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Heterospecific Vocal Mimicry by Six Oscines

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Heterospecific vocal mimicry in nature, especially by vireos, is described.

Key Words: Blue Jay, *Cyanocitta cristata*, vireos, *Vireo* spp., Rose-breasted Grosbeak, *Pheucticus ludovicianus*, vocal mimicry.

Heterospecific vocal mimicry in nature may occur in many avian species (Armstrong 1973). We present evidence of vocal mimicry in nature for several avian species, especially vireos, for which we believe such mimicry is under-recorded, overlooked, or rare. Terres' (1980) descriptions of primary song, calls, or other vocal sounds are used. Our combined field experience is about 40 years, and we believe our aural knowledge of bird sound is adequate to judge that the examples recorded are true mimicry and not normal variation of songs or single notes.

The Blue Jay, *Cyanocitta cristata*, may readily imitate other sounds, both avian and non-avian (Bent 1946). Blue Jays are renowned for mimicry of the call of the Red-shouldered Hawk, *Buteo lineatus*. The latter species has been extirpated from many former breeding sites in eastern Massachusetts during the last 15-20 years and mimicry of their 'kee-yoo, kee-yoo' call has often been replaced by mimicry of the Broad-winged Hawk, *B. platypterus*, call 'pweeee'; the latter breed at many sites in eastern Massachusetts. Jays still frequently imitate Red-shoulders at Boxford, Massachusetts, where the latter still nest. The same Blue Jay may imitate calls of both hawks; on 30 October 1976 in Wellesley, Massachusetts, a lone Blue Jay perched

on top of a pine, scanned the sky for 10 sec, then uttered a high pitched imitation of a Red-shoulder, followed 5 sec later by a high-pitched call of a Broad-wing. Blue Jays may also imitate the 'kree-e-e-e' call of the Red-tailed Hawk, *B. jamaicensis*, though they do so less frequently. Imitations of the Cooper's Hawk, *Accipiter cooperii*, call 'cuck-cuck-cuck' in the south-east United States have been heard about 20 times. Our observations are similar to those of Norris (1957). Mimicry of all four hawks has been heard at all seasons, whether or not the hawk imitated may have been present.

Most North American vireos seldom mimic other avian sounds, though White-eyed Vireo, *Vireo griseus*, mimicry may be more frequent than recorded. We have many records, from at least 30 individuals, of vocal mimicry for this species from April through August in southern New England and southern United States. Examples are the 'scrip' note of Red-cockaded Woodpecker, *Picoides borealis*, and the 'chuck' note of Gray Catbird, *Dumetella carolinensis*, and songs of Bobwhite, *Colinus virginianus*, Yellow-billed Cuckoo, *Coccyzus americanus*, and Carolina Wren, *Thryothorus ludovicianus*. Usually only parts of a song were mimicked, rarely the complete song.

Most imitated sounds were interspersed with the primary song of the White-eyed Vireo, though some mimicked sounds were given alone. White-eyed Vireo vocal imitations in southwest Virginia were predominantly non-territorial sounds (Adkisson and Conner 1978).

A Yellow-throated Vireo, *V. flavifrons*, singing on territory for at least a week in deciduous canopy at Acoaxet, Massachusetts, had snatches of the primary song of the White-eyed Vireo interspersed in its primary song.

A Solitary Vireo, *V. solitarius*, in spruce woods on 10 August 1977 in Windsor, Massachusetts mimicked the 'pse-ek' call of the Yellow-bellied Flycatcher *Empidonax flaviventris* for 15 min.

We have heard Red-eyed Vireos, *V. olivaceus*, mimicking the 'que-bec' and 'hick-three-beers' calls of the Least, *E. minimus*, and Olive-sided, *Nuttallornis borealis*, flycatchers in New England and Canada. Red-eyed Vireos incorporate these songs into their own primary song and this mimicry is fairly frequent. A red-eyed Vireo was also heard mimicking a Yellow-bellied Flycatcher call in a deciduous and evergreen grove 24 km north of Winnipeg, Manitoba.

Finally, an adult Rose-breasted Grosbeak, *Pheucticus ludovicianus*, heard and seen singing for 15 min in deciduous-coniferous forest on 27 June 1977 at Savoy, Massachusetts, mimicked the songs of several species. Interspersed, at about 10 sec intervals in its primary song, were imitations of Red-eyed Vireo primary song and its 'tschay' alarm note. Gray Catbird 'mew' call and a scold note, two variations of Northern Cardinal, *Cardinalis cardinalis*, primary song, and Rufous-sided Towhee, *Pipilo erythrophthalmus*, 'teeeeeeee' song and 'che-wink' call. All imitated species were locally common to abundant.

We believe mimicry in nature by the Blue Jay, White-eyed Vireo, and possibly Red-eyed Vireo, has been often overlooked. Mimicry in nature for the

other species is probably quite rare, though the proclivity of mimicry by vireos suggests it too may be overlooked. Mimicry has been reported before for all of these species (Bent 1950, 1968; Benton 1952; Borror 1961; James 1976). The majority of mimicking species mentioned in this note used elements of primary song or other avian vocalizations in their own primary song or advertising calls.

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