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Historical examination of hummingbird banding at Dan Brown's ranch in Christoval, Tom Green County, Texas

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Historical examination of hummingbird banding at Dan Brown's Ranch in Christoval, Tom Green County, Texas. ROSS DAWKINS, *Dept. Chem. & Biochem., Angelo State Univ., San Angelo, TX*, and BRENT ORTEGO, *Texas Parks & Wildl. Dept., Victoria, TX.*

For several decades Dan Brown has been feeding corn to white-tailed deer, Wild Turkey, birdseed to smaller birds, and sugar water to hummingbirds. Currently, he feeds 15 tons of corn, 5 tons of birdseed, and >800 lb sugar/yr. He has created a mega feeding station for wildlife. Dawkins described these phenomena to John Tautin, who was then head of the Bird Banding Laboratory, and Tautin said this was the type situation that warranted a large banding effort. We started banding birds at Dan's in 1995 and have continued to the present. We have banded more than 6000 hummingbirds of six species with >90% being Black-chinned Hummingbirds. In addition to hummingbirds, we have banded over 15,000 other birds of 117 additional species. Dan's ranch is several miles north of Anson Spring, which is the headwaters of the South Concho River and flows north through the ranch. Just south of Dan's ranch are additional springs, which feed the South Concho River. Dan's ranch is comprised of riparian area lined with pecan, cypress, walnut, and elm; old live oak motts; pecan orchards, and oak, juniper, and mesquite pasture land. The surface water and the relict floodplain forest are not typical of western Edward's Plateau. The avifauna of Dan's ranch is also not typical of the Concho Valley. We have mist-netted all over the region for 25 yr and there are 15 species of birds that we have caught only at Dan's. To review the hummingbird situation at Dan's we will analyze several types of data. To attempt a standardized view of the hummingbird situation, we have made a major effort on the third Friday of each June since 1997 to catch as many individuals as possible just prior to the start of fall migration. Generally, Bob and Martha Sargent and their crew and Brent and Sue Ortego and their crew have joined Debra and Ross Dawkins and their crew to make this effort possible. Banding generally ran from 07:00 to 17:00. Wire traps, Russell traps, and flat mist nets have been used. Table 1 shows hummingbirds caught each year and their age breakdown. The percent of young is generally both a measure of reproductive success and an indication of average life span measured in reproduction years. Others have found that about one third of eggs laid produce young in Black-chinned Hummingbirds. If all adult females lay two eggs/clutch and only a few produce a second clutch, then a proportion of 33% young which we observed is consistent. Because the percent young averages around 33%, this would indicate an average minimum reproductive life span of two years to maintain a stable population. The assumption is that the snapshot of the composition of the population in late June is representative. It is probably a safe estimate that two adult hummingbirds require more than one breeding season to replace themselves with two reproducing progeny in a static population. Table 2 shows the sugar consumption in pounds of sugar per season. Because the amount is increasing, we assume availability of sugar is not the limiting factor in population. The average of 670 lb/yr is 1.2 x 106 kcal/yr or about twice the caloric intake of a human in a year. Table 2 also shows the average sugar consumption per day during selected weeks. The maximum is around 1 Jul when a 10-yr average of 6.4 lb/d have been consumed. This is 11,900 kcal. Black-chinned Hummingbirds have a measured field metabolic rate of 29 kj/d, which is 7 kcal/d. If a hummingbird is getting half its energy from sugar water feeders, then 11,900 kcal/d corresponds to 3,400 birds.

banded on Appledore Island, ME, we compared recapture rates and stopover lengths (both minimum and stopover duration analysis [SODA]) between the seasons. The recapture rate for most species analyzed was significantly higher during fall. The minimum stopover was also longer during fall. When each year's record of Red-eyed Vireo data was analyzed, there was a general pattern showing minimum stopover and SODA stopover to be longer during fall. Annual recapture rates for this species were also significantly higher during fall. It appears that there are seasonal differences in the stopover ecology of migrating birds. Birds have longer stopovers and higher rates of recapture during fall compared to spring. Our results are consistent with the hypothesis that avian behavior during spring migration is influenced by the need to arrive early on breeding grounds, while fall migrants are not time limited at this northern stopover site.

Location, location, location: comparison of stopover at two sites. KATHRYN E. MATTERN, *Canisius Coll., Buffalo, NY*, REBECCA W. SUOMALA, *Univ. New Hampshire, Durham, NH*, MELISSA S. MUSTILLO, PEGGY E. BUCKLEY, SARA R. MORRIS and H. DAVID SHEETS, *Canisius Coll.*

Migratory passerines utilize stopover sites to refuel fat stores, rest, and avoid predation. During fall migration, birds traveling from breeding to wintering grounds may stop at the Isles of Shoals in the Gulf of Maine. Because of differences in vegetation, migrants may be using individual islands differently. The goal of this project was to compare recapture rates and stopover lengths of migratory passerines on two islands, Appledore Island and Star Island, in the Isles of Shoals during fall migration during 1999 and 2000. Five species had adequate banding records for comparison. Magnolia Warblers had a greater recapture rate on Star Island during 2000, and Red-eyed Vireos had a greater rate on Appledore Island during both 1999 and 2000. Stopover length was significantly longer on Appledore for both Northern Waterthrushes during 1999 and Red-eyed Vireos during 2000. Only Red-eyed Vireos during 2000 could be compared using CMR models, as they tended to stay on Appledore longer than on Star Island. These results indicate that migrants are using these two sites differently, despite the proximity of the sites. Further study is needed to establish the factors affecting stopover decisions of migrants and how best to determine the importance of individual sites.

Sex-related differences in the migration of Northern Saw-whet Owls. SARAH M. MUSILLI, MICHAEL S. HURBAN, EMILY A. CARUANA, *Canisius Coll., Buffalo, NY*, SCOTT WEIDENSAUL, *Ned Smith Center for Nature and Art, Millersburg, PA*, H. DAVID SHEETS and SARA R. MORRIS, *Canisius Coll.*

Northern Saw-whet Owls are small, nocturnal, migratory owls that show reverse sexual size dimorphism, in which the females are larger than the males. Although little is known about their migratory patterns, they are believed to show differential migration, in which one sex migrates before the other. The analysis of 2374 Northern Saw-whet Owls banded in Pennsylvania during the fall migration seasons of 1998 - 2003 documented several sex-related differences in migration. Our results confirmed that females were significantly larger than males, with higher mass and longer wing-chords. Females were in better body condition, having significantly higher condition indices (mass * 100/wing-chord) and keel scores. Although there were no differences found between the sexes in the date of arrival or the diel time of capture, males were captured at rates significantly lower than females, accounting for only 10% of the captures. Furthermore, males were recaptured significantly less frequently than females. The lack of male recaptures precluded additional comparisons of males and females with respect to stopover ecology. Additional study, particularly from other locations, is needed to determine whether the high capture rates of females is due to differential migration, differential capture probability, or both.

No. Saw-whet Owl by George West