



2018 Directorate Resource Assistant Fellows Program (DFP)

In 2018, the U.S. Fish and Wildlife Service (FWS) will partner with the Student Conservation Association (SCA) for the FWS Directorate Resource Assistant Fellows Program (DFP). DFP provides undergraduate rising seniors and graduate students who are interested in conservation or other related careers with a full-time, 11-week opportunity that supports FWS conservation priorities.

Undergraduate rising seniors and seniors who will not yet have completed their degree requirements prior to the completion of their fellowship are eligible to apply for all 55 projects. Graduate students are eligible to apply for 8 of the projects, which are identified below, throughout the SCA Application process, and on [FWS Work for Wildlife website](#). Projects include 43 biology or fisheries projects, 12 outreach or human dimensions projects, and 3 in other fields.

Questions? Contact a FWS Recruiter at dfp@fws.gov

Application Instructions

1. Complete your fellowship application online via the [Student Conservation Association \(SCA\) application portal](#) by midnight EST, February 22nd, 2018.
2. Add the application code PO-00724624 to your application.
3. Attach a résumé and a copy of your college transcripts (unofficial is acceptable).
4. Complete the following essay questions:
 - a. Why do you want to serve?

- b. What do you hope to gain?
 - c. What makes you a strong candidate?
5. Submit the names of two references along with their phone numbers and email addresses. A reference letter request will automatically be sent upon your submission of your reference's email addresses.
 6. Once you complete your SCA Application including the steps above, SCA will review it to determine your eligibility for the 2018 DFP.
 7. If eligible, SCA will invite you to apply to specific projects, located through the United States and its territories. You will have only a few days to respond.
 8. SCA will verify whether you qualify for the projects you select and forward qualified applications to selecting officials.

***NOTE:** Please plan for up to 1 hour to complete the SCA application. For SCA application questions, contact Alfonso Orozco (aorozco@thesca.org) and Emily Poore (epoore@thesca.org).

Eligibility

- US citizen or permanent resident.
- Must be 18 years of age.
- Males born after December 31, 1959, and are at least 18 years of age, must register with the Selective Service System, unless they meet certain exemptions.
- Students who are enrolled or accepted for enrollment in an undergraduate (rising seniors/seniors) or graduate

- degree program and who will not be graduating prior to the completion of the fellowship.
- GPA must be 3.0 or higher.
- Available for 12 weeks (1 week orientation plus 11 week fellowship) and must attend one of the following orientations: May 20-25 or June 17-22.
- Must be able to pass a criminal background check.
- Demonstrated interest or experience in the conservation field.

Benefits

- Housing provided in select locations.
- Living allowance— paid bi-weekly.
- Travel allowance.
- 1 week orientation at the FWS National Conservation Training Center in Shepherdstown, WV.
- Hands-on experience.
- **Fellows may be eligible for a permanent position in the FWS after successfully completing their fellowship and degree requirements.**

Reasonable Accommodation Policy Statement:

Federal agencies must provide a reasonable accommodation to applicants with disabilities where appropriate. Applicants requiring reasonable accommodation for any part of the application and/or hiring process should contact the hiring agency directly. Determinations on requests for reasonable accommodation will be made on a case-by-case basis.

Applying to the FWS Directorate Fellows Program:

Complete your fellowship application online via the Student Conservation Association (SCA) application portal by midnight EST, Feb 22nd, 2018. Please plan for at least 1 hour to complete the SCA application. For any SCA application questions, contact Alfonso Orozco (aorozco@thesca.org) or Emily Poore (epoore@thesca.org).

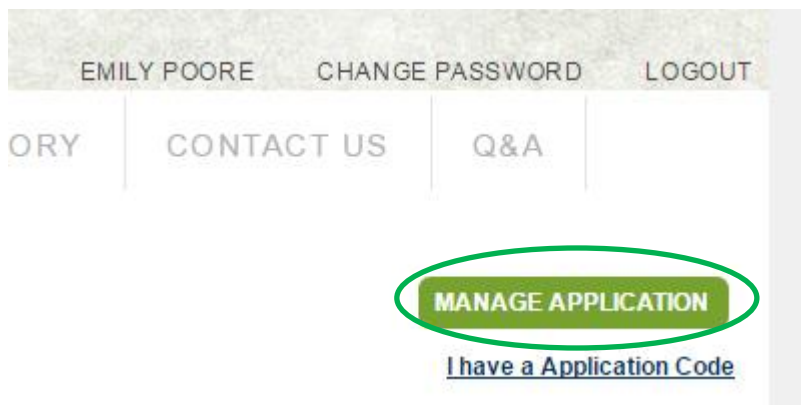
1. Go to www.thesca.org and click on the “apply now” button in the upper right hand corner.



2. Fill out the requested personal information, enter PO-00724624 in the “Application Code” box, and click continue.

A screenshot of the 'MySCA' application form. The form is titled 'MySCA' and includes the text 'Apply for one of our programs. You'll love it!'. The form fields are: First Name, Middle Initial, Last Name, Email address, Age Range (dropdown menu with '--None--' selected), Phone Number, and Application Code (Optional). The 'Application Code' field is circled in green. Below the form is a green 'CONTINUE!' button. At the bottom, there is a link for 'Already a member? Login here.' and a link for 'Internship search'.

3. Click on the “Manage Application” button in the upper right.



4. Complete the Basic Application fields.
5. Select “Conservation Corps & Internship Application” from the Program Application tab.

Step 1 Basic Application	Step 2 Program Application	Step 3 Final Application
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Basic Application -

Program Application -

Community Crew Application - **Eligible** -

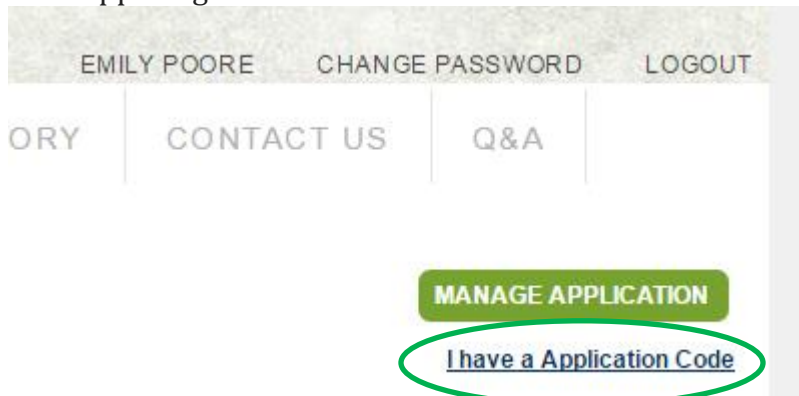
Leader Application - **Eligible** -

National/Regional Youth Crew Application -

Conservation Corps & Internship Application - **Eligible** Application Status: Draft -

Final Application -

- The full program application will be forwarded to hiring managers, so we highly recommend completing all sections of the program application (including short answers, skills and abilities, and references). Be prepared to answer the following short answer questions: why do you want to serve, what do you hope to gain, and what makes you a strong candidate?
- Have contact information ready for at least two references (phone numbers and email addresses). A reference request form will automatically be sent to each reference upon your input of their email address.
- Upload a current resume and college transcripts in the “Documentation” section. (Transcripts are required to demonstrate the required minimum 3.0 gpa. Unofficial transcripts are fine.)
- If you did not add the application code at the beginning, you will be asked to pay an application fee before submitting your application. This fee will be waived by adding the application code from your account landing page. Click on the “I have an application code” link in the upper right hand corner and enter PO-00724624.



10. Once you complete your application in the SCA portal, SCA will review it to determine your eligibility for the 2018 DFP. All candidates will be notified no later than March 1st as to their eligibility status.
11. If you are eligible for the 2018 DFP, SCA will send you an email inviting you to apply to specific DFP projects, located throughout the United States and its territories. You may have only a few days to apply to specific projects, so please keep an eye on the email account used to establish your SCA application.
12. SCA will review your application again to determine if you meet the qualifications requirement(s) for the specific projects you applied to. Around March 16th, SCA will begin notifying qualified candidates about which projects received their application.

Note: All applications to the DFP position that include an attached resume and transcripts will be considered. The SCA application fit rating does not apply to this program.

Directorate Fellows Program 2018

Project Recruitment Announcements

- ❖ Undergraduate rising seniors and seniors who have not yet completed their degree requirements are eligible to apply for **all 55 projects**.
- ❖ Graduate students are eligible to apply for **8 of the projects** demarcated by an asterisk (*)
 - Biological/Fisheries projects: 43
 - Outreach/Human Dimensions projects: 12
 - Other Fields of Study projects: 3

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Region 1 (Pacific Northwest Region)

(5 projects)

Environmental Education and Community Outreach Fellow, Kahuku, HI

(DFP18R1NWR05)

Location: Region 1, James Campbell National Wildlife Refuge, Kahuku, Hawaii

Housing: Provided, onsite (rent-free, if available) OR \$2400 allowance for 11-week period

Project Description: The James Campbell National Wildlife Refuge encompasses nearly 1200 acres of coastal wetland, and coastal strand habitat that conserves biodiversity, including four species of endangered Hawaiian waterbirds, migratory shorebirds, waterfowl, seabirds, endangered and native plant species, endangered Hawaiian monk seals, and green sea turtles. Two key objectives for the refuge include (1) Provide wildlife-dependent public use and educational opportunities to enhance public understanding and appreciation of its natural resources and (2) Enhance awareness, protection, and appreciation of historic and cultural resources for the education, inspiration and enrichment of the public in a spirit of stewardship and trusteeship for future generations. The Fellow will increase the capacity of the James

Campbell NWR for both of these objectives by writing, editing, and formatting an Environmental Education Plan to be incorporated into the future Visitor Services Plan. The Fellow will gain exposure to stakeholders by collaborating with staff from Pacific Islands Refuges & Monuments, External Affairs, Conservation Planning, and Visitor Services to develop the Environmental Education Plan. Assistance with limited biological work on the refuge to become familiar with monitoring and management tools used to promote species recovery at the refuge will also be a part of the Fellow's role. The Fellow will promote partnerships with community members, local schools, non-profits and Native Hawaiian organizations; and will play a key role in expanding opportunities for wildlife-dependent public uses at the refuge, including wildlife observation, cultural practices, photography, environmental education, interpretation and volunteer service projects. Tremendous potential exists to expand these opportunities for local community members, especially members of the local Native Hawaiian community, at James Campbell NWR with the development of an organized Environmental Education Plan.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, or natural resource management; education and outreach including visitor services/interpretation, environmental education community outreach, or communications; Hawaiian Studies; or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; ability to work outside and hike with a pack in potentially hot, humid, dry, rainy, and unpredictable conditions.

Desired Qualifications: Basic understanding of wildlife ecology, botany, conservation, habitat restoration and endangered species management (preferably in Hawaii); coursework and/or experience in writing and communication; experience with public speaking, community outreach and/or environmental education; experience with 4-wheel drive vehicles; ability to identify local flora and fauna; experience with GPS/GIS; experience and interest in writing, editing, and formatting for publication; preference for a local candidate with background in Native Hawaiian Culture and/or Hawaiian Language and outreach to Native Hawaiian and local communities.

Multi-Cultural Community Outreach Sustainability, Leavenworth, WA

(DFP18R1FAC01)

Location: Region 1, Leavenworth National Fish Hatchery, Leavenworth, Washington

Housing: Supported, \$100/week allowance

Description of Work: One of the most important ways the U.S. Fish and Wildlife Service (FWS) accomplishes its mission is reflected by three words at the beginning of our mission statement: "working with others." These words reflect our acknowledgement that we cannot effectively carry out our enormous natural resources management mission singlehandedly. Engaging diverse community representation is a management tool to help us develop and maintain the trust and understanding of the American people. Here at the Leavenworth Fisheries Complex, we specifically aim to communicate the importance of our work—raising anadromous fish for mitigation—to the residents and Native American Tribes of this region. While the Leavenworth

Fisheries Complex has been successful at engaging with traditional audiences, there are many members of the community who are unaware of the hatchery and fishery complex, nor of the opportunities the FWS can provide them. Specifically, the Fellow will study the local communities and develop specific products and strategies to engage with new and diverse audiences within those communities. The Fellow will work within the communities of Leavenworth, Wenatchee, and others to build up a strong network of 5-10 Spanish-speaking volunteers to assist with events and programs that promote outdoor recreation, knowledge of natural history, and understanding of the work in the area--the overall goal is to sustain continued outreach. The Leavenworth Fisheries Complex is a member of Team Naturaleza, an organization of agencies, organizations, and individuals working to connect multi-cultural community members with nature. The Fellow will work closely with Team Naturaleza on the project.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, or natural resource management; education/outreach including visitor services/interpretation, environmental education, community outreach, communications, or citizen science; social sciences/humanities including human dimensions, social and environmental justice, Native American studies, or community development; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in Spanish and English.

Desired Qualifications: Understanding of Latino culture; basic understanding of community development and/or stakeholder engagement; basic understanding of wildlife conservation, especially fisheries.

11,000 Meters Down: Mariana Trench Environmental Education Strategy, Yigo, Guam (DFP18R1NWR03)

Location: Region 1, Marianas Trench Marine National Monument, Yigo, Guam

Housing: Provided, offsite (rent-free, USGS Bunkhouse 6 miles from refuge)

Project Description: The Marianas Trench Marine National Monument (MTMNM) was established in January 2009 by a Presidential Proclamation. MTMNM protects approximately 95,216 square miles of submerged lands and waters. This unique place on Earth includes three units: the Trench Unit, the Volcanic Unit, and the Islands Unit. The Mariana Trench and Volcanic Units are included in the National Wildlife Refuge System, which delegates management responsibility to the U.S. Fish and Wildlife Service (FWS). This project aims to create a draft strategy to build an environmental education program for the MTMNM and pilot some additional activities that could be enhanced through partnerships with local entities on Guam and the Commonwealth of the Northern Marianas Islands. To date, a concerted effort to connect the local public with the important resources contained within the MTMNM has not been attempted. The draft strategy and pilot activities will help to begin to solidify an environmental education program for the MTMNM. The Fellow will develop an activity workbook about natural resources within the MTMNM suitable for 6-12 year-olds, hold a special event day to promote the conservation efforts of the MTMNM both in Guam and the

Commonwealth of the Northern Marianas Islands, and write a draft environmental education strategy for MTMNM informed by their findings. Finally, the Fellow will present the elements of their strategy to FWS staff and others as appropriate, and develop an education flyer/poster, newspaper article, and/or Facebook post concerning the natural resources of MTMNM.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, natural resources management, or marine biology; education/outreach including visitor services/interpretation, environmental education, community outreach, communications, or citizen science; or other closely related field.

Working Conditions/Key Requirements: Current, valid passport to travel to Guam and the Commonwealth of the Northern Marianas Islands; able to work outdoors in tropical climates and lift up to 25 lbs.

Desired Qualifications: Basic knowledge of biology, marine biology and conservation biology; experience with environmental education and outreach as well as making documents compliant for web-postings is preferred.

Siletz Bay NWR, Drift Creek Fish Habitat Assessment, Newport, OR

(DFP18R1NWR02)

Location: Region 1, Oregon Coast National Wildlife Refuge Complex, Newport, Oregon

Housing: Provided, offsite (rent-free, Siletz Bay NWR Bunkhouse, 18 miles from complex)

Project Description: The 314 acres of salt marsh that makes up Siletz Bay National Wildlife Refuge provide critical ecosystem services, especially considering the declining status of this habitat in the state. In Oregon's seventeen largest estuaries, tidal wetland acreage has declined considerably based on pre-settlement estimates. As much as 90 percent of these losses have been for agricultural development. Within the Siletz Bay estuary, the comparison of 1850s historic vegetation with recent vegetation mapping indicates a 47% loss of tidal marsh. The lower section of Drift Creek has been greatly simplified for flood control and for urbanized and agricultural purposes resulting in a reduction in critical habitat available for the ESA listed Coho rearing and juvenile Chinook salmon and steelhead. The goal of this project is to identify and prioritize tidal marsh and floodplain restoration alternatives and opportunities. The Fellow will gather and review all reports and current data pertinent to Siletz Bay estuary anadromous fish including fish use; habitat (past and current) conditions; Federal, State or Regional Fish Management or Restoration Plans; Siletz Bay Estuary Assessments; and water quality and hydrology data for the lower Drift Creek watershed. In addition, the Fellow will participate in monthly Watershed Technical Advisory Team meetings to collaborate with local partners and fish habitat experts to develop conceptual habitat management/restoration actions for the Drift Creek Unit of Siletz Bay NWR. The Fellow will work with the U.S. Fish and Wildlife Service's (FWS) Inventory & Monitoring Data Manager to compare historic aerial imagery of the sites with current tidal channel morphology and field truth existing topographic information from LiDAR data. Field work will include conducting surveys to identify fish passage and/or tidal exchange barriers on 4 refuge tracts totaling approximately 80 acres. Finally, the Fellow will synthesize fish habitat and life history needs from the available literature to assess current

conditions and develop alternative restoration and enhancement recommendations. The Fellow will develop and deliver an oral presentation of the findings and recommendations to the Watershed Technical Advisory Team and submit a Final Assessment and Restoration Recommendations Report to Siletz Bay National Wildlife Refuge and FWS Vancouver Fisheries Office.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences, including conservation biology, wildlife biology, fisheries, ecology, or natural resource management; geographic and information science including GIS; or other closely related field.

Working Conditions/Key Requirements: N/A

Desired Qualifications: Understanding of fisheries biology and/or wildlife conservation; basic understanding of stakeholder engagement; basic understanding of river/estuary ecology and GIS.

Invasive Plant Detection and Inventory, Sherwood, OR

(DFP18R1NWR04)

Location: Region 1, Tualatin River National Wildlife Refuge, Sherwood, Oregon

Housing: Provided, onsite (rent-free, refuge bunkhouse)

Description of Work: The Tualatin River National Wildlife Refuge (NWR) focuses on restoring lands to native habitats (when appropriate) and thriving natural communities, while continuing to provide a place where people can connect, enjoy and experience nature. The Refuge, located in the southwest portion of Portland, Oregon, is surrounded by agricultural lands, industrial complexes and residential developments. The quick and drastic changes in the surrounding community as a result of development is compelling the refuge to ensure there is baseline data on invasive plant species, which would assist in maintaining and advancing our restoration efforts. Given the location of the refuge, vectors for introducing and expanding invasive species are abundant. Having a dedicated and highly motivated Fellow to focus on locating, identifying, and mapping invasive species would establish the current state of infestations, allow for more strategic management of existing populations, and mitigate potential new infestations. The Fellow will work with FWS staff and volunteers to refine and implement an invasive plant mapping protocol. This project will involve both field and office time, with a large component spent on database planning and management in order to effectively organize data collected during the project. The Fellow will have the opportunity to recruit and work with volunteers during the field based portion of the project. Field work will consist of surveying a variety of habitats at multiple Refuge management units for native and non-native plants while utilizing software such as ArcCollector to build databases. At the completion of the project, the Fellow will synthesize their findings using both written reports and maps created using GIS software. They will submit a final assessment of current refuge conditions as they relate to invasive plant species as well as recommendations on where USFWS staff should focus their invasive treatment efforts.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife

biology, ecology, botany, or natural resource management; geographic and information systems including GIS; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English; valid driver's license.

Desired Qualifications: Understanding of GIS/GPS; basic understanding of wildlife conservation, environmental biology, and policies.

Region 2 (Southwest Region)

(6 projects)

Reducing cocklebur dominance in managed moist-soil wetland units, San Antonio, NM (DFP18R2NWR04)

Location: Region 2, Bosque del Apache NWR, San Antonio, New Mexico

Housing: Provided, onsite (rent-free)

Project Description: Bosque del Apache National Wildlife Refuge (NWR), in San Antonio, NM established in 1939 by President Franklin D. Roosevelt using "Duck Stamp funds" is the Southwest's premiere wetland refuge. The refuge is 57,331 acres within the Middle Rio Grande Valley that is known for supporting Sandhill cranes, geese, and other waterfowl that overwinter each year. Bosque del Apache National Wildlife Refuge (NWR) along with the Migratory Bird Program in the Southwest Region have committed to managing moist-soil wetlands and wetland dependent bird species as efficiently and effectively as possible in an arid landscape. Each year the refuge collects vegetative data in order to inform overall production of the managed moist-soil wetlands. However, the refuge has not collected data to show how both the vegetation and aquatic invertebrate communities are changing among and between moist-soil wetlands units under a variety of management practices. This project will help fill this important knowledge gap. The Fellow will evaluate moist-soil managed wetlands that provide suitable wetland wildlife habitat for migratory birds and other wetland dependent wildlife, and investigate temporal vegetation change. The Fellow will investigate impacts of cocklebur invasion and quantify seasonal aquatic invertebrate and vegetative community structure and development within moist-soil managed wetlands. The Fellow will be responsible for all data collection, analysis, and coordination with refuge staff as well as other partners. The Fellow will be responsible for the production of a technical report that land managers will use as a reference for wetland management in the arid Southwest, as well as collaborate on a peer reviewed scientific manuscript (e.g., Journal of Fish and Wildlife Management) and present project findings during one professional meeting (e.g., Society of Wetland Scientists). This research will provide public and private landowners with important strategies for improving conservation and management plans for managed wetlands regionally, but will also have important and valuable implications throughout the country.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, or natural resource management; geographic and information sciences including GIS; or other closely related field.

Working Conditions/Key Requirements: Valid driver's license.

Desired Qualifications: Basic understanding of wildlife conservation, ecology, and biology; strong understanding of wetland ecology and management; experience in wetland ecology research and survey design preferred.

Volitional Spawning Gila Trout for Recovery Efforts, Mora, NM

(DFP18R2FAC01)

Location: Region 2, Mora National Fish Hatchery, Mora, New Mexico

Housing: Provided, onsite (rent-free)

Project Description: The Fellow will work on Gila trout (*Oncorhynchus gilae*) recovery efforts at the Mora National Fish Hatchery in New Mexico. The Hatchery serves as the sole captive refugia and propagation for recovery of Gila trout in the Southwest. Gila trout are endemic to mountain streams in the Gila, San Francisco, Agua Fria, and Verde River drainages in New Mexico and Arizona. Gila trout were originally recognized as endangered under the Federal Endangered Species Preservation Act of 1966. Federal-designated status of the fish as endangered was continued under the Endangered Species Act of 1973. The Gila trout was downlisted to Threatened in 2006. The selected Fellow will research and design a volitional spawning tank that can effectively capture fertilized eggs from volitional spawners. The spawning tank must utilize natural substrate and incorporate an egg collection system and or hatching mechanism. Volitional spawning will eliminate artificial mate selection by hatchery staff to promote more natural genetic diversity. The Fellow will work with U.S. Fish and Wildlife Service, U.S. Forest Service, and New Mexico Department of Game and Fish biologists to capture marked Gila trout in recovery areas. These Gila trout will be examined for Visible Implant Elastomer (VIE) tags and fin clips to determine origins. Captured Gila trout will also be measured for biometric data. Data from these collections will be summarized by the Fellow to determine success of restocking programs from Mora National Fish Hatchery. The Fellow will be responsible for designing on-station volitional spawning rearing system, field collection of Gila trout, and completion of a final report and poster presentation. The Fellow will also complete an oral presentation of findings to the Gila trout Recovery Team.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, fisheries, natural resource management, or other closely related field.

Working Conditions/Key Requirements: N/A.

Desired Qualifications: Background in fisheries biology with an emphasis in aquaculture; understanding of scientific writing methods and study design is desirable.

Salt Plains NWR Visitor Engagement Strategy, Jet, OK*

(DFP18R2NWR02)

Location: Region 2, Salt Plains NWR, Jet, Oklahoma

Housing: Provided, onsite (rent-free)

Project Description: Under the Refuge Improvement Act, national wildlife refuges have an obligation to provide a quality visitor experience that highlights the big six primary recreational uses (wildlife observation, photography, hunting, fishing, interpretation, education) but is not limited to these uses. This project will assess the visitor experience at Salt Plains National Wildlife Refuge (NWR) and create a report that will help the refuge develop a visitor services plan. This project will provide the refuge with the tools to make better funding decisions and more efficient use of the limited staff time. The Fellow will review and summarize existing literature, information, and recent agency work in order to identify current strengths, gaps, and overlap in visitor services programs across the broader landscape. The Fellow will compile and synthesize information on the visitor experience at Salt Plains NWR. This will include an assessment of current visitor opportunities and facilities at the refuge. This assessment should include suggestions to improve the visitor experience at Salt Plains NWR. The Fellow will develop a communication strategy specific to Salt Plains NWR on how to communicate effectively with the neighboring community. The strategy will identify key messages that will resonate with the community and the appropriate delivery mechanism. The Fellow will develop the overarching goals for a Visitor Engagement Strategy. This engagement strategy, when developed later, will help refuge staff plan programming changes, identify events they should focus on, learn how to work with community “gatekeepers,” etc. to facilitate an improved visitor experience at the refuge.

Education Level: Rising seniors and seniors who have not yet completed their degree requirements or graduate students pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, or natural resource management; education/outreach including visitor services/interpretation, environmental education, or social/environmental justice; geographic and information sciences including information technology or web design; or other closely related field.

Working Conditions/Key Requirements: Basic written and oral proficiency in English.

Desired Qualifications: Advanced written and oral proficiency in English and communication strategy; basic understanding of wildlife conservation and environmental biology; strong understanding of interpretation; experience with community development and/or stakeholder engagement.

Restoring a keystone species (Gunnison’s prairie dog) to refuge grasslands, Socorro, NM

(DFP18R2NWR03)

Location: Region 2, Sevilleta National Wildlife Refuge, Socorro, New Mexico

Housing: Provided, onsite (rent: \$800 for full 11-weeks)

Project Description: Sevilleta NWR is the eighth largest refuge in the lower 48 states and the largest refuge in New Mexico, encompassing 228,700 acres. The refuge sits at the junction of four biomes (Colorado Plateau Shrub Steppe, the Chihuahuan Desert, the Great Plains Short Grassland Prairie, and the Piñon Juniper Woodland) creating high biological diversity. In addition, the Rio Grande river flows through the center of Sevilleta NWR, providing a vital corridor in the mixed ecosystems. The Fellow will be able to work in and experience all of these different ecosystems of the refuge. The Fellow will focus primarily on testing reintroduction techniques for a native keystone species, Gunnison's prairie dog, to restore the grassland ecosystem. The Fellow will also assist with monitoring the progress of a riparian restoration project that benefits three listed species, and will help with mapping monarch habitat. Gunnison's prairie dogs were once abundant over the 100,000 acres of native grassland on Sevilleta NWR until the 1960s, when they were eradicated. In 2010, Sevilleta NWR began Gunnison's prairie dog reintroductions. Although research has shown prairie dog reintroductions have had a positive ecological impact at Sevilleta NWR, it has been difficult to establish a self-sustaining population of prairie dogs. The Fellow will monitor existing populations and test different management strategies to help determine the best strategies to sustain prairie dogs on the refuge. Over the past century, river channelization along the Middle Rio Grande has detrimentally altered the river-floodplain connection and the associated biological processes. In 2017, the refuge completed habitat restoration on over 30 acres along the Middle Rio Grande. These efforts are aimed at providing specific habitat requirements for the recovery of 3 listed species: Rio Grande Silvery Minnow, Southwestern Willow Flycatcher, Yellow-billed Cuckoo. The Fellow will assist with monitoring the project to determine if it is on track to provide habitat for the three listed species.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including wildlife biology, conservation biology, ecology, or natural resource management; education/outreach including environmental education, or communications; geographic and information sciences including GIS, hydrology, modeling, or statistics; or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; ability to work in hot, dry rough terrain.

Desired Qualifications: Background and interest in biological sciences.

Freshwater Mussel Surveys in Lower Colorado River Basin, Texas, Houston, TX (DFP18R2ECO01)

Location: Region 2, Texas Coastal Ecological Services Field Office, Houston, Texas

Housing: Not Supported

Project Description: Freshwater mussels are one of the most imperiled taxonomic groups in North America and the trend continues in Texas. Most of the State listed and Federal candidates are Texas endemics. Texas is home to approximately 52 freshwater mussel species; 15 are listed as state threatened and 6 are candidates for protection under the Endangered Species Act. This project will address some vital research needs for freshwater mussels found in the Lower East Texas River Basins, an area currently threatened by low water conditions due to

water withdrawal for agriculture, water diversion projects, and climate change. The FWS will be initiating this study to capture the current status of the freshwater mussel assemblages by looking at relative abundance diversity and distribution. The Fellow will, in collaboration with U.S. Fish and Wildlife Service biologists, develop a freshwater mussel survey plan for selected sites within the Lower East Texas River Basins to identify presence/absence of candidate and/or state listed mussel species in Texas. The Fellow will review existing literature and aerial imagery to identify segments of rivers within the basin to focus survey efforts. The Fellow will also work with volunteers from non-governmental organizations, federal, state, and academic entities to coordinate survey efforts in the field. Finally, the Fellow will write a report on findings from survey efforts and generate a map that illustrates the findings. In addition, the Fellow is expected to present their findings to Region 2 Assistant Regional Director of Ecological Service in Texas, and potentially at the Texas Mollusk Society Symposium in 2018 (TBD).

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences, including freshwater mussel ecology, fisheries, wildlife biology, conservation biology, ecology, natural resource management, or other closely related field.

Working Conditions/Key Requirements: Physically capable of working out in the field on uneven terrain, hauling heavy equipment, hiking/paddling long distances, and able to work in inclement weather.

Desired Qualifications: Motivated about conservation of riverine and mussel ecosystems; experience with conducting freshwater mussel research; knowledge of or experience with freshwater/river ecology, proficient with Microsoft Office, experience with Arc GIS 10 or higher; good swimmer.

Valle de Oro NWR Hispanic/Latino Community Engagement Strategy, Year 2, Albuquerque, NM

(DFP18R2NWR01)

Location: Region 2, Valle de Oro National Wildlife Refuge, Albuquerque, New Mexico

Housing: Supported, \$500/month allowance

Project Description: Valle de Oro National Wildlife Refuge is the Southwest's first Urban National Wildlife Refuge located in Albuquerque, New Mexico. The refuge is 570 acres adjacent to the Rio Grande bosque and is currently farm fields with plans to restore native habitat and build facilities in the next 5 years. In an effort to further the Refuge's work in knowing and relating to the local community, the Valle de Oro Fellow will be assigned to work on the Hispanic/Latino Community Engagement Strategy. The Fellow will compile and synthesize information on the Hispanic/ Latino community surrounding Valle de Oro NWR. This will include building on the work completed by the previous DFP Fellow in identifying the existing Hispanic/Latino community groups and their respective missions, key community events (e.g. Muertos y Marigolds Parade), and the most effective niches for the Valle de Oro NWR to fill within the community. The Fellow will review and summarize existing literature, information, and recent agency work (Urban Wildlife Conservation Program national team, Standards of

Excellence for Urban National Wildlife Refuges, National Park Service Urban Agenda, etc.) in order to identify current strengths and gaps. The Fellow will host and facilitate a workshop with the key leaders from the Hispanic/Latino community, create a survey tool and protocol to evaluate community understanding and connection to Valle de Oro NWR, and develop a communication strategy specific to Valle de Oro NWR on how to communicate effectively with the neighboring Hispanic/ Latino community. The strategy will identify key messages that will resonate with community and other local Hispanic/Latino groups and the appropriate delivery mechanism. The Fellow will develop the overarching goals for a Hispanic/Latino Community Engagement Strategy. This engagement strategy will help Refuge staff plan programming changes, identify events they should focus on, design refuge facilities, and learn how to work more closely with community members.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, or natural resource management; education/outreach including visitor services/interpretation, environmental education, community outreach, or communications; social sciences/humanities including human dimensions, behavioral science, social/environmental justice, or Native American studies; or other closely related field.

Working Conditions/Key Requirements: Basic written and oral proficiency in Spanish and English; valid driver's license.

Desired Qualifications: Strong understanding of Hispanic/Latino culture; basic understanding of wildlife conservation and environmental biology; experience with community development and/or stakeholder engagement; advanced written and oral proficiency in Spanish and English preferred; experience in Human Dimensions research and survey design preferred.

Region 3 (Midwest Region)

(9 projects)

Restoration and Maintenance of Pollinator Habitat, Madison, IN

(DFP18R3NWR01)

Location: Region 3, Big Oaks National Wildlife Refuge, Madison, Indiana

Housing: Provided, onsite (rent: \$565/month; Fellow will be reimbursed for rent)

Description of Work: Big Oaks National Wildlife Refuge encompasses 50,000 acres in 3 counties (Jefferson, Jennings, and Ripley) in Indiana and overlays a portion of the former Jefferson Proving Ground that lies north of the historic firing line where munitions were once tested by the U.S. Army. Beginning in 1996, the U.S. Fish and Wildlife Service began managing the wildlife resources of the proving ground. Pollinator and monarch habitat restorations are a priority within the Midwest due to losses of these habitats in agricultural areas. Restoration management has "cookbook" recipes for a variety of techniques to restore prairie, sedge meadows, and wildflower areas, but maintenance of these areas can be difficult. These areas

can be quickly re-invaded by fescue, trees, and non-native invasive plants, and lose their value to pollinators. With large numbers of restorations occurring region-wide, information on best management practices that maintains vigor and improves the quality of these restoration areas is needed. The selected Fellow will develop a restoration/maintenance monitoring program for pollinator/monarch restoration areas in southeastern Indiana. The Fellow will summarize the initial baseline conditions and results of current habitat restorations into a written report and develop study protocols that detail the monitoring design/analysis to be used in future field seasons to collect data and compare effects of treatments in maintaining these restorations. The Fellow will also develop outreach materials based on the current literature for pollinator restoration and maintenance such as education flyers, Facebook posts, a webpage, etc.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, ecological restoration, or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; able to endure inclement weather and rugged conditions in the field.

Desired Qualifications: Basic understanding of plant identification and botany; basic understanding of ecology, restoration practices, and conservation biology; willingness to become a certified herbicide applicator technician; willingness to become certified in prescribed fire.

Bathymetric Modeling of Higgins eye pearlymussel (*Lampsilis higginsii*) Habitat, Onalaska, WI

(DFP18R3FAC01)

Location: Region 3, Midwest Fisheries Center, Onalaska, Wisconsin

Housing: Not supported

Project Description: The Higgins eye pearlymussel was listed as an endangered species by the U.S. Fish and Wildlife Service on June 14, 1976. Primary reasons for listing of the mussel species were a decrease in both abundance and range of the species. The Higgins eye mussel occurs in the Mississippi River main-stem and lower portions of several large tributaries within the upper basin such as the St. Croix, Wisconsin, Iowa, and Ohio rivers. This project would focus on the Wapsipinicon River, Iowa because of its existing Higgins eye population, associated diverse mussel and fish assemblage, good quality habitat and on-going efforts to remove dams on the main-stem. The Fellow will lead and conduct a habitat assessment of key locations along the Wapsipinicon River for the federally endangered higgins eye pearlymussel by collecting and developing bathymetric data layers. Bathymetry data of important areas along the Wapsipinicon River would provide information on depth, substrate, woody debris, and other important variables. The processed bathymetric layers will then be combined with existing data to develop a habitat suitability model that can be applied to upstream reaches of the target river for identifying potential natural recruitment sites for this species. The Fellow will work with key stakeholders, state partners, and federal partners to ensure all model parameters for the suitability model are met.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, or ecology; geographic and information sciences including GIS, cartography, hydrology, or modeling/statistics; or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; able to lift up to 40 pounds for the movement of equipment in the field; able to work in the field for a large portion of the project.

Desired Qualifications: At least one advanced GIS course highly recommended; coursework in ecology, fisheries, and/or hydrology highly desirable.

Midwest Land Surveyor, Fergus Falls, MN

(DFP18R3NWR07)

Location: Region 3, Fergus Falls Wetland Acquisition Office, Fergus Falls, Minnesota

Housing: Not supported

Project Description: The mission of the National Wildlife Refuge System (NWRS), administered by the U.S. Fish and Wildlife Service (FWS), is to manage a national network of lands and waters for the conservation, management and restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. Among its many duties, the FWS is a land management agency. To be an effective land management agency, FWS must know the boundaries of the land it owns and manages. A complete and accurate land survey or land survey review is of fundamental importance in all real estate transactions and management activities. The DFP Fellow will assist the Land Surveyors in the Division of Realty to perform up to 5 cadastral land surveys to maintain boundaries of FWS-owned National Wildlife Refuge lands or for proposed acquisitions. They will conduct courthouse land records research to form or confirm legal descriptions of proposed acquisitions, maintain detailed field notes, perform calculations during cadastral land surveys, and will prepare plat maps. Conducting land surveys of proposed Refuge acquisitions supports the U.S. Fish and Wildlife Service land acquisition and exchange process by establishing boundaries, computing protected acreages, avoiding present and future boundary conflicts and providing Refuge realty specialists with legally acceptable property descriptions.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in geographic and information sciences including GIS, cartography, engineering, land survey, geology, earth sciences, or other closely related field.

Working Conditions/Key Requirements: Physical ability to carry equipment and hike in difficult terrain, work in uncomfortable weather conditions; willing to travel 50% of the time.

Desired Qualifications: Knowledge of concepts, principles, and techniques of land surveying, including knowledge and skill in use of surveying equipment; ability to keep detailed, neat and accurate survey notes; skill in the operation of motorized vehicles; skill in oral and written communication; skilled in using GIS; knowledge of the outdoors and earth sciences; experience conducting outdoor field work to collect scientific data.

Loess Bluffs NWR Bottomland Prairie Monitoring, Forest City, MO

(DFP18R3NWR08)

Location: Region 3, Loess Bluffs National Wildlife Refuge, Forest City, Missouri

Housing: Provided, onsite (rent-free)

Project Description: The wet bottomland prairie on Loess Bluffs National Wildlife Refuge (NWR) is considered a state listed habitat by the Missouri Department of Conservation, with less than 0.4% remaining. This system is an important remnant natural prairie system which provides the necessary habitat for grassland birds and prairie massasauga rattlesnakes, among other resources of concern. This project is a continuation of a monitoring program for the bottomland prairie community on the Refuge that evaluates the use of prescribed burning and herbicide treatment on reed canary grass (RCG), along with its effects on the state endangered prairie massasauga rattlesnake, grassland bird use, and native plant composition. The project will contribute to our understanding of the community ecology of the bottomland prairie and provide a valuable assessment to implement recently developed management objectives. Loess Bluffs NWR's Habitat Management Plan (HMP) has targeted specific bottomland prairie and forest conditions and identifies the need for monitoring to assess the condition of high priority management units. The HMP identified the need to enhance the native grass and forb composition of the bottomland prairie however; questions remain as to what the response of utilizing those management tools would be. Monitoring is needed to inform management to sustain habitat health, integrity and success of prescribed management actions particularly prescribed burning, herbicide and possibly grazing. Products produced by the Fellow include but are not limited to the following: analysis, summary report and potential publication in a peer reviewed scientific journal of data collected in 2016, 2017 and 2018 (heat map of RCG based on percent infestation, native vs. nonnative composition, grassland bird species richness and relative abundance as it relates to habitat, massasauga population demographics and effects of treatments on the reduction of RCG). Results from the 2016/2017 season showed reduction of RCG of over 30% (2016 \bar{x} =68% and 2017 \bar{x} =30%) in the aerially treated area. Further monitoring is needed to access newly treated areas and evaluate second year post treatment.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, or natural resource management; geographic and information sciences including GIS or modeling/ statistics; or other closely related field.

Working Conditions/Key Requirements: Ability to work in hot/ humid conditions around ticks and mosquitoes.

Desired Qualifications: Coursework or experience in: botany (specifically plant taxonomy and use of dichotomous keys to identify plants); ornithology (especially the ability to identify grassland birds by sight and sound); natural resource and wildlife management courses including but not limited to the following: wildlife techniques, conservation biology, population biology and ecology; modeling, statistics and/ or geographic information systems; identification of Midwest plants (specifically prairie plants); bird identification by sight/ sound; distance

sampling methods. Proficient use of ArcGIS version 10.3 or later, ArcGIS Online, Collector App/ArcPad 10.2, and the statistics programs R or Distance.

Inventory and Monitoring of Aquatic Plants, Necedah, WI

(DFP18R3NWR04)

Location: Region 3, Necedah National Wildlife Refuge, Necedah, Wisconsin

Housing: Provided, onsite (rent-free)

Project Description: The individual will serve as a Biology Fellow assisting the wildlife biologist at the 44,000 acre Necedah National Wildlife Refuge (NWR) in central Wisconsin. This project will fill an important knowledge gap regarding the vegetation communities found within the impounded wetlands common throughout the Necedah NWR. The final report from this project will serve as the basis for a segment of Necedah NWR's pending Inventory and Monitoring Plan and offer guidance that will be incorporated into the Habitat Management Plan. The Fellow will develop and implement an aquatic plant inventory, as well as develop habitat management guidance for impounded wetlands on the refuge. Primary duties will involve developing and implementing an aquatic plant inventory, collecting and organizing data, and writing a final report of findings. The Fellow will also assist with existing biological projects regarding wetland and wildlife management. The individual will need to work closely with the wildlife biologist to plan and implement tasks to ensure the project's success. Additionally, as a part of the Biological Team, the Fellow will be introduced to all other aspects of the program and will also have opportunities to shadow other staff in different refuge divisions and assist with various refuge projects as time and interest allow. The refuge is five miles from Necedah village and 16 miles from Tomah, which has amenities like grocery stores, big box stores, and a movie theater. A personal vehicle would be required for off-duty travel.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences, including conservation biology, wildlife biology, fisheries, ecology, botany, or natural resource management; geographic and information sciences, including GIS or hydrology; or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; ability to work in rugged field conditions typical of wetlands.

Desired Qualifications: Exceptional attention to detail in identifying aquatic plants and conducting scientific data collection; skill in oral and written communication; practical knowledge of the scientific method; coursework in botany; coursework or experience with wetland plants of the Midwest/Wisconsin; experience and comfort with canoes or kayaks; previous experience developing an inventory; working knowledge of GIS; project management skills; previous experience working in difficult terrain and hot, humid conditions preferred.

Midwest Realty Specialist, National Wildlife Refuge System, Fergus Falls, MN*

(DFP18R3NWR05)

Location: Region 3, Fergus Falls Wetland Acquisition Office, Fergus Falls, Minnesota

Housing: Not supported

Project Description: The U.S. Fish and Wildlife Service (FWS) has identified the Prairie Pothole Region of North Dakota, South Dakota, Montana, Minnesota, and Iowa as one of the primary focus areas for land acquisition and protection for the propagation of migratory birds in the upper Midwest. National Wildlife Refuges (NWRs) scattered throughout the Midwest Region (MN, IA, MO, WI, IL, MI, IN, OH) are important contributors to the protection and enhancement of native habitats for a number of avian and mammal species, as well as pollinators such as the Monarch butterfly. Nearly every parcel acquired for refuge additions in the Midwest Region supports both the conservation of migratory birds and the Monarch butterfly. Protecting land for the American public is one of the most rewarding careers in the NWR System. The selected Fellow will serve as a Realty Specialist in the Fergus Falls (MN) Wetland Acquisition Office. The Fellow will assist with all aspects of the land acquisition process, to include property inspections, environmental assessments, negotiations, title curative services, and document preparation. Assignments will include the acquisition of fee-simple title and partial interests at refuges located throughout the Midwest Region as well as Wetland Management Districts. The Fellow will gain exposure to the land valuation process by assisting with the review of formal appraisal reports and through the use of an internal valuation model, specifically designed for the Small Wetland Acquisition Program in the State of Minnesota. Working with title companies, the DFP will procure and review title commitments, certificates of title, and/or abstracts of title and identify the actions necessary to clear exceptions to title. The DFP will conduct an array of land and/or property inspections to ensure the Federal government's investments are protected prior to the lands being included in the National Wildlife Refuge System.

Education Level: Rising seniors and seniors who have not yet completed their degree requirements or graduate students pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, or natural resource management; education/outreach including communications; social sciences/humanities including law and policy; or other closely related field.

Working Conditions/Key Requirements: Daily office work with periodic opportunities to travel to units of the National Wildlife Refuges System and work outdoors.

Desired Qualifications: Proven experience conducting policy analysis, and/or research intended for publication or for formal government communication; strong verbal and written communication skills; proven ability to evaluate a work project and apply federal law, agency processes, procedures, rules and regulations to successfully complete assignments; attention to detail and ability to evaluate work assignment to ensure correct legal instruments (e.g. purchase agreements, conservation easements) are properly executed and acquisitions are aligned with the U.S. Fish and Wildlife Service's mission and goals; driven to support the natural resource conservation mission of the U.S. Fish and Wildlife Service.

Midwest Realty Specialist, National Wildlife Refuge System, Bloomington, MN*
(DFP18R3NWR06)

Location: Region 3, Regional Office, Bloomington, Minnesota

Housing: Not supported

Project Description: The mission of the National Wildlife Refuge System (NWRS), as administered by the U.S. Fish and Wildlife Service (FWS), is to manage a national network of lands and waters for the conservation, management and restoration of the fish, wildlife, and plant resources and their habitats within the U.S. for the benefit of present and future generations of Americans. National Wildlife Refuges scattered throughout the Midwest Region are important contributors to the protection and enhancement of native habitats for a number of avian and mammalian species as well as pollinators, including the Monarch butterfly. Nearly every parcel acquired for refuge additions in the Midwest Region supports both the conservation of migratory birds and the Monarch butterfly. Protecting land for the American public is one of the most rewarding careers in the NWRS. The Fellow will serve as a Realty Specialist within the Division of Realty, Bloomington, Minnesota. The Fellow will process no less than ten proposed or pending land acquisitions in support of our National Wildlife Refuges and designated Waterfowl Production Areas. Working collaboratively with a Refuge Manager, the Fellow will gain a comprehensive understanding of how a land acquisition case is initiated and delivered to the Division of Realty for processing. This will provide insight into the biological features of the larger landscape and exemplify how those features further the strategic conservation vision for individual units of the NWRS. The full spectrum of knowledge, skills, and abilities will be experienced by preparing legal documents for the conveyance of real property to the United States. Documentation will include purchase agreements, deeds, easements, donation agreements, and preliminary title opinions. The Fellow will review title commitments and perform title curative work. Exposure to landowner negotiations will be demonstrated by Senior Realty Specialists. The Fellow will gain a basic understanding of land valuation principles and shadow Senior Realty Specialists as offers are presented to landowners.

Education Level: Rising seniors and seniors who have not yet completed their degree requirements or graduate students pursuing a degree in biological sciences including natural resource management; education/outreach including communications; social sciences/humanities including law and policy; or other closely related field.

Working Conditions/Key Requirements: Daily office work, with periodic opportunities to travel to units of the National Wildlife Refuges System and work outdoors.

Desired Qualifications: proven experience conducting policy analysis, and/or research intended for publication or for formal government communication; strong verbal and written communication skills; proven ability to evaluate a work project and apply federal law, agency processes, procedures, rules and regulations to successfully complete assignments; attention to detail and ability to evaluate work assignment to ensure correct legal instruments (e.g. purchase agreements, conservation easements) are properly executed and acquisitions are aligned with the U.S. Fish and Wildlife Service's mission and goals.

The development of a comprehensive geographic information system (GIS) to archive the restoration and management history of Glacial Ridge and Rydell NWRs, Erskine, MN*

(DFP18R3NWR03)

Location: Region 3, Rydell and Glacial Ridge National Wildlife Refuges, Erskine, Minnesota

Housing: Provided, onsite (rent-free, at Rydell NWR)

Project Description: Project work will focus on Glacial Ridge NWR, which is located in northwestern Minnesota on the eastern edge of the prairie pothole region and within the footprint of historic Glacial Lake Agassiz. The 22,900 acre Refuge, established in 2004, is the largest contiguous prairie-wetland restoration project in the entire U.S. The incumbent will work with the Glacial Ridge NWR biologist and manager to create a comprehensive geographic information system to summarize all past restoration and management efforts. A comprehensive restoration and management history is of the utmost importance to guide future restoration efforts; however a standardized template to track these actions was never created. This work will involve extensive data management and will give the Fellow exposure to the challenges of managing two National Wildlife Refuges. The critical components of this project will be the creation of automated processes and digital tools to aid in the complex process of digital file management at a national wildlife refuge. Other Fellow duties may include assisting with other biological monitoring or research on the Refuge, assisting with various habitat management activities – including prescribed fire – and assisting with public use and environmental education events. Housing will be provided in the Refuge bunkhouse located on Rydell NWR.

Education Level: Rising seniors and seniors who have not yet completed their degree requirements or graduate students pursuing a degree

in biological sciences including conservation biology, wildlife biology, ecology, or natural resource management; geographic and information sciences including GIS; or other closely related field.

Working Conditions/Key Requirements: Mainly office work on the computer with some field work, in potentially inclement weather.

Desired Qualifications: The incumbent should be able to work both independently (with little supervision), as well as part of a team. They should be able to provide basic leadership to seasonal interns that they will provide in-field supervision to. Previous college coursework should have provided them with at least some background in GIS and familiar with generally used office programs (e.g., Microsoft Office).

Improving the Visitor Experience at Tamarac National Wildlife Refuge, Rochert, MN

(DFP18R3NWR02)

Location: Region 3, Tamarac National Wildlife Refuge, Rochert, Minnesota

Housing: Provided, onsite (rent-free)

Project Description: Tamarac National Wildlife Refuge (NWR) was established as a refuge and breeding ground for migratory birds and other wildlife by an Executive Order in May 1938.

Tamarac NWR has an active and vibrant visitor services program that hosts more than 70,000 visitors each year. Visitors include hunters, anglers, birders, hikers, and paddlers. They come as school groups, families, and community organizations. The refuge has a very active volunteer program and Friends group. Visitors rely on well-operated visitor facilities, clear and concise interpretation, and ways to extend their visit via social media. We are seeking a Directorate Fellow to use their interpretation and communication talents to streamline operations, interpret important information, and advance the refuge's social media operations. Duties will include: operating the Visitor Center and Discovery Center to develop Standard Operating Procedure manuals for each; developing interpretive media for specific topics, and developing a social media plan using the hashtag, #tamaractoday. The Fellow will identify audiences, research appropriate media, learn about FWS policies while you develop the project. The Fellow will work with all Refuge programs (visitor services, biology, maintenance, management), volunteers, Friends group members, community members, Regional Office staff, and other field stations.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences, including conservation biology, wildlife biology, ecology, botany, or natural resource management; education/outreach including visitor services/interpretation, environmental education, community outreach, or communications; social sciences/humanities including human dimensions; or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; work is conducted primarily in an office setting.

Desired Qualifications: Knowledge of interpretation principles and methods, familiarity with social media platforms, and familiarity with successful social media practices.

Region 4 (Southeast Region)

(5 projects)

Evaluation of mussel diversity in the French Broad River Basin, Asheville, NC

(DFP18R4ECO05)

Location: Region 4, Asheville Field Office, Asheville, North Carolina

Housing: Not supported

Project Description: The French Broad River in Western North Carolina is a river in recovery. Degradation of habitat and water quality early in its history reduced the biodiversity of the river, but in recent decades, improvements in land management and implementation of water quality regulations have resulted in a rebound of an endangered mussel, the Appalachian elktoe. Recovery for Appalachian elktoe will require that this improving trend in the French Broad River continue and we believe that public outreach concerning the restoration of species diversity in the river is a necessary component. The cultural environment surrounding Asheville,

NC is ripe for the development of strategic partnerships and public outreach necessary to maintain the momentum of improving conditions. As such, the U.S. Fish and Wildlife Service would like to use the emerging story of improving species diversity to engage local entities in a strategy to continue improving the natural resources of the river. To accomplish this goal, we are seeking a Fellow to develop and implement a protocol that evaluates the recovery extent of the Appalachian elktoe and a public outreach strategy to disseminate this information. The Fellow will be trained to carry out snorkel surveys in the river and will be expected to coordinate a field crew to evaluate the extent of this species' range expansion. The public outreach strategy and a presentation will be given to local organizations as deemed necessary. The final products will be a contacts list and outreach materials necessary for the public outreach strategy to be continued by existing staff after the Fellow has completed the internship.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, or natural resource management; education/outreach including environmental education, community outreach, or communications; or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; swimming proficiency; ability to use a mask and snorkel; strength necessary to lift and drag a paddle craft over uneven ground. Field activities require exposure to natural elements such as cold water, heat, rain, wind, sun, biting insects and other potential hazards.

Desired Qualifications: Experience with field based data collection; experience with paddle crafts.

Conserving our rarest snail, the Magnificent Ramshorn, Raleigh, NC

(DFP18R4ECO03)

Location: Region 4, Raleigh Field Office, Raleigh, North Carolina

Housing: Not supported

Project Description: The DFP Fellow will provide a significant contribution to conserving North Carolina's biodiversity by assisting with the first reintroduction of the Magnificent Ramshorn, a rare snail now known only from two captive populations. The Raleigh Field office has a 62-year history of partnerships in conservation and environmental problem-solving. We have an office team focused on the steps needed for the Magnificent Ramshorn's recovery which includes moving snails from the captive populations to carefully selected sites in the wild. A combination of field and office work, the Fellow will help with the whole process — joining the office team and getting briefed on their role in the snail's recovery, coordination of release plans with our biologists and others, developing and implementing the snail transport and introduction plans, early monitoring of efficacy, and weekly briefings of the office team on project status. The project contributes to a field office and regional goal to enhance the pace of rare species conservation.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, natural resource management, or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; written and oral proficiency in English. Project requires working in and around water; field activities require exposure to natural elements that include water, heat, rain, wind, sun, biting insects and other potential hazards.

Desired Qualifications: Highly skilled in verbal and written communication; capable of accomplishing tasks with minimal supervision; efficiently lead a team and be a supportive team member; experience in scientific and technical writing.

Status Report for At-Risk Florida Plants, Jacksonville, FL

(DFP18R4ECO04)

Location: Region 4, North Florida Ecological Services Office, Jacksonville, Florida

Housing: Provided, \$665/week allowance (fully furnished 1 bed/1 bath condo)

Project Description: The Fellow will provide a significant contribution to the U.S. Fish and Wildlife Service (FWS) by drafting species status reports for two Florida plants: the Ocala vetch and yellow anise tree species. The status reports will form the basis of Species Status Assessment reports, which the FWS will finalize and use to develop future 12-month findings on whether these species warrant protection under the Endangered Species Act (ESA). Nationwide, the FWS will be producing more Species Status Assessment reports on many other species in the coming years; therefore, this project will provide the Fellow with skills and experience that will be highly desired by FWS now and into the future. The Species Status Assessment (SSA) framework is a part of FWS's ongoing effort to improve implementation of the ESA and enhance conservation success. An SSA is a focused, repeatable, and rigorous assessment of a species' ability to maintain self-sustaining populations over time. This assessment is based on the best available scientific and commercial information regarding life history, biology, and consideration of current and future vulnerabilities. The result is a single document that delivers foundational science for informing all ESA decisions, including listing determinations, consultations, grant allocations, permitting, and recovery planning. The Fellow will be producing a key component of the ESA decision making process.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, ecology, botany, or natural resource management; geographic and information sciences including GIS, or modeling/statistics; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English; valid driver's license.

Desired Qualifications: Highly skilled in verbal and written communication; capable of accomplishing tasks with minimal supervision; efficiently lead a team, be a supportive team member; experience in scientific and technical writing; prior authorship of peer-reviewed publications.

Status Report for the Endangered Florida Salt Marsh Vole, Jacksonville, FL

(DFP18R4ECO02)

Location: Region 4, North Florida Ecological Services Office, Jacksonville, Florida

Housing: Provided, \$665/week allowance (fully furnished 1 bed/1 bath condo)

Project Description: The U.S. Fish and Wildlife Service (FWS) has determined that a Species Status Assessment Report should be developed to either form the basis of a recovery plan or a reclassification decision for the endangered Florida salt marsh vole. The Fellow will provide a significant contribution to the FWS by completing a draft status report, which is necessary to finalize a Species Status Assessment (SSA) report and either a future recovery plan or a decision document and associated rule for changing this species status under the Endangered Species Act. In the future, the FWS will be developing SSA reports for many other species; therefore, this project will allow the Fellow to develop skills and experience that will be highly desired by the FWS now and well into the future. The SSA framework is a part of the FWS's ongoing effort to improve implementation of the Endangered Species Act and enhance conservation success. An SSA is a focused, repeatable, and rigorous assessment of a species' ability to maintain self-sustaining populations over time. This assessment is based on the best available scientific and commercial information regarding life history, biology, and consideration of current and future vulnerabilities. The result is a single document that delivers foundational science for informing all ESA decisions, including listing determinations, consultations, grant allocations, permitting, and recovery planning. The Fellow will be working on a key component of the ESA decision making process.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, ecology, botany, or natural resource management; geographic and information sciences including GIS or modeling/statistics; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English; valid driver's license.

Desired Qualifications: Highly skilled in verbal and written communication; capable of accomplishing tasks with minimal supervision; efficiently lead a team, be a supportive team member; experience in scientific and technical writing; prior authorship of peer-reviewed publications.

Coastal Impoundment Mapping in the Southeast, Panama City, FL

(DFP18R4ECO01)

Location: Region 4, Panama City Field Office, Panama City, Florida

Housing: Supported, \$100/week allowance

Project Description: The Fellow will be responsible for developing a GIS spatial layer of all coastal impoundments in Southeast. This map layer will be used to identify opportunities to improve management or create new habitat for declining bird species, with particular emphasis

on the critically imperiled Black Rail, a candidate for Federal listing. Black Rails have declined by more than 90% in just the past 30 years with breeding population estimate of less than 1300 breeding pairs range wide. Impoundment management represents one of the most promising ways to provide new suitable breeding habitat for this species. To date, there is no comprehensive data layer of impoundments in the Southeast. Filling this data gap in the Southeast will allow partners and land managers to identify promising locations for new Black Rail conservation efforts and quickly act to create new habitat. The Fellow will work to identify impoundments by reaching out to a variety of Federal, State, NGO and Local partners who manage coastal impoundments. The Fellow will conduct interviews with these partners to gather information on these impoundments such as use, management and ecological value, and then compile this information into a database. The Fellow will conduct extensive GIS spatial work using orthoimagery and National Wetlands Inventory data to delineate boundaries of any unmapped impoundments and combine these spatial locations with attribute data collected during the interview process. Finally, the Fellow will present the results of this research to land managers and stakeholders with recommendations for Black Rail management using current and historical Black Rail breeding occurrence data.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, or natural resource management; geographic and information sciences including GIS; or other closely related field.

Working Conditions/Key Requirements: Fluency in GIS; knowledge of GIS software (ESRI's ArcGIS 10.x) and ability to conduct spatial data work (with access to technical assistance from staff).

Desired Qualifications: Good communication skills and able to talk and work with a variety of different people; self-driven and able to independently assess opportunities and work load and bring and concerns or ideas for efficiencies to supervisor.

Region 5 (Northeast Region)

(9 projects)

Anacostia River In Situ Freshwater Mussel Study, Annapolis, MD (DFP18R5ECO04)

Location: Region 5, Chesapeake Bay Field Office, Annapolis, Maryland

Housing: Not supported

Project Description: The Chesapeake Bay Field Office (CBFO) in Annapolis, MD is seeking a Fellow to serve as the team leader for a freshwater mussel study. Mussel restoration is a U.S. Fish and Wildlife Service and Chesapeake Bay watershed priority. Mussels provide ecosystem services including stabilizing sediments, increasing the diversity of bottom-dwelling communities, filtering sediments and nutrients, from the water column, and serving as food for

fish, birds, and mammals. This project, In situ survival and growth of juvenile Eastern lampmussel (*Lampsilis radiata*) in mussel silos placed in the Anacostia River watershed, is a critical step for determining suitability of this native species for mussel restoration. The Fellow will work with the CBFO Principal Investigator and partners from the Anacostia Watershed Society, Maryland Fish and Wildlife Conservation Office, and University of Maryland College Park and coordinate all field activities. Standard Operating Procedures will be followed and attention to detail is critical. In early June, batches of silos containing 20 hatchery-bred juvenile mussels will be installed at 6 locations in the watershed in Maryland and Washington, DC, and at a reference location in the Potomac River. The status of the silos and water quality parameters will be monitored and documented weekly by a crew led by the Fellow. At the end of 7 weeks, mussels will be harvested to determine survival and growth. Products will be a report in manuscript format, a fact sheet that explains the study to the public, and an oral presentation to partners.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, fisheries, ecology, environmental science, zoology, public health, or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; able to work safely outdoors in summer heat conditions; able to collect water samples and monitor mussel silos, which may involve lifting as much as 30 pounds; willingness to adhere to safety requirements including wearing a portable flotation device when waders are worn.

Desired Qualifications: Experience in the conduct of freshwater mussel research studies as an employee, student, or volunteer; skilled in the calibration and use of a multimeter instrument for measuring basic water quality parameters; coursework in environmental science and biology related to the study of fish and aquatic invertebrates, ecology, and/or contaminant issues.

Migratory Bird and Pollinator Habitat Analysis and Plan for Communities, Annapolis, MD

(DFP18R5ECO01)

Location: Region 5, Chesapeake Bay Field Office, Annapolis, Maryland

Housing: Not supported

Project Description: The Chesapeake Bay Field Office (CBFO) located in Annapolis, Maryland is looking for a Fellow to provide essential analysis and prioritization for developing migratory bird and pollinator habitat in Baltimore's Rivers to Harbor Urban Partnership. The Fellow will work with the CBFO fish and wildlife biologists, GIS specialists, and partners including the Greater Baltimore Wilderness Coalition as well as other non-profit and agency partners, to complete GIS spatial analysis and field site assessments in order to identify and prioritize at least three ideal community wildlife habitat projects sites. The work is focused on significantly improving migratory bird and pollinator habitat within the Baltimore region. The Fellow will work with others developing tools for wildlife habitat development and maintenance. The Fellow will prepare a technical report summarizing the findings of the analysis and

prioritization. Finally, an oral presentation of the survey results with management recommendations will be given to CBFO staff and other interested partners.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, natural resource management; geographic and information sciences including GIS; or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; able to withstand working in hot urban environments when needed.

Desired Qualifications: Experience with GIS spatial analysis, Excel pivot tables, graphing and analysis; strong oral and written communication skills; strong interest in working to increase community wildlife habitat quality; strong interest in migratory songbirds, lepidopterans (moth and butterflies) and bees; previous experience working independently; previous experience working in professional settings.

Developing Community Connections with Forsythe Refuge, Oceanville, NJ

(DFP18R5NWR01)

Location: Region 5, Edwin B. Forsythe National Wildlife Refuge, Oceanville, New Jersey

Housing: Provided, on-site (rent-free)

Project Description: The Fellow will be the lead on development of multiple, unique, quality community partnerships at Edwin B. Forsythe National Wildlife Refuge in southern New Jersey. Forsythe Refuge is administered by the U.S. Fish and Wildlife Service and is a 47,000-acre refuge comprised primarily of saltmarsh. The refuge is a key to the success of nesting piping plovers in New Jersey. The refuge is visited by over 250,000 people each year, many of whom travel the 8-mile-long Wildlife Drive which provides scenic vistas of saltmarsh, sightings of thousands of birds, and views of nearby Atlantic City. The Fellow will canvas the local community for new partnership opportunities to develop the refuge's Community Connections program. This will include working with staff to develop program objectives, learning about the local area, and independently contacting and cold-calling community organizations to engage them and pique their interest in the refuge and opportunities to work together. They will then, with staff, lead development of relationships to result in formal agreements with partners. One of the refuge's primary objectives is to have a thriving visitor services program -- the Fellow will allow us to branch out to an area that has largely been un-tapped. Refuge staff will support the Fellow every step of the way, but the Fellow is expected to be confident enough to work independently, have strong oral and written skills, and actively engage with staff in a positive manner. Spanish-literate individuals are strongly encouraged to apply.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in education/outreach including visitor services, environmental education, community outreach, or communications; social sciences/humanities including human dimensions, community development, or social/environmental justice; or other closely related field.

Working Conditions/Key Requirements: Ability to occasionally work in hot, buggy environments (periodically throughout the summer); written and oral proficiency in English and preferably in Spanish.

Desired Qualifications: Spanish-literate; basic understanding of community development and/or stakeholder engagement; basic understanding of wildlife conservation, environmental biology, and policies; understanding of Atlantic County, NJ culture; good oral and written communication skills.

Restoring Aquatic Connectivity in Maine Rivers, Falmouth, ME

(DFP18R5FAC01)

Location: Region 5, Gulf of Maine Coastal Program, Falmouth, Maine

Housing: Not supported

Description of Work: The Maine Coastal Program is one of the U.S. Fish and Wildlife Service's (FWS) premier conservation delivery tools for voluntary, citizen, and community-based fish and wildlife habitat restoration activities across the matrix of public and privately-owned land. The program is known for creative and cutting-edge approaches to getting meaningful conservation and recovery actions on the ground, using a full suite of technical and partnership skills. Our office is located just outside of Maine's largest city, Portland, with easy access to mountains, rivers and beaches. Improperly sized and placed culverts in Maine streams block the movement of native and diadromous fish, other aquatic and terrestrial species, sediment, nutrients and wood. The FWS recognizes the importance of restoring aquatic connectivity and educating the public about this important issue to help species and ecosystems adapt to changing habitat and protect community infrastructure. The Fellow will be responsible for: 1) conducting Stream Simulation surveys and assist with the analysis of collected data at 8 high-priority aquatic connectivity projects that will open 20 miles of high quality brook trout and Atlantic salmon habitat and 200 acres of river herring habitat, 2) development of a conceptual restoration design at one stream barrier, 3) assisting in the development and implementation of a workshop to train municipalities and private industry specializing in infrastructure on the design and construction of stream simulation structures, 4) assisting in the development of environmental education curriculum in compliance with Maine STEM standards, and 5) assisting with providing nature-based experiential learning opportunities to youth in under-served communities.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including wildlife biology, fisheries, or conservation biology; education/outreach including environmental education; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English; proficient computer skills.

Desired Qualifications: Knowledge and skills in conducting field surveys; strong interest in conservation, riverine ecology, and habitat restoration; experience with GPS equipment, GIS software and survey equipment (e.g. total stations); proven ability to work cooperatively with a

diversity of people; interest in environmental education and educating the public about river ecology and stream simulation principles.

Information, Planning, and Conservation System (IPaC) Improvements and Field Survey for the Rusty Patched Bumble Bee, East Orland, ME

(DFP18R5ECO05)

Location: Region 5, Maine Field Office, East Orland, Maine

Housing: Provided, onsite (rent-free)

Description of Work: Spend a summer using science and technology at the Maine Field Office. The U.S. Fish and Wildlife Service Maine Field Office works on Endangered Species and is seeking a Fellow to help with a conservation decision support system. The project will help to provide design recommendations, collect environmental baseline information, and provide for the completion of much of the information on the Endangered Rusty Patched Bumble Bee. To support this effort, the Fellow will conduct literature reviews, compile conservation measures (actions that benefit or promote the recovery of listed species), conduct an organizational review of the information, enter the conservation measures into the Effects Pathway Manager, and modify/update a manual for future use by other U.S. Fish and Wildlife Service staff. The Fellow will also spend time surveying for the endangered Rusty Patched Bumble Bee. This bee was last seen in Maine in 2009 and the Fellow will help with presence/absence surveys. As part of the final presentation, the Fellow will recommend improvements to the IPaC decision support system.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, natural resource management, or environmental science; education/outreach including communications; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English; valid driver's license; ability to work in field conditions; familiarity with computers.

Desired Qualifications: Experience with the development/use of spreadsheets; skill in communicating effectively both orally and in writing; basic understanding of wildlife conservation, environmental biology, and policies.

Exploring Avian and Bat Mortality at Wind Projects, Hadley, MA

(DFP18R5MIG01)

Location: Region 5, Northeast Regional Office, Hadley, Massachusetts

Housing: Supported, \$500/month allowance

Project Description: While wind energy development continues to grow and expand, there are many outstanding questions about how this industry may affect wildlife. This project offers an opportunity to answer significant questions about the potential impacts of wind development on bats and birds in the Northeastern U.S. Current records indicate a wide range of birds may

be affected to varying degree, including raptors, passerines, and even gamebirds. The Fellow will help develop a valuable picture of avian and bat mortality, highlighting major patterns and trends. This information may inform Regional recommendations on wind project siting and guidance. The work will also help the U.S. Fish and Wildlife Service identify and prioritize future research needs. Potential products for this project include maps and other visual media to depict where reports are coming from, technical reports summarizing major findings on this issue, and presentations for partner offices and regional leadership. Working in the Northeast Regional Office, the Fellow will have a unique opportunity to collaborate across U.S. Fish and Wildlife Service programs and connect with professionals and experts from several different disciplines. Additionally, there may be an opportunity to visit a wind facility to observe their operations and avian and bat mortality survey efforts. This trip would also likely include the chance to meet and connect with the staff of one of our Ecological Services Field Offices.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, natural resource management, ornithology, or environmental science; social sciences/humanities including law and policy; geographic and information sciences including GIS or modeling/statistics; or other closely related field.

Working Conditions/Key Requirements: Proficiency in Microsoft Excel and GIS; willingness to work in an office setting.

Desired Qualifications: Experience with spatial and statistical modeling, relational databases (e.g., Microsoft Access), ornithology, and R.

Bog Turtle Conservation and Project Review Improvements, Cortland, NY

(DFP18R5ECO02)

Location: Region 5, New York Field Office, Cortland, New York

Housing: Not supported

Project Description: The U.S. Fish and Wildlife Service (FWS) is seeking a Fellow to assist with implementation of the Endangered Species Act (ESA) for the conservation of the federally threatened bog turtle. The FWS's Information Planning and Consultation decision support system can currently deliver ESA species lists and detailed resource information, and soon will be able to provide project design recommendations, collect environmental baseline information, and complete much of the ESA Section 7 consultation process via the internet. To support this effort, the Fellow will help design a new website for the bog turtle and associated materials. This will provide one easy location for surveyors, project sponsors, and agency staff to find the most up-to-date information on the species. The Fellow will also conduct literature reviews, develop or refine conservation measures, and help design an online assisted consultation tool to help project sponsors better comply with the ESA. This process is used routinely in NY for transportation projects and other species and provides a great streamlining tool for FWS staff and the regulated public. Creating one key for the bog turtle will be a pilot for this species. The Fellow will also visit bog turtle habitat and meet with other experts and partners for bog turtle conservation.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, natural resource management, or other closely related field.

Working Conditions/Key Requirements: Valid driver's license.

Desired Qualifications: General knowledge of wildlife ecology; experience conducting a literature search; familiarity with the development/use of spreadsheets; strong oral and written communication skills; experience with website software tools such as Dreamweaver and Contribute.

Information, Planning and Conservation System (IPaC) Improvements, State College, PA

(DFP18R5ECO06)

Location: Region 5, Pennsylvania Field Office, State College, Pennsylvania

Housing: Not supported

Description of Work: The U.S. Fish and Wildlife Service's IPaC decision support system can currently deliver Endangered Species Act (ESA) species lists and detailed resource information, and soon will be able to provide project design recommendations, collect environmental baseline information, and complete much of the ESA section 7 consultation process via the internet. Development and utilization of the IPaC system is a top priority for the Region 5 Endangered Species Program. For Region 5 to advance use of IPaC, dedicated personnel are required to develop conservation measures and input the information into the Effects Pathway Manager as part of the next phase of implementation. Over the past decade, the Pennsylvania Field Office has utilized an online project screening tool referred to as the Pennsylvania Natural Diversity Inventory (PNDI) to assist project applicants with making Endangered Species Act effect determinations. The IPaC has the ability to build on that decision matrix for thirteen ESA listed species and create effect pathways for several project types to expand the process in Pennsylvania to Ohio and West Virginia. This will support individual and programmatic use of this tool to streamline consultations in an area of large scale energy development and a multi-state oil and gas habitat conservation plan. The Fellow will develop general conservation measures applicable to up to thirteen ESA listed species, develop species-specific conservation measures for each, input them into the IPaC system, and update the user's manual for future use.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, natural resource management, or other closely related field.

Working Conditions/Key Requirements: N/A.

Desired Qualifications: General knowledge of fish and wildlife ecology; experience conducting a literature search; familiarity with the development/use of spreadsheets; strong oral and written communication skills; knowledge of the Endangered Species Act and the regulations and policies relating to its administration.

Information, Planning and Conservation System (IPaC) Improvements, Gloucester, VA
(DFP18R5ECO07)

Location: Region 5, Virginia Field Office, Gloucester, Virginia

Housing: Not supported

Project Description: The US Fish and Wildlife Service (FWS) Information, Planning, and Conservation decision support system (IPaC) can currently deliver Endangered Species Act species lists and detailed resource information. It will soon be able to provide project design recommendations, collect environmental baseline information, and provide for the completion of much of the Threatened and Endangered species Section 7 consultation process via the Internet. Development and utilization of the IPaC system is a top priority for the FWS Region 5 Endangered Species Program. To support this effort, the Fellow will conduct literature reviews, analyze effects of activities of several project types on three Endangered Species Act listed species, compile conservation measures (actions that benefit or promote the recovery of listed species) for each of the three species, conduct an organizational review of the information, enter the effects and conservation measures into the Effects Pathway Manager, and modify/update a manual for future use by other FWS staff. As part of the final presentation, the Fellow will recommend improvements to the IPaC system. The Fellow will also deconstruct two types of coastal shoreline protection and stabilization projects into individual smaller activities on the landscape (i.e., the actions a person might take on the ground) to support efforts to develop effect pathways and their associated conservation measures for coastal species in IPaC.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, natural resources management, environmental studies, or other closely related field.

Working Conditions/Key Requirements: N/A.

Desired Qualifications: General knowledge of wildlife ecology; experience conducting a literature search; familiarity with the development/use of spreadsheets; strong written and oral communication skills; knowledge of the Endangered Species Act and the regulations and policies relating to its administration.

Region 6 (Mountain Prairie Region)

(9 projects)

Broadening and Deepening Community Connections with Nature, Brigham City, UT
(DFP18R6NWR04)

Location: Region 6, Bear River Migratory Bird Refuge, Brigham City, Utah

Housing: Provided, onsite (rent-free)

Description of Work: This project will take place at three refuges (Rocky Mountain Arsenal National Wildlife Refuge, Bear River Migratory Bird Refuge, and Marais des Cygnes National Wildlife Refuge) in Region 6, creating a cohort of three Directorate Fellows who will advance Region 6 National Wildlife Refuge System workforce realignment efforts with the goal of developing a more connected conservation community. The DFP Fellow cohort will also help foster increased cross-station collaboration in the Region. The overall project will provide vital information and help establish community connections to increase outdoor recreation opportunities and provide communities with culturally relevant programs. The DFP cohort will work on similar projects at each field station, but each Fellow will deliver products that are specific to their field station. The Urban Wildlife Conservation Program (Urban Program) was created to focus on engaging diverse communities in nature-based experiences in cities across the country. The Urban Program approach is to empower local organizations, cities, and towns across the country to seek innovative community-based solutions for wildlife conservation. Using the Urban Evaluation tool, each Fellow will develop a plan to address one of the sections in the evaluation tool. The plan will include goals, objectives, action items, and evaluation methods for meeting the defined Standards of Excellence. The plan should be able to be implemented in a 1-3 year time period. The three Fellows will also visit, individually and as a team, at least two rural/remote stations in the Region to develop ideas for how Region 6 urban refuges can serve as “ambassadors” for more rural/remote refuges. Additional deliverables include implementing one action item from the proposed plan and a final report and presentation to FWS staff at both the field station and in the Regional Office in Denver, CO. The DFP cohort will work with the regional Urban Coordinator to ensure all the projects mesh well with the Regional priorities. This project will allow each Fellow to develop awareness and knowledge of the local culture and community, help broaden and deepen the connections with nature of the Refuge target audiences, and increase knowledge of engagement opportunities that are culturally relevant to the target audiences.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in education/outreach including visitor services/interpretation, environmental education, community outreach, or communications; social sciences/humanities including human dimensions, community development, geography, environmental philosophy, or ecology and society; biological sciences including conservation biology or natural resource management; or other closely related field.

Working Conditions/Key Requirements: Valid driver’s license.

Desired Qualifications: Ability to work independently and as part of a team; computer skills; some understanding of quantitative and qualitative evaluation.

Broadening and Deepening Community Connections with Nature, Pleasanton, KS (DFP18R6NWR03)

Location: Region 6, Marais des Cygnes National Wildlife Refuge, Pleasanton, Kansas

Housing: Provided, onsite (rent-free)

Description of Work: This project will take place at three refuges (Rocky Mountain Arsenal National Wildlife Refuge, Bear River Migratory Bird Refuge, and Marais des Cygnes National

Wildlife Refuge) in Region 6, creating a cohort of three Directorate Fellows who will advance Region 6 National Wildlife Refuge System workforce realignment efforts with the goal of developing a more connected conservation community. The DFP Fellow cohort will also help foster increased cross-station collaboration in the Region. The overall project will provide vital information and help establish community connections to increase outdoor recreation opportunities and provide communities with culturally relevant programs. The DFP cohort will work on similar projects at each field station, but each Fellow will deliver products that are specific to their field station. The Urban Wildlife Conservation Program (Urban Program) was created to focus on engaging diverse communities in nature-based experiences in cities across the country. The Urban Program approach is to empower local organizations, cities, and towns across the country to seek innovative community-based solutions for wildlife conservation. Using the Urban Evaluation tool, each Fellow will develop a plan to address one of the sections in the evaluation tool. The plan will include goals, objectives, action items, and evaluation methods for meeting the defined Standards of Excellence. The plan should be able to be implemented in a 1-3 year time period. The three Fellows will also visit, individually and as a team, at least two rural/remote stations in the Region to develop ideas for how Region 6 urban refuges can serve as “ambassadors” for more rural/remote refuges. Additional deliverables include implementing one action item from the proposed plan and a final report and presentation to FWS staff at both the field station and in the Regional Office in Denver, CO. The DFP cohort will work with the regional Urban Coordinator to ensure all the projects mesh well with the Regional priorities. This project will allow each Fellow to develop awareness and knowledge of the local culture and community, help broaden and deepen the connections with nature of the Refuge target audiences, and increase knowledge of engagement opportunities that are culturally relevant to the target audiences.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in education/outreach including visitor services/interpretation, environmental education, community outreach, or communications; social sciences/humanities including human dimensions, community development, geography, environmental philosophy, or ecology and society; biological sciences including conservation biology or natural resource management; or other closely related field.

Working Conditions/Key Requirements: Valid driver’s license.

Desired Qualifications: Ability to work independently and as part of a team; computer skills; some understanding of quantitative and qualitative evaluation.

Broadening and Deepening Community Connections with Nature, Denver, CO

(DFP18R6NWR02)

Location: Region 6, Rocky Mountain Arsenal National Wildlife Refuge Complex, Denver, Colorado

Housing: \$500 housing allowance.

Description of Work: This project will take place at three refuges (Rocky Mountain Arsenal National Wildlife Refuge, Bear River Migratory Bird Refuge, and Marais des Cygnes National Wildlife Refuge) in Region 6, creating a cohort of three Directorate Fellows who will advance

Region 6 National Wildlife Refuge System workforce realignment efforts with the goal of developing a more connected conservation community. The DFP Fellow cohort will also help foster increased cross-station collaboration in the Region. The overall project will provide vital information and help establish community connections to increase outdoor recreation opportunities and provide communities with culturally relevant programs. The DFP cohort will work on similar projects at each field station, but each Fellow will deliver products that are specific to their field station. The Urban Wildlife Conservation Program (Urban Program) was created to focus on engaging diverse communities in nature-based experiences in cities across the country. The Urban Program approach is to empower local organizations, cities, and towns across the country to seek innovative community-based solutions for wildlife conservation. Using the Urban Evaluation tool, each Fellow will develop a plan to address one of the sections in the evaluation tool. The plan will include goals, objectives, action items, and evaluation methods for meeting the defined Standards of Excellence. The plan should be able to be implemented in a 1-3 year time period. The three Fellows will also visit, individually and as a team, at least two rural/remote stations in the Region to develop ideas for how Region 6 urban refuges can serve as “ambassadors” for more rural/remote refuges. Additional deliverables include implementing one action item from the proposed plan and a final report and presentation to FWS staff at both the field station and in the Regional Office in Denver, CO. The DFP cohort will work with the regional Urban Coordinator to ensure all the projects mesh well with the Regional priorities. This project will allow each Fellow to develop awareness and knowledge of the local culture and community, help broaden and deepen the connections with nature of the Refuge target audiences, and increase knowledge of engagement opportunities that are culturally relevant to the target audiences.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in education/outreach including visitor services/interpretation, environmental education, community outreach, or communications; social sciences/humanities including human dimensions, community development, geography, environmental philosophy, or ecology and society; biological sciences including conservation biology or natural resource management; or other closely related field.

Working Conditions/Key Requirements: Valid driver’s license.

Desired Qualifications: Ability to work independently and as part of a team; computer skills; some understanding of quantitative and qualitative evaluation.

Remote sensing, Habitat Assessment for Bull Trout biology, Helena, MT*

(DFP18R6ECO02)

Location: Region 6, Montana Ecological Services Field Office, Helena, Montana

Housing: Not supported

Project Description: The U.S. Fish and Wildlife Service (FWS) is the premier fish and wildlife agency with a mission of working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. This position is located within the Ecological Services program in Region 6. Region 6 is defined geographically by the Rocky Mountains and part of the Great Plains and includes: North and South Dakota,

Montana, Wyoming, Nebraska, Kansas, Colorado, and Utah. This position would be stationed in our Montana Field Office. Spatial information helps biologists evaluate species in the context of their ranges. By creating a tool to evaluate the likelihood of bull trout presence in a given area using spatial information, biologists will be better able to depict how different populations or areas of the species relate to one another. The Fellow will work with field office and Decision Support staff to craft a tool to identify potential habitat for bull trout using available spatial data and information digitized from hardcopy files. The Fellow will: 1) coordinate with federal and state agencies to compile the most current spatial data for bull trout within Region 6, 2) identify currently available spatial tools appropriate for remote sensing or modeling work for bull trout and other aquatic species, 3) develop new tools or refine existing tools using available spatial data to evaluate the impacts of various habitat parameters for bull trout and other aquatic species, 4) develop innovative methods in conjunction with FWS Decision Support, for determining critical habitat and long-term habitat monitoring site conditions that are used to evaluate species status across bull trout range, 5) write a report of the findings and present those results to FWS staff at the end of the Fellowship. Data and tools generated by the Fellow will help field offices better evaluate proposed project impacts and allow FWS staff to focus on project elements with the largest potential conservation impact.

Education Level: Rising seniors and seniors who have not yet completed their degree requirements or graduate students pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, or natural resource management; geographic and information sciences including GIS or modeling/statistics; or other closely related field.

Working Conditions/Key Requirements: Proficiency in ArcGIS software.

Desired Qualifications: General knowledge of wildlife ecology; experience conducting a literature search; skillful with computers and comfortable learning new software.

Geographic Information System (GIS) Technician for Endangered Species conservation, West Valley City, UT*

(DFP18R6ECO01)

Location: Region 6, Utah Ecological Services Field Office, West Valley City, Utah

Housing: Not supported

Project Description: The U.S. Fish and Wildlife Service (FWS) is the premier fish and wildlife agency with a mission of working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. This position is located within the Ecological Services program in the Region 6, Utah field office. Region 6 is defined geographically by the Rocky Mountains and part of the Great Plains and includes North Dakota, South Dakota, Montana, Wyoming, Nebraska, Kansas, Colorado, and Utah. Spatial Information helps biologists evaluate species in the context of their ranges. By having improved spatial data and improved organization of that data for Endangered Species Act listed species, biologists will be better able to depict how different populations or areas of these species relate to one another. The primary purpose of this project is to organize GIS data related to listed

species, create a geodatabase for each species, and work with lead biologists to ensure that the GIS data is correct and representative. The Fellow will create geodatabases for listed species that occur in the Uinta Basin oil and gas development area and southern Utah. Potential species include: Mexican spotted owl, yellow-billed cuckoo, clay reed-mustard, shrubby reed-mustard, Barneby ridge-cress, Uinta Basin hookless cactus, Pariette cactus, black-footed ferret, white-tailed prairie dog, and southwestern willow flycatcher. Specific species will be chosen based on the selected Fellow's individual experience and Utah field office priorities. The number of species addressed will be determined by the quality of information available and the amount of work necessary to address each species. The Fellow will work in conjunction with Utah field office and Decision Support Branch staff using newly produced species geodatabases to help refine the Area of Influence for each species, which informs external project proponents of when they might be close to impacting a listed species. The Fellow will also create a species range for each species, which is used internally by FWS staff. The revised data layers will be published in the FWS data management system known as the Environmental Conservation Online System (ECOS - <http://ecos.fws.gov/ecp/>). Information collected and used to update Species' Areas of Influence will help our field offices better evaluate potential impacts from proposed projects and allow FWS staff to focus on project elements with the largest potential conservation impact.

Education Level: Rising seniors and seniors who have not yet completed their degree requirements or graduate students pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, or natural resource management; geographic and information sciences including GIS or modeling/statistics; or other closely related field.

Working Conditions/Key Requirements: Proficiency in ArcGIS software; knowledge of GIS software and data management standards; willingness to work in an office setting.

Desired Qualifications: General knowledge of wildlife ecology; ability to conduct a literature search; skillful with computers and comfortable learning new software.

Evaluating Reach and Messaging for Aquatic Invasive Species, Lakewood, CO

(DFP18R6FAC01)

Location: Region 6, Regional Office: Fish and Aquatic Conservation, Lakewood, Colorado

Housing: Not supported

Description of Work: This position will be based with the Fisheries and Aquatic Conservation Program in Region 6 Regional Office in Lakewood, Colorado. The U.S. Fish and Wildlife Service (FWS) has been working for a number of years on outreach messaging to address the spread of invasive mussels through the recreational boater pathway. Ensuring that boater outreach campaigns provide consistent information to the public is key to the success of all of these efforts. The duties of the Fellow will be 1) assessing existing outreach campaigns to prevent the spread of invasive mussels in the western U.S., 2) interviewing representatives from multiple state, federal and private organizations that are working to educate the public about invasive mussels, and 3) evaluating the successes, gaps, and challenges of existing programs and developing recommendations for a more unified outreach approach. To accomplish these three

objectives, the Fellow will develop a plan to assess existing online and print campaigns, visit multiple locations in the Lower Colorado River dealing with invasive mussels, and interview staff from multiple agencies throughout the western U.S. The Fellow will develop a list of recommendations for standardizing messaging and tools, so water users are receiving the same basic messages. Finally, the Fellow will present this analysis to U.S. Fish and Wildlife Service and Department of Interior aquatic invasive leads as it meets a goal of the 'Safeguarding the West from Invasive Species: Actions to Strengthen Federal, State, and Tribal Coordination to Address Invasive Mussels' commitment to western states. This project will enable the Department of Interior bureaus and our partners to more effectively get out the 'Clean, Drain, Dry' message to boaters, the public, and employees to prevent the impacts of invasive mussels on aquatic resources and infrastructure.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in education/outreach including environmental education, community outreach, communications, or community development; social sciences/humanities including human dimensions or behavioral science; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English; valid driver's license.

Desired Qualifications: Basic understanding of stakeholder engagement and outreach programs; basic understanding of wildlife conservation, environmental biology, and policies.

Biological Effects Analyst, Develop Conservation Measures for Four Endangered Species, Lakewood, CO

(DFP18R6ECO03)

Location: Region 6, Regional Office, Lakewood, Colorado

Housing: Not supported

Project Description: The U.S. Fish and Wildlife Service (FWS) is the premier fish and wildlife agency with a mission of working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. This position is located in the Branch of Decision Support within the Ecological Services program in the Region 6, Regional Office. Region 6 is defined geographically by the Rocky Mountains and part of the Great Plains and includes: North and South Dakota, Montana, Wyoming, Nebraska, Kansas, Colorado, and Utah. The FWS's Information for Planning and Consultation (IPaC) decision support system can currently deliver Endangered Species Act (ESA) species lists and detailed resource information, and soon will be able to provide project design recommendations, collect environmental baseline information, and complete much of the ESA section 7 consultation process via the internet. Development and utilization of the IPaC system is the top priority for the Region 6 Ecological Services Program. For Region 6 to advance use of IPaC, dedicated personnel are required to develop Endangered Species conservation measures and input these measures into the Effects Pathway Manager (EPM) as part of the next phase of implementation. The EPM is a system designed to show how different stressors impact our ESA listed species by explicitly creating connections from species needs to stressors impacting those

needs and tracking those back to potential project types. The EPM is part of the larger FWS data management system known as the Environmental Conservation Online System (ECOS - <http://ecos.fws.gov/ecp/>). The selected Fellow will be asked to review literature and speak to species experts to complete interconnected pathways that clearly depict the ways in which potential changes to the environment (e.g. through development) may result in impacts to that species. The Fellow will: 1) review existing literature and recovery plans in order to compile conservation measure data for four ESA listed species, 2) summarize potential conservation measures for important effect pathways (as designated by lead biologist) for the four species, 3) lead an organizational review of the summarized information while coordinating with species' lead biologists, 4) enter the conservation measures for four species into EPM, 5) collaborate with lead biologists to review the entered data prior to official publication and ensure publication of conservation measures so they are visible to the public, 6) update the user's manual for future use and provide presentation to Regional/Field Offices. Information collected and entered into the Effects Pathway Manager will help our field offices better evaluate potential impacts from proposed projects and allow FWS staff to focus on project elements that have the largest potential conservation impact.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, natural resource management, or other closely related field.

Working Conditions/Key Requirements: N/A.

Desired Qualifications: General knowledge of wildlife ecology; experience conducting a literature search; familiarity with the development/use of spreadsheets, computer software including Excel, Word, and online software; skillful with computers and comfortable learning new software.

Biological Effects Analyst: Develop Endangered Species Life Stages, Resource Needs, and Effects Pathway Data, Grand Junction, CO

(DFP18R6ECO04)

Location: Region 6; Western Colorado Ecological Services Office; Grand Junction, Colorado

Housing: Not supported

Project Description: The U.S. Fish and Wildlife Service (FWS) is the premier fish and wildlife agency with a mission of working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. This position is located in the Branch of Decision Support within the Ecological Services program in Region 6 at the Western Colorado Ecological Services Office in Grand Junction, CO. Region 6 is defined geographically by the Rocky Mountains and part of the Great Plains and includes: North and South Dakota, Montana, Wyoming, Nebraska, Kansas, Colorado, and Utah. The FWS's Information for Planning and Consultation (IPaC) decision support system can currently deliver Endangered Species Act (ESA) species lists and detailed resource information, and soon will be able to provide project design recommendations, collect environmental baseline information, and complete much of the ESA section 7 consultation process via the internet. Development

and utilization of the IPaC system is the top priority for the Region 6 Ecological Services Program. For Region 6 to advance use of IPaC, dedicated personnel are required to develop Endangered Species conservation measures and input these measures into the Effects Pathway Manager (EPM) as part of the next phase of implementation. The EPM is a system designed to show how different stressors impact our ESA listed species by explicitly creating connections from species needs to stressors impacting those needs and tracking those back to potential project types. The EPM is part of the larger FWS data management system known as the Environmental Conservation Online System (ECOS - <http://ecos.fws.gov/ecp/>). The selected Fellow will be asked to review literature and speak to species experts to complete interconnected pathways that clearly depict the ways in which potential changes to the environment (e.g. through development) may result in impacts to that species. The Fellow will: 1) review existing literature and recovery plans in order to compile conservation measure data for four ESA listed species, 2) summarize potential conservation measures for important effect pathways (as designated by lead biologist) for the four species, 3) lead an organizational review of the summarized information while coordinating with species' lead biologists, 4) enter the conservation measures for four species into EPM, 5) collaborate with lead biologists to review the entered data prior to official publication and ensure publication of conservation measures so they are visible to the public, 6) update the user's manual for future use and provide presentation to Regional/Field Offices. Information collected and entered into the Effects Pathway Manager will help our field offices better evaluate potential impacts from proposed projects and allow FWS staff to focus on project elements that have the largest potential conservation impact.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, natural resource management, or other closely related field.

Working Conditions/Key Requirements: N/A.

Desired Qualifications: General knowledge of wildlife ecology; experience conducting a literature search; familiarity with the development/use of spreadsheets, computer software including Excel, Word, and online software; skillful with computers and comfortable learning new software.

Native Sod Inventory to Facilitate State-based Management, Columbia, SD

(DFP18R6NWR01)

Location: Region 6, Sand Lake National Wildlife Refuge, Columbia, South Dakota

Housing: Provided, onsite (~\$250/month)

Project Description: U.S. Fish and Wildlife Service (FWS)-owned properties in eastern South Dakota, and across the Prairie Pothole Region, are managed to enhance native plant communities. Plant species composition has direct and indirect influence on habitat quality for migratory grassland birds, and management goals are based on desired future conditions of plant communities. However, FWS-owned native prairie is badly deteriorated, mainly through extensive invasion by introduced, cool-season grasses. These grasses have the potential to replace the native plants, limiting restoration potential. It is estimated that restoration may be

possible on tracts where there is at least a 15-20% native plant component. Allowing invasion to increase beyond 80% likely crosses a threshold, where restoration efforts are futile. If refuge lands that are most at risk for crossing this threshold can be identified, they can be prioritized for restoration efforts. In addition to identifying the risks for total invasion, data gathered from this project can be used to conduct state-based analysis using a simplified decision tool. The Fellow will conduct a risk assessment on at least 35 units of priority remnant prairie refuge lands in the Sand Lake and Huron Wetland Management Districts (WMD) utilizing the belt transect method described by Grant et al. (2004). Fellow, and assigned assistant when available, will navigate to each transect using sub-meter accuracy GPS units and classify the dominant plant species group at each of 50 contiguous, 0.5 x 0.1-m belts along each 25-m transect, using a plant species group classification system specific to the region based on that in Grant et al. (2004). The Fellow will work with the Zone Biologist and Inventory & Monitoring Team to compile data that allows refuge staff to prioritize and focus management efforts based on restoration potential (i.e., sites that are at most risk for reaching a threshold of invasion by non-native plants). The Fellow will work closely with Project Leaders from two field stations, the Zone Biologist, Inventory & Monitoring Team, and regional office staff throughout the project and develop a written report and oral presentation of the results.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, or natural resource management; geographic and information sciences including GIS or modeling/statistics; or other closely related field.

Working Conditions/Key Requirements: ATV/ORV certification; valid driver's license; ability to work outdoors in variable conditions including heat, cold, rain, wind, and mosquitos; willingness to learn how to pull and back up a trailer.

Desired Qualifications: GPS knowledge; plant identification knowledge; computer knowledge.

Region 7 (Alaska)

(6 projects)

Fish Assist: A Statewide Fish ID Tool, Anchorage, AK

(DFP18R7FAC01)

Location: Region 7, Anchorage Fish and Wildlife Conservation Office, Anchorage, Alaska

Housing: Provided, offsite (rent-free, at University of Alaska, Anchorage)

Project Description: Alaska's largest city, Anchorage, is surrounded by abundant opportunities to experience world class outdoor recreational opportunities and jump start a conservation career with the U.S. Fish and Wildlife Service (FWS). The "Fish Assist: A Statewide Fish ID Tool" Fellow will be stationed in the Anchorage Fish and Wildlife Conservation Office surrounded by wooded trails and connections to the Chugach National Forest. This is a wonderful opportunity

to help improve fisheries conservation and management in the Last Frontier by creating a tool that will improve the information managers use to make conservation and management decisions. This project seeks to develop a robust statewide procedure for collecting, storing and archiving fish photos and ID information and making that data publicly available via an interactive online tool. By the end of the Fellowship, the Fellow will have finalized a field guide for identifying salmonids, developed a statewide fish ID photo protocol, and recommended a strategy forward for creating an interactive online ID tool to assist federal, state and tribal agencies, industry, universities, and non-profits. The tool we seek to develop has potential to grow exponentially with inputs from other stakeholders and has wide applicability for other regions of the U.S. The Fellow will have ample opportunities for networking both within FWS across a diversity of programs as well as external networking within the broader conservation community and with industry partners. The Fellow will also have an opportunity to market their project to other FWS regions and HQ.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, genetics, morphometrics, or ichthyology; education/outreach; geographic and information sciences including GIS, computer science, information technology, or web design; archives/history/museum; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English.

Desired Qualifications: Familiarity with database platforms and understanding of database creation and management, statistics, and website design; familiarity with Drupal; interest in fisheries conservation/management.

Waterbird Breeding Ecology Study at Arctic NWR, Fairbanks, AK

(DFP18R7NWR01)

Location: Region 7, Arctic National Wildlife Refuge, both at office in Fairbanks, Alaska and at remote tent camp at Canning River Delta on the North Slope of Alaska

Housing: Provided (rent-free, at bunkhouse in Fairbanks; tents in the field)

Description of Work: The U.S. Fish and Wildlife Service (FWS), Arctic National Wildlife Refuge (NWR) is seeking a Fellow to investigate the breeding ecology and limiting factors of tundra nesting birds (including shorebirds, geese, eider, loons, gulls, and passerines) along the Beaufort Sea coast. Work will occur at a remote research camp along the Canning River on Arctic Refuge which offers amazing birding and arctic wildlife viewing opportunities. The research camp is the long-term avian monitoring site for Arctic Refuge with data stretching back to the 1970s. The camp is located along the Canning River Delta which has the highest density of breeding shorebirds and waterfowl within the Refuge. The overall objective for the tundra nesting bird research at the Canning River Delta is to determine population size, demographics, and limiting factors for waterfowl, loons, gulls, and shorebirds breeding at the site. This is a collaborative project, and the crew will include scientists and technicians from Manomet Inc. (<https://www.manomet.org>), Arctic NWR (<https://www.fws.gov/refuge/arctic>), and graduate students from the University of Alaska, Fairbanks. Field work will involve setup and maintenance of the remote camp; nest searching; trapping, measuring, and banding shorebirds

and waterfowl; collecting tissue samples; and monitoring nests with time-lapse cameras. There will also be opportunities to engage with scientists working at the camp on lemmings, Arctic foxes, water quality, and botany projects. Field assistants typically work 7 days/week while in the field. The Fellow will be treated as a member of the broader team and will be involved in all aspects of the project.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, natural resource management, marine biology, or other closely related field.

Working Conditions: The Fellow will be at the remote field camp from early June through mid-July and there will not be opportunities to take leave during that period. Conditions will generally be cold, windy, and buggy. Access to the site is by small single engine aircraft or helicopter. Camp life will be remote and primitive (tents only). During periods of bad weather, staff can be cut-off from any outside help for several days. Assistants will be required to carry firearms in the field for bear protection. Excellent physical condition is necessary to meet the strenuous demands. Crews will be exposed to long days hiking (up to 15+ miles per day) in waders over very uneven tundra and wetlands carrying a heavy backpack; wading through icy ponds to access nests; cold, wet, windy weather (daytime highs in early June are generally around freezing and winds usually a constant 15-25 mph); and lots of mosquitoes.

Key Requirements: Ability (physically, mentally, and legally) to carry and use a firearm for bear protection; willingness and desire to spend 6 weeks at a remote field camp with no contact to the outside besides occasional use of a satellite phone; willingness, physical ability, and desire to hike over uneven terrain carrying a 30 lb pack for 15 miles+ per day, 7 days a week, for 6 weeks.

Desired Qualifications: Strong interest in bird ecology, a desire to live in a remote field camp, and the ability to maintain a positive attitude and work well with others under difficult field conditions; basic understanding of wildlife conservation, environmental biology, and policies; experience using a GPS unit; experience participating in field studies; knowledge of the principles of waterfowl biology and ecology, sufficient to complete field projects; knowledge of capturing, handling, banding, and collecting blood samples from birds; experience working on field crews on avian biology studies or extensive subsistence hunting and fishing; experience living and working in remote field camps for extended periods where work conditions are hazardous and there is no immediate access to medical assistance; experience conducting nest searching for waterfowl or shorebirds; experience using a firearm for hunting, in the military, or for bear defense while conducting field work.

Nesting Ecology of Common Goldeneyes in Subarctic Alaska, Fairbanks, AK

(DFP18R7MIG02)

Location: Region 7, Chena River State Recreation Area, Fairbanks, Alaska

Housing: Provided, onsite (rent-free)

Description of Work: The management and conservation of migratory birds are core functions of the U.S. Fish and Wildlife Service (FWS). The Fellow would become intricately involved in co-leading a complex and labor-intensive investigation whereby they will gain significant

knowledge and skills in waterfowl field ecology. The Fellow would be a co-principal investigator to assess breeding and nesting ecology of common goldeneye ducks in Interior Alaska. The project is in cooperation with the Alaska Department of Natural Resources on the Chena River State Recreation Area, near Fairbanks, Alaska. The understanding of limiting factors impacting cavity nesting sea ducks is largely unknown. In 1997, the University of Alaska Student Chapter of the Wildlife Society and the FWS constructed and installed 150 common goldeneye nest boxes on the Chena River State Recreation Area. Since that time, the FWS has monitored use of nest boxes by common goldeneyes and other species including common mergansers, bufflehead, boreal owls and American kestrels. The Fellow would work along with another senior level undergraduate or graduate student to address the following specific objectives: 1) provide undergraduate training in leadership, waterfowl ecology, and decision-making, 2) increase public understanding, awareness and support for waterfowl management and wetland conservation, and 3) assess breeding and nesting ecology of Common Goldeneye (*Bucephala clangula*) in Interior Alaska. Specific measurements and data collection involve: (a) determine mean and range of nest initiation; (b) assess egg laying rate, frequency of extra eggs (dump nesting); (c) determine adult hen fidelity rate; (d) assess nest initiation date, clutch size, frequency of extra eggs, and hatch success relative to hen age; and (e) assess hatch success as a function of nest initiation. The Fellow will draft a 2018 Field Report and develop a presentation both of which are to be presented to the Migratory Bird Management Office.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, or natural resource management; education/outreach including environmental education, community outreach, or communications; social sciences/humanities including human dimensions or community development; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English; ability to work long hours in inclement conditions including rain, cold, snow, and biting insects.

Desired Qualifications: Understanding of ornithology, avian biology, waterfowl ecology, wetlands ecology, statistics, GIS, or landscape ecology; experience in working in difficult, physically demanding and environmentally harsh conditions.

Intensive Shorebird Breeding Ecology Study at Utqiagvik (Barrow), Alaska, Anchorage, AK*

(DFP18R7MIG01)

Location: Region 7, Migratory Bird Management Division, Anchorage, Alaska

Housing: Provided, offsite (rent-free, apartment in Utqiagvik (8 wks) and Anchorage (3wks))

Project Description: The management and conservation of migratory shorebirds is a core function of the U.S. Fish and Wildlife Service. The selected Fellow will be involved in one of the most intense, long-term field studies on shorebirds in the Arctic. Data collected at this site has been instrumental in understanding what factors limit the population growth of shorebirds. The Fellow will participate in a 2-month long field effort studying the breeding ecology of shorebirds at Utqiagvik, Alaska. The Fellow will receive initial intensive guidance from Supervisor but then

be expected to quasi-independently oversee an intensive field study. The Fellow will help coordinate activities to establish the camp, communicate with other federal and local entities in Utqiagvik about the shorebird project, and work with 5-6 other technicians/volunteers conducting intensive biological activities (e.g., shorebird nest searching and monitoring, marking of adults and young, and collection of other environmental data). In addition, the Fellow will be expected to develop a small research/conservation project using the existing 15-year database from the Utqiagvik study. It is also an awesome opportunity to take advantage of a long-term database to answer a pressing conservation issue. This will include data compilation, analysis, and report writing/oral presentation. This project will involve working in a remote location where the Fellow will have the reward of seeing 10 or more shorebirds performing spectacular breeding displays, the rare sighting of a polar bear, and if you are extremely lucky, the mass uprising of thousands of lemmings.

Education Level: Rising seniors and seniors who have not yet completed their degree requirements or graduate students pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, natural resource management, or other closely related field.

Working Conditions/Key Requirements: Good physical condition-- at times, the work is physically demanding; experience in safely conducting field operations (since Utqiagvik is located in bear country where work conditions can be hazardous); willingness to live and work as part of a small crew in closely-confined quarters; willingness to camp in remote locations; ability to hike in rough terrain under inclement weather and buggy conditions. Work schedule is irregular, with many long days, including holidays, weekends, and evenings, conducting field activities, often under inclement conditions.

Desired Qualifications: Basic understanding of wildlife conservation, environmental biology, and policies; experience using computers for data entry, summarization, analyses, word processing and presentations; demonstrate tolerance and patience with others while living and working as part of a small crew in closely-confined quarters; high level of maturity; attention to detail; safety conscious; previous experience collecting basic information on birds, preferably shorebirds, such as species identification and enumeration; some background in conducting field work and implementing field protocols; experience in living and camping in remote locations; experience hiking in rough terrain under inclement weather and buggy conditions.

Aquatic Invasive Species Outreach in Alaska, Anchorage, AK

(DFP18R7FAC02)

Location: Region 7, Alaska Regional Office, Anchorage, Alaska

Housing: Provided, offsite (rent-free, at University of Alaska, Anchorage)

Project Description: Outreach and aquatic invasive species are two of the highest cross-programmatic priorities within the Alaska Region. Consequently, the U.S. Fish and Wildlife Service (FWS) is initiating the development of an interagency communication strategy on aquatic invasive species. Although there are few known aquatic invasive species infestations in Alaska, the Region is not well prepared for preventing the introduction or spread of aquatic invasive species into Alaska. High risk aquatic species such as zebra mussels and New Zealand

mudsnails are spreading closer to Alaska's borders each year. These species and others threaten FWS's ability to manage the native biodiversity of fish and wildlife and their habitats in Alaska. Once invasive species become established the biological and economic costs to manage them are enormous. Preventing the introduction and spread of aquatic invasive species is the most effective way to manage them. The region would benefit by bringing these initiatives to angling, boating, hunting, and pet stores to improve prevention efforts. This project will raise awareness of aquatic invasive species within these industries and give them the tools to increase invasive species messaging to the public to help prevent the spread and future introductions into Alaska. The Fellow will develop outreach and education material for display at angling, boating, and hunting businesses and organizations to help prevent the introduction and spread of aquatic invasive species in Alaska. The Fellow will identify and contact key stakeholders, outdoor recreational groups, and pet stores. They will review and revise or update, as needed, existing best management protocols developed by FWS in Region 7 to prevent the introduction and spread of aquatic invasive species. The Fellow will help develop a story map about the potential impacts and distribution of aquatic invasive species in Alaska. The Fellow will also provide a presentation of their project results to FWS staff, and possibly to an angling, boating, or hunting organization. This project will provide needed outreach and education to the public about the threats from aquatic invasive species and the need to prevent their introduction into Alaska. This project is also a great opportunity to help maintain and conserve Alaska's native fish and wildlife resources and their habitats for future generations.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, or natural resource management; education/outreach including environmental education, community outreach, or communications; social sciences/humanities including human dimensions; geographic and information sciences including GIS or graphic design; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English.

Desired Qualifications: Understanding of fisheries or aquatic conservation and management; familiarity with aquatic invasive species issues; interest or familiarity with outreach and education.

Bolstering Yukon Flats Refuge's Outreach Capacity, Fairbanks, AK

(DFP18R7NWR02)

Location: Region 7, Yukon Flats National Wildlife Refuge, Fairbanks, Alaska

Housing: Provided, either onsite or within 3 miles of office. Transportation provided.

Project Description: Yukon Flats National Wildlife Refuge is the nation's third largest national wildlife refuge and it boasts major contributions to the conservation of wildlife and cultural resources. Millions of migrating birds from four continents and the four North American flyways converge on the Yukon Flats. The Refuge encompasses vital habitat for internationally protected Yukon River Chinook Salmon. Seven villages depend on refuge resources to maintain their traditional lifestyles. Despite these contributions, Yukon Flats Refuge is not widely recognized by the public, nor is it visited regularly. The vast majority of our "visitors" are virtual

– they seek information about the Refuge on our website or from outreach displays posted in key areas, like along the Dalton Highway. The selected Fellow will complete a massive overhaul of our existing website to improve our virtual visitor’s experience and understanding of Yukon Flats Refuge and its conservation contributions. New written content will be developed, photos will be updated, and media (videos, iBooks, audio clips, etc.) will be used where appropriate. The Fellow will consult with refuge staff, stakeholders, and staff in our external affairs and human dimensions offices to complete this task. The Fellow will be expected to work independently to gather information and present it on the website in an aesthetically appealing, user-friendly, and innovate way. The Fellow will have opportunities to experience Yukon Flats Refuge by airplane and/or boat so first-hand knowledge can provide context for the outreach content.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany or natural resource management; education/outreach including visitor services/interpretation, environmental education, community outreach, communications, or citizen science; social sciences/humanities including human dimensions, anthropology, behavioral science, social/environmental justice, Native American studies, or international affairs; geographic and information sciences including computer science, information technology, or web design; or other closely related field.

Working Conditions/Key Requirements: N/A.

Desired Qualifications: Excellent writing and computer skills; ability to think creatively and develop ideas to engage audiences in innovative ways; basic understanding of wildlife conservation principles; ability to be flexible and work independently; sense of adventure; basic knowledge of media options for education.

Region 8 (Pacific Southwest Region)

(6 projects)

Tracking Compliance with Endangered Species Consultations, Carlsbad, CA

(DFP18R8ECO03)

Location: Region 8, Carlsbad Fish and Wildlife Office, Carlsbad, California

Housing: Not supported

Project Description: The Carlsbad Fish and Wildlife Office (CFWO) is the U.S. Fish and Wildlife Service (FWS) field office responsible for the protection, conservation, and recovery of federally endangered and threatened species in southern California. The selected Fellow will work with the CFWO, other federal agencies, and biological consultants to track compliance with section 7 consultations under the Endangered Species Act. The Fellow will evaluate office records for projects that have completed section 7 consultations to determine if all project requirements

have been met. When missing information or requirements are identified, the Fellow will work with CFWO biologists, the federal agencies for each project, biological consultants, and field biologists to obtain the missing information or conservation actions that were required in the section 7 consultations for each project. This will include site visits to construction sites, completed developments, restoration areas, and conserved lands. The Fellow will enter compliance information into an internal CFWO database to monitor the progress of each project in meeting its requirements. The Fellow will also map project impacts and conservation areas using GIS in the database to allow CFWO biologists to visualize listed species habitat impacts and conservation. This project provides invaluable assistance to CFWO biologists by ensuring that the conservation they have negotiated for listed species during the consultation process is actually implemented. Mapping project impacts and conserved areas will also help CFWO biologists visualize listed species habitat conservation and target areas for connectivity.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, environmental studies, or natural resource management; geographic and information sciences including GIS or cartography; or other closely related field.

Working Conditions/Key Requirements: Majority of work conducted in an office environment; some field work required, outdoors in semi-remote locations; comfortable working outside and hiking up steep terrain in moderately warm conditions.

Desired Qualifications: Coursework/background in wildlife ecology is desired; ability to conduct field work in semi-remote locations; GIS experience desired. Valid driver's license preferred.

San Bernardino Flying Squirrel Habitat Occupancy Research Project, Carlsbad, CA

(DFP18R8ECO02)

Location: Region 8, Carlsbad Fish and Wildlife Office, Carlsbad, California

Housing: Provided, onsite (rent-free)

Project Description: The San Bernardino flying squirrel (*Glaucomys sabrinus californicus*; SBFS) historically occurred on two mountain ranges, but is now restricted to the San Bernardino Mountains. Although the SBFS is thought to prefer coniferous woodland, reports are frequent of flying squirrels utilizing developed urban environments. Little is known about the population ecology of the SBFS and various groups assume that squirrel numbers are low and declining. This project will investigate habitat usage patterns of SBFS in developed areas and adjacent forested areas in the San Bernardino Mountains and, potentially, the San Jacinto Mountains. The goal of this project is to evaluate habitat parameters of the SBFS and assess how habitat usage patterns are affected by the urban edge. The San Diego Natural History Museum has an agreement with the U.S. Fish and Wildlife Service (FWS) to build upon past and current citizen science programs to investigate the extent of the SBFS's distribution along the urban edge and the SBFS's use of a habitat gradient from residential to natural environments. San Diego Natural History Museum will be responsible to engage the local community in the San Bernardino Mountains to aid in the investigation of this question of SBFS habitat and how their developed backyard influence habitat use. The Fellow will work with the FWS Carlsbad Fish and Wildlife Office (CFWO), U.S. Forest Service, and San Diego Natural History Museum delineating

habitat types for the SBFS. The Fellow will assist in developing a presence/absence occupancy model to determine occupancy of the species, set motion sensor camera traps in remote locations randomly chosen (e.g. no trails), conduct additional visits to retrieve cameras and measure/record forest metrics, and conduct field work, data entry, preliminary analysis, and complete a summary report. This project will provide valuable information on the habitat requirements of a sensitive and geographically restricted species. The project will also strengthen partnerships with local research organizations like the San Diego Natural History Museum.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, natural resource management, environmental studies, or other closely related field.

Working Conditions/Key Requirements: Valid driver's license; some work conducted in an office environment; majority of field work can be physically demanding including hiking, climbing, bending, crouching, stooping, stretching, lifting and similar activities; must be able to work alone in the field and potentially at night, as the SBFS is nocturnal.

Desired Qualifications: Coursework/background in wildlife and forest ecology is desired; ability to conduct field work in rugged and remote locations.

Conducting status assessments for threatened and endangered species, Carlsbad, CA (DFP18R8ECO04)

Location: Region 8, Carlsbad Fish and Wildlife Office, Carlsbad, California

Housing: Not supported

Description of Work: The Fellow will work at the Carlsbad Fish and Wildlife Office (CFWO) to complete a status assessment for threatened and endangered species to evaluate whether the species status has changed since the time it was listed. The U.S. Fish and Wildlife Service (FWS) is required by section 4(c)(2) of the Endangered Species Act (ESA) to conduct a status review of each listed species at least once every 5 years. The region is working with field offices to be compliant with completion of 5-year reviews. Based on the 5-year review, FWS recommends whether the species should be removed from the list of endangered and threatened species, be changed in status from endangered to threatened, or be changed in status from threatened to endangered. In the 5-year review, the best available scientific and commercial data on the species is considered, and the focus is on new information available since the species was listed or last reviewed. This project will require extensive review of past literature and much coordination with partners. The information will be used to develop an account of the species life history and a threats analysis. The project will also involve site visits to see the habitat. At completion of the 11-week period, the Fellow will finalize a 5-year review and present the status assessment to staff at the Carlsbad office. This written product will provide an update of what we know about a given species and a course of action for helping to conserve the species. The work product will be used by others to inform them of the current status of the species.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife

biology, fisheries, ecology, botany, natural resource management, environmental studies, or other closely related field.

Working Conditions/Key Requirements: Majority of work will be conducted in an office environment; work is primarily sedentary, although some physical effort may be required; travel to other offices or field trips will occasionally be required.

Desired Qualifications: Proficiency in Microsoft Office; basic understanding in wildlife conservation, environmental biology, or other biological fields; valid driver's license preferred.

Endangered Species Confirmation Surveys, Delano, CA

(DFP18R8NWR01)

Location: Region 8, Kern National Wildlife Refuge Complex, Delano, California

Housing: Provided, onsite (rent-free)

Project Description: Working on the Kern National Wildlife Refuge Complex in California's southern San Joaquin Valley, the Fellow will conduct a much needed survey for endangered species on two national wildlife refuges. The Fellow will have the opportunity to engage multiple stakeholders, gain experience with ArcGIS mapping software and develop valuable endangered species monitoring experience. Two National Wildlife Refuges which have previously supported large populations of the endangered Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) at Pixley NWR and blunt-nosed leopard lizard (*Gambelia sila*) at Kern NWR have had no documented observations of these animals in many years. The objective of this project is to determine if two populations of these endangered species have been locally extirpated from refuge lands. This project will support the U.S. Fish and Wildlife Service (FWS) priorities of preserving, restoring, and enhancing habitat and natural ecosystems for all threatened and endangered species inhabiting the National Wildlife Refuge System. The Fellow will work with refuge staff and local species specialists to develop a monitoring plan which prioritizes previously documented locations of these endangered species, establish permanent or temporary survey transects or grids as necessary in target survey locations, coordinate with local universities, conservation groups, agencies, and consulting firms to recruit a team of volunteers to staff the monitoring effort, conduct an extensive search for the target endangered species with the goal of confirming presence or absence in locations with no recent detections with assistance from staff, and develop and deliver a written report of results to FWS staff which will be made available to the FWS Ecological Services office, the state California Dept. of Fish and Wildlife, and biologists with local universities such as California State University Stanislaus's Endangered Species Recovery Program.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, ecology, botany, or natural resource management; geographic and information sciences including GIS; or other closely related field.

Working Conditions/Key Requirements: Ability to walk long distances over uneven terrain, carry up to 30 lbs. of equipment, and the ability to withstand harsh environmental conditions and possible hot summer temperatures.

Desired Qualifications: Effective oral and written communication skills; ability to utilize standard field monitoring equipment including a GPS unit; ability to collect accurate field data; preferred knowledge or experience in small mammal and reptile survey and identification techniques, developing field surveys, and basic use of geographic information systems (GIS).

Invasive Species Mapping and Detection in the Klamath Basin, Tulelake, CA*

(DFP18R8NWR02)

Location: Region 8, Klamath Basin National Wildlife Refuge, Tulelake, California

Housing: Provided, on-site (rent-free in Refuge Headquarters bunkhouse)

Project Description: Tulelake and Lower Klamath National Wildlife Refuges (NWRs) are critically important refuges for migratory and breeding waterbirds utilizing the Pacific Flyway. Peak waterfowl populations have historically been as high as 1 million ducks, and these locations have long been premiere destinations for bird watchers and hunters alike. Within the last 20 years invasive species, specifically perennial pepperweed, poison hemlock, purple loosestrife, and Canada thistle have become abundant throughout the refuges. Early Detection, Rapid Response (EDRR) is recommended by the National Invasive Species Council and has widely been adopted within the U.S. Fish and Wildlife Service refuge system. EDRR efforts for high risk species reduces the risk of new populations becoming established and reduces long-term costs and herbicide use. The successful Fellow will be expected to: 1) create a baseline GIS map of Canada Thistle populations, a species identified as a priority invasive species during a recent Invasive Species Prioritization workshop, 2) develop identification pamphlets of priority EDRR species, and 3) develop and implement an EDRR strategy on Tulelake and Lower Klamath NWRs. The Fellow will work with conservation partners from multiple agencies. The completed work is expected to complement an envisioned multi-agency invasive species strategy whose scope encompasses areas within and surrounding both refuges. The Fellow will be expected to represent the refuge's mission when interacting with the public and members of different agencies throughout the course of the project, and will work directly with representatives of the Bureau of Reclamation, the Siskiyou County Agricultural Extension Office, refuge staff, and Invasive Species contractors.

Education Level: Rising seniors and seniors who have not yet completed their degree requirements or graduate students pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, botany, natural resource management, or other closely related field.

Working Conditions/Key Requirements: Ability to work in both office and field setting; ability to operate UTV/ATV equipment; ability to use fundamental aspects of GIS and GPS technologies.

Desired Qualifications: FWS UTV/ATV certification is desired; demonstrated experience communicating with broad audiences; knowledge and education regarding the principles of natural resources management, invasive plant management; experience using herbicides to treat invasive species; experience using GIS and GPS technologies; demonstrated ability to successfully communicate with, and work alongside, representatives of different agencies; familiarity with the Klamath Basin is a plus.

Expanding the Information for Planning and Consultation (IPaC) Framework for the Ventura Fish and Wildlife Office, Ventura, CA

(DFP18R8ECO01)

Location: Region 8, Ventura Fish and Wildlife Office, Ventura, California

Housing: Supported, \$1000/month allowance

Description of Work: The U.S. Fish and Wildlife Service's (FWS) IPaC decision support system can currently deliver Endangered Species Act (ESA) species lists and detailed resource information, and soon will be able to provide project design recommendations, collect environmental baseline information, and complete much of the ESA section 7 consultation process via the internet. A major priority of the FWS is to better utilize IPaC to further automate some of these tasks and help guide project proponents to submit accurate information in a format that will lead to the most efficient and effective formal or informal consultation on the project. The VFWO is responsible for a large portion of coastal California, home to approximately 100 federally listed threatened and endangered species, of which we are the lead office for 62. VFWO has one of the greatest Section 7 workloads anywhere in the country. Improving the efficiency of our Section 7 process will enable our biologists to focus their time and efforts where they will accomplish more of our mission. The Fellow will prepare a prioritized list of Ventura Fish and Wildlife Office (VFWO) lead species for which to expand IPaC functionality and improve the consultation process by conducting independent research and working with internal and external stakeholders. The Fellow will work with internal staff and managers and external stakeholders to draft: 1) the development keys, 2) the effects pathways manager (EPM) model, and 3) database interview questions for each of the prioritized species (or as many as feasible within the Fellowship timeframe). The Fellow will work with IPaC technical experts to bring the information into the database and ensure functionality. The Fellow will prepare project updates for their supervisor during the project, a written report, and a final presentation to field office (and potentially regional) staff at the conclusion. If time allows, the Fellow will prepare a flyer to inform stakeholders about the expanded functionality and new processes within IPaC.

Education Level: Only rising seniors and seniors who have not yet completed their degree requirements pursuing a degree in biological sciences including conservation biology, wildlife biology, fisheries, ecology, or natural resource management; education/outreach including communications; geographic and information sciences including GIS or modeling/statistics; or other closely related field.

Working Conditions/Key Requirements: Written and oral proficiency in English; valid driver's license.

Desired Qualifications: Familiarity with geographic information systems (GIS) and database management; basic understanding of wildlife conservation and environmental biology; ability to research and identify a species' life history, web of ecological interactions and needs, and assess how individual project (e.g., construction) tasks might affect each of those aspects.

