

November, 2018

Project Title: Black Swift Movement Ecology

Project Background:

The northern Black Swift (*C. n. borealis*) is one of the least understood bird species in North and Central America due to remote nest site locations in wet coastal caves or on ledges near waterfalls. The Black Swift, a species of Continental Concern in the U.S and Canada, has lost 94% of its population according to Breeding Bird Survey data. In Colorado, the Black Swift is a tier 2 Species of Greatest Conservation Need with a declining trend. The northern Black Swift breeds from Alaska, western Canada, Washington, Oregon, Idaho, and Montana to the north and south into Utah, Colorado, and New Mexico. The wintering grounds and migration route for this species were unknown until 2012 when we tracked three individuals carrying geolocators to the lowland rainforest of Brazil. Black Swifts forage on aerial plankton, however, there is no information showing how far they forage from nest sites or the habitat associations of foraging behavior. In 2017 we outfitted Black Swifts with GPS tags that will allow us to better understand their movement during their full annual cycle. In 2018 we attempted to recapture the individuals with the gps tags to download the data. This research is a critical first step to understanding where these birds forage and how we can protect the habitat that is key to their conservation and survival.



Conservation Implications

Thanks to collaborative research efforts, we are starting to understand more about where Black Swifts breed and overwinter. Our collective research efforts led to the first official documentation of this species migration and wintering area. We know that there have been noted declines in populations in California and breeding colonies have been abandoned in British Columbia and Montana. This species was listed as a species of Continental Concern on the Partners in Flight Conservation Plan. Tracking Black Swifts through their full annual cycle will allow us to start understanding the mechanisms causing the decline so that a comprehensive conservation and protection plan can be established and implemented.

The Black Swift is also designated as a U.S. Forest Service sensitive species and its breeding range in Colorado includes the front-range and western Colorado. Utilizing GPS tags will enable us to determine the distance traveled by Black Swifts during daily foraging excursions and the ability to create maps identifying foraging area hot spots. Black Swifts forage on aerial plankton, or flying insects, and this prey base is likely affected by use of insecticides and other pesticides. Many of Colorado's high-elevation forests have been and continue to be heavily impacted by insect outbreaks and chemical treatments are sometimes employed to prevent further damage. Working with land managers we will be able to see if the swifts avoid areas where insecticides are used or if they continue to forage in those areas. Furthermore, with this information, we can start identifying factors within foraging area hot spots that may influence this species survival. This will assist land managers in making informed decisions on where management may have the biggest impact on Black Swift foraging areas.

Goals and Objectives:

- 1) Determine foraging range, foraging duration and distance at breeding locations.
- 2) Identifying potential foraging hotspots or foraging areas surrounding breeding locations.
- 3) Determine a more precise wintering area for this species.
- 4) Determine whether Black Swifts perform "aerial roosting" on the wintering grounds, a behavior that has been documented with Common Swifts.

2018 Research Accomplishments:

We started our field season in early August and attempted to recapture 5 gps tags that were deployed in 2017. We conducted 8 recapture attempts at 3 sites in western Colorado and deployed 7 wing activity devices. The total field effort hours were approximately 243 hours. We leveraged monies received from the Lois Webster Fund to support our field work operations. We successfully recaptured 2 gps tags and are currently analyzing the data. Preliminary findings show average foraging distances of approximately 160 kilometers and an average foraging height of 10,200 feet. Figure 1 shows an example of one daily foraging flight.

Acknowledgements: We are indebted to all our donors and funders. Special recognition to our research team, citizen scientist Carolyn Gun, wildlife biologist Kim Potter and longtime Black Swift conservationist Sue Hirshman for all their valuable contributions and continued support. The Lois Webster fund and the Denver Field Ornithologists were an invaluable funding source and provided much needed funds for 2018 field work. Jason Beason was influential in the initial stages of the project and Rich Levad a guiding force.

Thank you for your support!

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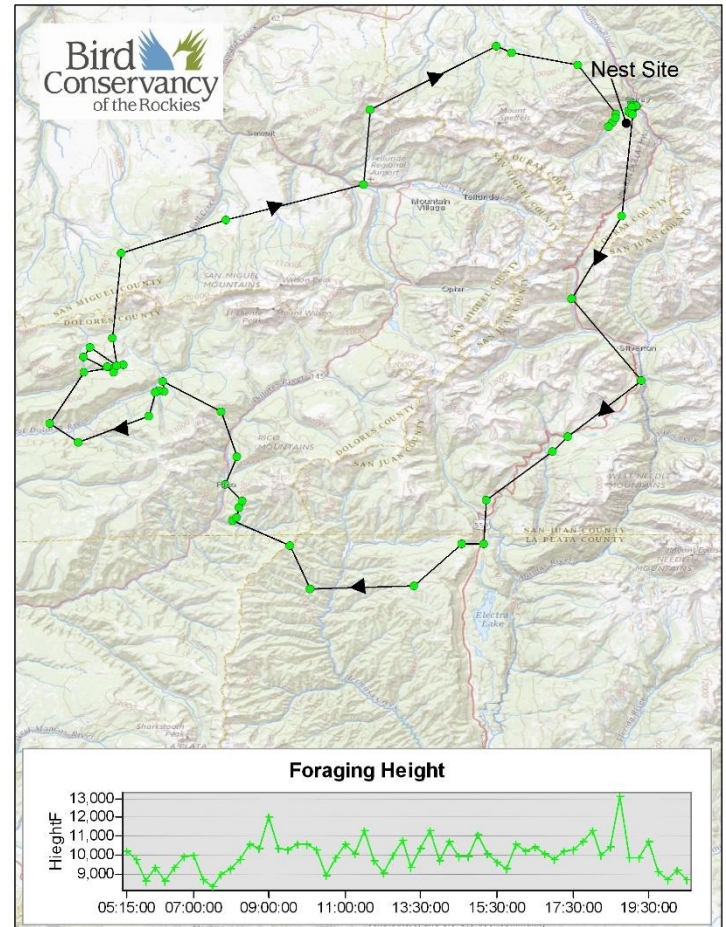


Figure 1. Map of one foraging flight. Bottom inset shows elevation (y axis) in feet and time (x axis).