

****Use of Autonomous Recording Units (ARUs) in Assessing Arrival Phenology of a Migratory Bird in The Northern Great Plains**

Amber Swicegood*, Montana State University, Bozeman
Kevin Ellison, American Bird Conservancy
Marisa Sather, US Fish and Wildlife Service
Scott Somershoe, US Fish and Wildlife Service
Lance McNew, Montana State University - Wildlife Habitat Ecology Lab, Bozeman

*Indicates Presenter

**Indicates Student Presentation

Autonomous recording units (ARUs) are increasingly used in avian research to monitor bird populations in place of human observers. ARUs are particularly useful in remote locations and allow researchers to collect continuous and systematic temporal sampling with reduced field effort. As part of a larger study assessing whether crop fields operate as ecological traps for breeding thick-billed longspurs (*Rhynchophanes mccownii*), we used ARUs to compare arrival phenologies of longspurs in crop and native sites (n=20) at the core of their breeding range in northeast Montana. Secondary spillover from native sites into crop fields may indicate preference for native prairie habitats while earlier occupancy of crop sites may indicate preference of crop habitats. We used ARUs to document daily bird occupancy during the month of April in northern Valley County, Montana. We used dynamic occupancy models to estimate initial occupancy in crop and native sites and to derive estimates of latent occupancy across the 24-day survey period. We found no evidence that crop sites were occupied earlier than native sites. Site occupancy increased from 0.56 (0.12 SE) on April 7 to 0.99 (0.01 SE) on April 30 and was similar between crop and native sites. Our results demonstrate that ARUs may be a useful tool for assessing migration phenologies of vocal avian species, particularly once machine learning software is able to accelerate processing times of high-volume recording files.