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BEHAVIOUR OF STOATS TO TRAPPING TUNNELS

(Short Answers in Conservation Science)

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BEHAVIOUR OF STOATS TO TRAPPING TUNNELS

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Abstract

A captive female and a free-living stoat were recorded on video entering both wooden and aluminium trapping tunnels. There was no apparent difference in behavioural responses of the stoats to the different tunnel types.

INTRODUCTION

The Department of Conservation (DoC) normally uses wooden tunnels to cover Fenn traps for control of stoats (*Mustela erminea*). A new type of aluminium tunnel that is smaller and lighter than wooden tunnels was tested in a field trial in Catlins Forest in December 1993 - January 1994 (K. Olsen 1994, unpublished Department of Conservation report). Traps were set in pairs of wooden and aluminium tunnels <1 m apart at 35 sites and in aluminium tunnels only at a further 33 sites. All 7 stoats trapped from the sites where there were paired tunnels were trapped in wooden tunnels. Two additional stoats were caught in traps in aluminium tunnels from the sites where there were no wooden tunnels (i.e., where there was no choice between tunnel types). DoC requested research to investigate the stoats apparent preference for wooden tunnels.

OBJECTIVE

To investigate the behaviour of stoats to wooden versus aluminium trapping tunnels.

METHODS

In captive animal pens

Wooden and aluminium trapping tunnels (without traps) were placed <1 m apart in a pen (approx. 10 x 6 x 3 m) with a captive female stoat at the Rangiora captive animal facility on 14/4/94. Each tunnel was baited with one dead day-old chick. The behaviour of the stoat as it approached the tunnels was recorded on video under dim white light. The stoat was given no other food.

In the field

Wooden and aluminium trapping tunnels (without traps) were placed <1 m apart for 1 night (30/3/94) at site 23 in Broken River valley, and for 2 nights (5/4/94 and 6/4/94) at site 9 in Cave Stream valley, Craigieburn Forest Park, where stoats had been regularly entering unset wooden continental live traps baited with punctured raw hen eggs. On 7/4/94, the tunnels were placed <1 m apart at a site in the lower Cave Stream valley, where stoats had been offered, and had eaten, punctured raw hen eggs on 6/4/94, but had not encountered tunnels before. Each tunnel was baited with one punctured raw hen egg. The behaviour of animals approaching the tunnels was recorded on video under infra-red light.

RESULTS

In captive animal pens

On 14/4/94, the captive female stoat approached the tunnels from in front at about 1848 hours. She sniffed the front of the wooden tunnel, climbed on top of it, sniffed the back, and then sniffed the back of the aluminium tunnel. She entered the aluminium tunnel first, briefly, then the wooden tunnel, briefly (Table 1). She then re-entered the aluminium tunnel and presumably ate the chick inside during the 9 min she was there. Later she removed the chick from the wooden tunnel. Both chicks had disappeared at 0715 hours next day.

Table 1. Behaviour of captive female stoat encountering trapping tunnels

Time (h.min.s)	Behaviour
18.48.52	sniffed wooden tunnel then aluminium tunnel
18.49.15	entered aluminium tunnel for 7 sec
18.50.59	entered wooden tunnel for 7 sec
18.51.08	entered aluminium tunnel for approx 9 min
19.00.08	entered wooden tunnel for 34 sec
19.01.28	entered aluminium tunnel for 7 sec
19.01.58	entered wooden tunnel for 2 sec and left with chick in mouth
19.03.21	entered wooden tunnel for 13 sec
19.03.36	entered aluminium tunnel for 4 sec

In the field

On 30/3/94, at site 23, the egg was taken from the wooden tunnel but the video equipment malfunctioned so that there was no record of what animal took it or of the animal's response to the tunnels. No stoats came to the tunnels at site 9 on 5/4/94 and 6/4/94, and no eggs were taken.

On 7/4/94, in the lower Cave Stream valley, a stoat approached the tunnels from the side closest to the aluminium tunnel, at about 1910 hours. The stoat appeared confident and its movements were neither hurried nor hesitant. It sniffed the aluminium tunnel first but entered the wooden tunnel first (Table 2). When it entered the aluminium tunnel it pushed the egg close to the entrance, where it could be seen on the video. It appeared to eat part of the egg in the aluminium tunnel, then left and disappeared from the picture. A stoat (perhaps the same one) returned about 2 hours later, entered the wooden tunnel and from the length of time spent inside it presumably ate part of the egg. It disappeared from the picture again at about 2122 hours. The video equipment malfunctioned at about 2152 hours, so the fate of the eggs was not determined. However, both eggs including the shells had disappeared (presumably carried away by the stoat) by 1300 hours next day.

Table 2. Behaviour of free-living stoat encountering trapping tunnels

Time (h.min.s)	Behaviour
19.10.15	sniffed aluminium tunnel, wooden tunnel, then aluminium tunnel again
19.11.10	entered wooden tunnel for 65 sec
19.12.20	entered aluminium tunnel for 10 sec and pushed egg close to entrance
19.12.40	sniffed entrance to wooden tunnel
19.12.55	entered aluminium tunnel and ate part of egg for about 3.5 min
19.16.40	entered wooden tunnel for 5 sec then disappeared
21.15.15	entered wooden tunnel for about 6.5 min
21.21.45	sniffed entrance to aluminium tunnel then disappeared

DISCUSSION

This investigation has shown no apparent difference in the behavioural responses of stoats to aluminium and wooden trapping tunnels. The two stoats recorded on video showed no aversion to either tunnel type. The stoats entered aluminium tunnels even when they had the choice of entering a wooden tunnel. The captive female stoat would have been caught in the aluminium tunnel, and the two free-living stoats would have been caught in wooden tunnels, if traps had been set in the tunnels.

The behaviour of the stoats may have been influenced by previous exposure to humans. The captive stoat has been accustomed to the presence of humans and foreign objects (but not trapping tunnels) in its pen for about 3 years, while the two free-living stoats that entered tunnels may also have encountered humans before because they lived within 1 km of a ski field hut and a picnic area, respectively. However, the behaviour of stoats in the Catlins and elsewhere is probably also influenced by humans. Stoats avoid direct contact with humans, but do not avoid places where humans have been. In the course of another investigation (unpublished), free-living stoats were recorded on video visiting wooden continental live traps 2 minutes before and 5 minutes after a human was present.

This investigation has not explained the results of the DoC trapping trial, which appeared to show that stoats preferred wooden to aluminium trapping tunnels. However, the paired (choice) design used in the DoC trial will have under-estimated the potential for stoats to enter aluminium tunnels. Stoats may have entered aluminium tunnels, even if less preferred than wooden tunnels, if they were the only tunnels present (i.e., there was no choice). However, in the paired design, each stoat could be caught in a tunnel only once. The results from the 33 sites where only aluminium tunnels were present cannot be compared to those from 35 sites where both types were present unless there was an equal expectancy of capturing stoats at all sites. The DoC trapping trial should be repeated with either a wooden or an aluminium tunnel, randomly allocated, at each trapping site (i.e., a no choice design). If more stoats are caught in traps in wooden tunnels in such a trial then further investigation of stoat behaviour to tunnel types would be warranted.

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