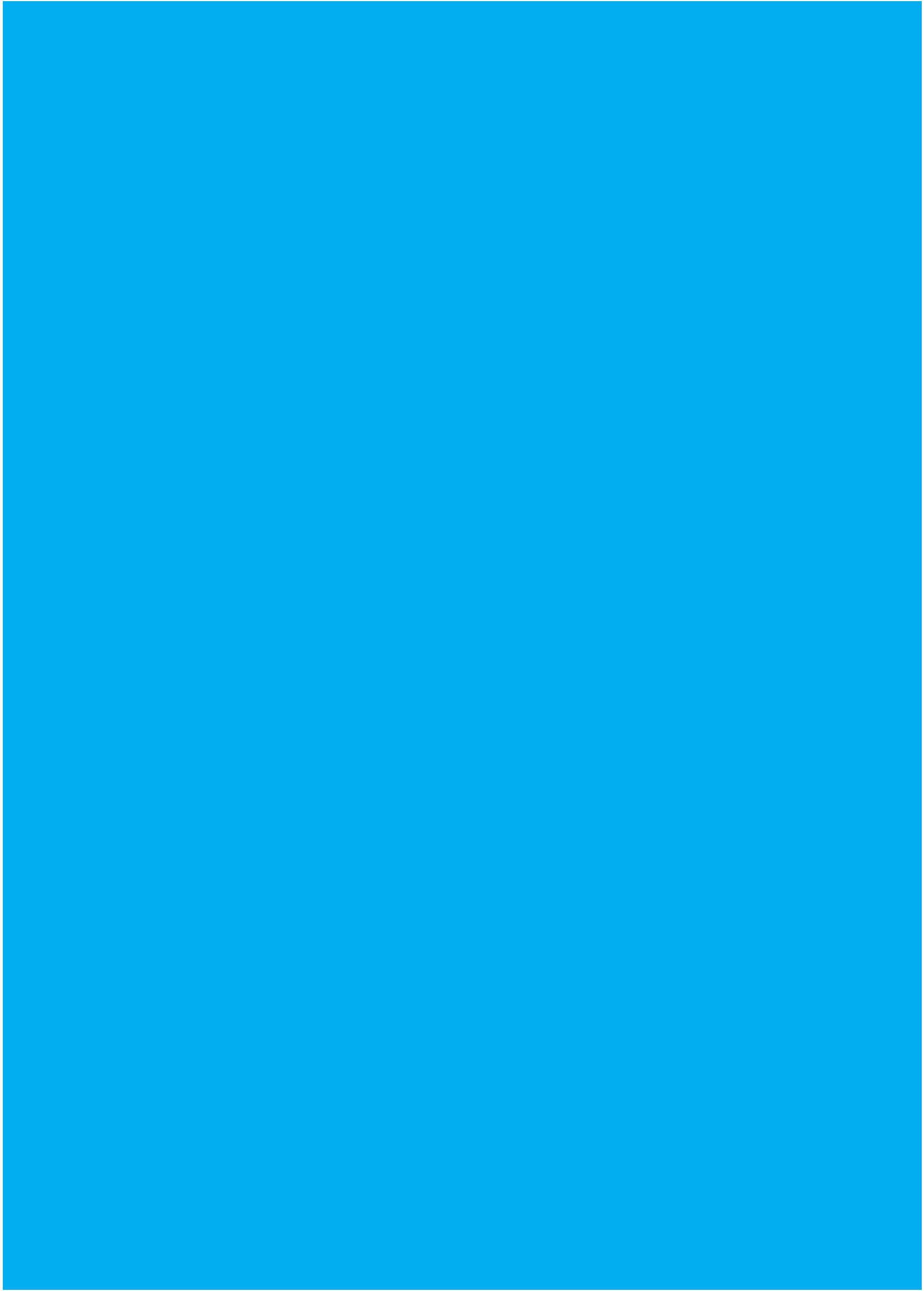


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HANNUKAINEN MINE PROJECT, BAT SURVEY

OCCURENCE OF THE NORTHERN BAT IN THE HANNUKAINEN MINE AREA



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Date	30.9.2011
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Written by	Tarja Ojala

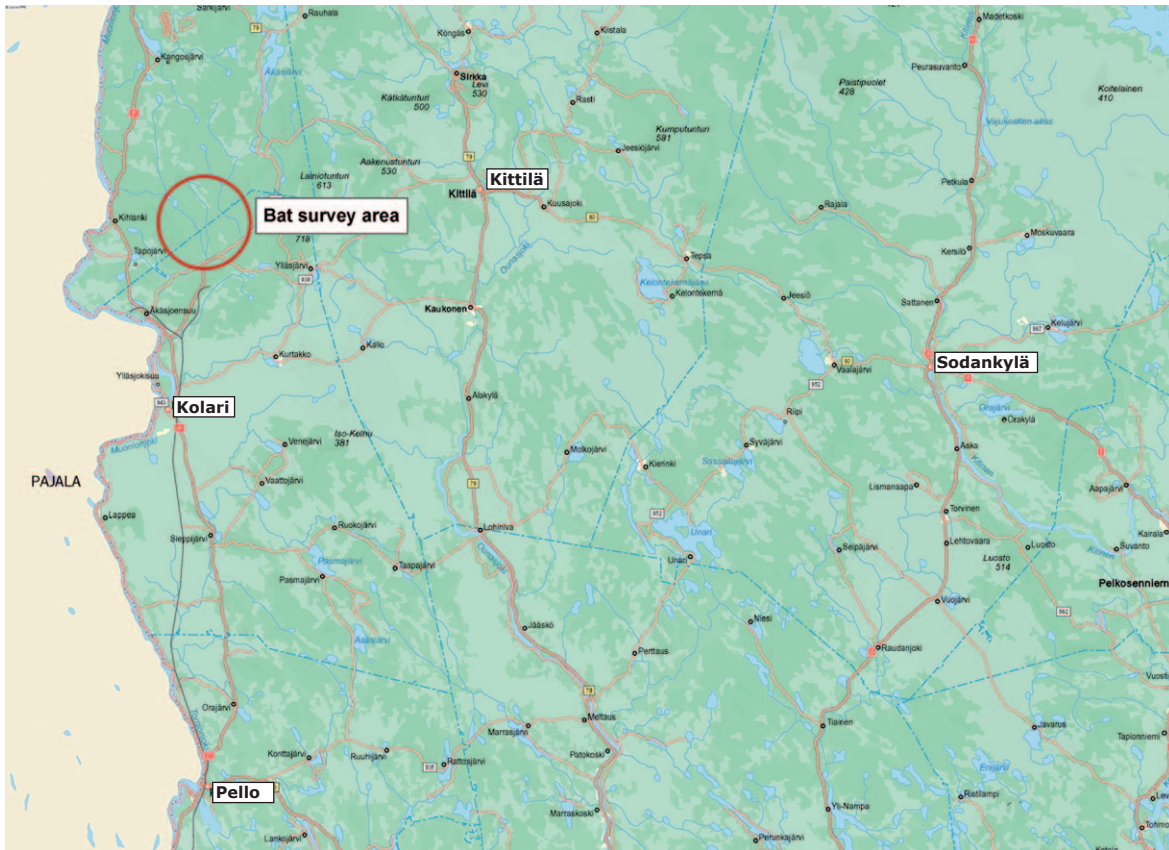
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1. INTRODUCTION

Northland Mine Inc. is planning the realization of a mining project located in the Kolari Municipality of Finland. The intention of the project is to utilize the Hannukainen iron ore deposit.

Baseline studies of invertebrates, mammals and plants were done in 2008-2011. This bat study completes the Hannukainen baseline studies and it was done by M.Sc. Tarja Ojala from Ramboll Finland Oy during in summer 2011.



Picture 1-1 Bat survey area.

2. BATS AND LEGISLATION

The aim of the Habitats Directive on the conservation of natural habitats and of wild fauna is to "maintain or restore, at favorable conservation status, natural habitats and species of wild fauna and flora of Community interest". According to Article 12, it is prohibited to disturb these species in Annex IV(a) particularly during the period of breeding, rearing, hibernation, and migration. Furthermore, causing the deterioration or destruction of breeding sites or resting places of Annex IV(a) species is prohibited. All insectivorous bats in Europe are listed in Annex IV(a) of the Habitats Directive, which means that all Finnish bat species are "species of Community interest in need of strict protection".

Bats are protected by the Finnish Nature Conservation Act. According to Section 49, "the destruction and deterioration of breeding sites and resting places used by specimens of animal species referred to in Annex IV(a) of the Habitats Directive is prohibited".

EUROBATS Agreement underlines that important feeding areas should be identified and protected for bats from damage or disturbance.

3. BATS IN FINLAND

3.1 Bat Species

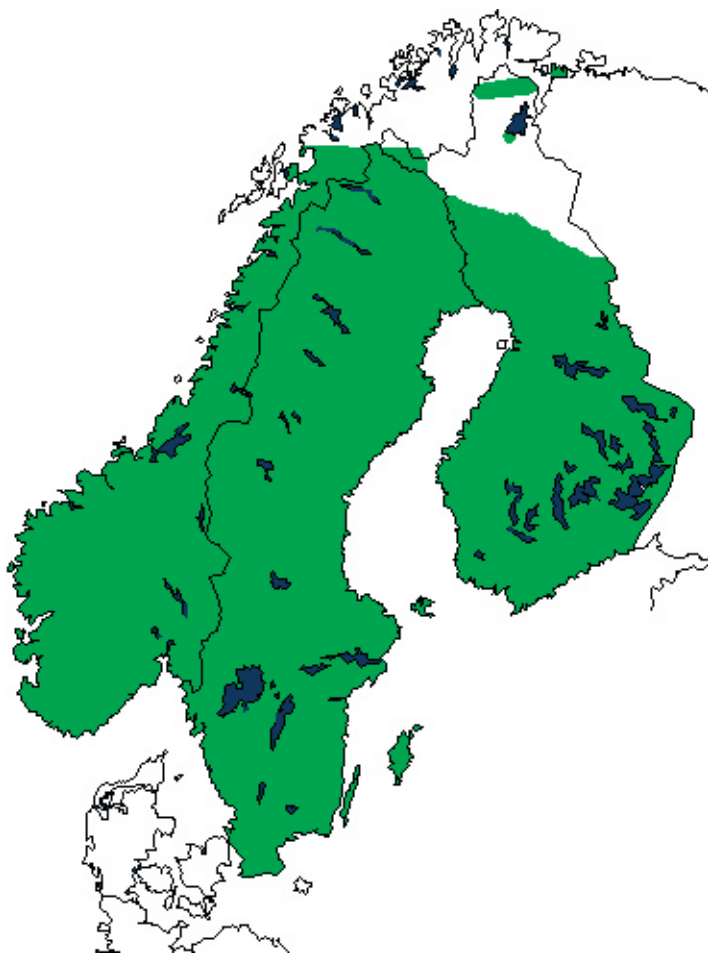
Thirteen species of bats have been observed in Finland. Five of them are widespread in Southern and Central Finland and occur with regularly reproducing populations. The northern bat is the most common species in Northern Europe with the range from Hanko to Southern Lapland. Some records of sightings have been done even further north (picture 3-1).

All European bats feed primarily on insects, but the insect species eaten, hunting territories, and hunting strategies vary from species to species. Bats use landmarks such as tree lines, hedge-rows, overgrown banks, forest edges, and water edges to commute from one place to another. These areas are typically rich in insects and bats use them as foraging areas as well.

To gain maximum information, the bats usually emit very high-frequency sounds, usually between 20 and 200 kHz. High-frequency sounds have short wavelengths, which give a far more detailed echo. Bats gain even more information by giving out shouts that vary in frequency, starting off very high and sweeping down to a lower frequency. Bat calls are of a frequency too high for humans to hear, but the electronics of a bat detector machine can convert the sounds so we can hear them. The calls vary in repetition rate, intensity, frequency and length. The Northern bat can be heard at the 28 kHz frequency.

3.2 Northern bat

The northern bat (*Eptesicus Nilssonii*) is a fast flying nocturnal bat species, found in a variety of habitats from mountain taiga to desert. It forages in open areas of diverse habitats, including woodland edge (or above woodland), small-scale farmland, parks and gardens with trees over lakes and rivers and at street lights. It is also found in river valleys where it can remain by a source of freshwater, roosting in tree holes and crevices. Its diet comprises small insects such as Diptera. Summer roosts are located mainly in houses, occasionally in tree holes. It may change roost sites during summer. Winter roosts are found mainly in houses, cellars, and natural and artificial underground habitats. In winter the species roosts singly or in small groups of 2-4 individuals. Long-distance movements of up to 450 km have been recorded.



Picture 3-1 Distribution of the Northern bat in the Nordic countries (www.flaggermus.no)

In the IUCN Redlist the northern bat is not considered to be a threatened species because there are no major threats to this widespread species. There are localized threats in some parts of its range but these are not having a significant impact on the species overall.

4. MATERIAL AND METHODS

Bat study was done using both active and passive monitoring during the period of 8.-12.8.2011. Bat sounds were listened using Batcorder 2.0 and Batbox III D detectors. In passive monitoring the Batcorder detector was left in two places along the Äkäsjoki river bank for two nights. Active monitoring (3 nights) was done mainly by car because of the size of the area. In active monitoring bats were listened from 10 p.m. to 3 a.m. and in passive monitoring from 10 p.m. to 5 a.m.

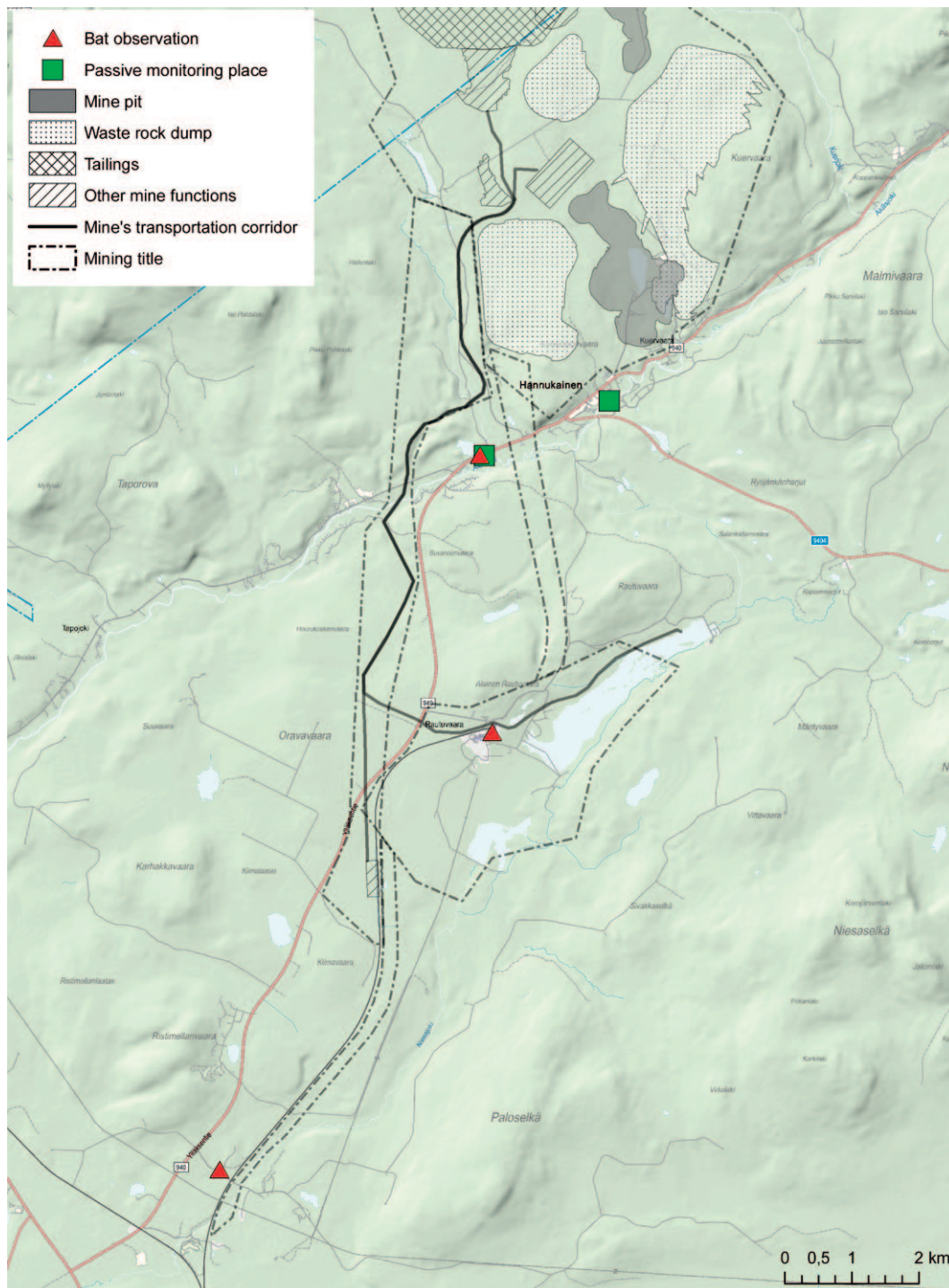
Weather conditions varied during the inventory and the weather was very typical for the high land areas. After 10 p.m. the average temperature varied between 9 and 11 Celsius degrees and after 2 a.m. the temperature went down to 4-5 Celsius degrees. One of the inventory nights was rainy, other nights were cloudy and clear.

In Rautuvaara mine area suitable old buildings were checked for bat droppings.

5. FINDINGS

In passive monitoring no observations of the northern bats were done. Unlike in southern Finland, bats seemed to avoid fast flowing rivers and other water ways as hunting areas.

Three observations of the northern bat were done in active monitoring. Two of these observations were done above young deciduous swamps and in both cases there was only one hunting individual. In Rautuvaara area the observation was done of one individual that flew above the mine area. No droppings of the bats were found in Rautuvaara mine area.



Picture 5-1 Bat observations and passive monitoring places.

6. CONCLUSIONS

Only three observations of the northern bats were done during three active and two passive monitoring nights. All of the bat observations were done in lowlands and it seems that bats avoid windy uplands and prefer moist and sheltered deciduous young swamp forests as foraging habitats. Therefore pine dominated, dry forest heaths of Hannukainen and Rautuvaara area show no conservation value for the northern bat.

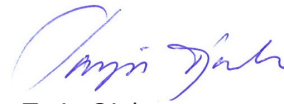
RAMBOLL

Hollola, 12th of October 2011



Matti Kautto

Head of unit



Tarja Ojala

Biologist

REFERENCES

Guidelines for surveillance and monitoring of European bats. EUROBATS Publication series No. 5:95 p.

Lappalainen, M. 2002. Lepakot – salaperäiset nahkasiivet. Tammi.

Wermundsen, T. 2010: Bat habitat requirements – implications for land use planning. Dissertationes Forestales 111:49 p.

Nordic Chiroptera Information Center, www.flaggermus.no

The IUCN Red List of Threatened Species, www.iucnredlist.org

Finnish Chiroptera Trust, www.lepakko.org

Bat Conservation Trust, www.bats.org.uk

