SUCCESSFUL USE OF ARTIFICIAL NESTING STRUCTURE BY DARK-EYED JUNCO, WITH COMMENTS ON JUNCO SUMMER DISTRIBUTION IN NEW YORK

Charles R. Smith
Department of Natural Resources, Cornell University,
Ithaca, NY 14853-3001

On 8 August 2001, I found a nest of Dark-eyed Junco *(Junco hyemalis)* built within an artificial nesting structure, approximately 3.8 km (2.4 mi) southwest of the Village of Dryden, Tompkins County, New York, at an elevation of 490 m (1608 ft). The artificial nesting structure was constructed of wood, included a roof, and was open in front. It was designed for use by American Robin *(Turdus migratorius)* and had been built to the specifications and dimensions recommended in Henderson (Undated, p. 29). The nest platform was attached to the north side of a house, with the base of the platform at a height of 2.5 m (98 in) above the ground. The junco's nest was constructed of grass stems and other dried herbaceous materials and built on top of an abandoned nest of American Robin from earlier that summer. The nest was located approximately 10 m from the edge of a second-growth forest dominated by planted Scotch Pine *(Pinus sylvestris)* and Red Maple *(Acer rubrum)*, with an open understory and no significant woody or herbaceous undergrowth. Dark-eyed Juncos occur in the immediate area throughout the year and fledged young have been present nearly every summer since 1988, when I began living there.

The nest contained three eggs on 8 August. On 22 August, the nest contained three young. The young had fledged by 29 August and were observed in shrubbery at the edge of the yard. Given the late date and smaller than average clutch size, it is likely that the nest was a second effort for the season. Nolan et al. (2002) report a modal clutch size of 4, "with 5- and 3-egg clutches not uncommon, latter especially near end of season."

Nolan et al. (2002) also report that elevated nests for Dark-eyed Junco are "not uncommon," with the greatest observed nest height being at approximately 15 m (49 ft) in a tree. Unusual nest sites reported by Nolan et al. (2002) include discarded rubber tires and empty food cans. Nolan et al. (2002) also describe "many reports" of Dark-eyed Junco using old American Robin nests, though they do not mention any use of artificial nesting structures designed for use by American Robin. However, Eaton (1968, 1988) comments that "The junco often builds in unusual situations." and describes use of a "wind-vane bird-feeder mounted on an 8-foot iron pipe" for nesting by Dark-eyed Junco. Eaton (1968) also mentions a nest "on a ledge beneath the gable of a house in Nova Scotia," attributed to Forbush. Eaton (1988) comments on the junco's preference for nesting near vertical structures. In July 2000, Crumb (2001) described the nest of a Dark-eyed Junco in a hanging flower pot about five feet above the ground

over the patio of a home in Manlius, NY. It is clear that the Dark-eyed Junco finds a wide range of settings suitable for nesting. However, it is probable that the nest described in this report is the first example of successful use of an artificial nesting platform by Dark-eyed Junco.

It seems useful to put this observation in a larger spatial and temporal context, given apparent changes in the summer distribution of the Dark-eyed Junco in New York over the past 100 years. Though widespread in New York, north and west of Westchester County, the Dark-eyed Junco's summer distribution is confined largely to the Adirondack and Appalachian Plateau ecoregions (Andrle and Carroll 1988). In the Cayuga Lake Basin, where it now is widespread and relatively common in suitable habitat during summer, it is noteworthy that Dark-eyed Junco historically was considered a "rare summer resident" (Reed and Wright 1909). In addition to the Adirondacks and Catskills, Eaton (1914) reported that the species was "fairly common as a breeding species in the highlands of western New York which lie above the 1200 foot [366 m] line." It now occurs (Smith and Byrne 1999) and nests (pers. obs.) on the Cornell Campus at an elevation of 265 m (870 ft), where it did not occur during summer in the early 1960s (R. Little, pers. comm.).

The current summer distribution for Dark-eyed Junco is similar to that mapped by Eaton (1910, p. 23), though Eaton's map suggests a more patchy distribution than we observe today. Because the Dark-eyed Junco is a nesting species of openings within forests and forest edges (DeGraaf and Yamasaki 2001), and the landscape of Eaton's day was largely devoid of forests when compared to our current forest-dominated landscape (Smith and Gregory 1998), it is not surprising to see a current summer distribution for the junco that is greater in extent than 100 years ago. Keller et al. (2003) included the Dark-eyed Junco as a member of a guild of breeding bird species that increased steadily on Connecticut Hill State Wildlife Management Area (near Ithaca, NY) after clear-cutting, up until six years after the initial clear-cut, after which their densities decreased steadily. The nest described herein was at a forest edge, with Hammond Hill State Forest (approximately 1457 ha, 3600 acres) to the south and Yellow Barn State Forest (approximately 500 ha, 1236 acres) to the north. The landscape surrounding both of these state forests is largely rural and agricultural, with growing mixed grass hay and pasturage of horses the primary agricultural activities. Comparing the first breeding bird atlas map (Andrle and Carroll 1988) with the current map for Dark-eyed Junco (NYSDEC 2006; K. Corwin, pers. comm.) suggests that the junco s statewide distribution in NY has increased by a bit more than 20% in the 20-year period between the two atlas projects. During the period from 1980 - 2004, Breeding Bird Survey data show that the population trend for Dark-Eyed Junco in New York was neither increasing nor decreasing significantly. For the Appalachian Plateau ecoregion, where the nest described here was found, the junco's BBS trend showed a slight, but statistically insignificant increasing tendency (Sauer et al. 2005).

In summary, these observations emphasize the need to understand that breeding habitat associations for birds are dynamic, not static in space and time, and depend, in part, upon the spatial and temporal resolution applied at the time of study (O'Connor 1986), as well as a number of anthropogenic and

nonanthropogenic factors. O'Connor (1986) also provides evidence that some breeding bird species in Britain use a wider range of breeding habitats at higher population densities than observed at lower densities. It is likely that the Dark-eyed Junco and other songbird species are more adaptable to human-dominated landscapes than we appreciate, as illustrated by its use of a range of artificial nesting structures and residential settings.

ACKNOWLEDGMENTS

Shaibal Mitra and an anonymous reviewer provided helpful suggestions that improved the manuscript. I appreciate their assistance.

LITERATURE CITED

Andrle, R.F. and J.R. Carroll. 1988. Atlas of Breeding Birds in New York State. Cornell University Press, Ithaca, NY.

Crumb, D.W. 2001. Dark-eyed Junco Nests in a Hanging Flowerpot. Kingbird 15(1): 500.

DeGraaf, R.M. and M. Yamasaki. 2001. New England Wildlife: Habitat, Natural History and Distribution. University Press of New England, Hanover, NH.

Eaton, E.H. 1910. Birds of New York, Part 1. New York State Museum, Memoir 12. New York State Education Department, Albany, NY.

Eaton, E.H. 1914. Birds of New York, Part 2. New York State Museum, Memoir 12. New York State Education Department, Albany, NY.

Eaton, S.W. 1968. *Junco hyemalis hyemalis* (Linnaeus) Northern Slate-colored Junco. Pp. 1029-1043, in A.C. Bent, Life Histories of North American Cardinals, Grosbeaks, Bunting, Towhees, Finches, Sparrows, and Allies, Part 2. (Compiled and edited by O.L. Austin, Jr.), Dover Publications, New York, NY.

Eaton, S.W. 1988. Dark-eyed Junco. Pp. 464-465, in R.F. Andrle and J.R. Carroll (eds). Atlas of Breeding Birds in New York State. Cornell University Press, Ithaca, NY.

Henderson, C.L. Undated. Woodworking for Wildlife. Minnesota Department of Natural Resources, St. Paul, MN.

Keller, J.K., M.E. Richmond, and C.R. Smith. 2002. An Explanation of Patterns of Breeding Bird Species Richness and Density Following Clearcutting in Northeastern U.S.A. Forests. Forest Ecology and Management 174(1-3): 541-564.

Nolan, V., Jr., E.D. Ketterson, D.A. Cristol, C.M. Rogers, E.D. Clotfelter, R.C. Titus, S.J. Schoech, and E. Snajdr. 2002. Dark-eyed Junco (*Junco hyemalis*). *In* Birds of North America, No. 716 (A. Poole and F. Gill, eds.). Birds of North America, Inc., Philadelphia, PA.

NYSDEC (New York State Department of Environmental Conservation). 2006. New York Breeding Bird Atlas 2000 - 2005. http://www.dec.state ny.us/cfmx/extapps/bba/bbaMaps.cfm?bndcode=SCJU&order=2&year= 000&comp=1 . Web site accessed 26 April 2006.

O'Connor, R.J. 1986. Dynamical aspects of avian habitat use. Pp. 235-240, in J. Verner, M.L. Morrison, and C.J. Ralph (eds), Wildlife 2000: Modeling Habitat Relationships of Terrestrial Vertebrates. University of Wisconsin Press, Madison, WI.

Reed, H.D. and A.H. Wright. 1909. Vertebrates of the Cayuga Lake Basin, New York. Proceedings American Philosophical Society 48: 370-459.

Sauer, J. R., J. E. Hines, and J. Fallon. 2005. The North American Breeding Bird Survey, Results and Analysis 1966 - 2004. Version 2005.2. USGS Patuxent Wildlife Research Center, Laurel, MD. http://www.mbr-pwrc usgs.gov/bbs/ . Accessed 26 April 2006.

Smith, C.R. and A.M. Byrne. 1999. An Annotated Checklist for Birds of Cornell Plantations. Cornell Plantations, Ithaca, NY.

Smith, C.R. and S.K. Gregory. 1998. Bird Habitats in New York State, pp. 29-41. *In* E. Levine (ed.), Bull's Birds of New York State. Cornell University Press, Ithaca, NY.