

tabulated seven different situations or contexts in which the Harsh Cheep was given and then took the common element in the various contexts to deduce that the Harsh Cheep is given when a chick is in motion or out of the nest (p. 356). Adults respond to these calls by approaching the chick, brooding, shading, and preening it, and usually by giving a special call; hence the need to provide such care is the meaning to the adult, as interpreted. Chardine's discussion of message and meaning is somewhat confusing since he does not make it clear that (*sensu* Smith 1977) "message" refers to the signaler, "meaning" to the receiver. Messages (of the signaler) and meanings (to the receiver) are not just redundant statements of contexts and responses because they often represent generalizations.

Chardine continues his critique: "the author stated without qualification that the Frequency-modulated Cheep, produced by the chick and observed in the context of a close parent, 'means' the chick is hungry. Clearly, it is a very broad leap to suggest that a particular behavior such as this is a good external 'marker' for an internal motivational and physiological state such as hunger." What Riska wrote (p. 357) was a bit different: "The *message* of the caller is that it is hungry, and the *meaning* to the adult is that it should feed the chick on the nest" (italics my own). I don't find the idea that the Frequency-modulated Cheep is a good external marker of hunger at all a broad leap of the imagination, judging from all the associated food-begging behavior along with the customary sequelae of being fed by the adult. Additional data showing that "the probability of a chick producing its vocalization increases with time since the last feeding or that the probability of an adult feeding the chick upon hearing the chick is high," as Chardine recommends, might be useful verification and in continuing the analysis.

In any time-limited project, there are practical limits to the amount of data that needs to be gathered in

order to accomplish the primary purpose of the study. In her study of the vocal repertoire of the Brown Noddy, Riska describes 12 vocal signals given in a total of 45 contexts. The further analysis of the stimulus situations in quantitative terms is obviously a large and separate project for the future.

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Female Song in Willow Flycatchers

DAVID E. DAVIS

The note by Seutin (*Auk* 104: 329-330, 1987) discusses what the author calls "female song." Unfortunately the vocalization to which he refers is the "position" note given by both male and female Empidonaces (Davis, *Auk* 71: 164-171, 1954; Davis, *Wilson Bull.* 71: 73-85, 1959).

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The advertising song is given at dawn or dusk and is an elaborate performance. The bird rises above the treetops, utters a variety of strange notes including position notes, and tumbles down, like a butterfly, to the trees (Davis, *Wilson Bull.* 71: 73-85, 1959; MacQueen, *Wilson Bull.* 62: 194-205, 1950; McCabe, *Wilson Bull.* 63: 89-98, 1951). The individuals are presumably males but identification of sex is impossible in the dim light and the rapid flight. I heard the

advertising song of Hammond's Flycatcher (*E. hammondi*) but due to the dense vegetation (Auk Vol. 71, plate 12) never saw the bird.

Other species of the family Tyrannidae have a flight song and position notes. More careful work needs to be done to establish the function of the vocalizations.

Indeed we should not be surprised that a bird with a different set of syringeal muscles should have different vocalizations and functions from those of a true song bird.

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Response to D. E. Davis

GILLES SEUTIN¹

Davis (1988) raises two interrelated points. The first is defining "song." In general, songs are separated from calls by one of the following criteria: ontogeny, complexity or advertising function. As all vocalizations of tyrannids seem to be innate (Kroodsma 1985), the ontogeny criterion is inapplicable in that group. Further, except for the "dawn songs," all flycatcher vocalizations are quite simple (Fitzpatrick 1985). In Willow Flycatchers (*Empidonax traillii*), the "fitz-bew," "fizz-bew" and "creet" vocalizations to which I referred as songs (Seutin 1987) are only slightly more complex than the other notes of the species. I judged these vocalizations to be songs on the basis of their advertising function.

The second point is the statement that "*the advertising song [of Empidonaces] is given at dawn or dusk and is an elaborate performance*" (italics are mine). Davis clearly refers to the "dawn song" typical of many tyrannids. I know of no convincing demonstration of a specific function for these performances, but, if they are used to advertise territories, they are most probably not the only vocalizations with that function because they are given only during short periods in the morning and evening. My personal experience, that of others (e.g. Stein 1963), and results of playback experiments (Stein 1963, Prescott 1987), all strongly suggest an advertising function for the "fitz-bew," "fizz-bew" and "creet" vocalizations of the Willow Flycatcher. That these vocalizations may also serve as "position notes" in intrapair communication, as Davis suggests, does not preclude them being called songs.

Finally, Davis states that position notes (my songs) are "given by both male and female Empidonaces

(Davis 1954, 1959)." In these papers, however, Davis stated that female Empidonaces *do not* give "males' position notes." Specifically, Davis (1959) stated that: "... sex [of Least Flycatchers (*E. minimus*)] was determined by the 'chebec' call," and "... collections of Hammond's Flycatcher (Davis 1954) always verified the belief that only the male called." I reiterate that flycatchers should never be sexed on the basis of their vocal behavior (see also Kellner and Ritchison 1988).

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