maximize aquatic and cultural resource functions and values.

A previously funded grant (RFP#8: Invasive Species Research in Compensatory Mitigation – see: <https://resourceprotectiongroup.org/wri/invasive-species-research/>) developed extensive information on environmental factors that contribute to ingress of non-native invasive species into nontidal wetland and stream impact mitigation sites. This research, which was based in part on detailed study of 44 mitigation sites in the Coastal Plain and Piedmont of Virginia, also developed a set of recommended best practices for mitigation design, construction, and management to reduce risk of invasion.

RPG is seeking proposals to test alternative management strategies for invasive, nuisance, or undesirable (INU) plant species on wetland and stream impact mitigation sites. The proposed research program should include design of field experiments within the Northern Virginia Stream Restoration Bank (NVS RB) in Reston, Virginia; as well as two other mitigation projects (ideally one stream and one wetlands restoration project) scheduled for construction in 2022 in Northern Virginia that RPG expects to obtain permission for use for this research project.

A brief description of the NVSRB is provided below.

- Over the past 15 years, Wetland Studies and Solutions, Inc. (WSSI) has restored 60,000 lf of streams within the Snakeden, Glade and Colvin Run watersheds (collectively known as NVSRB) in Reston to reconnect the streams with their floodplains, reduce extensive stream erosion to decrease downstream sedimentation and associated nutrient export, and improve the riparian corridors that are so heavily utilized by the community. The Bank Sponsor has also now documented (and the US Army Corps has concurred) that this has also led to a substantial increase in wetlands areas within the stream’s riparian areas – by raising the stream invert to reconnect to the floodplain, the groundwater in the riparian areas around this gaining stream has also risen in elevation, restoring wetland hydrology to these areas.
- The Snakeden and Glade streams in the NVSRB will be platforms used to develop methods to improve the function and/or condition of urban stream restoration and evaluate those methods using physical, chemical, and biological metrics. The goals of this particular research initiative are to (a) identify practices that provide physical and measurable increases in functions and values to urban streams, and (b) to develop design and maintenance practices, supported by data, that the Norfolk District Interagency Review Team (IRT) agencies can implement in other stream and/ wetlands restoration projects and in future Mitigation Banking Instruments (MBI).

Separately, we expect to be able to provide access to two wetland impact compensatory mitigation sites entering the construction phase in 2022, or to one wetland site and one stream restoration site entering the construction phase in 2022 for additional research on invasive species control on new projects. Since these aspects are not 100% certain at this time – we will address this in an addendum with the selected research team.

This Request for Proposal (RFP) is issued to public and private universities accredited by the Commonwealth of Virginia, as well as federal, state, and local governmental agencies operating in Virginia, which possess established programs and abilities related to the research topic.

II. Research and Work Topic

A. The Basic Issues

1. Current techniques used to remediate INU species on nontidal wetland and stream mitigation sites predominantly involve use of herbicides, which introduces synthetic chemicals and can result in unknown cumulative effects.
2. There is a need to evaluate alternative strategies to reduce risk of invasion from INU plant species on mitigation sites and increase the likelihood of satisfying invasive species ecological performance standards (EPS).
3. Alternative strategies should focus on *proactive* design, construction, and management approaches aimed at keeping INU species out of mitigation sites and thereby reducing the amount of *retroactive* management needed to satisfy invasive species EPS.

B. Objectives of this RFP

1. Prepare a detailed and fully annotated literature review focused on design, construction, management strategies, and techniques for prevention and/or control of INU species on wetland and stream mitigation sites.
2. Prepare an INU species inventory of the NVRSB sites described earlier for use in designing the field experiment(s) to meet Objective #3.
3. Design and execute a large-scale field experiment(s) using a randomized block approach (or similar statistically valid method) to test the different strategies identified in Objective #1 and in RFP#8. The field experiment will be sited on the NVSRB in Reston, Virginia.
4. Prepare a guidance document on “proposed best practices” based on the findings obtained from completion of Objectives #1, #2, and #3 above.

C. Scope of Work and Deliverables

The successful applicant will submit a proposal that includes a detailed scope of work to accomplish the objectives provided above and deliver these materials:

1. Literature Review:

- (a) Review existing literature, including “grey literature”, to determine the current state of scientific knowledge and research gaps related to control of INU plant species in compensatory stream/wetland impact mitigation projects, with an emphasis on practices that maximize effectiveness while also preserving aquatic resource functions to the extent practicable. This literature review should also include the use of vegetative controls with cover crops of species that are highly competitive with invasives yet do not persist in time that include, but not limited to, Redtop (*Agrostis gigantea* (syn. *A. alba*)), Deer tongue (*Dichanthelium clandestinum*), and grain rye (*Secale cereale*). Based on RPF#8 and preliminary review of NVSRB, focal invasive species should include *Arthraxon hispidus*, *Lonicera japonica*, and *Microstegium vimineum*, but other target INU species should be considered and at least 2 others included in this scope.

Deliverable: Annotated bibliography.

- (b) Identify at least eight (8) different INU control methods for existing wetlands and upland riparian areas that include but are not limited to “traditional” herbicide methods using Rodeo™ (and adjuvants), cutting, hand weeding/removal, and other methods identified in RFP#8’s final report – as well as vegetative controls with cover crops that include, but not limited to, Redtop (*Agrostis gigantea* (syn. *A. alba*)), Deer tongue (*Dichanthelium clandestinum*), and grain rye (*Secale cereale*).

Deliverable: INU Control Methods selected for field implementation.

2. INU Species Inventory and Mapping:

- (a) Document and Field Verify the current extent of INU plant species within the NVSRB, including an estimate of relative dominance by species;
- (b) Provide a spatially correct map of INU species and/or INU plant assemblages with an indication of relative dominance of the invaders; and,
- (c) Identify potential sites within the NVSRB easement areas to conduct field experiment(s) as outlined below.
- (d) Obtain approval from the Long-Term Steward, the Reston Association (RA) and their Design Review Board (DRB) if RA determines said approval is needed (which may need 1 or 2 public meetings).

Deliverables: INU species mapping with potential field experiment locations identified. Data tables summarizing relative dominance of INU species (if applicable). RA/DRB approval.

3. Field Experiment:

Design and execute an experiment(s) sited at NVSRB to evaluate:

- (a) The effectiveness of at least six (6) different techniques used to control INU species on compensatory mitigation sites – including conventional herbicide treatments currently used by industry;
- (b) The potential for alternatives to herbicide use as a management practice in INU species prevention, control, and remediation; and,
- (c) Techniques that might be used during the construction phase of a mitigation project to minimize incursion of INU species during the first few years of post-construction vegetation development. These shall be employed in the new construction sites expected to be available in 2022 and the subject of a potential addendum as noted in Section I above.

Deliverables: 1) Study design, work plan, and schedule; to be submitted prior to field execution of experiment. 2) Final Report documenting results of experiment, conclusions, and recommendations, to be submitted at the conclusion of the four-year study. Report should be written in a format suitable for submission(s) to peer-reviewed scientific journal or equivalent publication outlets.

4. Guidance Document:

Prepare a guidance document to support implementation of the research findings, suitable for use by the IRT and practitioners, summarizing prescriptive best practices based and the results of the above tasks.

Deliverable: Guidance document.

5. Required Reporting, Articles and Presentations:

Quarterly Progress Reports – short narrative of past work and future expectations
Draft (for RPG review) and Final Report Guidance Document

Articles approved by RPG and submitted to:

- a) WSSI Newsletter
- b) VAWP Newsletter
- c) Peer Reviewed Journal of your choice
- d) SWS Journal
- e) Wetland Science and Practice

Presentations to:

- a) VAWPs
- b) WSSI Staff in Gainesville Training Center
- c) IRT
- d) SWS Annual Conference
- e) National Mitigation Banking Conference

D. Schedule

The following schedule assumes notice-to-proceed (NTP) will be issued for this grant by July 15, 2021.

Literature Review:

The literature review should begin immediately upon notice-to-proceed (NTP); final draft should be submitted by December 31, 2021; with RA/DRB review of the initial draft to commence as soon as possible – but no later than September 2021 – allowing for a 6+ month process before any INU Field Experiments commence.

INU Species Inventory and Mapping:

Inventory and mapping should occur over the course of the 2021 growing season, with final data, mapping and report deliverables submitted for RPG review by December 31, 2021.

Field Experiment:

The field experiment study approach should be fully conceived, with study design, work plan, and schedule submitted to RPG for review by January 31, 2022 – understanding that a preliminary plan must be developed to begin RA/DRB approval in September 2021. All equipment and supplies necessary for the experiment should be acquired and/or coordinated by March 31, 2022. Experiment installation should be completed by April 31, 2022. The field experiment should run for three consecutive growing seasons, with final deliverables submitted for RPG review by December 31, 2024.

Final Proposed Guidance Document: Should be submitted for RPG review by March 31, 2025.

Reporting, Articles and Presentations:

Quarterly – during the entire project period.

Final Report: submitted for RPG review by March 31, 2025.

Articles and Presentations: submitted or performed in April - September 2025.

E. Budget Range and Funding Limitations – IMPORTANT!

1. The estimated total cost range for this project is \$600,000 to \$750,000, with a 51-month duration. If you do not expect this budget or timeframe to be adequate to perform the work, please notify us in writing, with suggestions, as soon as possible during your preparation of the proposal so we can consider an amendment.
2. **NVSRB has entered a contract with RPG to contribute \$500,000 to RPG for this research project, but it is subject to approval by the Inter-Agency Review Team (IRT) that regulates NVSRB. If said approval is not granted by February 1, 2022, NVSRB is not obligated to contribute said funding. In such a case – RPG has the sole right to limit its total expenditures to \$250,000 and cause the research to end after the 2022 field work is completed and Proposer shall complete its report based on that first year of field work.**

III. Submission of Proposals

A. Deadline and Delivery

The proposal application must be received by **5:00 PM on May 31, 2021**. Each proposal should be submitted as an electronic copy in PDF format via email. Send proposal applications to the following address:

Michael S. Rolband, PE, PWD, PWS Emeritus
Resource Protection Group, Inc.
13691 Warrenton Road
Catlett, Virginia 20119

Telephone: 703.307.6415

E-mail: mike@resourceprotectiongroup.org

Please note that misdirected proposal applications will be deemed late and returned to the applicant. All proposal applications must be complete at the time of submission. Later changes or addenda will not be accepted unless formally requested.

ALL APPLICATIONS MUST be provided in PDF format to BE ACCEPTED

B. Questions

Questions that arise during the proposal preparation should be directed by e-mail to Mike Rolband (contact data above).

All responses and related responses shall be distributed to all registered proposers.

C. Registration of Proposers

If you desire to be informed of all questions and answers addressed during the proposal preparation process, as well as any RFP amendments, you must notify (via e-mail or U.S. mail) Mike Rolband and request to be registered as a prospective proposer.

IV. Program Funding

- A.** The RPG shall fund 100% of the accepted proposal's budget pursuant to an agreed upon payment schedule based upon research progress.
- B.** Applicants are *not* expected to provide any cost-share towards the research budget. However, cost-share or matching funds are encouraged and will improve the scoring of your proposal. Internal university cost-share contributions must be "auditable".
- C.** The Indirect Cost rate shall be limited to 35% of Total Direct Costs. This is a maximum rate; proposers may offer a lower rate. If this is a problem, please notify us in writing as soon as possible to explain and propose an alternative.
- D.** Tuition for graduate students *is allowable* as a Direct Cost on a proportionate basis to the percentage of their research time dedicated to the proposed work.

V. Steps for Proposal Review Process

- A.** Submission of Response to the Resource Protection Group, Inc.
- B.** RPG's Board of Directors shall consider RPG Staff's review and confirm the award decision.
- C.** Timing: We expect the review process to take 10-20 days.

VI. Subcontractors

The prime research contractor must designate a Principal Investigator (PI) as both the point of contact and the primary party responsible for performing and final reporting of the work. Other entities may be subcontractors to the prime research contractor subject to the following conditions:

- A. The prime research contractor cannot apply any indirect rate markup to the subcontractor’s total cost except if that subcontractor’s indirect rate is lower than that allowed for the prime. In such case, the prime contractor may charge the difference. In no case can the subcontractor charge more than the indirect rate allowed by the prime.
- B. No more than 49% of the work (measured in dollars of Direct Cost) shall be undertaken by academic personnel from non-Virginian academic institutions or non-government entities.

VII. Review Criteria

The proposals will be reviewed and scored based upon the following criteria, with the weighting noted below showing the likely value of each criterion in the award decision:

	Criteria	Weight
1.	Level of interest, expertise, and experience of the Principal Investigator(s) and their organization in the research topic.	30%
2.	Demonstration that the team can perform in a timely manner	25%
3.	Overall proposal quality, innovation, and viability	25%
4.	Cost and budget justifications	10%
5.	Matching funds / University or Agency contributions	10%

RPG and its reviewers reserve the right to modify, at any time during the review process, the relative weighting of these criteria or simply make a unilateral decision to not follow said weighting in the extraordinary circumstance that the weighting does not result in a practicable outcome. For example, if one proposal was triple the cost of all others, even if it was deemed superior in every other manner, we may determine that it is not an economically viable approach and not select that proposal. Alternatively, we may contact a proposer to discuss a modification to an otherwise highest ranked proposal to address cost issues.

VIII. Submission Requirements

Your response to this RFP must not exceed fifteen (15) single-spaced, typed pages³, using a 12-point font and one-inch margins (all sides) and include the following sections:

- A. Solicitation Offer and Award Form (referenced in Section XII and provided in Appendix A): You must complete all sections on this form and obtain signatures of the appropriate officials.
- B. Table of Contents: Please include major sections and the corresponding page numbers.
- C. Executive Summary (limit to one page single-spaced): Explain what you plan to do, why your team should be selected, and what your proposed budget is.

³ Text Section (i.e., does not include Table of Contents, resumes, budgets, budget details, cash flow projection, schedules, Organizational Chart(s), Curriculum Vitae (CV), or SOAF)

D. Project Team: Describe the entities and, specifically, the key personnel who will be involved (and to what degree) in this project. Explain why this team is best suited for this project. Clearly indicate who the lead Principal Investigator will be and any other important division of execution and reporting responsibilities.

E. Project Description:

1. Objectives: List the specific objectives of the project and how you will achieve them.
2. Proposed Monitoring Site Selections: Provide a map and photo(s) of the detailed monitoring locations you have selected and a narrative explaining how/why they were chosen. (FYI: We highly suggest you visit the site before submitting)
3. How you plan to format and report your quarterly, annual, and final reports.

F. Scope of Work:

1. Issue Identification: Identify and briefly describe the issue(s) this project is addressing.
2. Work Tasks: Break the project into specific work tasks and describe each work task individually.
3. Time Allocation: Describe how much time (by months) is to be allotted for each work task and when each task is to begin and end.
4. Resource Allocation: For each work task, list the personnel who will be working on that task and specifically what each person will be doing.
5. Quality Assurance/Quality Control: List measures planned to ensure that reliable high quality results are achieved, such as descriptions of statistics to be used to evaluate data and to compare data to controls; field and lab QA/QC protocols, data handling and security, and how to deal with the potential that graduate student or temporary faculty tenures may not coincide with the research schedule.
6. Determination of Goals: Identify the means to be used to determine that project goals are met.

G. Budget for requested funding summarizes the entire scope and costs into one lump sum of total costs using a format similar to the one provided in Section X.

H. Budget Details: The budget may include salaries, fringe benefits, travel, equipment, materials, and services ***not including fees or profit***. It is imperative that you specify any Indirect Costs or fringe benefits rates, as well as which budget categories are affected by those rates. (For example, Indirect Costs defined as “Facilities and Administration” = 25% of Total Direct Cost less tuition and equipment). In addition, salaries must include personnel descriptions (i.e., faculty, graduate student, hourly worker, etc.), the number of hours

expended on the project, and the hourly rate (or as a % of FTE where one FTE = 2050 hours). Supplies must be listed in general terms (i.e., field supplies, general office supplies, etc.) and assumed to be items less than \$2000. Travel must include a description (trips to field site, conference, etc.), estimated number of hours for travel, and estimated cost per trip. In addition, for travel to conferences, estimate proposed expenses in the budget. For travel to conferences, specific information on conference title, dates of conference, and purpose in attending (i.e., presenting paper, poster session, etc.) must be supplied to RPG for approval prior to travel. Other Direct Costs must include a general description (i.e., contractual analyses) and include units and unit cost. As stated in Section IV. C., Indirect Costs are fixed at 35% of Total Direct Costs. No cost-share funding is required. If faculty or staff FTE salaries, benefits and waived indirect are included as budget items for “cost sharing”, the proposer must agree to provide audited confirmation of such upon request to RPG.

Major pieces of equipment (>\$2,000 with lifetime >2 years) are not eligible for purchase with funding from this program unless (i) they are clearly essential to the conduct of the proposed work, (ii) their documented use will be primarily for the proposed work, and (iii) they will be made available for use by future RPG consortium research programs after the funding program is completed.

- I. Proprietary Information: No information provided in proposals responding to this RFP shall be deemed proprietary. All information in each proposal could be subject to public disclosure or disclosed to other parties.
- J. Organizational Chart: Provide an organizational chart depicting the structure of your team.
- K. Curriculum Vitae (CV): Provide a CV for each senior investigator involved in the proposed project. CV’s should be no more than two pages with an attachment listing all relevant publications within the past 20 years (limit to two pages). Senior investigators include the principal investigator and any other faculty or senior-level personnel involved in the project. CV of lower level researchers may be included at your option.
- L. Research Schedule: Provide a projected schedule for your research activities. This schedule should be logically related to the budget’s cash flow projections and if it does not match our requested schedule – please explain.

IX. Payment and Reporting Requirements

A. Reporting Requirements Shall Include:

- a. Report Submissions
 - i) Quarterly progress – short email summary.
 - ii) Annual reports – all data plus synthesis – three (3) months after time period ends.
 - iii) Final report – provide detailed findings – six (6) months after final monitoring ends.
- b. An invoice for each **payment milestone** as contractually agreed upon when/as achieved.

- c. Draft Final Report for RPG review.
- d. Final Report incorporating responses to RPG comments.
- e. One short article for WSSI newsletter and the Virginia Association of Wetland Professionals (VAWP) newsletter.
- f. Assuming appropriate results are obtained, one peer reviewed publication article shall be prepared and submitted to an appropriate journal of your choice and one submitted to Society of Wetland Scientists (SWS) Journal.
- g. One seminar at WSSI’s (former sponsor) office which will be open to the VAWP and academics, as well as the consulting and regulatory community at large.
- h. One seminar for the IRT.

B. Payment Requirements and Payment Milestones

- a. RPG representatives may inspect research facilities/sites and discuss progress with researchers to verify invoice amounts and research progress at their discretion.
- b. Undisputed Invoices shall be paid by RPG within thirty (30) days of tender *if and only if* they are submitted in the mandated manner and schedule Invoices submitted later than prescribed above shall be delayed for processing until all reporting submissions are made timely in the next quarter.
- c. Your proposal MUST include a proposed payment schedule that includes a table outlining specific tasks or deliverables that comprise a **Payment Milestone**, their scheduled timing of completion, and the amount you desire payment for when that task/deliverable is achieved (in dollars). These payment amounts should, in total, equal your fixed price cost for this research. Upon completion of each task or deliverable specified for each **Payment Milestone** you must submit an invoice requesting payment and documenting the completion of the relevant tasks or deliverable. s This format table is provided solely as an example:

Payment Milestones	Scheduled Completion Date	\$ Due
Start	June 30, 2021	-
Mobilization started	July 1, 2021	10,000
Annotated bibliography	August 30, 2021	20,000
ETC.		
Total:		To Match Response fee

X. Budget Sheet

Your proposed budget shall be submitted in a spreadsheet in a format similar to the description depicted below (to assist you in completing this form, a sample is provided):

Budget Sheet

Project Title: _____				
Principal Investigator: _____				
Organization: _____				
Requested Duration in Months: _____				
Item	Unit Rate⁴ (A)	Units⁵ (B)	Quantity (C)	Cost (D = A x C)
Salaries (list each person or position separately)				
Benefits (list each benefits rate per person / position)				
Tuition				
Supplies ⁶				
Equipment ⁷				
Subcontracts (provide breakdown of salary, benefits, tuition, supplies, equipment, etc. unless it is a lump sum less than \$5,000)				
Travel				
Other Direct Cost				
Total Direct Cost				
Indirect Cost	35% ⁸	N/A	N/A	
Total Cost	N/A	N/A	N/A	

⁴ i.e., \$/hr; ¢/mile; \$/month

⁵ i.e., LS = lump sum; hr = hours; months, FTE % of effort

⁶ Items costing <\$2,000.00 with a useful life <2 years

⁷ Items costing ≥\$2,000.00 with a useful life ≥2 years

⁸ This is the maximum rate. Proposer may offer a lower rate.

SAMPLE
Budget Sheet

Project Title:		Water Budget Modeling		
Principal Investigator:		Sam Jones, Ph.D.		
Organization:		University of Wetlands		
Requested Duration in Months:		18 Months		
Item	Unit Rate⁹ (A)	Units¹⁰ (B)	Quantity (C)	Cost (D = A x C)
Salaries				
Sam Jones, P.I.	8,000/month	N/A	9 ¹¹	72,000.00
Jane Waters, Research Associate	3,000/month	N/A	18	54,000.00
Fringe Benefits				
P.I.	20%	N/A	N/A	14,400.00
R.A.	16.5%	N/A	N/A	8,910.00
Tuition	5,000 / semester	semester	3	15,000.00
Supplies	10,000	L.S.	1	10,000.00
Equipment (> \$2000)	5,000	L.S.	1	5,000.00
Subcontracts				
Computer Lab	3,000	L.S.	1	3,000.00
Geek Squad	2,000	L.S.	1	2,000.00
Travel	.50/mile	Miles	5,000	2,500.00
Other Direct Cost	N/A	N/A	N/A	N/A
Total Direct Cost	N/A	N/A	N/A	186,810.00
Indirect Cost	35%	N/A	N/A	65,383.50
Total Cost	N/A	N/A	N/A	252,193.50

⁹ i.e., \$/hr; ¢/mile

¹⁰ i.e., LS = lump sum; hr=hours; % of effort

¹¹ 50% of 18 months

XI. Solicitation Offer and Award Form (SOAF)

Include one (1) SOAF, signed by the Principal Investigator and Organization's Certifying Representative, with each submissions of your proposal in PDF format via email.

See Attachment A: Solicitation Offer and Award Form.