



# Standard Operating Procedure 1: Before the Field Season

## Version 1.0

2013 Field Season

2014 Field Season

2015 Field Season



**ON THE COVER**

Some of the field supplies distributed to each field crew member implementing the ERMN Streamside Bird Monitoring Protocol.

Photograph: Matt Marshall

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# Revision History

The streamside bird monitoring protocol consists of a narrative (Marshall et al. 2016) and Standard Operating Procedures (SOPs) that outline specific aspects of the monitoring protocol. The latest versions of the SOPs and additional supporting information can be accessed online at the National Park Service's Eastern Rivers and Mountains Network website (<http://science.nature.nps.gov/im/units/ermn>).

The narrative and each SOP have respective revision history logs to document changes in the protocol. The following revision history log is for the narrative.

Version numbers will be incremented by a whole number (e.g., Version 1.0 to 2.0) when a change is made that significantly affects requirements or procedures. Version numbers will be incremented by decimals (e.g., Version 1.3 to Version 1.4) when there are minor modifications that do not affect requirements or procedures included in the protocol. Rows are added to the log as needed for each change or set of changes tied to an updated version number.

Revision History Log

| Prev. Version # | Revision Date | Author | Changes Made | Reason for Change | New Version # |
|-----------------|---------------|--------|--------------|-------------------|---------------|
|                 |               |        |              |                   |               |
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## **Overview**

The field work described in the Eastern Rivers and Mountains Network streamside bird monitoring protocol (Marshall et al. 2016) occurs annually each May through July (i.e., the field season). However, the ability to successfully complete the field portion of the protocol will hinge upon thorough advance planning. The planning and tasks described in this standard operating procedure (SOP) apply to the protocol lead (Appendix A) and must occur before the field season. These tasks include organization and preparation of equipment, maps, field forms, and databases; advertising, hiring, and training field crews; securing permits, housing, and vehicles; among other responsibilities.

Preparations for the field season should begin in February of each year starting with the hiring process. This allows approximately three months lead time before the arrival of field crews and the commencement of training (SOP 2 – Field Crew Training and Safety) to complete required tasks which are outlined below.

Numerous relevant files and documents are referenced in the SOP and used in the implementation of this protocol. Each is stored in a folder called “Field Season Implementation” on the protocol lead’s computer.

### **Review the Protocol**

The protocol lead should review (and update as necessary) the entire protocol, SOPs, and all field forms, data sheets, maps, and site logistics documents from past sampling seasons to ensure that all materials for the protocol are current. This entire suite of documents used to implement the protocol and collect required data will be archived each sampling season such that a line can be connected between individual data points and the procedures used to acquire and process those data.

### **Arrange for Field Season Vehicle**

If an NPS vehicle is to be used, the protocol lead should coordinate with other ERMN protocol leads to ensure that appropriate vehicles are available for each protocol during the needed timeframe. If a non-NPS vehicle is to be used (e.g., PSU Fleet), the protocol lead should work with appropriate collaborators to ensure vehicles are reserved. Keep in mind that lead time is important to ensure the right type (4x4) of vehicle is available.

### **Hire Field Crew Members**

This section is one of the most important of the streamside bird protocol because it summarizes the essential skills field crew members must possess and provides guidance on selecting and hiring these individuals. The protocol lead should initiate the hiring process by February 1.

The essential skills and experience necessary for field crew members include: identifying eastern forest birds by sight and sound (songs, calls, and drumming), using distance estimation techniques, good eyesight and good hearing ability, excellent physical condition, and backcountry experience. Field crew members will also need a valid driver’s license.

Potential crew members should preferably have at least one year of experience conducting point counts in eastern forests and must demonstrate enthusiasm, good hearing ability, good physical

condition, and a willingness to devote their time and energy to the 8-week monitoring program. Crew members must already be proficient at identifying (by their vocalizations) the majority bird species expected to be detected. This is determined based on their prior experience, reference checks, and a bird song quiz (see below). It is also preferable that crew members are skilled at distance estimation. Prior field experience is an important variable to consider when evaluating potential crew members, because experienced observers may be able to identify birds by only a brief glimpse, a portion of a song, or a single call note.

The physical and psychological demands of remote field work in the ERMN should not be underestimated and the crew members need to be mentally and physically prepared and qualified. Even the most skilled observer is of no use if they are unable to cope with adverse field conditions. Bird surveys in the ERMN demand a capacity for adjusting to waking well before dawn, navigating by car and foot to remote field sites using GPS, and hiking through rugged and steep terrain with dense understory, crossing creeks, and bypassing waterfalls. The terrain in the West Virginia parks is especially difficult to traverse. Crews must be prepared for and willing to endure extended periods of light precipitation, contact with poison ivy, stinging nettle, ticks, and occasional venomous snakes. The remote nature of the work requires wise judgment, and crew members should preferably have prior experience working in remote backcountry situations.

Each crew member is also required to participate in a one-week training (fully explained in SOP 2 – Field Crew Training and Safety) prior to data collection.

### ***Hiring Procedures***

The following procedures for hiring assume that crew members will be employed by a non-federal agency or institution (e.g., Pennsylvania State University). If hiring as NPS seasonals, follow the most recent guidance from the NPS Northeast Region Human Resources Office.

1. **Prepare job announcement.** The following is a template:

FIELD TECHNICIANS (2) needed for study of bird communities along forested streams of National Parks in Pennsylvania and West Virginia. Position begins [**Start Date**] and **continues through [End Date]**, (eight weeks). This project is part of a long-term avian monitoring program conducted by the National Park Service. Primary duty is to conduct standardized point count surveys. Previous field research experience and ability to identify eastern forest songbirds by ear is required. Patience, close attention to detail, making thorough field notes, and enthusiasm for hiking many kilometers of mountain streams in rugged terrain are essential. The pay rate is between \$X-X per hour depending on experience with a typical work week of 40 hrs. Based on experience, one crew member will be designated the “crew leader” with a commensurate increase in responsibility and pay. Housing and work vehicle provided. Valid driver’s license required. Please send an email stating your interests and attach a resume that includes dates of relevant experience and contact information for three references that can describe your abilities in the field to [Protocol Lead] (protocol\_lead@nps.gov). Positions will be filled as soon as suitable applicants are found. Please write “NPS application” on the subject line of your email.

2. **Post job announcement.** The job announcement should be distributed at local Universities and posted repeatedly if necessary until crews are hired, starting February of each year at the following websites:
  - i. Texas A&M University, Department of Wildlife and Fisheries Sciences Job Board, <http://wfsc.tamu.edu/jobboard/index.htm>
  - ii. Society for Conservation Biology, Jobs in Conservation Biology, <http://www.conbio.org/jobs/input/>
  - iii. Ornithological Societies of North America, Ornithological Jobs, <http://www.osnabirds.org/Jobs.aspx>
3. **Select top applicants and check references.** Based on the qualifications described above, the protocol lead will review and select top applicants. Contact references to discuss the following: 1) nature of work conducted, 2) how well they performed required tasks, 3) how well they know eastern forest bird particularly by sound, 4) how they handled or could be expected to handle difficult field conditions, 5) if their personality is conducive to working as part of a team, and 6) if the reference would have any reservations hiring the candidate. The protocol lead should record notes of these conversations and save them as digital files to be archived annually.
4. **Interview job candidates.** Provided they have good references, schedule a phone interview. The initial interview should be casual, allowing room for questions from the applicant, but certain questions should be addressed. The protocol lead should ask the questions in Appendix B, take notes, and save an electronic file of the responses for each applicant.
5. **Administer a bird sound quiz.** For those applicants that perform well during the initial interview, schedule a time to take a quiz of bird sounds for the species known to be frequently encountered during field work. The protocol lead should provide a current list of species to the applicant and a few days to a week to prepare for the quiz. The protocol lead will inform the applicant before the quiz the number of species that will be included. The quiz may be administered over the phone or in person, depending on the applicant's preference and current location. If over the phone, the protocol lead will email the applicant a link to a website hosting the quiz. Applicants play each sound file once and tell the protocol lead the species. The protocol lead records their answer, and the process is repeated until all species have been played. Applicants may replay sound files during or at the end of the quiz at the protocol lead's discretion. Though ultimate decisions to hire applicants are at the protocol lead's discretion, applicants should identify  $\geq 80\%$  of the species correctly to pass.

*Relevant files:*

ERMN\_Streamside\_Bird\_Technician\_Information.xlsx

6. **Make job offers and hire field crew members.** The protocol lead sends official job offers via email stating the salary and dates of employment. The applicant is allowed up to one week to respond to the email confirming their acceptance and terms of employment. This is not a legally-binding contract but may prevent some hires from

accepting another position and essentially backing out on the project. Hiring should be completed as early as possible but not later than mid-March if possible.

- 7. Hiring paperwork.** Immediately upon hiring, the protocol lead provides each crew member with the paperwork required for hiring seasonal employees at the respective agency or institution and begins to coordinate arrival schedules for training.

## **NPS Permits**

Implementation of the streamside bird monitoring protocol requires NPS permits acquired through the NPS Research Permit and Reporting System (<https://irma.nps.gov/rprs/Home>). Permits and associated Investigators Annual Reports (IAR) are the responsibility of and maintained by the protocol lead. Ensure that a current and valid permit is available for each park unit and that each field crew member has a hard-copy (photocopy is sufficient) of the appropriate park permit with them at all times. Park law enforcement (LE) rangers, PA Game Commission Wildlife Conservation Officers (WCO), and local police have all asked to see permits in the past. Be prepared. Extra copies of the permits should be stored in field vehicles as well.

## **Park Housing**

Park housing is traditionally available at both New River Gorge NR and Delaware Water Gap NRA. The protocol lead should maintain regular communication with the natural resource managers at these parks regarding availability and points of contact for housing. Housing is not required for work at Allegheny Portage Railroad NHS due to close proximity to the University Park duty station. Fort Necessity NB, Friendship Hill NHS, and Bluestone NSR require overnight stays in a typical hotel which should be arranged and included in the travel authorization.

## **GPS Units**

Ensure that handheld and vehicle GPS units are loaded with appropriate locations and background maps. Handheld units should have all point count stations and parking spots while the vehicle units only require parking areas and other landmarks for navigating by vehicle to each site. The protocol lead and the data manager maintain these datasets.

## **Personal Locator Beacons (PLB)**

Each field crew member will have PLB assigned to them for the duration of the field season. Proper use of the PLB is covered in SOP 2 – Field Crew Training and Safety. Each PLB is uniquely labeled (“Bird 1”, “Bird 2”, etc.) and registered with the U.S. National Oceanic and Atmospheric Administration (NOAA) with the name and contact information of the person carrying it in the field. The protocol lead should ensure that any changes to the person(s) carrying a specific PLB or to the emergency contacts should be done by accessing the following website: [www.beaconregistration.noaa.gov](http://www.beaconregistration.noaa.gov). All ERMN PLBs are registered under their Unique Identification Number (UIN) located on the PLB (and the original box) and the password: “ERMNbeacon1!”. All PLBs are required to be re-registered with NOAA every two years. The protocol lead coordinates with the ERMN Vegetation Crew Leader on PLB registrations.

## **Maps and Site Logistics**

Each site has a detailed set of maps and a written description on how to best navigate to the site by car or truck and subsequently navigate by foot to the first point count station. The protocol

lead maintains these files and should review and update them, as necessary, prior to each field season. Maps are to be printed and maintained in a binder for use the field and also available electronically on the field computer for reference. In addition, site specific logistical information (e.g., driving times, required keys, land-owner permission, truck required) should be reviewed and made available to the field crews in hard-copy and electronically on the field computers.

*Relevant files:*

ERMN\_Streamside\_Bird\_Sampling\_Site\_Maps.pptx  
ERMN\_Streamside\_Bird\_Sampling\_Site\_Logistics.docx

### **Field Season Schedule**

The protocol lead should develop a schedule/calendar to ensure that all sites are visited the appropriate number of times within the allotted field season. Included in this schedule should be 4-5 extra days to be used in the event of missed sampling days due to rain or other factors. The schedule will be discussed during training and made available to the field crews in hard-copy and electronically on the field computers.

*Relevant files:*

ERMN\_Streamside\_Bird\_Field\_Season\_Implementation.xlsx

### **Datasheets**

The Protocol Lead maintains these files and should review and update them, as necessary, prior to each field season. The data sheets and other field forms should then be printed in sufficient quantity so that field crew members do not need to print additional forms. Electronic versions of these files will also be accessible by the field crews on the field computer in rare cases when additional data sheets or other forms need to be printed during the field season. The data sheets should printed on Rite-in-the-Rain<sup>®</sup> loose leaf paper (4 5/8 x 7 inch “Journal Style” No.392). The field forms should printed on Rite-in-the-Rain<sup>®</sup> loose leaf paper (4 5/8 x 7 inch “Blank” No.395).

*Relevant files:*

ERMN\_Streamside\_Bird\_Field\_Forms.xlsx

### **Supplies and Equipment**

The Protocol Lead should organize all field equipment several months before commencing field work to allow sufficient time to order new supplies, if needed. All equipment should be inventoried at the end of the field season as well. Required field supplies and equipment are distributed to field crew members during training (typically in a labeled box for each crew member).

*Relevant files:*

ERMN\_Streamside\_Bird\_Field\_Season\_Implementation.xlsx

**Park Notification**

The protocol lead will notify the park contacts via email that a monitoring crew will be in the park and to inquire about updates/information on road closings, site closings, detours, hazards, etc. Information provided to the park includes arrival date, departure date, crew (e.g., Bird Crew), names of crew members, housing accommodations, vehicle make, model, color, license plate, and general sampling locations.

*Relevant files:*

ERMN\_Streamside\_Bird\_Field\_Forms.xlsx

## Literature Cited

Marshall, M., C. Tzilkowski, and K. Callahan. 2016. Streamside bird monitoring protocol for the Eastern Rivers and Mountains Network: Protocol Narrative Version 3.0. Natural Resource Report NPS/ERMN/NRR—2016/XXX. National Park Service, Fort Collins, Colorado.

Appendix A. Name and contact information for personnel associated with the Streamside Bird Monitoring Protocol

This appendix provides past and current names and contact information of personnel identified in the protocol narrative. Titles of roles in Table B.1 are based on those in the Operational Requirements section of the protocol narrative.

**Table A.1.** Name and contact information for personnel associated with the Streamside Bird Monitoring Protocol.

| Role              | Name and Position   | Start Date | End Date   | Address  | Phone        | E-mail                    |
|-------------------|---|------------|------------|--|--------------|---------------------------|
| Protocol Lead     | Matt Marshall,<br>ERMN Program Manager  | 1/1/2010   | Current    | 420 Forest Resources Building<br>University Park, PA 16802 | 814-863-0134 | matt_marshall@nps.gov     |
| Protocol Lead     | Brady Mattsson,<br>University of Georgia<br>US Geological Survey                  | 1/1/2007   | 12/31/2009 | U.S. Geological Survey<br>Sacramento, CA 95819             | NA           | NA                        |
| Data Manager      | Kristina Callahan,<br>ERMN Data Manager   | 1/1/2010   | Current    | 422 Forest Resources Building<br>University Park, PA 16802 | 814-863-2320 | kristina_callahan@nps.gov |
| Field Crew Leader | TBD Annually<br>(all crew members are documented in the Streamside Bird database) |            |            |  |              |                           |
| Field Crew        | TBD Annually<br>(all crew members are documented in the Streamside Bird database) |            |            |  |              |                           |

Appendix B. Interview questions for candidate field crew members.

*Why did you apply for this position?* Applicants should demonstrate enthusiasm for getting involved with the project.

*Describe your background and experience that you believe is relevant to this position.* Applicants should be able to explain clearly in their own words their experience in conducting bird surveys, identifying relevant birds by site and in particular sound, and distance estimation.

*Describe your ability to work closely with a supervisor or crew members and independently.* Applicants should demonstrate that they work well with others (training, coordinating logistics, data entry, etc.) and alone (in the field, keeping up communication while supervisor is away).

*How rugged were the field conditions during past projects?* All applicants should demonstrate their capacity to handle cold weather, early mornings, wet feet, and slippery footing. Applicants should be able to handle ticks, venomous snakes, tricky navigation to sites, steep climbs, crawling through rhododendron, stinging nettle, poison ivy, and cold and misty conditions.

*During past projects, describe the procedure for data entry, data management, and data proofing.* Applicants should show that they are required to enter data on a daily basis and submit proofed data on a weekly basis, working with a crew member/leader to proof the data.

*Have you ever had to deal with a medical or logistical emergency while in the field? How did you handle it?* Applicant should show capacity to stay calm, follow guidance and training provided, and make sound decisions.

*Do you have any certified first aid training?* Applicant should have a current Red Cross Basic First Aid certification, or equivalent. Advanced training(s) such as Wilderness First Aid, Wilderness First Responder, etc. are preferable.