



2021 Cooperative Summer Internship Program

USGS Project Scientist	Joan Hagar
Project start date	5/24/2021
Duration	3 months
Location	Western Oregon
Type of Intern	ESA
Title of Project	Purple Martin use of BLM Regeneration Harvests and National Forest Restoration Sites
Background	<p>The western sub-species of the purple martin, the largest swallow in North America, is of special conservation concern to federal forest managers in the Pacific Northwest. The at-risk western purple martin subspecies (<i>Progne subis arboricola</i>) is importantly distinct from the relatively abundant eastern purple martin subspecies (<i>Progne subis subis</i>; ~10-12 million birds in eastern North America) because the western subspecies still nests in natural cavities in the wild, whereas virtually all individuals of the eastern subspecies nest in artificial housing. Lack of suitable nesting habitat is a major threat to western purple martin populations. Self-sustaining, wild populations of western purple martin require a combination of early seral (open) habitat with snags (dead trees) that provide nest cavities. Availability of suitable habitat on public lands in western Oregon has been reduced as a result of forest management practices that promote early establishment and prolonged dominance of dense conifer forest, and curtailment of timber harvesting under the Northwest Forest Plan. Preliminary results of a survey conducted in 2016 and 2017 to document the distribution and habitat associations of the western purple martin on BLM lands in western Oregon confirmed that the combination of early seral forest with suitable snags for nesting is relatively rare on BLM forest lands. Regeneration harvests being conducted by the BLM under recently revised Resource Management Plans represent the first opportunity since implementation of the Northwest Forest Plan to intentionally create suitable nesting habitat for purple martins on federal lands. Monitoring colonization of regeneration units by purple martins will inform adaptive management for habitat restoration, and help BLM demonstrate how management for early seral habitat aligns with goals for conservation of Bureau Sensitive Species. It will also inform the Forest Service if the current restoration of estuaries, coastal meadows and creation of snags are contributing to conservation goals for this species. Our project will use artificial nest substrates as a tool for addressing conservation gaps and for research. Snags created in regeneration units are not available as nesting substrates for secondary cavity-nesters until they have decayed sufficiently and have woodpecker-excavated cavities. Therefore, we will conduct a survey of artificial nesting substrates (nest boxes) installed on snags in regeneration units in 2019 to assess occupancy status by martins. The design used to install nest boxes allows for a test of the influence of nest site location</p>

	(relative to forest edge and topographic position) on occupancy patterns by martins and other cavity-nesting species.
Objectives	1) Conduct a follow-up survey of nest boxes installed on snags in BLM regeneration units in 2019 to determine occupancy status by purple martins. 2) Assess the influence of nest site location (relative to forest edge and topographic position) on use by cavity-nesting species in BLM regeneration units. 3) Band nestlings from nest boxes occupied by purple martins to contribute to on-going study of survival and dispersal of individually marked birds. 4) Use map derived from a recently developed habitat model for western purple martin to guide selection of survey sites to determine occupancy patterns of western purple martins on the Siuslaw NF.
Intern Tasks	Under the supervision of the USGS Principal Investigator, the intern will participate in field surveys, data collection, data management, and reporting. Specifically, the intern will help to install and monitor nest boxes to determine box usage rates and nest fates; assist in nestling banding and reading band numbers on returning adults to identify individual birds; use GIS to generate predictive maps of suitable habitat using habitat model; assist with field surveys to verify habitat map; summarize data in tabular and written formats.
Expected Results and Benefits to the Intern	<ul style="list-style-type: none"> • The intern will have an opportunity to develop skills in working in the field (e.g., navigating using map and GPS, recognizing and distinguishing habitat types and management effects on habitat, field safety procedures), and will gain first-hand experience in wildlife research techniques. • The intern will learn how to translate field observations into meaningful data that can be tabulated, summarized, and interpreted in ways that are useful to the intended audience. • The intern will have an opportunity to develop practical GIS skills through application of a habitat model to generate a predictive map. This GIS exercise will also provide an authentic example of the use and limitations of habitat models through ground verification of the map generated. • Involvement in our purple martin nestling banding program, will introduce the intern to the safe handling and banding of passerine birds. By helping with both the nestling banding and band re-sighting components of this project, the intern will obtain first-hand experience using the technique of marking wildlife to obtain information on demographics, dispersal, and population connectivity. • At the end of the season, the intern will summarize the data collected over the season and write a report that documents the methods, displays the results, and interprets the findings. By assisting the PI with reporting tasks, the intern will gain experience with the logical flow of the scientific method while developing writing and critical thinking skills. The USGS PI will help the intern develop writing skills by constructively editing the first draft and a revision of the report. The report will also include a section wherein the intern can provide input to improve the project and the intern experience.
Skills and Interests of Candidates	<ul style="list-style-type: none"> • Interest in wildlife, especially birds • Interest in applied science • Interest in forest ecology • Passion for outdoor experience • Some basic familiarity with GIS • Familiarity with basic computer software: word processing, spreadsheets
Project Type	Field Work;
Project Discipline	Ecology;Field Mapping;Wildlife Biology;