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WORKSHOP SUMMARY: RADIO TELEMETRY APPLICATIONS IN WILDLIFE RESEARCH

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Radio telemetry is a widely accepted tool in the field of wildlife ecology, yet there is little information in the wildlife literature that demonstrates how to incorporate spatiotemporal data from telemetry into spatial databases such as geographic information systems (GIS). Therefore, we designed a workshop that discussed biological applications of radio-tracking data; explained how to obtain radio-tracking data; demonstrated how to process these data using personal computer software; and offered examples of how to incorporate much of this information into a GIS. Demonstrations in the workshop were combined to represent a work-flow which included the following processes: (1) download global positioning system (GPS) point data, differentially correct the data and create point coverages using Trimble Pathfinder[™] software; (2) attribute the data with animal ID and habitat information, (3) construct home range polygons from point data and generate polygon coverages in Arc/Info[™] or ArcView[™] software; (4) estimate habitat use (spatial data from polygon coverages) versus habitat availability (spatial data from an existing GIS) at multiple spatial scales using compositional analysis; (5) determine survival at multiple temporal scales from point telemetry data using Kaplan-Meier method generalized to adjust for staggered entry; and (6) determine cause-specific survival at multiple temporal scales from point telemetry data using methods outlined by Heisey and Fuller. Discussion included radio-location techniques; choosing map coordinate systems and geodetic data; sources of GPS error; considerations and limitations of home range estimators, to include various software packages; levels of habitat use and how to quantify habitat availability; strengths and weaknesses of use vs. availability estimators; and sample size considerations in radio telemetry research.

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