Large-Scale Camera-Based Monitoring for Ungulates in Northwestern Montana

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Traditional aerial surveys cannot reliably count deer and elk populations in areas with dense forest canopy cover. This information gap hampers the ability of agencies to assess population status, set evidence-based hunting seasons, and evaluate management outcomes. Montana Fish, Wildlife & Parks (FWP) and the University of Montana are collaborating on a 5-year (2023–2028) research project to evaluate remote camera-based monitoring methodologies for northwestern Montana management units. Although camera traps offer a promising alternative to aerial surveys, robust population estimates still depend on meeting key assumptions about animal classification, quantification, and behavior. Challenges related to accurate viewshed estimation, as well as logistical constraints such as access and cost, further motivate a focused evaluation of methods and sampling designs. This project will develop, evaluate, and refine camera-trap protocols to: 1) estimate populations and spring recruitment, 2) evaluate sampling designs to reduce field costs, compare viewshed quantification techniques, and assess how animal behavior affects density estimates, and 3) determine how ungulate distributions change seasonally and respond to forest disturbance, predators, and hunting pressure. Data collection began in summer 2024 and will continue into summer 2026. This work is intended to provide critical population monitoring tools to improve elk and deer management across northwestern Montana. Project objectives, methods, and progress will be discussed.