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Telemetrical monitoring of the peripartum period in free-ranging Cervids through vaginal implants

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An alternative design of intravaginal transmitters to monitor parturition in free-ranging cervids is described. Earlier methods were based on surgery (one-hour procedure) leading to a mortality rate of 24% (Garrott & Bartmann, 1984). The novel design described features mechanical retention of radio transmitters through the use of a plastic retaining device. Fabrication is simple and designed to easily allow conversion of implants to fawn transmitters for subsequent monitoring of young. As part of a larger study (Flueck, 1994), adult black-tailed deer (*Odocoileus hemionus columbianus*) were captured during spring migration (April) to receive neck and intravaginal transmitters. Yearlings, small 2-year old animals and primiparous females could not be fitted with implants. Average time necessary to place implants (n=28) was three minutes. However, 17 transmitters were expelled within few days and before females reached their summer home ranges, indicating that further modifications of retainers to better conform to reproductive tract anatomy of mature females may improve their efficacy. Impact on females expelling devices prematurely is judged to be minimal. Furthermore, long-term survival of animals through the following summer was independent of implants used successfully (n=11), unsuccessfully (n=17) or not at all (n=39). Average time interval between placing implants and parturition was 66 days (SE=9.8; range 18-122). Ten implants allowed determination of time and exact location of parturition, in spite of rough terrain and dense understorey vegetation. In eight cases, attempts were made to locate fawns within 24 hours of expulsion of implants. In one case, dense brush was probably responsibly for not finding fawns which were seen frequently later on during the summer. The remaining seven cases yielded a total of 12 fawns captured. In three cases, fawns were found about 200m from sites of parturition, while in four cases distances were 3-20m. This difference may be related to time intervals between parturition and capture of fawns. For successful capture of fawns, which had moved substantially in dense vegetation, it was essential that mothers also had neck transmitters. Fawning period based on implants was 22 May to July 30, corroborating direct observations on the herd. Females with twin fawns included two aged 16 years and another of 12 years of age. This method allows studying of valuable ecological parameters important in free-ranging black-tailed deer and could be adapted for investigations on other ungulate species.

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Recent Developments in Deer Biology

PROCEEDINGS OF THE THIRD INTERNATIONAL CONGRESS ON THE BIOLOGY OF DEER

28 August - 2 September, 1994
Edinburgh, UK

Edited by J.A. Milne

ISBN: 0-7084-0598-3
1998

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