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GENERAL NOTES

Interspecific song mimesis by a Lincoln Sparrow.—Some oscines learn the songs of alien species in the laboratory, but in the wild generally learn only conspecific songs (Kroodsma, *in* Ontogeny of Behavior, Burghardt and Bekoff, eds., Garland Publ. Co., New York, New York, 1978). Of those groups which do mimic in nature, finches (carduelids and emberizids) vary in their propensity to imitate heterospecific songs. In Germany, European Greenfinches (*Chloris chloris*) imitate a wide variety of sympatric species and use these imitations in their advertising songs (Guttinger, J. Ornith. 115:321–337, 1974; Baptista, unpubl.). Indigo (*Passerina cyanea*) and Lazuli (*P. amoena*) buntings regularly imitate each other in a zone of sympatry in Nebraska (Emlen et al., Wilson Bull. 87:145–179, 1975). Other species mimic rarely (Baptista, Z. Tierpsychol. 30:266–270, 1972; Kroodsma, Wilson Bull. 84:173–178, 1972; Williams and McRoberts, Condor 79:113–118, 1977).

Several learning strategies appear to exist in *Melospiza*. Swamp Sparrows (*M. georgiana*) exposed to conspecific songs and those of sympatric Song Sparrows (*M. melodia*) learned conspecific songs but failed to mimic interspecifically. Song Sparrows similarly exposed learned their own plus heterospecific songs (Marler and Peters, Science 198:519–521, 1977). Indeed, Song Sparrows are now known to mimic other species both in the laboratory and in the field (Eberhardt and Baptista, Bird-Banding 48:193–205, 1977; Kroodsma, Anim. Behav. 25:390–399, 1977). Lincoln Sparrows (*M. lincolnii*) to our knowledge, have not, hitherto, been known to copy songs of heterospecifics. We document herein a case of interspecific song mimesis in a Lincoln Sparrow and speculate on the conditions leading to this behavior.

In 1978, we began studies on song dialects and their possible function(s) in montane White-crowned Sparrows (*Zonotrichia leucophrys oriantha*) at Tioga Pass Meadow, Mono Co., California, 119°E 38°N, elev. ca. 3000 m. About 25 pairs of White-crowned Sparrows and 2 pairs of Lincoln Sparrows breed on this meadow. On 25 June 1979, we recorded a territorial Lincoln Sparrow whose songs possessed components virtually identical with syllables from a White-crowned Sparrow. Songs of White-crowned Sparrows at Tioga Pass have been studied in great detail (Orejuela and Morton, Condor 77:145–153, 1975; Baptista and King, Condor 82:267–284, 1980). Typically, each song begins with a whistle (Fig. 1A, syllable type a), followed by a buzz (b), a complex syllable (c), a trill (d and e), ending with another buzz (f). The complex syllable (c) shows regional variation. This particular form of syllable (c) illustrated is found at Gardisky Lake, about 4 km north of the meadow. However, several White-crowned Sparrows used this syllable at the meadow and on mountain slopes to the east.

A detailed study of song variation and ontogeny in Lincoln Sparrows is still lacking. Borror (Ohio J. Sci. 61:161–174, 1961) analyzed some Lincoln Sparrow songs from Ontario and Wyoming. He noted that each bird sang 3 or more themes (unique combinations of syllables), and that birds at a locality shared similar or identical phrases. We identified 5 themes in 23 recorded songs from our Lincoln Sparrow (Fig. 1B–F). Each theme consisted of 5–7 syllable types, each of which occurred singly or in groups of 2–8. Three themes contained 4 (Fig. 1B), 2 (Fig. 1C) or 1 (Fig. 1D) syllables in common with White-crowned Sparrow song.

Syllable e (theme B) is similar to a modified White-crowned Sparrow syllable arranged in a trill. Another White-crowned Sparrow (not illustrated) recorded on the study meadow used syllables similar to this type e. The buzz in theme B (syllable b) is more rapidly modulated than any local White-crowned Sparrow buzz. However, similar buzzes are known from songs of other populations of White-crowned Sparrows (Baptista, Univ. Calif. Publ. Zool. 105:1–52, 1975). The 2 terminal syllables in theme B are similar to those in other typical Lincoln Sparrow themes (see theme E).

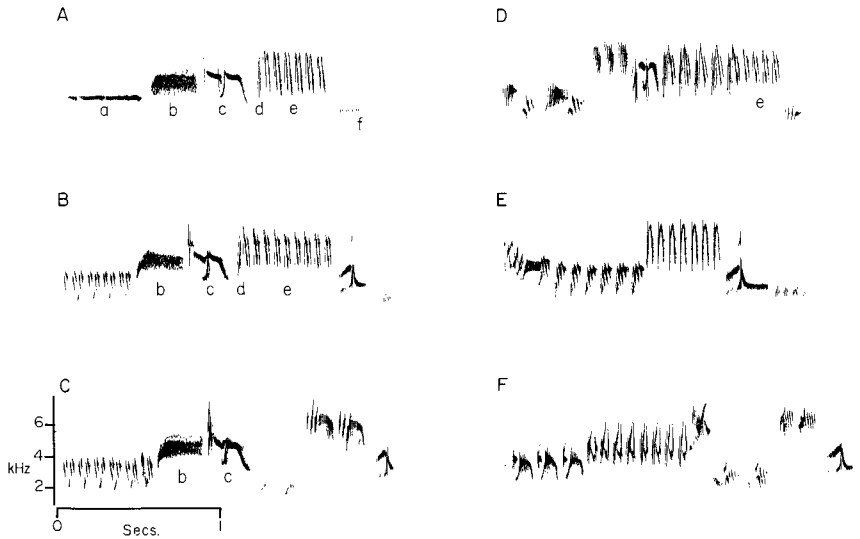

FIG. 1. A. Song of a White-crowned Sparrow recorded at Gardisky Lake, 4 km north of Tioga Pass Meadow. B–F. Themes sung by a Lincoln Sparrow recorded at the Meadow, 25 June 1979. Note that the Lincoln Sparrow's themes include 0 (themes E and F), 1 (e in theme D), 2 (b and c in theme C), or 4 (b, c, d, e in theme B) syllables borrowed from a White-crowned Sparrow.

It is possible that syllables from songs of different species may be alike accidentally. However, the fact that as many as 4 syllable types in theme B match those of the model (A) in both structure and sequence is strong evidence that song mimesis has occurred.

This Lincoln Sparrow appeared to show considerable improvisation in developing its song repertoire. The introductory whistle typical of all White-crowned Sparrow songs has been replaced by a series of syllables in all its mimicked songs. White-crowned Sparrow syllables were incorporated in 3 themes (B, C and D). The same Lincoln Sparrow syllables were also used in several themes. Thus, as in the congeneric Song Sparrow (Eberhardt and Baptista 1977), Lincoln Sparrows may use the same syllables in different themes.

Several explanations have been postulated for interspecific song mimesis in nature. Large song repertoires may advertise individual fitness. For example, in an habitual mimic, the Northern Mockingbird (*Mimus polyglottos*), repertoire size was correlated with territorial quality (Howard, Evolution 28:428–438, 1974). Since Howard did not age the birds, possibly those with higher quality territories were dominant, reflecting their age and experience. Older birds presumably would have had more time to copy greater numbers of alien species (Dobkin, Z. Tierpsychol. 50:348–363, 1979). Birds hatched late in the year may be exposed to fewer conspecific songs in their acoustic environment and thus mimic interspecifically (Baptista 1972, Kroodsma 1972). Since Lincoln Sparrows are rare on Tioga Meadow, a juvenile developing its vocal repertoire would encounter few conspecifics to imitate and may thus be stimulated to imitate interspecifically. Occasional interspecific mimicry may simply reflect individual variation in dispositions to improvise (Baptista 1972). Interspecific competition may result in convergence of distance producing signals, e.g., territorial song,

through learning interspecifically (Cody, Condor 71:222–239, 1969; Emlen et al. 1975; Brown, Can. J. Zool. 55:1523–1529, 1977).

In territorial species, song learning and matching of themes often follows intense intermale interaction (Bitterbaum and Baptista, Auk 96:462–474, 1979). Nice (Trans. Linn. Soc. 6:1–238, 1943) hand-raised 2 Song Sparrows which vied for dominance, each soon producing 6 identical themes. The closely related Lincoln Sparrow is also highly territorial and responds strongly to playback of conspecific song. We have several observations of the Lincoln Sparrow interacting aggressively with sympatric White-crowned Sparrows and vice-versa. Perhaps the Lincoln Sparrow learned the White-crowned Sparrow's song during such interspecific interaction.

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Notes on Purple Gallinules in Colombian ricefields.—Little has been reported on Purple Gallinules (*Porphyrula martinica*) in ricefields, despite the species' affinity for this habitat as a nesting site (Ensminger, La. Conserv. 11:19, 1959; Meanley, Auk 80:545–547, 1963). Descriptions of nests and food habits are few and limited to populations in naturally occurring marshes (e.g., Bent, U.S. Natl. Mus. Bull. 135, 1926; Gross and Van Tyne, Auk 46:431–446, 1929; Imhof, Alabama Birds, Univ. Alabama Press, University, Alabama, 1962). In certain Neotropical areas, Purple Gallinules are considered pests due to loss of harvestable rice incurred by bending rice (*Oryza sativa*) plants into nests and feeding platforms (Feakin, ed., Pest control in rice, PANS Manual No. 3, Tropical Pesticide Research and Information Unit, London, England, 1970). Gallinules are seasonally abundant in much of the extensive rice-producing region east of the Andes in northern South America, prompting experimentation with various control procedures. Endrin has been used as a control agent for gallinules in Surinam (Haverschmidt, Birds of Surinam, Livingston Publ. Co., Wynnewood, Pennsylvania, 1968) and is presently being used in Colombia, but few data are available on the effects of this practice. In this paper, I describe nest abandonment by Purple Gallinules in response to endrin applications, and report on nest construction and placement, observations of an unusual escape behavior, and food habits of the species in Colombian ricefields.

Study area and methods.—The Hacienda La Corocora (3°57′N, 73°24′W; elev. 310 m) is located in a large rice-growing zone in the tropical savanna of the Llanos Orientales in Meta, Colombia. Annual rainfall averages 2600 mm, with the rainy season occurring from April–October. Descriptions of climate and vegetation of the region were given by Bates (Geogr. Rev. 38:555–574, 1948) and Blydenstein (Ecology 48:1–15, 1967). Rice is grown year-round in 10–90 ha plots bordered by marshes and shrubby pastures. Ricefields in various stages of growth occupy a contiguous area of 600 ha with a mean water level of 13.5 cm in cultivated plots. Purple Gallinules migrate to the area in late March and nest from May at least through August. Gallinules are occasionally found in green ricefields, but usually do not enter fields until the "yellowing" or maturing stage, when rice grains are forming (about 10 weeks after germination). As water is drained from each plot prior to harvesting, gallinules move into