Effectiveness of Broadcast Surveys in Determining Habitat Use of Ferruginous Pygmy-owls (Glaucidium brasilianum) in Southern Texas

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Abstract.—We compared habitat information obtained from tracking 12 radio-tagged Ferruginous Pygmy-owls (*Glaucidium brasilianum*) (hereafter referred to as pygmy-owls) in southern Texas during 1995 and similar information from pygmy-owl response points to evaluate the effectiveness of broadcast surveys in determining pygmy-owl habitat use. Response points were established beneath pygmy-owls that responded to broadcasted conspecific calls. Broadcast stations (n = 303) were established throughout the study area following systematic-random protocol. To obtain habitat information, a 0.04 ha circular plot was established at pygmy-owl response points (n = 37) and on > 24 hour intervals at visual sighting points of radio-tagged pygmy owls (n = 292). Using systematic-random sampling, 217 0.04 ha circular plots were established throughout the study area to determine forest composition. Broadcast surveys were conducted from 22 January-31 June 1995. Radio-tagged pygmy-owls were tracked from 3 April-6 October 1995. We used two-tailed Z-tests to compare the mean number of trees in nine categories, based on the trees' diameter at breast height (d.b.h.), and to compare understory values obtained at the four cardinal directions of each plot. Results from 8 d.b.h. categories showed no significant difference (P = > 0.05) in habitat composition of areas used by radio-tagged pygmy-owls and areas beneath pygmy-owls responding to broadcast calls. In addition, no significant difference (P = > 0.05) in mean understory values of areas used by radio-tagged pygmy-owls and pygmy-owl response points was recorded. However, 5 d.b.h. categories showed a significant difference (P = > 0.05) between habitat composition of areas used by radio-tagged pygmy-owls and the overall study area. Understory values of areas used by radio-tagged pygmy-owls were significantly different (P = < 0.05) from their availability on the study area. Therefore, results indicate pygmy-owls were not using habitat in direct proportion to its availability, and broadcast surveys may be a viable means of determining habitat use of Ferruginous Pygmy-owls in southern Texas.

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