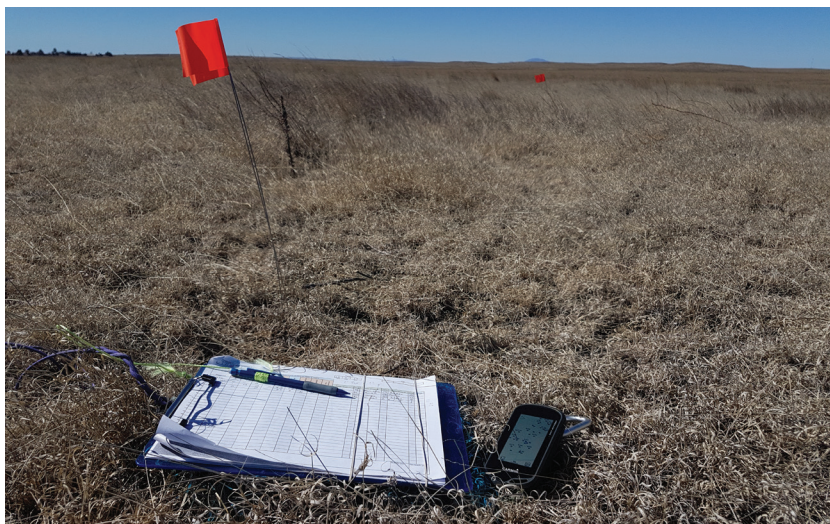


Wintering Grassland Birds in West Texas

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Baird's Sparrow (*Ammodramus bairdii*).



Vegetation data are collected in a 5 m circular plot for bird and grid points that are marked with a GPS.


Grassland bird populations have decreased 70-95 percent since 1966, yet causes of these declines are poorly understood. Grassland bird conservation is a high priority in most U.S. State Wildlife Action Plans, including in Texas, where at least 24 grassland-associated or grassland-dependent bird species are recognized as high priorities. More than 80 percent of grassland-obligate bird species that breed in the western Great Plains overwinter in the Chihuahuan Desert, where they concentrate into narrowly restricted native grasslands to survive the non-breeding period.

Increasing evidence suggests that factors limiting migratory grassland bird populations at their wintering grounds play an

important role in their population declines. Extensive habitat alterations and land use changes, including conversion of grassland to cropland, shrub encroachment, erosion and loss of perennial grass cover, are likely the main underlying factors of grassland bird population declines.

In conjunction with studies in Mexico, Canada, North Dakota and Montana, the Borderlands Research Institute is partnering with Texas Parks and Wildlife Department, Bird Conservancy of the Rockies and the Dixon Water Foundation to study two species of grassland birds: Baird's Sparrow (*Ammodramus bairdii*) and Grasshopper Sparrow (*Ammodramus savannarum*). Both species are migratory, spending summers in the Northern Great Plains

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Grasshopper Sparrow (*Ammodramus savannarum*).

and overwintering in the Chihuahuan Desert grasslands of the southern U.S. and northern Mexico.

Baird's and Grasshopper sparrows are grassland specialists, making them particularly vulnerable to habitat alterations affecting desert grasslands. The birds' presence can be used as an indicator of healthy grasslands; they can be found on ranches and other grasslands that use grazing systems that promote dense and tall grasses. Healthy grasslands will benefit both cattle and grassland birds, and research indicates that cattle grazing is compatible with these birds and may actually promote their presence if done according to a sustainable grazing scheme.

In the Marfa Grasslands of West Texas, we are monitoring winter survival rates of Baird's and Grasshopper sparrows, and we are determining home ranges and habitat preferences for the two species. In the winter of 2016 – 2017, 66 birds were outfitted with a VHF radio transmitter and a numbered USFWS leg band. BRI researchers tracked and located these birds daily from December to March, giving us a total of 1,855 bird locations.

This winter we are repeating the study, and at this time we have outfitted 78 birds with VHF transmitters that BRI researchers are tracking daily. This year we are also comparing two different grazing systems: moderate density rotational grazing and low density continuous grazing. We hope that this will give us more insight into the effects of different grazing systems on the survival and habitat use of these birds and how grazing may be used as a management tool in conservation efforts.

In addition to bird survival and location data, we also monitor habitat characteristics. For at least 20 telemetry locations per bird we collect vegetation data, including grass, forb and shrub cover and height, as well as the three most dominant grass species. We also collect habitat data across a grid of points spaced every 300 feet within the study area. In addition, drone technology is being



Graduate student Denis Perez releases a bird with a transmitter.

used to map the study area. The drone imagery will be used to characterize the site by estimating vegetation structure such as shrub and grass cover and to create digital surface models.

Our preliminary results from the previous winter indicate that home range size of both species is similar, with a mean of 18.8 acres per bird. We are also finding that birds prefer to utilize areas with more grass cover and less bare ground. By relating bird locations with habitat characteristics, we will be able to better understand habitat preferences and requirements of these two species. Data from the Marfa site will contribute to full annual cycle models that will help identify where populations of Baird's and Grasshopper sparrows are most limited. This knowledge can then be used to guide grassland management and conservation planning efforts. 🌱

