Effectiveness of Covered Track Plates for Detecting American Marten[TWS]

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I assessed the effectiveness of covered track plates for detecting American marten in western Montana by 1) estimating the probability of detecting marten when they are present on a survey unit (POD_{su}), 2) estimating the probability of detecting a particular individual that resides on a survey unit (POD_{ind}), and 3) assessing the behavior of marten near track plates. Additionally I tested the validity of deriving POD_{su} from latency to detection (LTD). I radio-collared and branded the toe pads of 1-2 marten on each of 10 10.44-km^2 survey units. I located marten daily during 12-day survey periods. Concurrently, I deployed track plates as per the USFS protocol. Additionally, I monitored a subset of track plates with modified telemetry systems (MTS) that logged the presence of marten near plates. Radio locations indicated that all collared marten were present on their respective survey units and should have been detected by plates. POD_{su} was fairly high (POD = 0.70, n = 10, 95% CI: 0.42 – 0.98), but POD_{ind} was quite low (POD_{ind} = 0.067 – 0.133, n = 15, 95% CI: 0.00 – 0.31). MTS data indicated that 2 of 8 marten approached track plates, but never entered. POD_{su} derived empirically was lower than that derived from LTD. Track plates seem to work acceptably well in areas where marten densities are relatively high. However, low POD_{ind} indicates they may not work as reliably in areas with low marten density. More research is required to determine how POD varies with marten density, home range, behavior, and environmental variables.