

## SHORT NOTE

### The effect of earthquake aftershocks on the dawn chorus of an Eurasian blackbird (*Turdus merula*)

JAMES V. BRISKIE

School of Biological Sciences, University of Canterbury, Private Bag 4800, Christchurch, New Zealand

The behaviour of animals during earthquakes is poorly studied, primarily because such disasters also affect potential observers. As a result, most observations are fragmentary and anecdotal. For example, after a severe earthquake in the Nelson region of New Zealand, Moncrieff (1930) solicited accounts from the general public on the response of birds to the disaster. A common reported pattern was that the earthquake and its aftershocks sent a variety of species of birds into the air, including both native and introduced species. Yosef (1997a; b) similarly reported that a wide variety of species, including gulls, kingfishers, harriers and passerines responded to the aftershocks of an Israeli earthquake by taking flight. A study of grey herons (*Ardea cinerea*) found they responded to aftershocks of the same earthquake by taking flight, but only when the magnitude was greater than 4.2 on the Richter scale (Mw), suggesting they could not detect weaker events or were not disturbed by them (Yosef 1997b).

A flight response by birds to severe aftershocks is not surprising, as taking flight is the most common response to approaching danger in the majority of species, whether fleeing from a predator, including humans, or any other type of sudden disturbance (e.g. Blumstein 2006). In contrast, information

on how other behaviours of birds are affected by earthquakes is rare, especially when these events strike in the dark of the night. Here I describe how the aftershocks of a major earthquake in the Canterbury region affected the dawn chorus of a Eurasian blackbird (*Turdus merula*) in the suburban garden of my house in the town of Rangiora, South I (43.31°S, 172.58°E).

On 4 Sep 2011, a 7.1 Mw earthquake struck the Canterbury region of New Zealand at 04:35 NZST (magnitude of earthquakes taken from [www.geonet.org.nz](http://www.geonet.org.nz)). At this time of year it was still dark and I was asleep when the earthquake struck. Due to the violent nature of the earthquake, my immediate response was to check on the safety of family, neighbours, and the structural integrity of my house and no observations were made on the behaviour of birds. After finding no serious damage, I returned to bed but could not fall asleep. At 05:26, one of many aftershocks struck (4.8 Mw), lasting a few seconds. Immediately, I began to hear a blackbird singing outside the bedroom window. It was still dark (sunrise on this day was at 06:52 NZST), and the bird sang continuously for about a minute before stopping. The song was not recorded but was qualitatively similar to the songs delivered in a typical dawn chorus by male blackbirds. Another aftershock struck at 05:55 (4.6 Mw) and again, a male blackbird began to sing continuously outside my bedroom window, before stopping

Received 31 Aug 2011; accepted 7 Sep 2011

Correspondence: [Jim.Briskie@canterbury.ac.nz](mailto:Jim.Briskie@canterbury.ac.nz)

after approximately a minute. A further aftershock followed at 06:01 (4.5 Mw), but this time no singing was heard (it is possible the bird had moved to another location). At ~06:20, a male blackbird began singing again outside my bedroom. This bout of singing did not coincide with an aftershock and this time he sang continuously for a period of ~20 minutes, in what appeared to be a normal dawn chorus. A small aftershock at 06:33 (Mw 4.2) did not stop his singing. Over the next few mornings, an apparently normal dawn chorus was delivered by a male blackbird outside my bedroom. On each day singing began around 06:10-06:20 and lasted 15-20 minutes. Although aftershocks again struck at night on a number of occasions over the following week I did not hear a blackbird sing. However, it should be noted I slept through many of these and thus I would have missed any short episodes of singing triggered by an aftershock. The male blackbird was not banded, but because he sang each morning from the same large tree outside my bedroom window, I assumed it was the same individual that I heard singing on the day of the earthquake and on subsequent days. A pair of blackbirds was later found nesting in an adjacent tree in the garden.

Although my observations are anecdotal and involve probably only a single male blackbird, it appears that at least some of the aftershocks stimulated the initiation of a dawn chorus in this bird well before dawn. These "false starts" lasted for only about a minute, after which the bird ceased singing. False starts were observed twice, the 1st starting about 1 hour, and the 2nd about a half

hour, before the usual start time of the dawn chorus at this time of year. It is tempting to imagine (and perhaps anthropomorphise) that the aftershocks shook the male out of his sleep, much like an alarm clock would awaken a human, and stimulated the start of the dawn chorus, only for the bird to realise a minute or so later that it was still early to start singing and he returned to sleep. Despite the false starts that appeared to be caused by the aftershocks, the disruption was temporary as the blackbird eventually returned to a typical delivery of his dawn chorus later that morning and on subsequent mornings.

#### ACKNOWLEDGEMENTS

Thank you to Paul Sagar for acting as editor on this paper and to the reviewers that provided helpful comments.

#### LITERATURE CITED

- Blumstein, D.T. 2006. Developing an evolutionary ecology of fear: how life history and natural history traits affect disturbance tolerance in birds. *Animal Behaviour* 71: 389-399.
- Moncrieff, P. 1930. The behaviour of birds and other animals during earthquake. *Emu* 30: 51-58.
- Yosef, R. 1997a. Reactions of birds to an earthquake. *Bird Study* 44: 123-124.
- Yosef, R. 1997b. Reactions of grey herons (*Ardea cinerea*) to seismic tremors. *Journal fur Ornithologie* 138: 543-546.

**Keywords** earthquake; dawn chorus; Eurasian blackbird; *Turdus merula*; New Zealand