
**PASSIVE ACOUSTIC MONITORING FOR BATS IN SUPPORT OF THE
COYOTE WIND PROJECT, SWEET GRASS COUNTY, MONTANA**

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Wind energy development in the United States has been increasing rapidly and is expected to continue to do so. There are many benefits to producing wind energy; however

it is also important to understand potential negative effects and ways these impacts could be mitigated. Impacts to bats, and how to predict and mitigate impacts, are less well known than wind project impacts to birds. We conducted passive acoustic monitoring from 29 August to 6 November 2008 in Sweet Grass County, Montana, as part of pre-construction surveys for Enerfin Energy Company's proposed Coyote Wind Project. We deployed four Anabat acoustic detectors on two portable towers at 1.5- and 20-m heights, and recorded data nightly. We used these data to evaluate bat activity over the study period; within each night; relative to wind speed; relative to temperature; and relative to instrument heights. We recorded 668 echolocation files in 3 phonic groups. Bat activity was highest between 29 August and 1 October, and within 3 hrs of sunset. Bat activity peaked at wind speeds of 2-3 m/s and dropped off with increasing wind speeds to about 8 m/s. Bats were most active at air temperatures between 5 and 20 °C. Instrument height and bat phonic group were significantly correlated. These results are generally consistent with those found by Arnett et al. (2006) in Pennsylvania. Increasing our understanding of environmental parameters and bat activity in Montana will contribute to appropriate wind project siting and mitigation.