

A TECHNIQUE FOR DEPLOYMENT OF RUMEN BOLUS TRANSMITTERS IN FREE-RANGING MOOSE (*ALCES ALCES*)¹

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ABSTRACT

Rumen boluses have been routinely used in domestic animals to prevent disease, administer medications, and provide identification. Recent uses for rumen boluses in wildlife, such as collection of physiological data, have made it necessary to adapt deployment techniques developed for livestock to free-ranging animal populations. Research aimed at determining causes of mortality in Minnesota free-ranging moose (*Alces alces*) included the use of a rumen bolus, called a mortality implant transmitter (MIT), to monitor heart activity and provide instant notification of death. In 59 attempts to deploy MITs from 2013-2014, 16 (27%) failures occurred when boluses were not swallowed. As a result, in 2014, captive moose (n = 10) in Alaska were utilized to evaluate new methods for MIT deployment. Measurement of distances from the mandible to the nose and from the mandible to the commissure of the lips in both skulls and captive live moose provided guidance for selection of an appropriate-sized bolus applicator. A Schulze mouth gag was used to aid insertion of the applicator and canola oil was used to lubricate the bolus to facilitate swallowing. Time to first swallow following sedative reversal was measured in both captive moose (Alaska) and free-ranging moose (Minnesota) and found to be less for captive moose (2.3 ± 0.2 min, n = 10) than free-ranging moose (4.4 ± 0.8 min, n = 20), and time to continuous swallowing was 8.1 ± 1.0 min for 18 free-ranging moose. Using the new technique, success rates for MIT deployment were 100% (10/10) for captive moose and 85% (20/23) for free-ranging moose in 2015. Thus, it is recommended that rumen bolus placement in free-ranging moose be attempted using appropriately sized equipment at least eight minutes after sedative reversal when using a xylazine/tolazoline drug combination.

¹ Journal of Zoo and Wildlife Medicine. 2017. *In review.*

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