Can Winter Woodpecker Populations Predict Good Habitat for Ivory-billed Woodpeckers?

Carl Smith is here in Brinkley

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Hypothesis from Tanner:

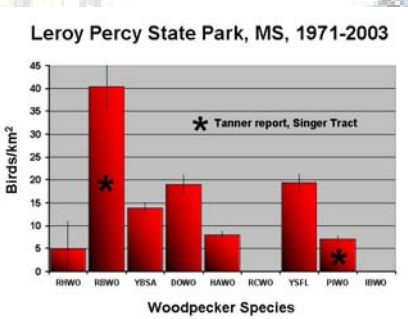
136 Red-Red-bellied and 36 Pileated Woodpeckers occupy same range as 1 pair of Ivory-bills

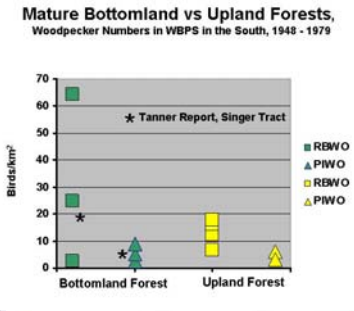
Does it work to target searches?

Abstract

Rediscovery of Ivory-billed Woodpecker (*Campephilus principalis*) by Fitzpatrick et al. (2005) underscores the urgency to determine good methods to screen potential search areas. Woodpecker populations in the Singer Tract, Madison Parish, LA, were believed by Tanner (1942) to indicate suitable habitat for Ivory-billed Woodpeckers, namely the presence of suitable, i.e., large, numbers of dead and dying trees (25-35/ha). He believed that a relative abundance of 126 Red-bellied Woodpeckers (*Melanerpes carolinus*) to 36 Pileated Woodpeckers (*Dryocopus pileatus*), which occurred within the home range of 1 Ivory-billed Woodpecker, would indicate such habitat. His published values reflect 19 Red-bellied Woodpeckers and 3.9 Pileated Woodpeckers per 100 ha. Ivory-billed Woodpecker density was 0.27/100ha within home ranges, and 0.047/100ha for the entire 31 km2 Singer Tract. These data present a standard for comparison of existing woodpecker populations to address the hypothesis that existing populations in certain areas are not large enough to indicate habitats capable of supporting Ivory-billed Woodpeckers.
We present evidence of relative abundance of woodpeckers from published and unpublished sources. We evaluated Winter Bird Populations Studies (WBPS) from the South from 1948-1979 (Hamel 1992). We conducted WBPS on 11 ha of mature second-growth bottomland hardwood forests at Leroy Percy State Park, Mississippi, 1971-2003. We conducted line transect surveys of woodpecker abundance in three areas: Congaree Swamp National Monument, South Carolina, old-growth bottomland forests surveyed 1981-1983; 32 upland sites in middle Tennessee, surveyed 1988-1989 (Wahl et al. 1989); 59 bottomland sites in west Tennessee, surveyed 1985-1987 (Durham et al 1988). We summarized these data by the method of Jarvinen and Vaisanen (). All sites were mature hardwood forests.
Differences in sampling methodology complicate density comparisons. Obvious differences exist in abundance of both Red-bellied Woodpecker and Pileated Woodpecker between upland and bottomland sites, regardless of methodology. Bottomland forests contain more birds of each species than do upland forests. Among bottomlands, Red-bellied Woodpecker numbers similar to those suggested by Tanner occur in numerous maturing and mature stands. For Pileated Woodpeckers, the situation is similar; perhaps numbers in old-growth forests of Congaree Swamp in 1980s were even higher than in Singer Tract; small data sets impede statistical precision.
We conclude that while search for especially high numbers of woodpeckers would be one alternative screening method for potential Ivory-billed Woodpecker habitats, a direct approach involving cruising timber for the presence of very large diameter trees in decadent or dying condition would probably be more effective.

Plot data from Winter Bird Population Study Plots, both at the Southwide level, and on Leroy Percy State Park over a long period, suggest that bottomland forests can produce numbers of PIWO and RBWO similar to those observed by Tanner in the Singer Tract





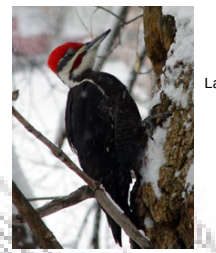


Photo by Laura Erickson

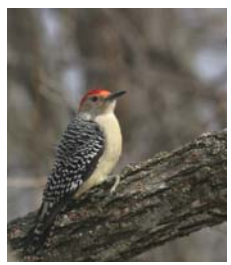
PIWO – Pileated Woodpecker

Transect data show Bottomlands have more woodpeckers that uplands and that Old-growth forest in Congaree Swamp had more PIWO than any other type of bottomland Forest

Congaree Swamp in the early 1980s was similar in composition and structure, and extent of dead and dying trees, to the Singer Tract in the late 1930s

As with transect data, plot-based Winter Bird Population Study data show that bottomland hardwood forests have more woodpeckers than do upland hardwood forests

The Players:
RHWO – Red-headed Woodpecker
RBWO – Red-bellied Woodpecker
YBSA – Yellow-bellied Sapsucker
DOWO – Downy Woodpecker
HAWO – Hairy Woodpecker
YSFL – Northern Flicker
PIWO – Pileated Woodpecker
IBWO – Ivory-billed Woodpecker



RBWO – Red-bellied Woodpecker

Photo Courtesy of:
http://jrscience.wcp.muohio.edu/birds/ohio_birds/Red_Bellied_Woodpecker.html

References

Durham, D. B., R. K. Abernethy, D. C. Eagar, R. P. Ford, P. B. Hamel, L. J. O'Neil, and T. M. Pullen, Jr. 1988. Application of the Habitat Evaluation System to Modeling Bottomland Hardwood Forest Communities in West Tennessee. Transactions North American Wildlife and Natural Resources Conference 53:481-490.
Fitzpatrick, J.W., Lammertink, M., Luneau, M.D., Jr., Gallagher, T.W., Harrison, B.R., Sparling, G.M., Rosenberg, K.V., Rohrbaugh, R.W., Swarthout, E.C.H., Wrege, P.H., Swarthout, S.B., Dantzker, M.S., Charif, R.A., Barksdale, T.R., Remsen, J.V.,,Jr., Simon, S.D., and Zollner, D. 2005. Ivory-billed Woodpecker (*Campephilus principalis*) Persists in Continental North America. Science 308:1460-1462.
Hamel, P. B. 1992. A land manager's guide to the birds of the South. Chapel Hill, NC, U.S. Forest Service, Southern Region, and The Nature Conservancy, Southeastern Region. 367 p.
Hamel, P. B., W. P. Smith and J. W. Wahl. 1993. Wintering bird populations of fragmented forest habitat in the Central Basin, Tennessee. Biological Conservation 66:107-115.
Jarvinen, O. and R. A. Vaisanen. 1975. Estimating relative densities of breeding birds by the line transect method. Oikos 26: 316-22.
Tanner, J.T. 1942. The Ivory-billed Woodpecker, Research Report No. 1. National Audubon Society, New York, New York. 111 p.

Bottom Line: Looking for places with lots of big, dead trees will probably be more effective