参考译文

**Cricket Avoids Being Bat Food by Doing Nothing**

**蟋蟀如何避免不被蝙蝠吃到**

[CLIP: Sounds of the Panamanian rain forest]

[巴拿马雨林的声音]

“So what you’re listening to now, that’s a recording from the rain forest.”

“你现在听到的是来自热带雨林的录音。”

That’s Marc Holderied of the University of Bristol in the U.K. He specializes in bioacoustics: how animals produce sound and communicate with the sounds they make. In the recording you just listened to, Holderied removed the sounds we humans can hear and reduced the frequencies of the sounds we normally wouldn’t hear so that they’re audible to our ears.

英国布里斯托尔大学的Marc Holderied说道。他专门研究生物声学:动物发出声音并如何利用声音进行交流。在你刚刚听到的录音中，Holderied去掉了我们人类能听到的声音，并降低了我们通常听不到的声音的频率，这样我们的耳朵就能听到一些声音。

“A rain forest is a very noisy environment. There’s insect sounds, bird sounds; there’s leaves rustling. And all of this makes it harder for you to detect something you want to hear.”

“雨林是一个非常嘈杂的环境。昆虫的声音，鸟儿的声音;树叶沙沙作响。这一切都让我们更难察觉自己想听到的声音。”

Holderied is particularly interested in sounds from the ultrasonic range—these are frequencies our ears can’t detect. But they come in loud and clear for a sword-tailed cricket in Panama. Here’s their home, slowed down so we can hear it.

Holderied对超声波范围内的声音特别感兴趣——这些是我们的耳朵无法探测到的频率。但这些声音响亮而清晰地出现在巴拿马的剑尾蟋蟀面前。这是它们的家，放慢速度我们能听到声音。

[CLIP: Forest sounds]

[片段：森林的声音]

Holderied and colleagues at the Universities of Bristol and Graz in Austria, recently discovered the sword-tailed cricket has a novel survival strategy when it comes to life in their noisy environment.

Holderied和奥地利布里斯托尔和格拉茨大学的同事们最近发现，剑尾蟋蟀在嘈杂的环境中有一种新的生存策略。

“Up there, it’s mainly other insects that produce noises that stop you from detecting what you really want to detect—and that is a predator that might attack you.”

“在那里，主要是其他昆虫发出的声音阻止探测到真正想探测到的东西，而那是一个可能攻击捕食者。”

Every night, hundreds of species of hungry bats fly around the rain forest and use echolocation to hunt for their meals, which can include the cricket.

每天晚上，数百种饥饿的蝙蝠在雨林中飞来飞去，利用回声定位来寻找食物，其中也包括蟋蟀。

“So we are talking neotropical rain forests, and they teem with different bat species. And most of them, or many of them, would be after insects. So the frequencies that they use to find the insect prey are covering pretty much a full echolocation-frequency range.”

“我们说的是新热带雨林，那里有很多不同种类的蝙蝠。它们中的大多数，或者说很多，会捕食昆虫。所以它们用来寻找昆虫猎物的频率几乎覆盖了整个回声定位频率范围。”

Echolocation is great for hunting. But Holderied says it’s also a potential weakness for bats—because in the ultrasonic world, these calls are very, very loud.

回声定位对狩猎很有用。但Holderied说，这也是蝙蝠的一个潜在弱点——因为在超声波的世界里，这些声音非常非常响亮。

“And once you have cracked that, once you have evolved an ear that lets you hear these calls, you can simply fly away and escape into safety....”

“一旦你破解了这些超声波，一旦你进化出了能听到这些叫声的耳朵，就可以飞走，逃到安全的地方……”

Which the cricket has learned to do.

而蟋蟀就已经学会了。

“Basically, they have a response threshold–that’s what we call it. So they only respond to sounds that are very loud.”

“基本上，这些声音有一个响应阈值——我们称之为响应阈值。所以它们只对非常大声的声音做出反应。”

And how do they respond? Well, they simply stop flying—and plummet toward the ground.

他们如何回应?好吧，它们只是停止了飞行，直直地飞向地面。

“Sometimes they don’t even drop all the way to the ground. So if the calls are louder, they stop flying for a longer period of time–that means a longer drop. But if they stop for just a half a second, that might not be enough time for them to hit the ground. And after this half a second, they start flying again, but they’re never actually crashing. But they drop out of the bat’s approach vector.”

“有时候它们甚至不会一直掉到地上。因此，如果叫声更大，它们停止飞行的时间就更长——这意味着下降的时间更长。但如果它们只停下来半秒，那可能不够它们落地的时间。这半秒之后，它们又开始飞行，但它们从来没有真正坠落。但它们从蝙蝠的接近媒介中掉了出来。”

The study of the crickets’ novel survival strategy is in the journal Philosophical Transactions of the Royal Society B.

关于蟋蟀新奇的生存策略的研究发表在《英国皇家学会哲学学报B》上。

“It’s a beautiful example of this predator-prey arms race.”

“这是捕食者与猎物军备竞赛的一个很好的例子。”

In this case, the passive prey has found a way to live, and listen for, another day.

在这种情况下，被动的猎物找到了生存的方式，并倾听着，新的一天。

听力原文

Cricket Avoids Being Bat Food by Doing Nothing

[CLIP: Sounds of the Panamanian rain forest]

“So what you’re listening to now, that’s a recording from the rain forest.”

That’s Marc Holderied of the University of Bristol in the U.K. He specializes in bioacoustics: how animals produce sound and communicate with the sounds they make. In the recording you just listened to, Holderied removed the sounds we humans can hear and reduced the frequencies of the sounds we normally wouldn’t hear so that they’re audible to our ears.

“A rain forest is a very noisy environment. There’s insect sounds, bird sounds; there’s leaves rustling. And all of this makes it harder for you to detect something you want to hear.”

Holderied is particularly interested in sounds from the ultrasonic range—these are frequencies our ears can’t detect. But they come in loud and clear for a sword-tailed cricket in Panama. Here’s their home, slowed down so we can hear it.

[CLIP: Forest sounds]

Holderied and colleagues at the Universities of Bristol and Graz in Austria, recently discovered the sword-tailed cricket has a novel survival strategy when it comes to life in their noisy environment.

“Up there, it’s mainly other insects that produce noises that stop you from detecting what you really want to detect—and that is a predator that might attack you.”

Every night, hundreds of species of hungry bats fly around the rain forest and use echolocation to hunt for their meals, which can include the cricket.

“So we are talking neotropical rain forests, and they teem with different bat species. And most of them, or many of them, would be after insects. So the frequencies that they use to find the insect prey are covering pretty much a full echolocation-frequency range.”

Echolocation is great for hunting. But Holderied says it’s also a potential weakness for bats—because in the ultrasonic world, these calls are very, very loud.

“And once you have cracked that, once you have evolved an ear that lets you hear these calls, you can simply fly away and escape into safety....”

Which the cricket has learned to do.

“Basically, they have a response threshold–that’s what we call it. So they only respond to sounds that are very loud.”

And how do they respond? Well, they simply stop flying—and plummet toward the ground.

“Sometimes they don’t even drop all the way to the ground. So if the calls are louder, they stop flying for a longer period of time–that means a longer drop. But if they stop for just a half a second, that might not be enough time for them to hit the ground. And after this half a second, they start flying again, but they’re never actually crashing. But they drop out of the bat’s approach vector.”

The study of the crickets’ novel survival strategy is in the journal Philosophical Transactions of the Royal Society B.

“It’s a beautiful example of this predator-prey arms race.”

In this case, the passive prey has found a way to live, and listen for, another day.