

## NOTES

### VOCALIZATIONS OF THE BLACK-HEADED GROSBEAK

GARY RITCHISON, Department of Biology, Utah State University, Logan, Utah 84322 (present address: Department of Biological Sciences, Eastern Kentucky University, Richmond, Kentucky 40475)

Although the breeding biology and singing behavior of the Black-headed Grosbeak (*Pheucticus melanocephalus*) have been examined (Weston 1947; Ritchison 1983a, b; 1985), little information is available concerning grosbeak vocalizations. The purpose of this note is to describe the vocalizations of the Black-headed Grosbeak and briefly indicate the context(s) in which the vocalizations were uttered.

Observations and recordings were made almost daily from 1 April through 31 August in 1977 and 1978 at the Malibu-Guinavah Forest Camp, 10 km east of Logan, Cache County, Utah (see Ritchison 1983a for description of this area). Grosbeak vocalizations were recorded at 9.5 cm/sec with a Nagra IIB tape recorder equipped with an Altec 633A microphone and a 62-cm parabolic reflector. Vocalizations were analyzed with a Kay Elemetrics Sona-Graph (Model 6061B) using the wide-band filter. Sound parameters were obtained by converting linear measurements on the sonagrams into time (horizontal axis) or frequency (vertical axis) measurements.

The *chip* call (Figure 1A) consisted of a single note averaging  $0.04 \pm 0.01$  sec ( $N=22$ ) in duration. This call began at a frequency of  $3.10 \pm 0.04$  kHz and rose sharply to a frequency of  $6.00 \pm 0.15$  kHz. This call was uttered by both male and female grosbeaks in a variety of situations, i.e., as paired birds moved through their territories prior to nesting or when an adult approached the nest to assume incubating or brooding duties or to bring food to the young (Ritchison 1983a).

The *wheet* call (Figure 1B) averaged  $0.10 \pm 0.02$  sec ( $N=35$ ) in duration. This call exhibited an up-slur, beginning at an average low frequency of  $2.20 \pm 0.18$  kHz and rising to an average high frequency of  $2.90 \pm 0.13$  kHz. This call was given by both males and females and was only uttered when a bird took flight.

The *squeal* call (Figure 1C) consisted of a single note repeated in a series. Individual notes averaged  $0.08 \pm 0.01$  sec ( $N=54$ ) in duration and were uttered at a frequency of 3.5 to 4.0 kHz. This call was given by both males and females when being handled or when a nest containing eggs or young was approached by a human or other potential predator. For example, this call was uttered by a female when a Sharp-shinned Hawk (*Accipiter striatus*) flew to a nest and removed two nestlings. Similar calls have been reported in a number of species (Norris and Stamm 1965, Stefanski and Falls 1972, Rohwer et al. 1976). Such calls could startle a predator and allow a captured individual to escape or could elicit harassment or distraction behavior that may divert the attention of a predator from a nest or young.

The *che-le-up* call (Figure 1D) was given at a frequency of 2.0 - 3.0 kHz and averaged  $0.28 \pm 0.02$  sec ( $N=18$ ) in duration. This call was given by young grosbeaks from the time they were a day or two old until just after fledging. While giving this call, a young grosbeak would stretch its head and neck upward, flap its wings, and open its mouth. Such behavior elicited feeding from the adults.

The *phée-oo* call (Figure 1E) averaged  $0.44 \pm 0.04$  sec ( $N=20$ ) in duration and was uttered at a frequency of 2.0 - 3.5 kHz. This call was first given by young

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grosbeaks a few days prior to fledging and was uttered by the young for several weeks after fledging. This call was given when a young grosbeak sighted a parent with food or heard a parent calling or singing (Ritchison 1983a,b).

The juvenal *squeal* call (Figure 1F) consisted of a single note repeated rapidly in a series. The individual notes averaged  $0.15 \pm 0.01$  sec (N=44) in duration with an average frequency of 3.0 - 4.0 kHz. This call was uttered in conjunction with *phee-oo* calls (Ritchison 1983a,b).

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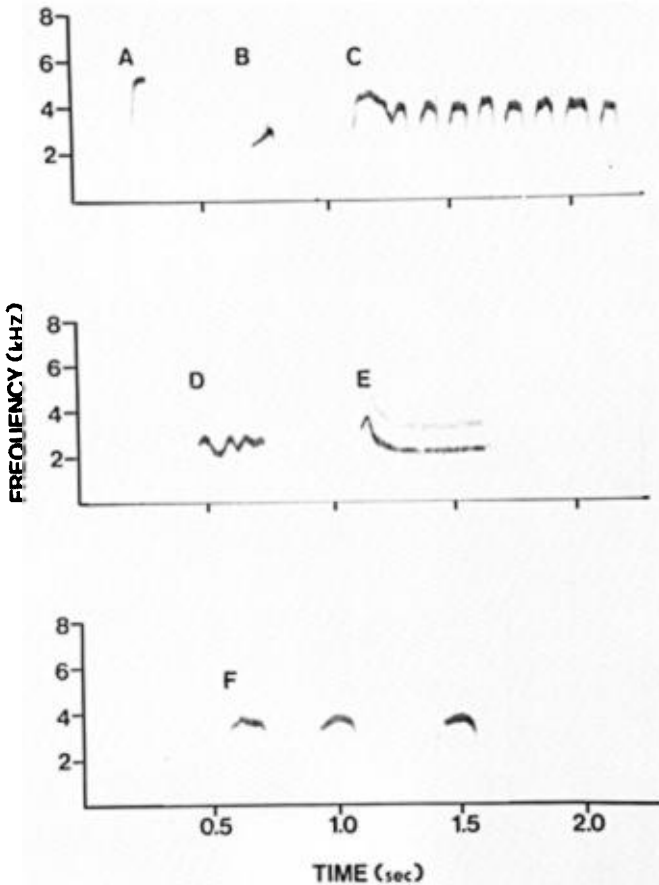


Figure 1. Sonograms of Black-headed Grosbeak vocalizations: (A) *chip*; (B) *wheet*; (C) adult *squeal*; (D) *che-le-up*; (E) *phee-oo*; (F) juvenal *squeal*.

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### LITERATURE CITED

- Norris, R.A. & D.D. Stamm. 1965. Relative incidence of distress calls or "squeals" in mist-netted birds. *Bird-Banding* 36:83-88.
- Ritchison, G. 1983a. Breeding biology of the Black-headed Grosbeak in northern Utah. *West. Birds* 14:159-167.
- Ritchison, G. 1983b. The function of singing in female Black-headed Grosbeaks: family-group maintenance. *Auk* 100:105-116.
- Ritchison, G. 1985. Variation in the songs of female Black-headed Grosbeaks. *Wilson Bull.* 97:47-56.
- Rohwer, S., S.D. Fretwell & R.C. Tuckfield. 1976. Distress screams as a measure of kinship in birds. *Am. Midl. Nat.* 96:418-430.
- Stefanski, R.A. & J.B. Falls. 1972. A study of distress calls of Song, Swamp, and White-throated sparrows. I. Intraspecific responses and functions. *Can. J. Zool.* 50:1501-1512.
- Weston, J.G., Jr. 1947. Breeding behavior of the Black-headed Grosbeak. *Condor* 49:54-73.

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