

## Project Highlight – SD State Wildlife Grant

**Project Type** Research and monitoring

**Title** Evaluation of artificial bat roost selection and occupancy in South Dakota ecoregions

**In a nutshell** Degradation, destruction or improper exclusion of bat from existing natural and human-made bat roosts is a primary threat to bat populations. Artificial bat roosts or bat houses can help address these losses. Information on bat box construction and success exists, but no information is specific to South Dakota.

**Relevant Species of Greatest Conservation Need** Fringed-tailed myotis (*Myotis thysanodes pahasapensis*), Northern long-eared bat (*Myotis septentrionalis*) and Townsend's big-eared bat (*Corynorhinus townsendii*)

**Relevant Habitats** Great Plains Steppe, Missouri River and Eastern Prairie ecoregions as identified in the Wildlife Action Plan

### Purpose

- Determine optimal bat house designs for habitat specific ecoregions in South Dakota
- Record and assess occupancy and microclimate of existing artificial roosts for comparison with historical data
- Develop bat house design recommendation plans for landowners and homeowners; coordinate with SDSU Extensions Service
- Evaluate potential for a continued volunteer monitoring program at sites
- Assess potential influence of environmental factors on artificial roost selection/occupancy
- Perform acoustic surveys at occupied sites for determination of bat species present

**Timeframe** 2011-2012

**Location** statewide

### Summary or Important Findings

- Three types of bat houses were tested at 26 sites across the state (single-cavity Eurobox, multiple chambers, free standing rocket box and a multiple chamber BCI maternity roost)
- 10 of 25 sites remaining in 2012 were occupied
- All bat boxes were occupied at 9 sites
- Occupancy was dependent upon existing bat activity in an area and Level III ecoregion (as defined by the Environmental Protection Agency)
- The RocketBox appeared to be preferred by bats, but this preference was not statistically supported

- Recommended the BCI box because of the variation in temperature difference throughout the box that would provide conditions for solitary male, pregnant or lactating females to roost in, is easier to construct than the RocketBox and still has a good probability of occupancy.
- Trained volunteers from local outdoor or youth groups should be used to monitor bat house occupancy.

**Best contact person**      Silka Kempema, SDGFP or Scott Pedersen, South Dakota State University