Effective area of acoustic lure surveys for Mexican spotted owls Strix occidentalis lucida.

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During acoustic lure surveys for birds, topography and ambient noise are likely to be important determinants of detectability. Examinations of propagation were conducted for acoustic lures _human-made calls_ and owl responses recorded during acoustic surveys for Mexican spotted owls in the Gila National Forest _2005_. Lure surveys were designed based on formal agency protocols, which assumed a 0.43-km detection range under typical conditions. A total of 558 points was called over a heavily forested, topographically complex 20_24-km area. Real-time measurements of owl calls and lures were made with a calibrated recording system. Ambient noise was collected using an array of 39 Larson-Davis 820 and 824 sound level meters. The NMSIM _Wyle Laboratories_ single-event propagation simulator was used to model propagation of both owl and human calls. The resulting model of survey effort was compared with a simple two dimensional statistical model. Probability of detecting owls did not fit the expectations of the agency protocol, suggesting that acoustic propagation should be considered during owl surveys.

Acoustic surveys for Mexican spotted owls .Strix occidentalis lucida.: An analysis.

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During acoustic surveys for Mexican spotted owls, the effective detection range is presumed to be 0.25 mi ~433 m!. However, variations within and between surveys are observed, leading to a variance in owl density estimates. While owl behavior may explain some variation, topography and ambient noise are also likely to be important. To determine the influence of these factors, data from acoustic surveys for Mexican spotted owls in the Gila National Forest ~April–July, 2000–2001! were examined. Measurements of owl and human call levels were made with a Sony TCD-10 Pro II DAT equipped with an ACO 7013 microphone. Ambient noise was collected using 40 Larson-Davis 820 and 824 sound level meters in owl activity centers. Wyle Laboratories NMSIM software was used to model propagation of owl and human calls. Owls produced calls with estimated maximum source levels of 92–98-dB SPL. Human callers produced maximum source levels of 88–95-dB SPL. Detection was possible out to more than 2 km under ideal conditions, but topography and ambient noise had a large effect. Corrections for these factors would greatly improve estimates of area surveyed, and thus owl density estimates.