

Outdoor Heritage Fund Grant Application

Name of Organization: **Valley City State University**

Federal Tax ID# : **456002482**

Contact Person/Title: **Casey Williams**

Address: **101 SW College St.**

City: **Valley City**

State: **ND**

Zip Code: **58072**

E-mail Address: **casey.williams@vcsu.edu**

Web Site Address (Optional)

Phone: **701-845-7457**

Fax # (if available)

List names of co-applicants if this is a joint proposal

Dr. Andre DeLorme, Valley City State University

MAJOR Directive: (select the Directive that best describes your grant request)*

Choose only one response

Directive A. Provide access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

Directive B. Improve, maintain, and restore water quality, soil conditions, plant diversity, animal systems and to support other practices of stewardship to enhance farming and ranching;

Directive C. Develop, enhance, conserve, and restore wildlife and fish habitat on private and public lands; and

Directive D. Conserve natural areas for recreation through the establishment and development of parks and other recreation areas.

Additional Directive: (select the directives that also apply to the grant application purpose)*

Choose all that apply

Directive A. Provide access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

Directive B. Improve, maintain, and restore water quality, soil conditions, plant diversity, animal systems and to support other practices of stewardship to enhance farming and ranching;

Directive C. Develop, enhance, conserve, and restore wildlife and fish habitat on private and public lands; and

Directive D. Conserve natural areas for recreation through the establishment and development of parks and other recreation areas.

Type of organization: (select the category that describes your organization)*

State Agency

Political Subdivision

Tribal Entity

Tax-exempt, nonprofit corporation, as described in United States Internal Revenue Code (26 U.S.C. § 501 (c))

Project Name*

Documenting Aquatic Organisms of North Dakota Rivers

Abstract/Executive Summary. An Executive Summary of the project stating its objectives, expected results, duration, total project costs and participants.* (no more than 500 words)

This project is proposed to describe the current distribution of aquatic organisms in rivers and streams of North Dakota, and by using comparisons with historical distributions, examine changes in occurrence and distribution through time. The ultimate goal of this project is to provide information that can be used to identify aquatic resource needs and enable appropriate agencies and groups to make informed decisions concerning best management practices and maintenance and restoration of aquatic resources and habitats.

All available historical distribution data concerning fish and macroinvertebrate species in North Dakota's rivers and streams will be collected and organized. Additional sampling of current species distributions will also be conducted during the study period. Distribution maps will be constructed using GIS software and temporal patterns in distribution will be examined. Tangible results will include species specific distribution maps and descriptions of occurrence and distribution changes through time. Results will be made available to various agencies responsible for habitat restoration and conservation efforts within North Dakota. In addition, student workers and the PI's will present data from this project at appropriate regional conferences such as the Dakota Chapter of the American Fishery Society annual meeting.

The proposed project will be conducted over a period of three years. This time period will allow for collection of difficult to obtain historical data and current distribution data through field sampling. Costs of this project include a request for \$341,802 from the Outdoor Heritage Fund and a VCSU match of \$171,537, resulting in a total project cost of \$513,429.

Faculty and students at Valley City State University will be responsible for conducting the proposed study. VCSU has a history of aquatic resource research and collaboration with North Dakota Game and Fish, the North Dakota Department of Health Water Quality Division, and the U.S. Forest Service, Dakota Prairie Grasslands. Projects that allow student participation in research and field work are extremely beneficial to their education. Thus not only would this proposed project directly benefit aquatic resources in North Dakota, there would be an indirect benefit in preparing future fisheries and wildlife managers for North Dakota.

Amount of Grant request \$ 341,802

Total Project Costs \$ 513,429

(Note that in-kind and indirect costs can be used for matching funds)

Amount of Matching Funds \$ 171,537

Indirect match for \$141,164 and an inkind match of \$30,373

Source(s) of Matching Funds

Valley City State University

Certifications *

I certify that this application has been made with the support of the governing body and chief executive of my organization.

I certify that if awarded grant funding none of the funding will be used for any of the exemptions noted on Page 1 of this application.

Narrative

Organization Information – Briefly summarize your organization’s history, mission, current programs and activities. *

(no more than 300 words)

This proposal will be carried out by faculty members of the Valley City State University Fish and Wildlife program. The main Principle Investigators will be Dr. Casey Williams, Fisheries professor at VCSU, and Dr. Andre DeLorme, Director of the VCSU Macroinvertebrate lab and Director of the Prairie Waters Education and Research Center. In addition, Dr. Bob Anderson, Wildlife professor at VCSU, will be consulted in regards to GIS components of the project. We will have a lab manager, Louis Wieland, who will be in charge of many of the day to day functions of this proposal. Mr. Wieland has worked for the VCSU Macroinvertebrate Lab for the last 10 years and has conducted a wide variety of aquatic sampling projects in North Dakota waters. Undergraduate students will be employed to help carry out data collecting and field work required for this project. Financial requirements of this grant will be administered by the VCSU Business Office. We will consult with the North Dakota Game and Fish Department and the North Dakota Department of Health Water Quality Division to acquire available data needed from those entities.

Purpose of Grant – Describe the proposed project identifying how the project will meet the specific directive(s) of the Outdoor Heritage Fund Program *

In order to protect and conserve aquatic resources in North Dakota, up to date descriptions of historical and current occurrence and distribution of native and introduced aquatic fauna is required. Organisms such as native fish, aquatic insects, mollusks, zooplankton, and freshwater sponges are all important components of aquatic systems. Specifically, comparisons of base-line information to current distributions of aquatic species are often used to detect early changes in the environment due to natural and manmade disturbances that may have far reaching impacts to aquatic ecosystems and recreational opportunities. Thus, in addition to acquiring historical information, current distribution and abundance information must be maintained through periodic monitoring.

For North Dakota lakes and reservoirs, North Dakota Game and Fish maintain extensive occurrence and abundance records and management plans to provide ample recreational opportunities for sportsmen and women. For river and stream fauna, a substantial number of sampling collections have been conducted over time by various agencies and/or entities. Unfortunately, many of these records

and much of the information collected are contained in separate reports and are often difficult to obtain. An updated compilation of previous collections was provided to the North Dakota Game and Fish by the University Of North Dakota during January 2000; however, no update to the original document or database has been made nor is the information readily available for analysis of possible species changes.

As for other aquatic organisms such as crustaceans and aquatic insects, the North Dakota Department of Health has been doing extensive surveys of aquatic macroinvertebrates for the purpose of determining water quality in rivers and streams through bioassessment. The identification and storage of these samples is done by the VCSU Macroinvertebrate lab. However, because of the nature of bioassessment surveys, most of these organisms are not identified to the species level. A more thorough examination of the available specimens and data, along with a compilation of the relatively sparse scientific literature on the distributions of aquatic organisms in North Dakota, and targeted sampling of certain waters within the state is warranted.

In order to provide access to distribution information for aquatic fauna of North Dakota streams and rivers, we propose to update the previous version of “The Distribution of North Dakota Stream Fishes” along with updated distributions of other aquatic species. When completed, this project will directly support two of the major directives of the North Dakota Outdoor Heritage Fund. Specifically, an update of this information will directly support Directive B by providing quick access to updated historical and current information for examination of water quality for streams and river systems throughout the state. Through analysis of changing distributions, various land uses can be examined to determine best management practices to “improve, maintain, and restore water quality” for North Dakota’s rivers and streams. In addition, current information concerning species occurrence and abundance will directly support Directive C by pinpointing species and/or areas and habitats that may require additional efforts to “Develop, enhance, conserve, and restore wildlife and fish habitat on private and public lands”.

The updated version of the report will include a printable version of the report, a searchable, digital database, and updated GIS maps for each fish and many aquatic macroinvertebrate species occurring in North Dakota. We will focus especially on aquatic species mentioned in the North Dakota Game and Fish Comprehensive Wildlife Conservation Strategy (Hagen et al., 2005). In order to update species occurrence and distribution data, all previous collection data will be gathered from available agency reports (ND Game and Fish, US Geological Survey, US Forest Service, ND Department of Health, etc.) and academic institutions (theses and dissertations). Species specific information including sampling date, location, and abundance will be entered into an updateable digital database. Using collection date and location information, updated occurrence maps will be constructed and incorporated into a report that includes a brief occurrence and abundance description for each species. In addition, viewable GIS maps will be maintained and updated with an animation feature to allow for analysis of temporal changes in species occurrence within streams and rivers. Based on analysis of available data, additional collection efforts will be conducted throughout North Dakota streams to provide “missing” data and maintain updates to the database.

While this project will depend heavily on past data, we consider this a new project. We are looking at compiling data using cutting edge technological tools to provide a much needed understanding of the

presence and relationships of aquatic organisms in North Dakota waters. To our knowledge, this comprehensive approach for cataloging aquatic organisms has not been attempted in our state.

Initial gathering of collection reports, database construction, and sampling data input will begin as soon as funds are available. Field surveys will begin during the summer of 2014 based on data gaps and will continue throughout the duration of the project. Database and map updates will be made continuously as data becomes available.

Management of Project – Provide a description of how the you will manage and oversee the project to ensure it is carried out on schedule and in a manner that best ensures its objectives will be met.*

Dr. Casey Williams and Dr. Andre DeLorme will be in charge of managing the project to insure the timeline is followed and the objectives are met. Along with Dr. DeLorme and Dr. Williams, Valley City State University undergraduate students will collect various reports, enter data, and construct and update the database. Along with Dr. Bob Anderson, students will also develop and update the required GIS maps.

Dr. Casey Williams has a substantial amount of experience as a project manager at Valley City State University and at his previous position at the Utah Water Research Lab, Utah State University (USU) in Logan, Utah. While at USU (2009-2011), Dr. Williams was in charge of the Institute for Natural Systems Engineering, supervisor of four professional employees, and manager of four grants totaling \$270,000. In conducting these grants, Dr. Williams worked closely with members of private industry (Garkane Power Company, Twin Lakes Canal Company), government agencies (Utah Division of Wildlife Resources, U.S. Forest Service) and conservation organizations (Trout Unlimited). At Valley City State University, Dr. Williams is collaborating with the United States Forest Service, Dakota Prairie Grasslands in conducting fish surveys and monitoring of rivers and streams of North and South Dakotas' National Grasslands (Grants totaling \$18,500). Dr. Williams will be responsible for the fish inventories outlined in this proposal.

Dr. Andre DeLorme also has a vast amount of experience with project management at Valley City State University and the Prairie Waters Education and Research Center. He has managed several large grants including a \$732,00 grant for establishing Prairie Waters Education and Research Center, a \$735,000 grant from the National Institute of Health to examine the endocrine effects of atrazine on aquatic insects, and a \$150,000 North Dakota Game and Fish State Wildlife grant to examine the ranges of mussels in North Dakota rivers and streams. In addition he has had numerous smaller grants and contract work with various entities including the North Dakota Game and Fish, the North Dakota Department of Health Water Quality Division, the Army Corp of Engineers, and the Standing Rock Reservation Environmental Protection Agency. In all, Dr. DeLorme has brought in over \$2 million to VCSU in various grants and contracts in relation to water studies. Dr. DeLorme will be responsible for the aquatic macroinvertebrate inventories for this proposal.

Because of their extensive work in North Dakota aquatic systems, the faculty in the VCSU Fisheries and Wildlife department have the equipment and expertise needed to carry out this project. The VCSU macroinvertebrate lab has a wide variety of nets including zooplankton nets, drift nets, artificial samplers, aquatic d-frame nets, and night collecting equipment. In addition Dr. William's lab has a variety of seine nets, a back pack electro-shocker, and other sampling equipment. We also have the use of two pontoon boats, six canoes, two individual pontoons, and a twelve foot folda-boat with a six horse outboard motor. We believe we are as well-equipped as anyone in the state to carry out this project.

Evaluation – Describe your plan to document progress and results. *

The measure of success for this project will lie in the completed distribution lists, reports, and updated distribution maps we will provide for the aquatic organisms mentioned. To insure deliverable products are adequate and produced in a timely fashion, we will work closely with a committee composed of professionals from entities such as the NDG&F and the NDDH to examine our data and reports. A summary report of summer sampling efforts and project progress will be provided to committee members by August 15 of each year. A full report of yearly activities will be provided to committee members by December 31 of each project year and an annual meeting of principle investigators and committee members will be conducted in the spring (February or March) of each year beginning in 2015. Expenditure and budget reports will be provided as required by the VCSU Business Office.

Financial Information

ATTACHMENT: Project Budget – Using the standard project budget format that is available on the website at <http://www.nd.gov/ndic/outdoor-info/page.htm> , please include a detailed total project budget that specifically outlines all the funds you are requesting.*

The project budget should identify all matching funds, funding sources and indicate whether the matching funds are in the form of cash or in-kind services. As noted on the standard project budget format, certain values have been identified for in-kind services. Please utilize these values in identifying your matching funds. **NOTE: No indirect costs will be funded.**

I certify that a project budget will be sent to the Commission*

Sustainability – Indicate how the project will be funded or sustained in future years. *

The data from this project will be maintained by the VCSU Science Department with applicable information shared with the North Dakota Game and Fish. Future sampling will be done with other grants.

Partial Funding – Indicate how the project will be affected if less funding is available than that requested. *

Although we feel that we will need three years to complete this project, if necessary we could eliminate the last year of the grant and attempt to complete as much as possible in two years.

Scoring of Grants

All applications will be scored by the Outdoor Heritage Fund Advisory Board after your ten-minute oral presentation. The ranking sheet(s) that will be used by the Board is available on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm> .

Awarding of Grants

All decisions on requests will be reported to applicants no later than 30 days after Industrial Commission consideration. Applicants whose proposals have been approved will receive a contract outlining the terms and conditions of the grant. Please note the appropriate sample contract for your organization on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm> that set forth the general provisions that will be included in any contract issued by the North Dakota Industrial Commission. Please indicate if you can meet all the provisions of the sample contract. If there are provisions in that contract that your organization is unable to meet, please indicate below what those provisions would be. *

Responsibility of Recipient

The recipient of any grant from the Industrial Commission must use the funds awarded for the specific purpose described in the grant application and in accordance with the contract. The recipient cannot use any of the funds for the purposes stated under Exemptions on the first page of this application.

If you have any questions about the application or have trouble submitting the application, please contact Karlene Fine at 701-328-3722 or kfine@nd.gov

Budget Standard Form

Please use the table below to provide a detailed total project budget that specifically outlines all the funds you are requesting and if there are any matching funds being utilized to fund this project. Please note if the matching funds are in the form of cash, indirect costs or in-kind services. The budget should identify all other committed funding sources and the amount of funding from each source. Match can come from any source (i.e. private sources, State and Federal funding, Tribal funding, etc.) Note match funding is not required but an application will be scored higher if match funding is provided. (See Scoring Form.)

Please feel free to add columns and rows as needed. Please include narrative to fully explain the proposed budget.

Note that NO INDIRECT COSTS will be funded from the Outdoor Heritage Fund.

Project Expense	OHF Request	Applicant's Match Share (Cash)	Applicant's Match Share (In-Kind)	Applicant's Match Share (Indirect)	Other Project Sponsor's Share
Salaries	\$238,785	\$	\$30,373	\$98,618	\$
Fringe	\$67,517	\$	\$	\$27,885	\$
Supplies	\$11,000	\$	\$	\$4,543	\$
Travel	\$20,000	\$	\$	\$8,260	\$
Training/Conferences	\$4,500	\$	\$	\$1,858	\$
	\$	\$	\$	\$	\$
Total Project Costs	\$341,802	\$	\$30,373	\$141,164	\$

BUGET DESCRIPTION

Salaries descriptions:

- Lab Manager 75% time. The main responsibility for this position will be to this project. The lab manager will have many responsibilities including supervision of student workers and being the leader of the field crew. By having this person ¾ time it will reduce the amount of time that Dr. DeLorme and Dr. Williams have to spend on the grant. The salary for this position will start at \$40,000 (\$30,000 paid by the grant, the remaining \$10,000 relates to other duties) and includes a 3% raise for each year of the grant.
- Dr. Andre DeLorme – 2 months summer salary. This is based on Dr. DeLorme's academic year salary and includes a 3% raise each year.
- Dr. Casey Williams – 2 months summer salary. This is based on Dr. William's academic year salary and includes a 3% raise each year.
- Dr. Bob Anderson – consulting stipend for GIS work (\$1000 per year).
- 4 summer students - We will hire 4 summer students for 10 weeks at \$12 an hour.
- 4 students during academic year – We will hire 4 students for 5 hours a week during the academic year to pull data together. They will get \$9 an hour.

Fringe – Fringe rates have been calculated for the lab manager position and Dr. DeLorme's and Dr William's summer salary. The rate has been calculated by the VCSU business office based on current fringe rates.

Supplies- We will be purchasing a variety of supplies for this project. Although many items are relatively inexpensive, we will need large numbers of them such as sample vials and jars. We

will also need labeling materials, preservative materials, and other misc. supplies. We also will need funds to replace nets, waders, and other collecting equipment as needed. In the first year we anticipate buying some additional traps and nets so we are asking for \$5000 for the first year and \$3000 each for years 2 and 3.

Travel – This project will require extensive travel throughout the state. We will utilize a 4 wheel drive pick-up from the ND DOT motor pool. Mileage costs are \$0.75 per mile for this vehicle. We will be traveling all over the state and are anticipating at least 5000 – 8000 miles of travel per summer with allowances for per diem and lodging for overnight trips. Many overnights will be spent camping when possible to conserve money. We are anticipating more travel in the second two years of the grant. Yearly breakdowns are \$6000 for year one and \$7000 each for year two and three.

Training/ Conferences – We anticipate sending either the Lab manager or possibly some students to workshops on identification of certain taxonomic groups. Many of the groups we will be dealing with are not well known and extra training may be necessary. We will also have students present results at regional conferences to disseminate information from the project. This covers travel costs for those presentations. We are asking for \$1500 per year for this purpose.

Applicants Match Share (In Kind) – During the school year Dr. DeLorme will devote 15% of his time to the grant. This 15% over three years comes to \$30,373.

Applicants Match Share (Indirect costs) – VCSU is allowed to charge 41.3% indirect costs to major grants and contracts. This comes to \$141,164.