



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

Project # 09-337

### Background:

Range-wide declines among Rusty Blackbirds (*Euphagus carolinus*) have been documented for 15 years and are now tantamount to an 87–98% reduction in population size. However, it has not been until recent years that studies have sought to quantify the species' resource requirements or understand the reasons for its alarming decline. In 2007 and 2008, 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 2009, we continued our surveys and nest monitoring and began a 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. Such information is important to identify the life stages and times of year when populations are most limited.

Additionally, we harnessed nesting birds with global locating sensing devices (geolocators) to track their daily movements throughout the year. We also continued to collect blood and feathers from Rusty Blackbirds to help complete three cross-seasonal studies that examine the flyway structure, contaminant burdens, and prevalence of disease in breeding and wintering populations.

### Summary of Approach:

We conducted our study on Fort Richardson and Elmendorf Air Force Base in Anchorage, and the Tanana Flats Training Area on Fort Wainwright near Fairbanks, Alaska. We searched for and monitored Rusty Blackbird nests among wetlands and estimated nest survival. We also captured adults in mist nets placed near their nests, marked each captured bird with a unique combination of colored-leg bands, and estimated apparent annual adult annual. We also used

a synsacrum harness and fitted each captured adult in Anchorage with a geocator that weighted 2.3 g with the harness. Finally, we completed our sampling of blood and feathers from Rusty Blackbirds.

### Benefit:

Information on important habitats, reproductive success, adult survival, migration, 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. By avoiding such listings, training areas coinciding with Rusty Blackbird use should have minimal impact to readiness training and other installation uses.

### Accomplishments:

We found that the number of Rusty Blackbird pairs nesting on military lands in Alaska in 2009 declined 24–33% from the numbers we observed in 2007 and 2008. This decline appears to be the result of few young birds being recruited into the breeding population because annual adult survival increased from 34% in 2008 to 70% in 2009. The low recruitment rate does not appear to be due a low reproduction rate because nest success remained constant and relatively high from 2007–2009 (62% of nests fledged young). Thus, the deficit in recruitment is most likely resulting from a lower survival rate of young compared to older birds.

We also harnessed 17 nesting Rusty Blackbirds with geolocators in 2009. These devices are a new technology that is already revolutionizing what we know about avian migration. Once retrieved in 2010, the geolocators we deployed will provide us with the first year-around picture of the migrations, stopover locations, and wintering areas of Rusty Blackbirds.

Finally, our study on Rusty Blackbirds breeding on military lands in Alaska has contributed to the five papers accepted for publication as part of a special feature on the Rusty Blackbird in a forthcoming issue of the ornithological journal, *The Condor*. This includes two papers on the species' breeding habitat requirements and nesting ecology in Alaska and Canada. It also includes the finding of three cross-seasonal studies that we



contributed blood and feathers to from 2007–2009. These studies provide important range-wide perspectives into the species by using feather isotopes to identify Mississippi and Atlantic flyways, contaminants analyses to identify extremely high methylmercury levels among Rusty Blackbirds breeding in New England and the Maritime Provinces, and disease screening to show that wintering populations have an unusually high prevalence of blood parasites, a sign of high stress. Thus, this work funded by the Department of Defense’s Legacy Resources Management Program has contributed greatly to our growing understanding of the range-wide ecology of this migratory species in decline.

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Figure 1. Typical nesting habitats for Rusty Blackbirds breeding on Elmendorf Air Force Base, Alaska.



Figure 2. A male Rusty Blackbird in breeding plumage, Fort Wainwright, Alaska. Photograph by David Shaw ©.



Figure 3. Newly hatched Rusty Blackbirds on Fort Richardson, Alaska.



Figure 4. Nestling Rusty Blackbirds shortly before fledging, Elmendorf Air Force Base, Alaska.

