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Pairing Success of Wood Thrushes in a Fragmented Agricultural Landscape

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ABSTRACT.—Habitat fragmentation has been associated with low pairing success of some Neotropical migrant songbirds occupying forest fragments. From 1996 to 1998, we conducted a nest study of Wood Thrushes (*Hylocichla mustelina*) in 21 woodlots ranging in size from 3–12 ha in a highly fragmented agricultural landscape in southwestern Ontario. We found active nests for 46 of 48 singing Wood Thrushes that we detected in the forest fragments. Our results suggest that in at least some highly fragmented agricultural landscapes, most singing Wood Thrushes in small woodlots are successfully paired. *Received 17 Sept. 1998, accepted 18 Jan. 1999.*

Habitat fragmentation has been associated with low pairing success of some Neotropical migrant songbirds residing in forest fragments and along forest edges. For example, fewer territorial male Ovenbirds (*Seiurus aurocapillus*) were paired in small forests than in large ones in Missouri (Gibbs and Faaborg 1990, Van Horn et al. 1995), New Jersey (Wander 1985), Ontario (Burke and Nol 1998), and Québec (Villard et al. 1993). Ziehmer (1993, cited in Faaborg et al. 1995) documented lower pairing success for Red-eyed Vireos (*Vireo olivaceus*) and Wood Thrushes (*Hylocichla mustelina*) around clearings in large, selectively logged forests in Missouri.

With respect to Wood Thrushes, diminished pairing success may not apply generally across all fragmented landscapes. We report on high pairing success of Wood Thrushes in forest fragments in Waterloo Region, an intensively farmed landscape with 14% forest cover and where the mean patch size of woodlots was 12.8 ha (± 18.3 SD). (See Friesen et al., 1999 for a fuller description of the regional landscape.)

From 1996 to 1998, as part of a larger regional study on nesting success and productivity of several species of forest birds (Friesen et al. 1999), nest searches were conducted in 21 woodlots known to hold Wood Thrushes; woodlot size ranged from 3–12 ha ($\bar{x}$ = 8.2 ± 3.3). The canopy at all sites, which averaged 24 m in height, was dominated by sugar maple (*Acer saccharum*) and smaller amounts of white ash (*Fraxinus americana*) and American beech (*Fagus grandifolia*). Maple and ash saplings, alternate-leaved dogwood (*Cornus alternifolia*), and red-berried elder (*Sambucus pubens*) predominated in the openings created by ongoing and recent selective logging at all sites.

Searches for singing males involved four to eight early morning visits to each site beginning the last week of May and continuing to 20 June. We located and mapped the location of all singing birds at each woodlot by walking parallel transects 100 m apart and using taped song playbacks (Yahner and Ross 1995). We attempted to find nests for all singing birds using four- and five-person teams. Nest searching, conducted within a 200 m radius of the singing bird, was discontinued if an active nest (i.e., containing eggs or young) was not found within 15 person hours. Singing birds were assumed to be paired if an active nest was found in their vicinity.

Although many singing birds were detected after 20 June, less effort was expended in finding their nests because of the time constraints involved in monitoring the nests found previously. In addition, first broods in southern Ontario generally fledge around 20 June (Friesen, Wyatt, and Cadman, unpubl. data) and singing birds encountered thereafter could have been unpaired males moving about between nests or they could have become unpaired following the failure of earlier nests (Roth and Johnson 1993). We were less confident of locating all territories later in the breeding season because birds were then less

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likely to respond to taped playbacks (Friesen, Wyatt, and Cadman, pers. obs.). Consequently, data collected after 20 June were not included in this analysis.

One to three singing males were found in each woodlot, with 48 territorial birds detected overall. Active nests were found for 46 (96%) of the singing Wood Thrushes, with 2.0 (± 1.7) person hours expended on average to find each nest following the detection of a singing bird. Nest height averaged 3.1 m (± 1.5 m, range 1.2–6.4 m). Our estimate of pairing success may be conservative because a new but empty nest was found in the vicinity of one of the two "unpaired" singing males (suggesting recent predation) and it is possible that we missed finding the nest of the other "unpaired" male.

Although Neotropical migrants can experience poor pairing success in fragmented habitats, sensitivity in this regard likely varies among species. Based on their pairing success in small fragments, Ovenbirds seem to be particularly sensitive to fragmentation effects while Wood Thrushes are less so. Burke and Nol (1998) speculated that the lower pairing success of Ovenbirds in small forests might be attributed to the absence of females who avoid these areas of lower food abundance in favor of larger forests. Wood Thrushes, but not Ovenbirds, commonly inhabit small rural woodlots in our study area (Friesen et al. 1995). As both species are ground foragers dependent upon similar types of prey (Kaufman 1996), it may be that factors other than food availability or perhaps subtle differences in food preferences are limiting the distribution of Ovenbirds in our region.

It may be, too, that a species' pairing success varies across regions, perhaps in response to factors such as differences in landscape configuration, forest structure, disturbance regimes, and population density. In Missouri, where Wood Thrushes are "forest interior" species that only occasionally occupy small woodlots (Jacobs and Wilson 1997), lower pairing success occurred as formerly continuous forest became fragmented by logging activities (Ziehmer 1993, cited by Faaborg et al. 1995). In our highly fragmented landscape, Wood Thrushes exhibit a high level of pairing success. Weinberg and Roth (1998) did not explicitly comment on the pairing success of Wood Thrushes in their study in Delaware; however, based on the large number of active nests (120 over two years) they found in 14 forest fragments ranging in size from 0.2–2.1 ha, it appears that Wood Thrush experience a high degree of pairing success in other fragmented landscapes as well.

Our findings on pairing success do not necessarily imply that Wood Thrushes in southwestern Ontario are immune to fragmentation pressures. For example, almost half of the Wood Thrush nests found in Waterloo Region in 1996 and 1997 were parasitized by Brown-headed Cowbirds (*Molothrus ater*) resulting in a significant decline in host productivity (Friesen et al. 1999). With respect to mating status, however, our data strongly suggest that most singing males detected in forest fragments early in the breeding season are likely to be paired.

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Connecticut Warbler, a North American Migrant New to Ecuador

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ABSTRACT.—We present the first record of the Connecticut Warbler (*Oporornis agilis*) for Ecuador. The bird was mist-netted and photographed on 21 November 1996 at Playa de Oro, Rio Santiago, Esmeraldas Province, northwestern Ecuador. *Received 15 Sept. 1998, accepted 14 Nov. 1998.*

Between August 1995 and December 1996, we studied understory bird communities near the village Playa de Oro (00° 52′ N, 78° 47′ W) situated at about 50 m above sea-level on the Río Santiago, Esmeraldas Province, northwestern Ecuador. Since February 1997 we have carried out line transect censuses in different habitat types from 50 m to 400 m in the community of Playa de Oro, close to the border of the Cotocachi-Cayapas ecological reserve. On the morning of 21 November 1996, a warbler of the genus *Oporornis* was mist-netted in secondary vegetation near a natural backwater pond on the outskirts of Playa de Oro. The bird had a complete, pale, whitish-yellow eye ring, very long undertail coverts, a dull brown breast band encircling a paler throat, a grayish tinged hood and grayish legs (Fig. 1). Referring to the description in Curson and coworkers (1994), we determined that the bird was a first winter Connecticut Warbler (*Oporornis agilis*). Its measurements were: total length (non-stretched) 125 mm, wing 65 mm, tail 43 mm, wing − tail 22 mm, bill length 11.95 mm, tarsus 19.65 mm, body mass 12.5 g. P7 and p8 were emarginated. After the bird was photographed in different positions (upperparts, underparts, laterally, and with opened wing) it was released. The photographs of the wing formula (primaries) show p9 longer than p6. The difference was not measured exactly in the field. Because a few female and immature *O. philadelphia* also have complete eye rings, it was necessary to verify the identification using wing and tail measurements. According to Lanyon and Bull (1967), *O. agilis* can usually be separated from *O. philadelphia* by a wing − tail value equal to 19 mm or more. The bird we captured showed a wing − tail value of 22 mm, hence its identification as *O. agilis* is virtually certain. Photos have been deposited at VIREO, where the identity as *O. agilis* has been confirmed by L. Bevier and R. S. Ridgely (pers. comm.), Academy of Natural Sciences, Philadelphia.

Oporornis agilis is a rare to locally uncom-

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