

# Traffic accidents involving the red squirrel and measures to prevent such accidents in Obihiro City, Hokkaido, Japan

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北海道帯広市におけるエゾリスの交通事故とその防止対策

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## ABSTRACT

In Obihiro City, the number of red squirrel, *Sciurus vulgaris orientis*, death due to traffic accidents was large. Therefore, a number of measures have been taken to prevent these numerous traffic accidents. The “Red Squirrel Traffic Accident Map” was prepared based on data collected by citizen group and our laboratory of Obihiro University of Agriculture and Veterinary Medicine. Based on this map, warning sign posts indicating “Squirrel Crossing” were installed in 18 locations within the city. In addition, a footbridge for squirrels (Eco-bridge) was constructed.

Key words: Red squirrel, *Sciurus vulgaris orientis*, Road kill, Obihiro City, northern Japan

## Introduction

Tree squirrels, as their name suggests, are fundamentally arboreal. However, as they often walk on the ground to feed, store and move, they are frequently involved in traffic accidents. For example, in Minnesota in the USA (Sargeant & Forbes, 1973), as indicated in Table 1, the top three species which died in traffic accidents all belonged to the squirrel family. Among them, the thirteen-lined ground squirrel, *Spermophilus tridecemlineatus* is a ground squirrel but the remaining two species belonged to the tree squirrel family. In eastern Finland (Korhonen and Nurminen, 1987), the red squirrel, *Sciurus vulgaris*, which is a subspecies of the same species as the red squirrel in Hokkaido (*Sciurus vulgaris orientis*), were the most likely animals to be involved in traffic accidents after the hedgehog, *Erinaceus europaeus* and the arctic hare, *Lepus timidus*.

In eastern Hokkaido, the number of dead red squirrels retrieved was the largest after the big-clawed shrew, *Sorex unguiculatus* (Yanagawa and

Akisawa, 2004)(Table 1).

## Measures taken by Obihiro to prevent traffic accidents involving the red squirrel

In Obihiro City, a number of measures have been taken to prevent these numerous traffic accidents involving red squirrels, both by administration and by citizen group (Yanagawa, 1998a). The first attempt to prevent the traffic accidents was a lecture “wild animals from occurring” (presented by Iwao Ogawa of Eco-network in Sapporo) held by the city for Obihiro citizens. In the talk session of the lecture, the mayor and a citizen titled “To prevent traffic accidents involving group “Ezo-risu no kai” discussed the traffic accidents involving red squirrels. This talk led to the start of full-scale accident prevention measures in October 1996.

The Wildlife Ecology Laboratory, Obihiro University of Agriculture and Veterinary Medicine provided the city with data on traffic accidents involving red squirrels. The “Red Squirrel Traffic Accident Map” was prepared based on these data and data collected

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Table 1. Mammals which die most frequently from traffic accidents (top five species)

<b>Minnesota, USA (Jan. 1964–Dec. 1965)</b>	
Gray squirrel	21
Fox squirrel	16
Thirteen-lined ground squirrel	15
Cotton-tail rabbit	8
Striped skunk	8
<b>Total for all mammals (19 species)</b>	<b>108</b>
(Sargeant and Forbes, 1973)	
<b>Eastern Finland (Apr.–Oct. 1982–1984)</b>	
Hedgehog	72
Arctic hare	26
Red squirrel	25
Cat	24
Ermine	13
<b>Total for all mammals (14 species)</b>	<b>199</b>
(Korhonen and Nurminen, 1987)	
<b>Hokkaido, Japan (Apr. 1996–Mar. 1998)</b>	
Big-clawed shrew	152
Red squirrel	94
Red fox	85
Norway rat	22
Asiatic chipmunk	19
<b>Total for all mammals (23 species)</b>	<b>455</b>

by the “Ezo-risu no kai”. Based on this map, warning sign posts indicating “Squirrel Crossing” were

installed in 18 locations within the city (Fig. 1). The areas where squirrel traffic deaths often occurred were announced in the city bulletin to inform citizens of where to be cautious. In addition, a footbridge for squirrels (Eco-bridge, Fig. 2) was constructed. The results of these measures are still questionable, because there was no significant difference in the number of traffic accidents between 1996 (40) and 1997 (41). However, squirrels were seen using the Eco-bridge several times (Fig. 3), and they were no longer observed walking across the road where the Eco-bridge was constructed (Yanagawa, 1998b). This observation is promising. If Eco-bridges are effectively used, the number of accidents may be reduced.



Fig. 1. A warning sign post indicating “Squirrel Crossing”.

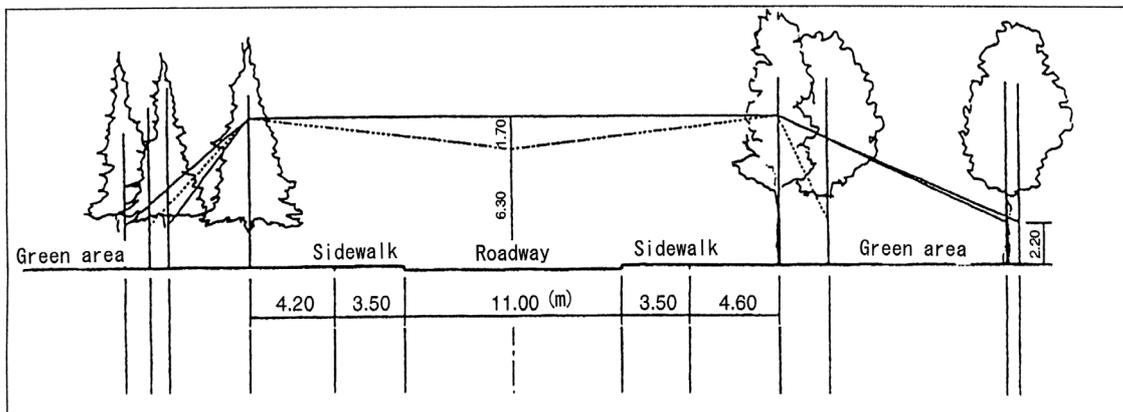


Fig. 2. The footbridge for the red squirrel (provided by the Department of Afforestation and Environment, the City of Obihiro).

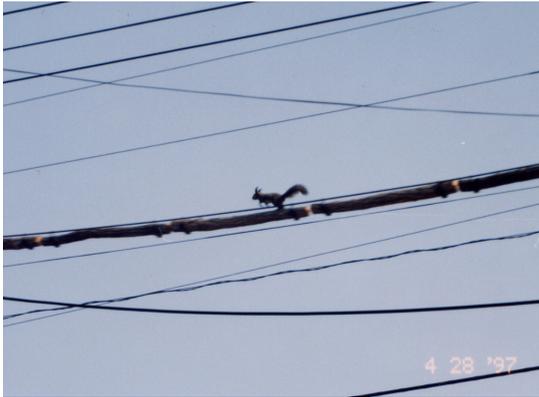


Fig. 3. A red squirrel using the footbridge (provided by the Department of Afforestation and Environment, the City of Obihiro).

### Conclusion

In recent years, municipalities in Hokkaido have begun feeding squirrels in green areas and parks or planting food plants such as the Korean nut pine, *Pinus koraiensis* and Japanese walnut, *Juglans ailanthifolia* in order to establish the red squirrel in urban areas. However, such attempts to establish and increase the squirrels in green areas surrounded by roads with heavy traffic will lead to an increase in traffic accidents involving the squirrels. In general, urban green areas are small, thus, the number of squirrels allowed to establish there should be limited. Under these circumstances, the number of squirrels traveling between fragmented forests during the copulation period and the migration and dispersal period will increase. This, in turn, will lead to an increase in the number of traffic accidents involving squirrels.

Understanding these circumstances, attempts to reduce the number of traffic accidents involving squirrels have begun to occur in other cities. In Sapporo, the construction of roads incorporating the Eco-bridge, called the Urban Eco-road (a street line with poplar trees) is under way. However, to put forward these projects effectively, we need to know in detail about the current status and causes of the traffic accidents involving the squirrels. For this reason, our laboratory is surveying the daily and seasonal changes in the number of road-crossings by red squirrels and the relationship between traffic volumes and the number of traffic accidents, considering that these factors are somewhat dependent on seasonal changes in the number of traffic accidents (i.e., the number of deaths).

### References

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### 摘要

北海道帯広市においては、交通事故によってエゾリス、*Sciurus vulgaris orientis* が多数死亡している。そのため、多くの事故防止対策がこれまで施されて来た。市民グループ「エゾリスの会」や帯広畜産大学野生動物管理学研究室の提供したデータによって「エゾリス交通事故マップ」が作成された。そのマップに基づき、市内の18か所に「リス横断注意」の標識が設置された。くわえて、エコブリッジと呼ばれるエゾリス用の跨道橋が一か所建設された。

キーワード：エゾリス, *Sciurus vulgaris orientis*, 交通事故, 帯広市, 日本

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