



WILLIAM & MARY

CHARTERED 1693

Environmental Science and Policy
ISC 3279
540 Landrum Drive
Williamsburg, VA 23185

757-903-7310
dadeberry@wm.edu

February 7, 2022

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

Re: **Amendment: *Invasive Species Management in Nontidal Wetland and Stream Mitigation* (RPG Stream RFP #05)
W&M Fund #791401**

Dear Mr. Rolband:

I am writing to request additional funding for the above-referenced research grant, which was approved by The Resource Protection Group in July of 2021. The focus of the project is on invasive species management in compensatory non-tidal mitigation.

In preparation for the 2022 field season, I have spent a significant portion of the last several months conducting field reconnaissance on the target site – the Northern Virginia Stream Restoration Bank (NVS RB) – which includes a most of the Snakeden and Glade stream system watersheds in Reston, Virginia. Since July of 2021, I have been hiking the landscape and mapping invasive species in both watersheds and feel confident that I have a comprehensive understanding of the existing field conditions throughout the footprint of the NVSRB study site. The results of my research to-date can be summarized as follows:

1. As expected, the NVSRB provides an excellent setting for our proposed field trials on invasive species management in a stream restoration context.
2. Although there are several non-native invasive species present throughout the NVSRB footprint, Japanese stiltgrass (*Microstegium vimineum*) is the overwhelming dominant invader.
3. More importantly, from an experimental design standpoint, it will be straightforward to establish and monitor our proposed experimental plots with Japanese stiltgrass as our target species; however, it will be extremely difficult (if not unfeasible) to *isolate* any *other* target species with our proposed experimental design because Japanese stiltgrass is so pervasive throughout the NVSRB study area.
4. One additional consideration is the specific location of our experimental plots, which will be most effective if we can establish *replicates* for each management trial. This necessitates targeting areas that are somewhat open (i.e., limited canopy coverage), a setting that is somewhat limited at NVSRB due to the forested canopy cover. I have identified a few suitable locations to complete the trials on Japanese stiltgrass but have not been able to locate suitable sites for other invaders. Further, our ability to manipulate the NVSRB floodplain is somewhat restricted by Reston Association guidelines, which prohibit tree removal.

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5. Recognizing that our primary objective is to study multiple species using alternative management techniques in a controlled field setting, it has become apparent that it would be in our best interest to expand the scope of our project to include other mitigation sites if available (the potential for which was addressed in RPG Stream RFP #05 as well as the William & Mary Team's final approved grant proposal).

Since the end of the 2021 field season, I have had the opportunity to visit the Cedar Run Wetland Mitigation Bank phases located on Jefferson Farm near Nokesville, VA. Expanding the scope of our project to include this site would give us several advantages with respect to our research questions: 1) it would increase the list of potential target species [e.g., joint-head grass (*Arthraxon hispidus*) and reed canary grass (*Phalaris arundinacea*), both of which are problematic invaders of nontidal mitigation sites in Virginia]; 2) it would expand the domain of our research to include *both* wetland and stream mitigation (not just streams), which is in keeping with our RPG-funded research to-date; 3) it would allow convenient establishment of wetland mitigation field trials, as the site conditions are already conducive to our proposed study design; 4) the network of roads and trails surrounding the site provide easy access for field equipment and research scientists; and, 5) it would allow seamless integration of a second research objective (invasive species management in wetland mitigation) for our team because the site is located in Northern Virginia, which is convenient for the GMU members of our team as well as our proposed landscaping teammate (the latter of which is actually headquartered *closer* to the Jefferson Farm site than NVSRB).

In order to complete the additional work under this grant, we will need funding in the amount of \$233,108 as itemized in the attached budget sheet. Therefore, I am respectfully requesting approval of this budget amendment to allow our team to move forward with these important modifications to our research program.

If you have any questions or need any additional information from me, please do not hesitate to ask. I am best reached by email at dadeberry@wm.edu or mobile (757-903-7310).

Sincerely,



Douglas A. DeBerry, Ph.D., PWS, PWD
Principal Investigator – *Invasive Species Management in Compensatory Mitigation*
Research Assistant Professor
Environmental Science and Policy
William & Mary

Budget for Requested Funding

Project Title:	Amendment #1: Invasive Species Management in Nontidal Compensatory Mitigation			
Principal Investigator:	Douglas A. DeBerry, Ph.D., PWS, PWD			
Organization:	William & Mary			
Requested Duration in Months:	42 Months			
ITEM	UNIT RATE (A)	UNITS (B)	QUANTITY (C)	COST (D=A*C)
Salaries				
D.A. DeBerry (PI)	\$551.95/mo	NA	42	\$23,182.00
Graduate RA (TBD)	\$746.76/mo	NA	42	\$31,364.00
Undergrad RAs	\$487.02/mo	NA	42	\$20,455.00
Benefits				
PI	18.60%	NA	NA	\$4,312.00
Graduate RA	3.06%	NA	NA	\$960.00
Undergrad RAs (x3)	7.65%	NA	NA	\$1,565.00
Tuition	\$19,140.60	NA	2	\$38,281.00
Supplies	NA	NA	NA	NA
Publication Costs	NA	NA	NA	NA
Equipment (> \$2000)	NA	NA	NA	NA
Subcontracts				
VT Soil Testing Lab	\$23,250.00	L.S. ¹	1	\$23,250.00
Landscaper	\$7,500.00	L.S.	1	\$7,500.00
Subaward (GMU)				
Field support (faculty scientist, undergrad RAs)	\$946.06/mo	NA	36	\$26,587.00
Travel				
Ground Transport	\$0.56/mi	miles	11,608	\$6,500.00
Other Direct Costs	NA	NA	NA	NA
Total Direct Costs	NA	NA	NA	\$191,427.00
Indirect Cost (W&M)	35%	NA	NA	\$41,681.00
Indirect Cost (GMU)	28.1%	NA	NA	\$7,471.00
TOTAL COST	NA	NA	NA	\$233,108.00

¹ L.S. = Lump Sum



Budget Details

The budget for this project was estimated based on the following assumptions:

- **PI salary:** \$7,500/year for three years with 3% annual escalation (standard W&M escalator)
- **Graduate Research Assistant salary:** \$15000/year for two years with 3% escalation (employment will start in 2023)
- **Undergraduate Research Assistants salary:** \$5000/year for each of two (2) undergraduate assistants in 2022 and one (1) in 2023 and 2024
- **Subaward for GMU:**
 - Faculty Scientist at a rate of \$60/hr with 3% escalation for a total of 140 hours over the contract term.
 - Undergraduate RA fee assumes \$15/hr (with 3% escalation) for a total of 850 hours over the 3 years of the field experiment
 - GMU subaward includes mileage for GMU personnel estimated based on round trip mileage from GMU campus to field site (50 miles) and total trips at rate of \$0.56/mile:
- **Subcontract for VT Soil Lab:** based on a rate of \$76 per soil sample (Athena Tilley, Research Assoc. VT Soil Testing Laboratory, pers. comm.), with 3% escalation and approximately 100 samples processed in each year of the contract term.
- **Subcontract for Landscaping Contractor:** approx. rates provided by MowCow Lawn and Landscape based on the following activities/schedule (includes mobilization/demobilization, equipment rental, purchase of materials as needed, and labor):
 - Spring 2022: vegetation removal (brush hogging, low mow) herbicide treatment, soil prep, and planting at Jefferson Farm site
 - Summer 2022: spot herbicide treatments
- **Indirect costs** = 35% of direct costs for W&M, and 28.1% for GMU (standard GMU IDC rate for “off-campus adjacent” category)

Payment Milestones

Payment Milestones	Scheduled Completion Date	% Effort	\$ Due
Mobilization started	March 1, 2022	5%	\$11,655.40 ¹
Field Experiment 2022	December 31, 2022	35%	\$81,587.80
Field Experiment 2023	December 31, 2023	25%	\$58,277.00
Field Experiment 2024	December 31, 2024	25%	\$58,277.00
Guidance Document	March 31, 2025	5%	\$11,655.40
Papers/Presentations	September 31, 2025	5%	\$11,655.40
Total			\$233,108.00

¹ Initial funding at contract award approx. 5% of contract budget to cover subcontractor fees.