



Background:

Grassland birds have declined more dramatically within the past several decades than has any other assemblage of birds in North America. Factors contributing to this widespread decline include loss and degradation of grasslands by conversion to agricultural production, alteration of natural fire regimes, afforestation in the East, brush invasion in the Southwest, and planting of exotic grasses to enhance forage for livestock. Studies have been conducted on the effects of invasive grass species on breeding birds, but very little information is available on the response of birds in winter to invasive exotic grasses.



Sedge Wrens are small grassland birds that spend the winter in southern Texas. Photo by Charlie Spiekerman.

Objective:

This project provides information to the military on migratory bird use of training facilities. The overall goal was to assess wintering grassland birds and impact of invasive exotic grass species on migratory birds in southern Texas, which has more grassland acreage than any other state or Canadian province. Project objectives included comparisons between native and exotic grasslands of the following: 1) avian numbers and diversity, 2) vegetation characteristics, 3) arthropod assemblages, and 4) seed resources. In addition, the effects of grassland management activities on birds and rodents were investigated.

Summary of Approach:

Birds, vegetation, arthropods, and seeds were sampled in grasslands at the following Navy facilities: Naval Air Station (NAS)-Corpus Christi, NAS-Kingsville, Naval Auxiliary Landing Field (NALF) Waldron, NALF Orange Grove, and Escondido Ranch. Birds and vegetation were monitored in native and exotic grasslands during the winters of 2003-08. Arthropods were collected by sweep-net and pitfall traps, and seeds were gathered from both standing vegetation and the

ground. Birds and rodents were monitored in burned, mowed, and unmanaged (i.e., control) exotic grasslands.

Benefit:

This project, funded by the DoD Legacy Resource Management Program, increases understanding of how declining migratory birds respond to exotic grasses, thereby meeting the resource conservation mandate required under the Sikes Act. Recommendations on grassland management activities to control rodent populations (prey for raptors) can be integrated into Bird Aircraft Strike Hazard (BASH) consideration.



Native coastal prairie at NALF Waldron, Corpus Christi, Texas.

Accomplishments:

A total of 1,044 birds of 30 species, including seven species of conservation concern, were detected during bird surveys. The most common bird (63% of all birds) was the Savannah Sparrow, a grassland species. Native grasslands supported a greater diversity of birds (2.2 species/survey) than did exotic grasslands (1.6 species/survey). There was no difference in overall bird numbers between grassland types in 3 of the 5 winters examined. Native grasslands were characterized by more forb cover, more bare ground, greater plant diversity, and less grass cover and fewer seeds than exotic grasslands. Native grasslands also had less insect diversity in some seasons and less vegetation density during dry years than exotic grasslands. Rodents were more common in unmanaged than in mowed or burned grasslands. This study showed that native and exotic grasslands were different structurally, and that native grasslands supported greater bird and plant diversity than exotic grasslands.

Contact Information:

Dr. Marc Woodin, Station Leader
Texas Gulf Coast Field Research Station
U.S. Geological Survey
Columbia Environmental Research Center
6300 Ocean Drive, Unit 5838
Corpus Christi, TX 78412-5838
Phone: 361-985-6266 E-mail: marc_woodin@usgs.gov

