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ARE MOBBING CALLS OF STELLER'S JAYS A "CONFUSION CHORUS"?

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Abstract.—Five or six Steller's Jays (*Cyanocitta stelleri*) mobbed a perched Cooper's Hawk (*Accipiter cooperii*) in Arizona and one knocked it from its perch; the hawk subsequently left the area. Vocalizations of both the hawk and jays are illustrated with sonagrams. Calls of different individual jays overlap to create a mobbing chorus that may produce a confusion effect for the predator and reduce its probability of attacking the mobbing individuals.

¿SON LAS LLAMADAS DE TUMULTOS EN *CYANOCITTA STELLERI* UN "CORO DE CONFUSIÓN"?

Resumen.—De 5–6 individuos de *Cyanocitta stelleri* acecharon con llamadas de tumultos (mobbing) un halcón de Cooper (*Accipiter cooperii*) en una localidad de Arizona. Una de las aves hizo caer al halcón y el último tuvo entonces que dejar el área. La localización de los diferentes individuos de *C. stelleri* solaparon para formar un "coro" que pudo haber creado una gran confusión en el halcón y reducir la probabilidad que atacara a uno de los causantes del tumulto.

Curio (1978) reviewed the numerous suggested functions of mobbing. One hypothesis is that harassment of the predator causes it to move out of the area. Direct physical attacks on a potentially dangerous predator, however, are probably relatively rare, as they pose considerable danger to the mobber (Bildstein 1982). I report an example of such an attack as part of a mobbing incident and discuss the accompanying vocalizations.

On 7 Oct. 1986 at 0725 MST I was making sound recordings of Mexican Chickadees (*Parus sclateri*) at Rustler Park in the Chiricahua Mountains, Cochise Co. Arizona when I heard the screams of a Cooper's Hawk (*Accipiter cooperii*) about 40 m from me. The hawk, judged by its size to be a female, was perched at about 5 m on a bare limb of a ponderosa pine (*Pinus ponderosa*). Thirteen seconds after the hawk's last call, a Steller's Jay (*Cyanocitta stelleri*) gave a "Wah" call (Hope 1980). Within 7 s, 5–6 jays were mobbing the hawk by flying very close to its back and head, while producing a chorus of "Wahs." Several seconds later one jay struck the hawk in mid-back, and the hawk fell to the ground where it perched for a few seconds before flying away. Following the departure of the hawk several more "Wah" calls were noted before the jays left the vicinity. I remained in the area for about three more hours, but never

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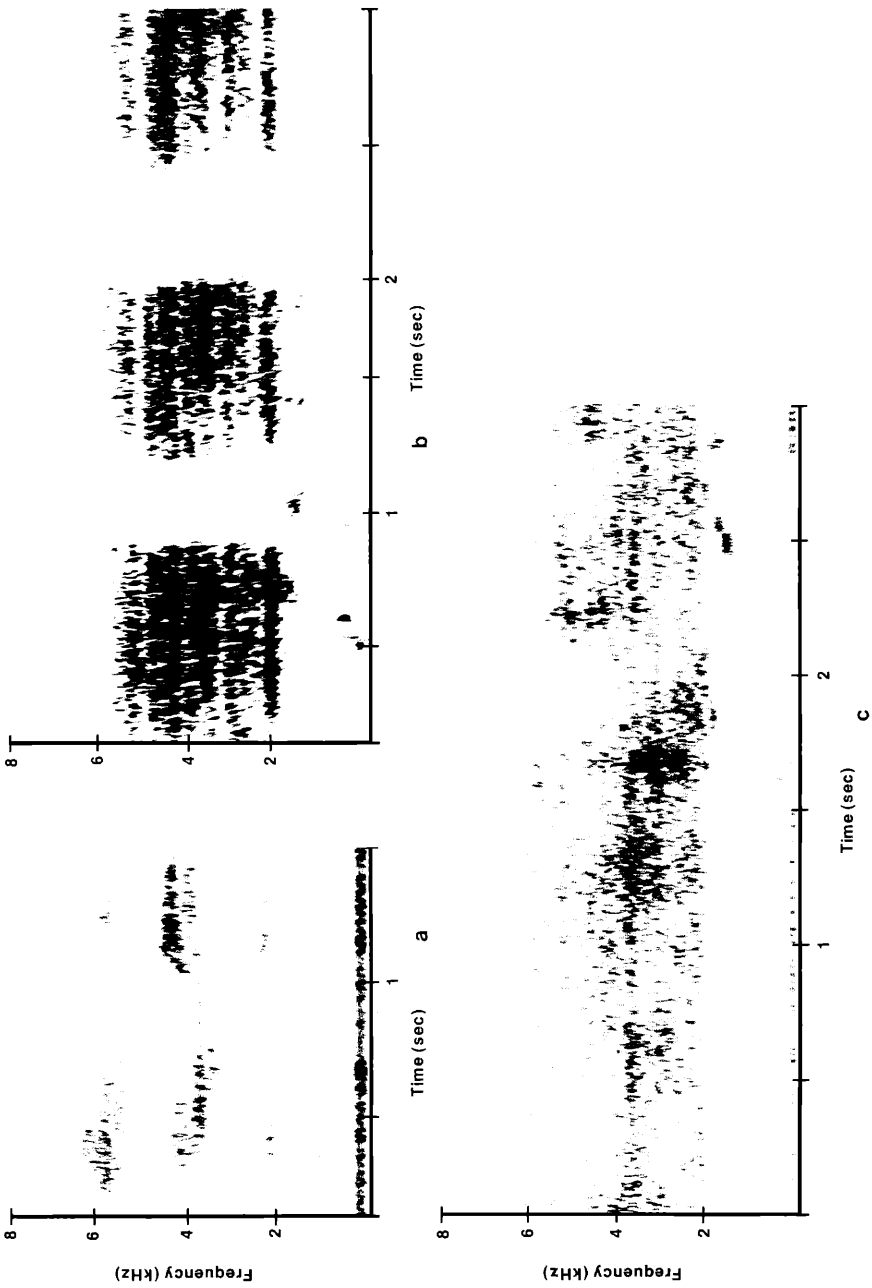
FIGURE 1. Sonagrams of: a. Screams of a Cooper's Hawk given immediately after landing; b. "Wah" calls of a single Steller's Jay. Note the inter-call intervals are fairly regular; c. Chorusing of "Wahs" by Steller's Jays in which the calls of several individuals overlap.


Frequency (kHz)
8
6
4
2
1
2
Time (sec)
a
b
c

again saw the hawk. Many accipiters were migrating through this mountainous area at this time.

The sequence of actions, including vocalizations, was recorded on a Sony Walkman cassette tape recorder (WM-D6C) with a Nakamichi CM-100 cardioid microphone. Calls were analyzed with a Kay 7800 Digital Sona-Graph on 150 Hz band width setting. Figure 1 shows sonagrams of the screams of the hawk, the "Wah" call of the first jay illustrating the regular intervals of the initial calls, and the later chorus effect as the 5–6 jays flew around the hawk. One puzzling feature of this incident is why the hawk screamed. Perhaps it had already been mobbed by the flock of jays. Obviously the jays were nearby, as they began mobbing a few seconds after the hawk perched. The call of the hawk may be intimidating to some potential passerine mobbers, but probably not in this case.

"Wah" is the mobbing call of the Steller's Jay, although it is sometimes given in other contexts (Hope 1980). One interesting feature of my observations was the chorusing effect during intense harassment of the hawk, in which the normal rather even intervals between the calls were absent as several jays called at once. I have noticed a similar chorusing, with overlapping calls from several individuals during mobbing of predators by Black-capped Chickadees (*Parus atricapillus*). Perhaps the chorus adds to the confusion of the predator during the active mobbing, further reducing chances that an individual will be singled out for attack. Tomback (pers. comm.) noted that during mobbing of perched Cooper's Hawks, Clark's Nutcrackers (*Nucifraga columbiana*) gave overlapping alarm calls, and that the chorus may create confusion for the predator. Easily localizable calls often have sharp onsets and terminations (Marler 1955), but these qualities are greatly reduced during chorusing in which overlapping of calls by different individuals occurs.

Bildstein (1982) pointed out that group efforts are often more effective than individual action in harassing a predator to the point of driving it from the area, and each individual mobber suffers less risk of predation than if it were mobbing alone. My observation certainly indicates the effectiveness of group action, as it is unlikely that a single jay would have attacked a hawk so directly, if there had not been other jays simultaneously harassing the predator. In this case there was certainly safety in numbers, and this single observation indicates that harassment can sometimes lead to the immediate departure of the predator from the vicinity.

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LITERATURE CITED

BILDSTEIN, K. L. 1982. Responses of Northern Harriers to mobbing passerines. J. Field Ornithol. 53:7–14.

CURIO, E. 1978. The adaptive significance of avian mobbing. I. Teleonomic hypotheses and predictions. Z. Tierpsychol. 48:175–183.

HOPE, S. 1980. Call form in relation to function in the Steller's Jay. Am. Nat. 116:788–820.

MARLER, P. 1955. Characteristics of some animal calls. Nature 176:6–8.

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