Little Brown Bats in Southeast Alaska Hibernate in Holes: Implications for the Spread of White-nose Syndrome

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Little brown bats in eastern North America typically hibernate in caves and mines, often in large numbers, however few large hibernacula have been identified in the West and none have been found west of the Rocky Mountains. We used radio-telemetry to identify hibernation roosts of little brown bats in Juneau, Alaska. We captured and radio-tagged adult bats in early fall and radio-tracked them daily from the air and on the ground. We located 10 hibernation roosts on 2 ridge systems; distances from the capture site to the roost ranged from 1.3 to 24.1 km. Two roosts were under root wads on level ground at elevations ≤ 86 m. Eight roosts were located on steep, forested hillsides at elevations ranging from 128 to 452 m; 3 were rock roosts located in colluvium, 3 were associated with large rock outcrops, and 2 were in rocky soils. At least one roost was used in successive years. We compared winter temperatures and relative humidity inside (~0.3 – 0.5 m from the opening) and outside of 4 roosts located in 2013. Relative humidity dropped as low as 40-60% outside of roosts, but remained near 100% inside the roosts throughout the winter. Average temperatures were also higher and more stable inside the holes (-1.04 to 2.03 °C) than outside (-2.33 to -0.63 °C). If roosting solitarily in holes in the ground is a common overwintering strategy of little brown bats in the West, western populations should be much less vulnerable to white-nose syndrome than their eastern counterparts.