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名古屋市立大学大学院芸術工学研究科

博士後期課程 4 月入学（芸術工学専攻）

入 学 試 験 問 題

外 国 語（筆記）（60 分）

【 注 意 事 項 】

- 1 試験開始の合図があるまで、この問題冊子の中を見てはいけません。
- 2 この冊子は表紙を含め 2 枚あります。
試験中に問題冊子の印刷不鮮明、ページの落丁・乱丁及び解答用紙の汚れ等に気づいた場合は、手を挙げて監督者に知らせてください。
- 3 解答用紙は 1 枚(両面)配布します。
解答用紙には、受験番号、氏名を記入してください。
- 4 この冊子のどのページも切り離してはいけませんが、余白等は適宜利用してもかまいません。
- 5 試験終了後、問題冊子は回収します。問題冊子は持ち帰ってはいけません。

外国語（筆記）

【設問 1】以下の英文を日本語に翻訳せよ。

Some bats can imitate the sound of buzzing hornets to scare off owls, researchers say. The discovery is the first documented case of a mammal mimicking an insect to deter predators. Many animals copy other creatures in a bid to make themselves seem less palatable to predators. Most of these imitations are visual. North America's non-venomous scarlet kingsnake, for instance, has evolved to have similar colour-coding to the decidedly more dangerous eastern coral snake.

Now, a study comparing the behaviour of owls exposed to insect and bat noises suggests that greater mouse-eared bats might be among the few animals to have weaponized another species' sound. Because they are nocturnal and have poor eyesight, most bats rely on echolocation to find their way around, and communicate using a wide array of other noises. Russo first noticed that the distress call of the greater mouse-eared bat sounded like the buzzing of bees or hornets while he was catching the bats for a different research project.

To investigate whether other animals might make the same connection, Russo and his colleagues compared the sound structure of buzzing by the European hornet to that of the bat's distress call. At most frequencies, the two sounds were not dramatically similar, but they were when the bat's call was stripped down to include only frequencies that owls — one of the animal's main predators — are able to hear. This suggests that the distress call as heard by owls strongly resembles the buzzing of a hornet, so it could fool predators.

To test this idea, the researchers played bat and insect noises to owls living in captivity. They found that the birds tended to approach the speakers when played recordings of social bat calls, as if looking for prey. But a recording of hornets buzzing usually caused owls to distance themselves from the speakers. Many of the owls also moved away from the speakers when they heard the bats' distress call. This supports the idea that the bats' buzzing could confuse owls into thinking that a hornet is nearby.

(以下の論文より抜粋，一部省略)

Kreier, F. (2022). Bats buzz like hornets to scare off owl predators. *Nature*.