Potential Topics for UVA interns in 2015

(This list is not Inclusive of all possible topics)

NATIVE FISH CONSERVATION (NFWF)

1. Water and protected areas
   Rationale: Protected areas such as National Parks, Wildlife Refuges, and Wilderness Areas have been one of the long standing tools to protect wildlife and the habitat they depend on. However, some protected areas (PAs) do not occupy an upper watershed position, and therefore their water supply may be determined by private users upstream of the PA. Even for PAs that contain their own headwaters, many have private water right obligations downstream (and outside of the park boundary) that can reduce or even de-water aquatic habitats immediately outside of the PA boundary. This can have severe impacts on migratory animals such as fish that move on and off of PA land in the process of completing their life cycle. This project would assess wildlife refuges and wilderness areas to determine those that have management control over their water supply, and those that don’t. It will also identify those where flow restoration would most benefit the water-dependent species that inhabit PAs.

2. Process-based river restoration; bridging the science-management divide
   Rationale: Many academics have called for more process-based river restoration techniques, due in part to a long history of river restoration that has installed static solutions to naturally dynamic systems. For example, many river restoration efforts add wood to streams to support fish rearing habitats, but often the processes that contribute wood to streams remain un-restored (i.e., upland and riparian trees, which naturally recruit to the stream corridor). Static, non-process based solutions must be maintained, whereas process-based solutions are self-sustaining. This project will evaluate the extent to which process-based river restoration is currently undertaken in the US relative to traditional static/structural stream restoration. One of the challenges to process-based restoration is determining how best to set goals, and part of this project will identify best practices for this goal setting process. Overall this project will define the greatest needs to move river restoration to more process-based principles.

3. Tracking restoration initiative outcomes - Southeastern native bass and Apache Trout
   Rationale: NFWF monitors and evaluates its conservation initiatives to determine prior success, assess future funding needs, and prioritize future restoration strategies to implement. This project would evaluate past restoration investments for two programs- 1) the Southeast Native Bass Keystone Initiative and 2) the Apache Trout Keystone Initiative to create up-to-date assessments of each programs achievements, as well as future needs.

4. Evaluate time lags in species response to restoration in stream fish populations.
   Rationale: One of the primary critiques of river restoration is that many projects are inadequately monitored to determine if the project actually ‘moved the needle’ on the species of conservation concern. Part of the problem is one of time: species take time to respond to restoration and
monitoring efforts often do not monitor for a long enough period to capture a biological response to restoration. This project would review and synthesize examples in the literature of restoration efforts that were extensively monitoring to answer questions such as: How long does it take it take for a biological response to become evident? What is the average length of monitoring for a restoration project? Knowing the likely timeline of species response to restoration helps design better monitoring programs and helps set better expectations for conservation funding organizations for when they can expect a return on their investment.

MARINE AND COASTAL CONSERVATION (NFWF)

Note: Priorities 1 requires the intern to be located at the DC office because the work is time sensitive and needs daily interaction. Priorities 2 and 3 are suitable for interns working at UVA.

1. Symposium and synthesis of Guanica work: In 2009, NFWF launched a new model that brings multiple federal agencies together focusing resources and attention to one key geography (Guanica, Puerto Rico) while simultaneously supporting increased local community and government capacity for sustainable environmental gains. NFWF believes this could be a paradigm shift in our approach to restoration and management, but a solid evaluation plan is needed to evaluate the true impacts of this model. A watershed management plan was developed for the Guanica Watershed and has recently been revised, but the program has still been slow to gain traction on the ground. This project would be an evaluation of the Guanica model which would ultimately result in a lessons learned document that could be applied to future watershed partnership sites.

The internship will focus on the coordination of an evaluation plan for the Coral Reef Task Force Partnership Initiative in Guanica, PR. This evaluation will also incorporate a progress-to-date summary based on criteria developed to measure the success of this multi-agency focal area approach and allow for adaptation and replication as the initiative expands. The intern will interface with local and federal scientists, federal agencies including NOAA, NRCS, EPA, USFWS and others, territorial government, and local conservation leaders in Puerto Rico to coordinate a mutually beneficial evaluation plan for the Partnership. Travel to Puerto Rico may be required. Specific task are expected to include:

- Compile information on agency roles in the watershed and completed projects—both NFWF funded and otherwise;
- Assist in arrangement of a symposium of individuals and groups active on the ground in advance of the September 2015 USCRTF meeting in Puerto Rico;
- Evaluate current progress of the initiative; and,
- Compile a document summarizing the investment efforts and lessons learned which could be distributed to other watershed managers.
2. **Coordinated Caribbean Marine Strategy**: The NFWF Marine Team is interested in developing an ecosystem-level approach to its conservation work in the Caribbean that goes beyond individual species. This reflects a trend across NFWF to move to a more landscape focused approach to conservation. NFWF has supported projects in this region on topics including: coral reef conservation, herbivorous fish conservation, sea turtle conservation, sea bird conservation, and fisheries improvement projects. Much of this work has targeted specific threats or locations based on the goals of the different programs but the Foundation is interested in seeing if a crosscutting approach would point to a different investment portfolio. The objective of the project would be to lay the foundations for the development of a Caribbean Marine Investment Strategy to guide NFWF investment for the next decade.

The intern would work with subject matter experts on each facet of NFWF’s work in the region for the first half of their term. He/she will data mine internal and external sources for these focal species. In the second half of the term, he/she will develop a set of priority focus areas for NFWF investment that is greater than the sum of the parts. Specific task are expected to include:

- Review related NFWF business plans and project history in the region (potentially interviewing past grantees);
- Creation of a map of NFWF investment to date;
- Conduct internet research to identify existing actors in the region and their areas of investment/expertise;
- Identify gaps in this investment portfolio and opportunities for a niche for NFWF;
- Cross reference these gaps across the subject areas to identify shared elements or geographies; and
- Develop a set of recommendations for NFWF investment in the Caribbean for an ecosystem-based approach to conservation.

3. **Communicating Conservation through Social and Online Networks**: One of the greatest challenges the Foundation faces is getting the word out to other funders, governments, investors and the conservation community on the successful conservation models that are being developed and how others can collaborate with the Foundation to achieve shared goals.

This internship would interface between the Foundation’s Marine Team and the Foundation’s web development and marketing committee as they prepare to launch our new web platform to identify successful models and themes within Foundation Marine Programs, including: Coral, Sea Turtle, Marine Debris, River Herring, Marine Fisheries, Oysters, and Marine Mammals. This intern would work to identify and report on case studies that best define foundation models for success and evaluate ways to roll up and talk about the conservation impacts the Foundation is having on these topics at the local, regional, and population levels in means that can be of interest to the wider conservation community, the general public, grantees and partners who
may visit the NFWF website. The intern will interview past and current grantees and other stakeholders and experts from the scientific, management and conservation communities as appropriate.

WILDLIFE & HABITAT CONSERVATION (NFWF)

1. **Review and synthesis of the State of Knowledge of meadows in the Sierra Nevada.**
   Rationale: NFWF has invested significant dollars ($7M) since 2009 to restore degraded meadows in the Sierra Nevada of California. A significant portion of the funding has been dedicated to learning about the potential benefits of restoration: to habitat, species, water quality, flow, and storage, grazing, and carbon sequestration. Yet, uncertainty remains. There is a need to synthesize the State of Knowledge, making both the facts and uncertainties readily available to decision-makers and interested investors. Potential for producing a peer-reviewed article as an outcome of this internship.

2. **Prairie conservation in the Northern Great Plains: a $20M conservation investment plan**
   Rationale: In 2013 NFWF’s board of directors approved NFWF launching a $5M program focused on grassland and associated species conservation in the northern great plains (with an emphasis on high quality grassland landscapes of MT, WY, ND, SD, and NE). We are currently looking to scale this program up to a $20M, 10-year investment. In early 2015, we contracted Rocky Mountain Bird Observatory to help develop a grassland bird focal species index that will focus investment on slowing the rate of loss, and predicting potential benefits to threatened species populations. Assistance is now needed to finalize writing of the plan and revisit focal species metrics for other species such as black-footed ferret, swift fox, etc. Internship will result in a final conservation investment plan for the region, to be presented to NFWF’s board of directors for approval in August. Student would have the flexibility to focus on certain species of interest, types of investments (eg. tribal capacity building versus habitat loss), or establishing metrics and associated budget) as part of this internship.

3. **Metrics to evaluate success in NFWF’s Alaska Fish and Wildlife Fund: development of a scorecard to reflect 10-year program objectives**
   Rationale: NFWF typically uses ‘moving the needle’ for species populations as a metric of success. In Alaska, however, most focal species populations are naturally extremely cyclical in terms of numbers. In addition, the background (climate) conditions are changing so drastically that accurately predicting species populations and our relative contribution to these outcomes is extremely difficult. Furthermore, while threatened, most of these species are not rare and number in the hundreds of thousands. NFWF would like to establish criteria for measuring success that are practical and will demonstrate success of this initiative. Intern would use the approved business plan for Alaska and work with NFWF’s Wildlife Director as well as Monitoring and Evaluation Manager to establish metrics that are measurable and realistic, while still ambitious. Final product to include a ‘scorecard’ of success for the Alaska program.

STRATEGIC PLANNING AND EVALUATION TEAM (NFWF)

The National Fish and Wildlife Foundation funds projects that get measurable results. Since our founding in 1984, NFWF has earned a reputation for effective, results-oriented approaches to conservation
problems. Analyzing the outcomes of our actions and measuring our impact is at the heart of the Strategic Planning and Evaluation team’s work. NFWF develops business plans to lay out the strategies for our conservation priority programs. Once those plans have been implemented, we evaluate our results by tracking metrics for our program scorecards, conducting internal evaluations of our programs, and undertaking other assessment activities. This information helps us to better clarify program goals, gauge progress over time, inform future decision making, and improve program management.

This internship provides an opportunity to make substantive contributions to planning and evaluation at one of the world’s largest conservation grant-makers. The information will be used by the Foundation’s leadership to manage a variety of conservation programs. The intern(s) will work with NFWF Strategic Planning and Evaluation staff on key activities. Possible assignments include:

- Assessing a NFWF program to determine what progress has made towards its goals. Past UVA interns assessed programs to protect pronghorn in Wyoming, trout in Arizona, and bass in the Southeast.
- Developing maps and other spatial data sets to support planning and grant management activities. In past years, UVA interns worked with NFWF to map all funded projects from 1984 to mid-2013, allowing us to create an interactive web map of our projects: [www.nfwf.org/whattwedo/map](http://www.nfwf.org/whattwedo/map)
- Analyzing information about past grant projects to answer targeted questions about NFWF’s overall approach to grant making. For example, the intern may review grant records and interview NFWF staff to determine which of the approaches to conservation we have funded are most efficient and effective.

Specific assignments will be agreed upon between the intern and Evaluation Officer and/or Monitoring and Biodiversity Officer at the beginning of the internship. Strong critical thinking and writing skills and the ability to work in a dynamic, team-based environment are important. Students who are specifically interested in mapping work should have at least 1 year of ArcGIS experience or coursework and be familiar with Google Earth.

NFWF Contacts:
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**WESTERN PARTNERSHIP OFFICE (NFWF)**

NFWF is composed of thematic areas of interest (e.g., freshwater, birds, coral reefs), but it also has a strong regional component. Based in San Francisco, the Western Partnership Office is the lead entity for NFWF’s work throughout Hawaii, Alaska, Washington, Oregon, Nevada, and California.

We refer to this internship as one of: **Conservation Outcomes and Political Strategy**

Possible assignments include:

- Analyzing information about past grant projects to answer targeted questions about NFWF’s overall approach to grant making. For example, the intern may review grant records and
interview NFWF staff as well as stakeholders to determine which of the approaches to conservation we have funded were most efficient and effective.

- Work with the Western Partnership Office Director and the NFWF Government Relations team to organize the Foundation’s outcomes by state, county and Congressional District. The intern will also help craft our messaging to elected leaders about these outcomes throughout the Western Partnership Office region.
- Assessing a NFWF program (of which there are several) to determine what progress has been made towards its goals – specifically for the Western Partnership Office region.

Updating the Western Partnership Office’s outcomes and messaging more broadly. There is a critical need for NFWF to communicate the important work that it does in the West. Specific assignments will be agreed upon between the intern and the Western Partnership Office Director and NFWF’s Government Relations team at the beginning of the internship. Strong critical thinking and writing skills and the ability to work in a dynamic, team-based environment are important.

BIRD CONSERVATION TEAM (NFWF)

1. Rationale - A large group of wildlife needs the dense, highly productive habitat known as “young forest.” As young forest habitat has disappeared from the landscape due to a variety of anthropogenic factors, populations of more than 65 young forest dependent species have declined across eastern North America. In 2009, NFWF, in partnership with the American Woodcock task force and the Golden-winged warbler working group launched the “Business Plan for Conservation of Birds of Early Successional Habitats”; a 10-year plan for recovering ESF dependent species. In 2013, New England Cottontail, was added to the ESF program. Primary activities under the business plan include direct and indirect creation of ESF habitat using BMP’s created through the initiative. The goal is to increase available habitat across a 17 state region thus promoting the recovery of three focal species (and a corresponding suite of wildlife that require ESF habitat on the landscape). Five years into the initiative, the Foundation is taking a second look at the program through an internal assessment or program review. Future directions of the initiative will grow from the assessment; in addition to the assessment we are interested in reviewing how lag times impact the rate new acreage is created and the time required for species to occupy managed habitats. We are also interested in understanding what proportion of persons attending ESF workshops and that visit ESF demonstration areas implement projects resulting in new ESF acreage. Thus the goal of this internship is to review one or both questions to elucidate further some of the mechanics that operate within this program.

2. Rationale - Effective, full-lifecycle conservation of U.S. breeding birds requires an approach that combines an understanding of species life history, limiting factors on migration (threats), and strategies that enhance a species survival. Shorebirds are perhaps the greatest long distant migrants with some species migrating from the arctic breeding grounds, through the US and as far south as the southern tip of South America – and back again. Using the open standards for the practice of conservation, NFWF developed a business plan that addresses major threats faced by “at risk” shorebirds species with a goal
of increasing populations of focal species by 10% over the next ten years. Full lifecycle conservation, or flyway conservation, is being implemented in Europe and Africa as well as the East Asian Australasian Flyway. Lessons learned from these initiatives could inform the early implementation of the Atlantic Flyway Shorebird initiative that is underway in the Americas. This project seeks to determine the successes and challenges encountered in the implementation of other flyway initiatives, and to assess these with the goal of recommending strategies to ensure an effective flyway approach in the Americas.

3. Rationale - Increasingly, the survival of many threatened wildlife species depends on the active involvement of wildlife professionals. Examples of these conservation “dependent” species abound. Whooping Cranes were all but wiped out by hunting. Reintroduced cranes now rely on piloted ultra-light planes to guide flocks of juveniles from their breeding grounds in Wisconsin to new wintering habitat in northern Florida. California Condors were almost decimated by hunting and later efforts to re-introduce the species, was complicated by lead poisoning. Following a re-introduction campaign, condor survival depends on humans providing supplemental food and guarding against illegal hunting. In the Gulf of Mexico, populations of beach nesting birds have declined appreciably over the last few decades. Human disturbance combined with predation are the principle causes of juvenile mortality. In some locations, entire colonies of beach nesting birds have been predated by coyotes and unleashed domestic dogs. In recent years, efforts to educate the public using social marketing techniques and volunteer stewardship initiatives have been critical to the survival of beach nesting species. Without human intervention, populations of many imperiled beach nesting birds will continue to decline and/or become locally extirpated. The conservation community is faced with a dilemma; do we continue to resource the conservation of these species into perpetuity, or do we look for alternative approaches that over time lessen the need for human intervention and eventually established self-sustaining populations. This project seeks to (1) review community engagement projects funded by NFWF and other conservation partners, (2) identify common elements amongst projects that demonstrate effective techniques/practices to sustain populations of “conservation dependent” species, and based on this (3) recommend best practices/approaches to sustain “conservation dependent” species.
WATER PROGRAM (NFWF)

WATER-RELATED INVESTMENTS
The UVA intern will assist NFWF in ongoing efforts to develop and refine both regional and basin-specific strategies for water-related investments that can help to achieve the goals and objectives of our emergent National Water Strategy. Though still under development, those high-level objectives will likely include the restoration and protection of flows of high-quality water to critical freshwater ecosystems in balance with human and community needs in priority watersheds across the nation. The assignment will include targeted research to help NFWF better understand and harness the growing interest in “corporate water sustainability” in an effort to attract private-sector capital that can be used flexibly and creatively to support strategic, integrated conservation investment portfolios. Examples might include the coordinated development and implementation of voluntary water transactions, habitat restoration projects, source watershed protection measures, priority infrastructure improvements, community-based stewardship efforts and appropriate management reforms to reduce a regional “water footprint” while addressing critical conservation needs in targeted watersheds.

WATERSHED MONITORING (StreamWatch)
StreamWatch is a citizen science water monitoring non-profit for the Rivanna River watershed based in downtown Charlottesville. We are seeking an intern for the summer to assist the Monitoring Program Manager in field work and lab work and to work on a data research project using over 10 years of data collected in the Rivanna River Watershed.

Half of the internship the intern will work closely with StreamWatch staff in the field and the lab to assess the health of streams within the watershed using benthic macroinvertebrate sampling and stream walks. Training will be provided and the intern will be expected to pass an order level benthic macro invertebrate identification test. Field work will consist of wading in streams of various depths. The intern must be comfortable walking on very uneven and slippery terrain and must be able to swim. Waders will be provided. Lab work will consist of identifying benthic macro invertebrates under a microscope using dichotomous keys.

The other half of the internship will be a self-motivated research project using data from the StreamWatch database which covers over 10 years of stream monitoring within the Rivanna River Watershed. StreamWatch staff will supervise when needed, but the ideal intern will be capable of working independently, accessing relevant academic journals, comfortable with data processing in Excel and Access, and report writing.

An internship with StreamWatch is an excellent opportunity to get hands on experience working for a small environmental non-profit, and to get involved in your environmental community.