

Assessment of Activity Transmitters Based on Behavioral Observations of Coyotes, Bobcats, and Raccoons

by

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ABSTRACT

Coyotes (*Canis Latrans*), bobcats (*Lynx rufus*), and raccoons (*Procyon lotor*) are important carnivores in the United States. Many studies have examined their home ranges, habitat use, and diet, but few have examined their activity patterns. In this investigation, injected-pulse activity transmitters were tested on coyotes, bobcats, and raccoons in zoos to determine their usefulness in field studies of the activity patterns of these species.

Prediction accuracies of the transmitters were calculated for coyotes, bobcats, and raccoons based on the pulse rates of the collars and simultaneous visual observation of the behavior of the carnivore. All coyotes, except one, had prediction accuracies above 76% correct in predicting active and inactive activity levels. Bobcats had prediction accuracies that were above 66%. All the raccoons tested, except one, had prediction accuracies below 67%.

Field tests were conducted on wild coyotes, bobcats, and raccoons to verify that the results obtained on captive carnivores were reproducible with wild carnivores. Results supported the conclusion that these collars could accurately determine activity of wild coyotes and bobcats in the field but were not accurate when used on raccoons.

Collars were also tested in the laboratory to determine if an orbital shaker could be used to anticipate differences in the prediction accuracy of individual collars and if these differences were correlated to the differences in prediction accuracy observed in the zoo tests. Differences in the sensitivity of the collars were quantified using the orbital shakers. However, these differences were not correlated with differences observed in the prediction accuracies.

Injected pulse activity transmitters probably can be used to accurately determine activity of wild coyotes and bobcats, but they are not appropriate for study of raccoon activity. Differences in the sensitivity of collars to movement may influence their accuracy when placed on a carnivore, but this could not be verified using an orbital shaker.