APPENDIX 1

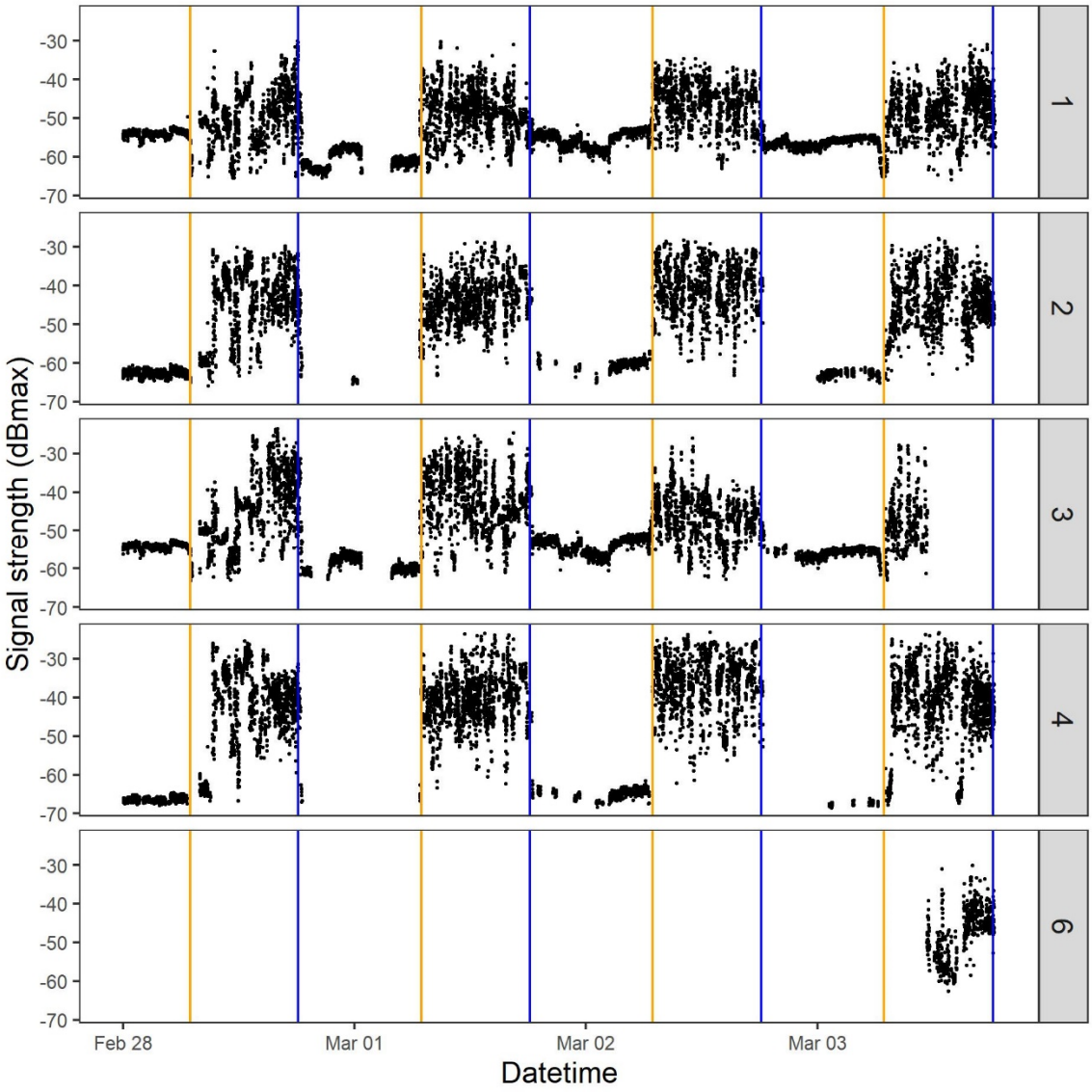

Fig. A1.1. Exemplar Motus detection data for a single bird at the Old Cut Motus station. Shown are signal strength (dB relative to the digital maximum) versus time on five dates at each of five antennas. Also shown are sunset (blue vertical lines) and sunrise (orange vertical lines). At night, low signal strength variability or no data suggest that birds are roosting. High signal strength variability during the day indicates that birds are moving and presumably engaging in routine diurnal activities like foraging and flocking. Gaps in the detection histories occur because detection is imperfect.

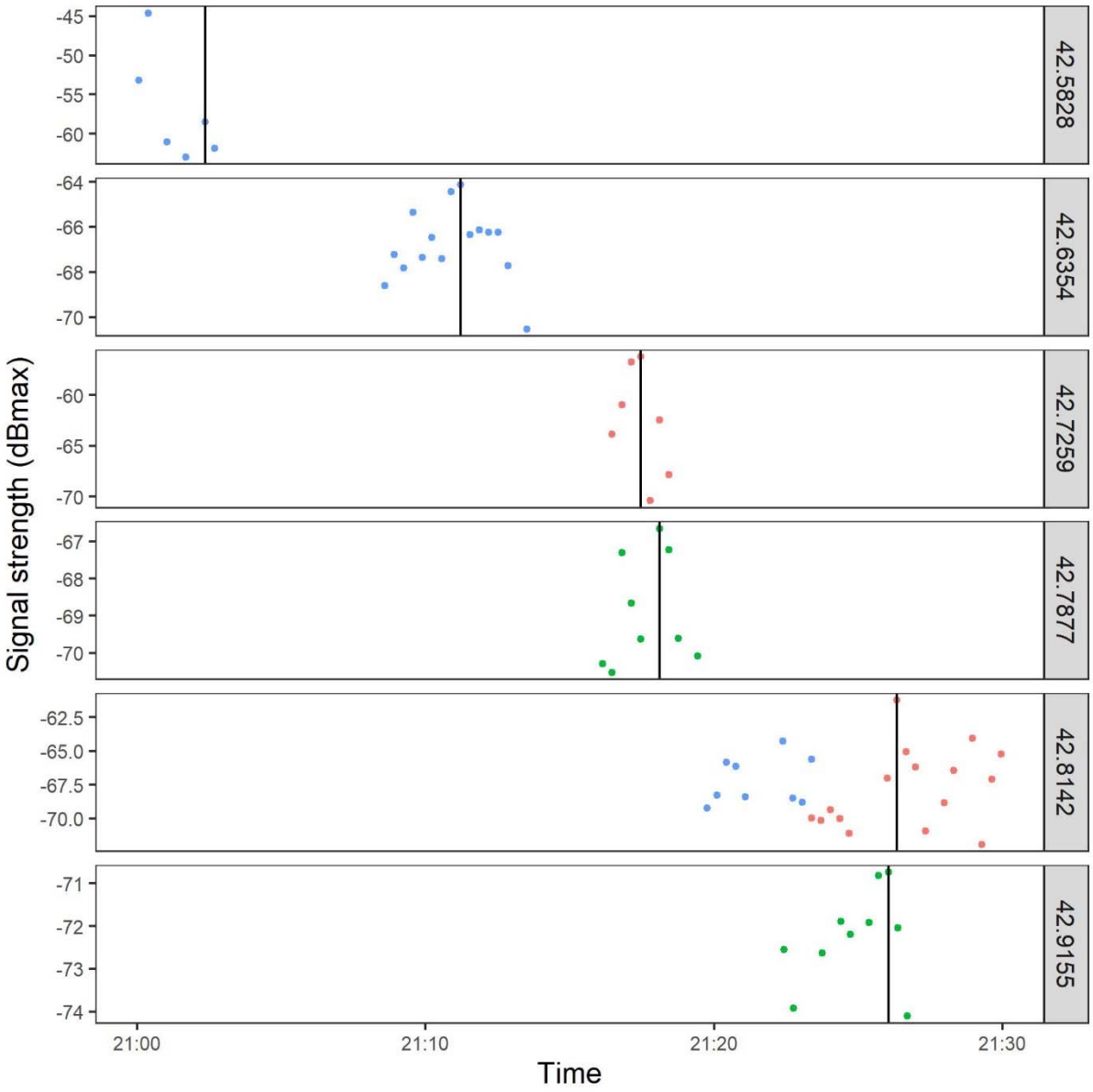

Fig. A1.2. Exemplar Motus detection data for a single bird showing its departure from Old Cut (top panel) and nocturnal fly-bys at five Motus stations (lower panels). Shown are signal strength (dB relative to the digital maximum) versus time at each of six stations sorted by latitude. Within a panel, different colors represent different antennas. Fly-bys are isolated and short sequences of detections at a single Motus station and antenna. They show a pattern of increasing then decreasing signal strength, although the data are noisy. Fly-bys likely characterize a nocturnal flight. In this example, the ordering of fly-bys by latitude indicates that the nocturnal flight is northward.

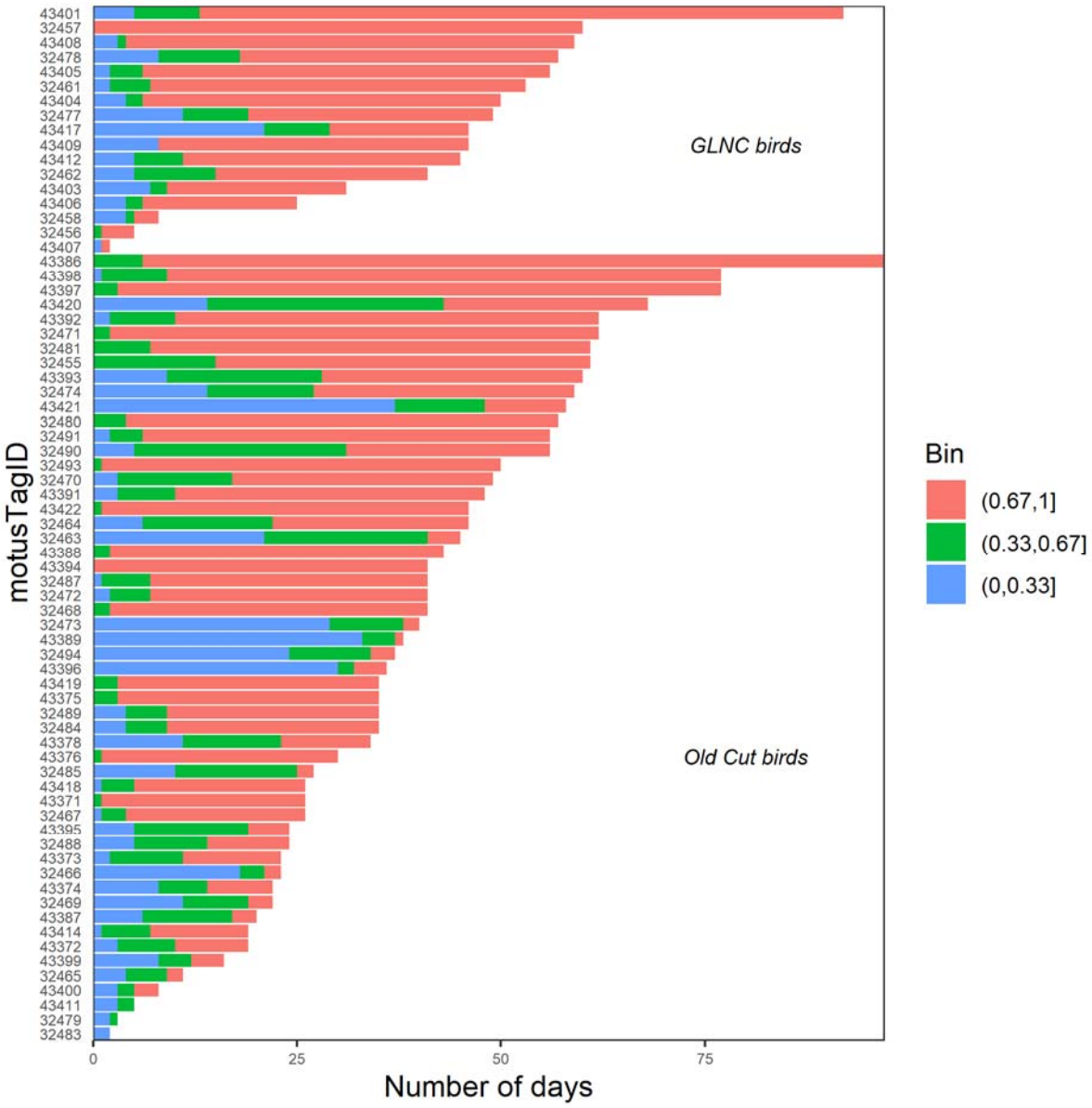

Fig. A1.3. A representative of data coverage between sunrise and sunset for American Tree Sparrows tracked by Motus (n = 71). The stacked bars show the number of days with diurnal detections. The colors represent different hourly detection rates. Red indicates that tags were detected at least once during 67-100% of the hourly periods of a given day; green indicates that tags were detected during 33-67% of the hourly periods; and blue indicates that tags were detected during fewer than 33% of the hourly periods. Tags are sorted by capture site (GLNC birds above and Old Cut birds below) and number of days with detections.

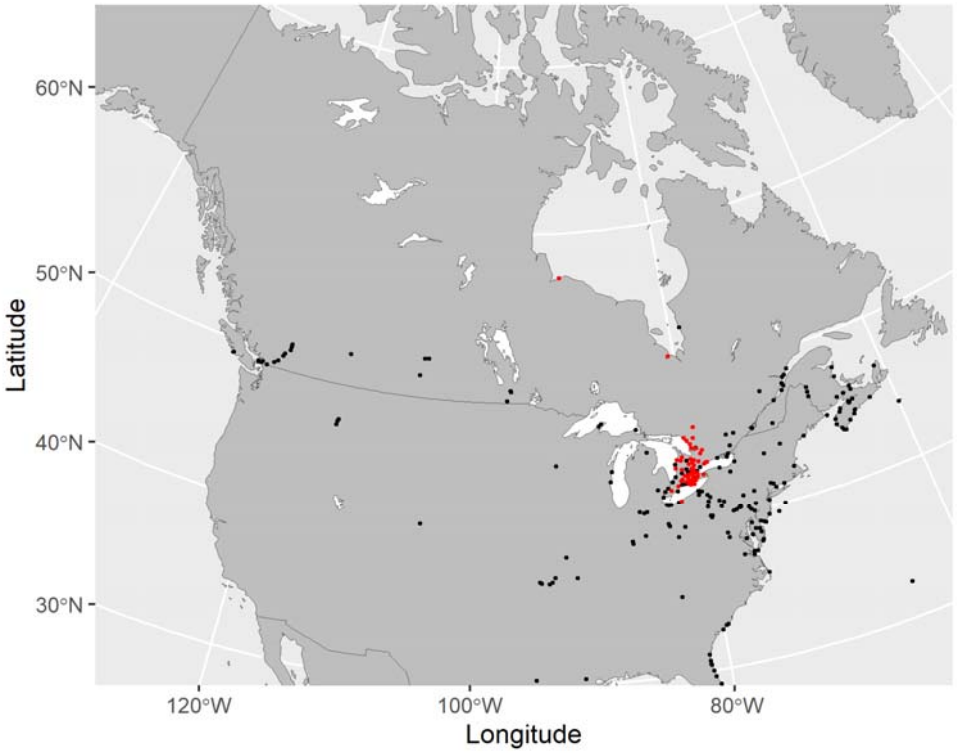

Fig. A1.4. Locations of active (black circles) and used (red circles) Motus stations in North America during the temporal extent of our study of American Tree Sparrows. Stations were active for at least 100 days within the 12 February 2019 to 21 November 2020 period. The map is based on a Lambert Conformal Conic projection.