



Assessing the status of declining Rusty Blackbirds on DoD lands in Alaska

Project # 10-337

Background:

Range-wide declines among Rusty Blackbirds (*Euphagus carolinus*, Fig. 1) have been documented for 15 years and are now tantamount to an 87–98% reduction in population size. However, it has not been until recently that studies have sought to quantify the species' requirements or understand the reasons for its alarming decline. From 2007-2010, we examined the ecology Rusty Blackbirds breeding on military lands in Alaska. Our work clearly highlighted the importance of military lands in providing unfragmented wetlands that supported an abundance of breeding Rusty Blackbirds with relatively high reproductive success, low exposures to environmental contaminants, and low prevalence of diseases. Despite these signs of population health, the species continues to decline at a rate of 5–12% per year across its range, including a 5% decline per year in Alaska.

Objective:

In 2010, we continued our surveys, nest monitoring and mark-recapture study to help understand whether the species' continued decline on military lands in Alaska is due to deficits in the rate of reproduction, adult survival, or recruitment of young birds into the breeding population (Fig. 2). We recovered three Rusty Blackbirds harnessed with global locating sensing devices (geolocators) in 2009 which permitted us to look at migratory pathways and wintering grounds for these three individuals. Finally, we completed an assessment of mercury contamination in aquatic invertebrates (potential Rusty Blackbird food sources).

Summary of Approach:

We conducted our study on Joint Base Elmendorf-Richardson in Anchorage, the Tanana Flats Training

Area on Fort Wainwright and nearby lands in Fairbanks, Alaska. We searched for and monitored Rusty Blackbird nests and estimated nest survival. We also resighted color-banded adults and analyzed these mark-recapture data for apparent adult survival. We recovered three birds equipped with geolocators in 2009, and completed an assessment of mercury contamination in potential Rusty Blackbird food sources.

Figure 1. An adult male Rusty Blackbird calling from a willow (*Salix* sp.) in the Fairbanks study area.



Benefit:

Information on important habitats, reproductive success, adult survival, migration, contamination, and limiting factors will all help international efforts to understand the mechanisms driving the species' population decline, identify important areas and habitats for conservation, and ultimately to implement measures to reverse the dramatic population decline before the species is listed as threatened or endangered and costly recovery efforts are required. The presence of endangered or threatened species on military installations creates significant demands on funds and manpower to implement monitoring and protection



plans. Plans must be created or modified to address the management of a newly listed species and new methods must be designed and employed, specific to that species. The listing of the Rusty Blackbird may also create new restriction on land use, both in known habitat and critical habitat. By avoiding such listings, training areas coinciding with Rusty Blackbird use, and/or containing critical habitat should have minimal impact to readiness training and other installation uses.

Figure 2. Typical nest location in a willow (*Salix* sp.) in the Tanana Flats Training Area, near Fairbanks, AK.



Accomplishments:

We found that the overwinter survival of adult Rusty Blackbirds tied closely to the study area. For the first time we had a large enough sample size to address birds breeding in the Tanana Flats Training Area. These birds had an estimated survival probability of 0.88 ± 0.227 . This number was substantially greater than our survival estimates for birds breeding in Anchorage (0.32 ± 0.057). However, survival estimates of Anchorage birds for the winter 2009-2010 were likely strongly influenced by the presence of the geolocators on a large proportion of the marked population. The harness system and associated hardware may have negatively impacted survival.

We recovered three adult Rusty Blackbirds which were equipped with geolocators in 2009. We were able to use data from these devices to determine migratory paths and wintering areas for these individuals. The data indicate that all three birds followed similar migration routes. Two birds wintered in the central Great Plains (Kansas and Nebraska), and one wintered in the lower Mississippi River drainage of Arkansas (Fig. 3)

Figure 3. Annual movements of three Rusty Blackbirds breeding at Joint Base Elmendorf-Richardson from 2009-2010.



Finally, we found from our assessment of mercury contamination in potential Rusty Blackbird food sources (aquatic invertebrates) and foraging areas that birds in the Fairbanks study area were exposed to higher levels of total mercury and the more dangerous methylmercury than birds in the Anchorage study area. However these levels were lower than those known to produce significant sub-lethal effects, but warrant further monitoring.

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