USGS NSF Internship Opportunity

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🔵	**USGS Center:**	Patuxent Wildlife Research Center
🟣	**Project Title:**	Assessing the role of automated telemetry data and mark-recapture approaches to improve estimates of bird population trends at migration banding stations.
🟢	**Summary:**	Researchers use bird banding during migration to assess long-term trends in bird populations. However, the accuracy of these population trend estimates remains in question. This project will assess the potential for new technologies such as automated telemetry, when combined with analytical approaches such as mark-recapture, to improve inferences of bird population trends during migration.
🟣	**Project Hypothesis or Objectives:**	Migration monitoring practices have been criticized due to the potential challenges of inferring population trends in open populations. During migration, bird populations change constantly, gaining and losing members as birds migrate through study sites. Many factors influence the stopover length of individual birds including site selection, weather, sampling, avian mortality risk, and local movement patterns. Annual changes in stopover lengths can introduce significant biases into estimates of population change during migration. Novel technologies such as automated telemetry, when combined with advanced capture-recapture analyses have the potential to account for annual changes in stopover lengths and provide robust estimates of population change. Research is needed to understand the effectiveness of these technological and analytical methods and how they may benefit migration banding programs. The BBL facilitates and encourages the collection, management, storage, and dissemination of information from marked birds to further bird conservation, management, and science. Results from this research will allow the BBL to develop recommended protocols and guidance for data collected at migration banding stations that will provide improved estimates of stopover lengths and more robust estimates of population change.
🔵	**Duration:**	Up to 12 months

🟡	**Internship Location:**	Laurel, MD
🔵	**Field(s) of Study:**	Life Science
🔴	**Applicable NSF Division:**	DEB Environmental Biology
🟣	**Intern Type Preference:**	Any Type of Intern
🟢	**Keywords:**	Bird banding, migration monitoring, stopover biology, automated telemetry, capture-recapture analysis
🟠	**Expected Outcome:**	Development of publications and/or recommended protocols that will expand the ability of the research community to incorporate banding data collected at migration monitoring stations with other information that will benefit the conservation and management of migratory bird populations. The intern and USGS will gain from the expanded scientific knowledge gained through this project which will also benefit various wildlife management agencies.
🟤	**Special skills/training Required:**	We are seeking an intern with an interest in: 1) statistical challenges related to population monitoring, migration monitoring, and bird-banding methods, and 2) to become part of a collaborative group seeking to improve BBL practices and develop recommendations for the natural resource community. Preference will be given to individuals with bird banding, data management experience, quantitative analyses, and writing skills.
🔵	**Duties/Responsibilities:**	1. Review the literature available regarding new technologies and statistical approaches that deal with migration monitoring challenges. 2. Participate at the BBL fall migration station and analyze a 38-year data set from this station to examine the potential statistical challenges related to inferences about bird population trends during migration. 3. Review other bird banding and band encounter data sets maintained at the BBL to identify limitations of existing data sets. 4. Lead/Assist in the preparation of products that address the potential for new technologies to provide improved estimates of stopover length and robust estimates of population change. 5. Collaborate with BBL staff to create guidance and recommended protocols for data collection at migration banding stations.