

### The history of the two lynx.

The two lynx kittens came to the CEI in October 2009. The CEI got the two lynx kittens from Calgary Wildlife Rehabilitation Society (CWRS). The CWRS got the two lynx kittens on July 6/09. They came from Veggerville where they were found in a field after hearing a fight between animals the previous night. When they came in at the CWRS they weight 850 and 950 gram. Their age is unknown but it was obvious that they were born that spring. The sex of both lynx is male. During the time at CWRS the lynx were kept in a room with shelves and got all the necessary medical care. The last data on weight is at September 24/09, which was 4,25 kg and 4,5 kg. When the lynx kittens came to the CEI they were put in an outside enclosure.

It is not very easy to distinguish the two lynx, they are very similar. One way to distinguish them is by their face. One has a lighter face than the other. Also the darker faced lynx had one obvious little black spot on each side of his nose, while the lighter faced lynx only had one spot on the left side of his nose (if you look at his face, on the right side), which was not that obvious. Because the lynx do not have names yet, I referred to them by 'Lynx 1 light' and 'Lynx 2 dark' during this study. (See figure 1 and 2)

**Figure 1: Lynx 1, Light.**

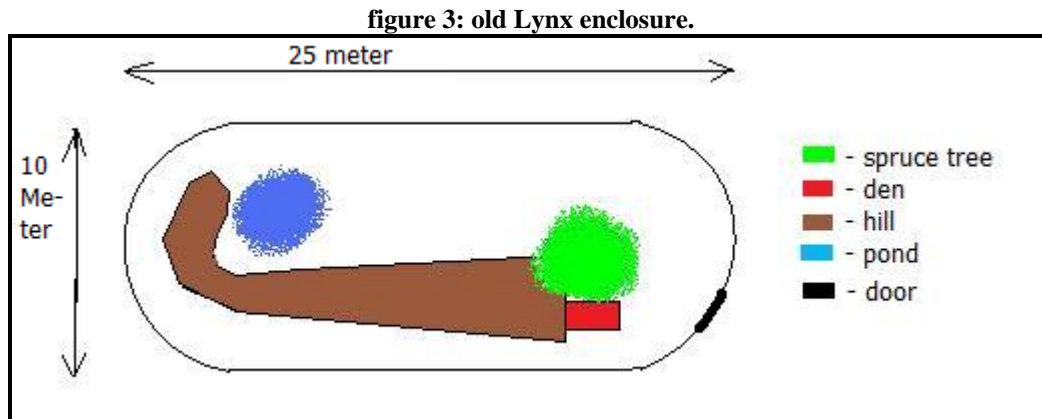


**Figure 2: Lynx 2, Dark.**



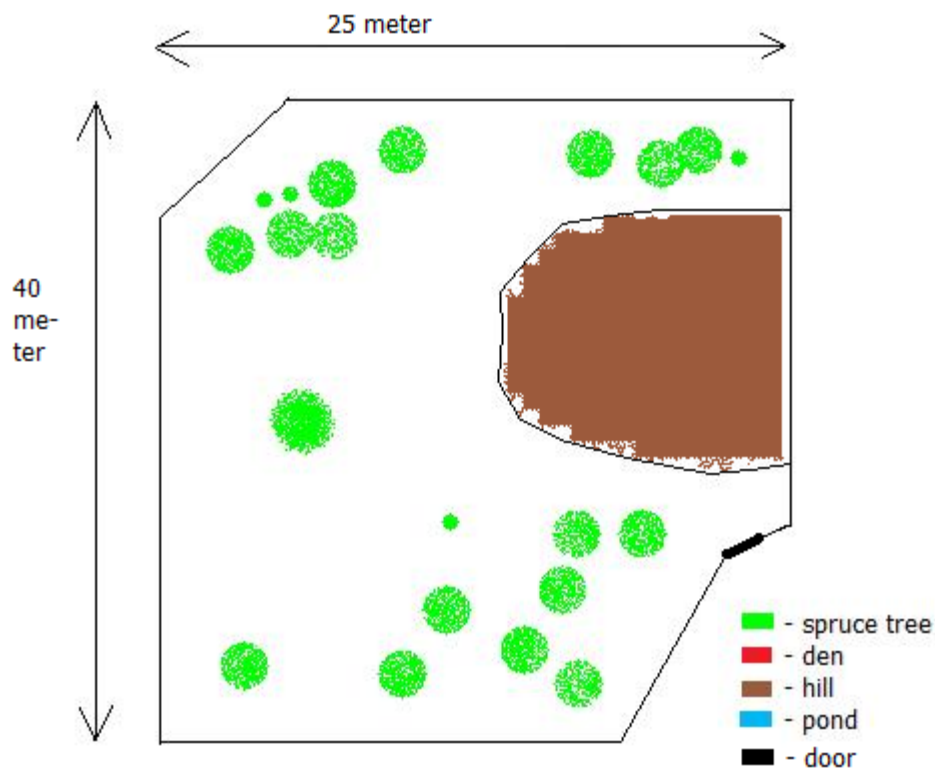
The old enclosure.

Before the lynx came to the CEI, the CEI staff and volunteers build a new enclosure especially for the lynx. This enclosure is an oval and approximately 25 meters long and 10 meters wide. In this enclosure there is one spruce tree, a hill, a den, and a pond. (See figure 3.) During the day there is normally activity by people or dogs around this enclosure which influences the lynx behavior.



The new enclosure.

In the last weekend of April 2010 the lynx will be moved to a new bigger enclosure, This enclosure is also build by the CEI staff and volunteers in the spring of 2010. This enclosure is approximately 40 meters long and 25 meters wide. This enclosure has several spruce trees and a hill. There will be less people and dog activity around this enclosure.



The behavioural study.

As far as Clio and Ken (owners of CEI) could find out, nobody has done a behavioural study on orphaned lynx before. The CEI wants to release the lynx back into a natural environment and before they do this, they want to find out as much as possible about the two lynx kittens. (I.e. crap analysis, to see if they catch anything in their enclosure, behavioural study.)

That is why this behavioural study has been done for the lynx. With this study we get a general idea about their behaviour during the day and this study is especially to see their activity level during a day. This behavioural study was done two times, one time in their old smaller enclosure and one in their new bigger enclosure. These two studies are compared to see if there is a change in behaviour.

Methods and material.

The first set of observation was from April 19-23. The lynx were observed for 15 hours (from 6:00 till 21:00) in their old enclosure. The hours that it was light enough outside to see, were covered. (This because there was no night scope available). The observation took place in blocks of two hours spread over 4 days. Every two minutes the kind of behavior each lynx showed was noted. Therefore all kinds of behaviors were summed up and divided in categories. To get all the behaviors and categories, a test observation was done for two hours. Four levels of activity were associated to the different behavior categories, beginning from 1 (very low level of activity) to 4 (very high level of activity). (See table 1)

To do the observations these items were used:

- \*a binocular for identification and farther away observations

- \*a watch and a cell phone to keep track of the time

- \*a clipboard, pen and special made forms to note the behaviors during the study

- \*a chair to sit on if the lynx did not move to much

There was not one spot where all the observations were done from. This was not a possibility because of the hill in the enclosure. Observations were made from all around the enclosure. Moving along with the lynx was used to keep track of them or to get a better look at them. This was done to get as accurate data as possible, but too much movement was avoided, to get as less disturbance as possible.

To let the lynx get used to the presence of the observer, there was a time period of 15 minutes before every block of two hours where the observer was around the enclosure. This was used so the lynx would show their normal behavior when the actual observation time started. This time was also used to distinguish which lynx was who.

**Table 1: shortage and definition of behaviours and level of activity.**

<b>SHORTAGE</b>	<b>DEFINITION.</b>	<b>LEVEL OF ACTIVITY</b>
S	Sleeping, laying down, eyes closed.	1
ST	Sleeping in tree, laying on a branch, eyes closed.	1
RL	Resting, laying down, eyes open, looking around.	2
RS	Resting, sitting, eyes open, looking around.	2
RLT	Resting in tree, laying on a branch, eyes open, looking around.	2
RST	Resting in tree, sitting, eyes open, looking around.	2
AP	Alert, laying, sitting or standing and watching people.	2
APT	Alert, laying, sitting or standing and watching people from the tree	2
AD	Alert, laying, sitting or standing watching a dog.	2
ADT	Alert, laying, sitting or standing watching a dog from the tree.	2
STR	Stretching their body.	2
STRT	Stretching their body in the tree.	2
G	Grooming, cleaning their fur/ each others fur, scratching.	2
GT	Grooming in tree, cleaning their fur/ each others fur, scratching.	2
W	Walking and investigating the enclosure.	3
WT	Walking on the branches in the tree.	3
WAP	Walking and watching, alert, people.	3
WAD	Walking and watching, alert, dog.	3
E	Eating.	3
D	Drinking.	3
CH	Chasing and catching flies and insects.	3

RU	Running around.	4
C	Climbing the tree. Going vertical climbing the tree.	4
PF	Play with food. Tossing it in the air, walking around with it.	4
PFT	Play with food in a tree, walking around with food in the tree.	4
PT	Play together.	4
PTT	Play together in tree.	4
ID	In Den, out of sight	-

Additional conditions for the first observation period.

The lynx were fed different times a day during the observation period. There is no regular time when the lynx always get fed, in general it they got fed sometime in the afternoon. The lynx got 4 rats each day of the observation period.

The weather conditions of the first 3 days were the same, sunny cloudless sky, in the mornings chilly, around 0 degrees Celsius. During the day it warmed up, with a maximum of 22 degrees Celsius in the mid-afternoon. At night it cooled of again with a temperature of 12 degrees Celsius around 21:00. In the early mornings there was no wind, during the day there was a North-Easterly wind blowing between 20 and 30 km/h. At night there was no wind again.

The weather for the fourth day started the same as the other three, but around 10:00 it became clouded and around noon there was overcast. The temperature dropped rapidly till around 4 degrees Celsius in the afternoon. It started raining a little bit around 17:00 and around 18:00 it was raining steady. Around 19:00 it was a mix of wet snow and rain.

#### Results.

The graphs (see figures 4 and 5) show a lot of quick changes in the level of activity for both lynx.

The graphs show that the lynx are active till 8:00 with an activity level between 2 and 3. Between 8:00 and 14:30 the lynx have a resting period with an activity level between 1 and 2, with a real sleeping period between 11:00 and 13:30 with activity level 1.

From 14:30 the lynx are more active again with an activity level between 2 and 4, with two little rest periods, one between 15:30 and 16:30 and the other between 18:00 and 18:30 with an activity between 1 and 2.

Figure 4: activity level during the day from Lynx 1 (Light)

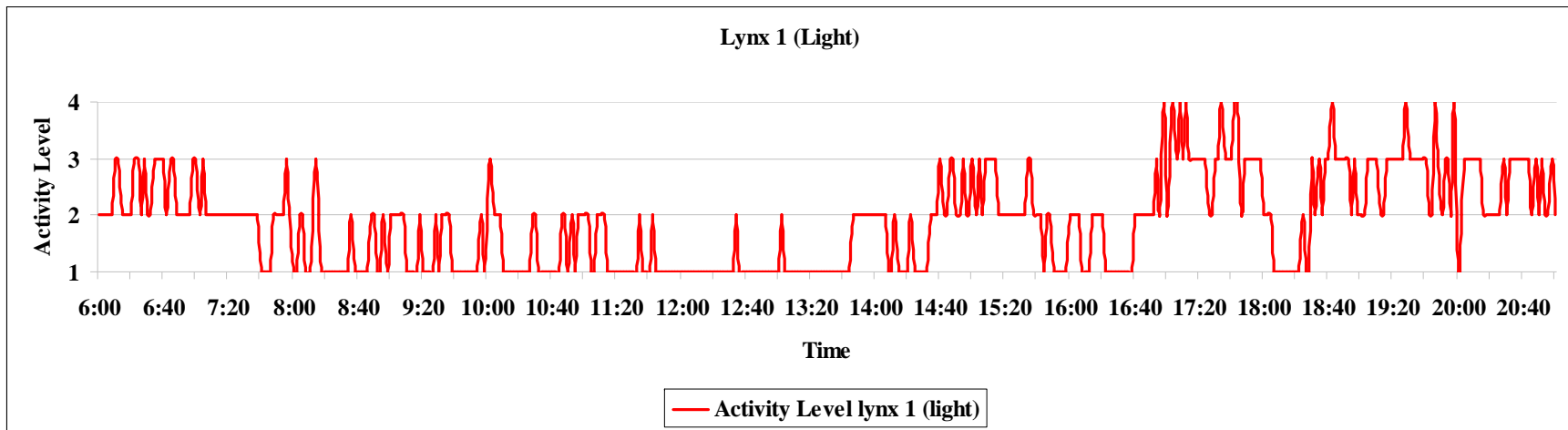
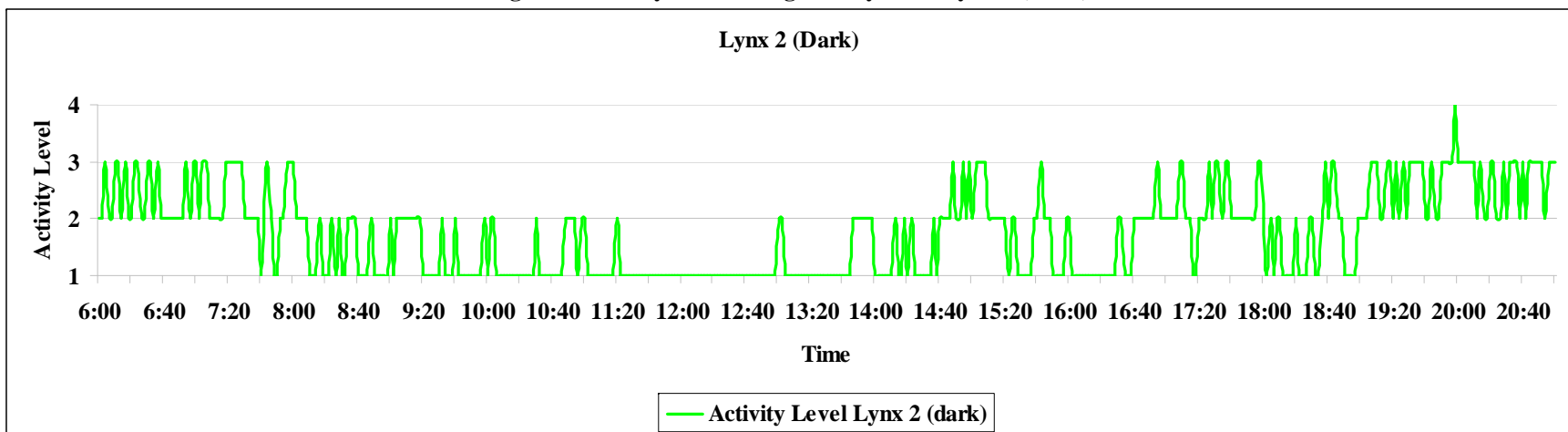


Figure 5: activity level during the day from Lynx 2 (Dark)



The behaviours which both lynx show a lot during the day are: sleeping, sleeping in tree, resting laying down, resting laying down in tree, resting sitting down, resting sitting down in tree, walking and walking in tree. Behaviours which do not occur a lot during the day are: alert people, Alert people in tree, alert dog, alert dog in tree, stretching, stretching in tree, grooming, grooming in tree, walking alert people, walking alert dog, chasing, running, climbing tree, playing food, playing food in tree, playing together, playing together in tree, in den. (See figures 6 and 7)

Figure 6, The amount of the behaviours shown in the study.

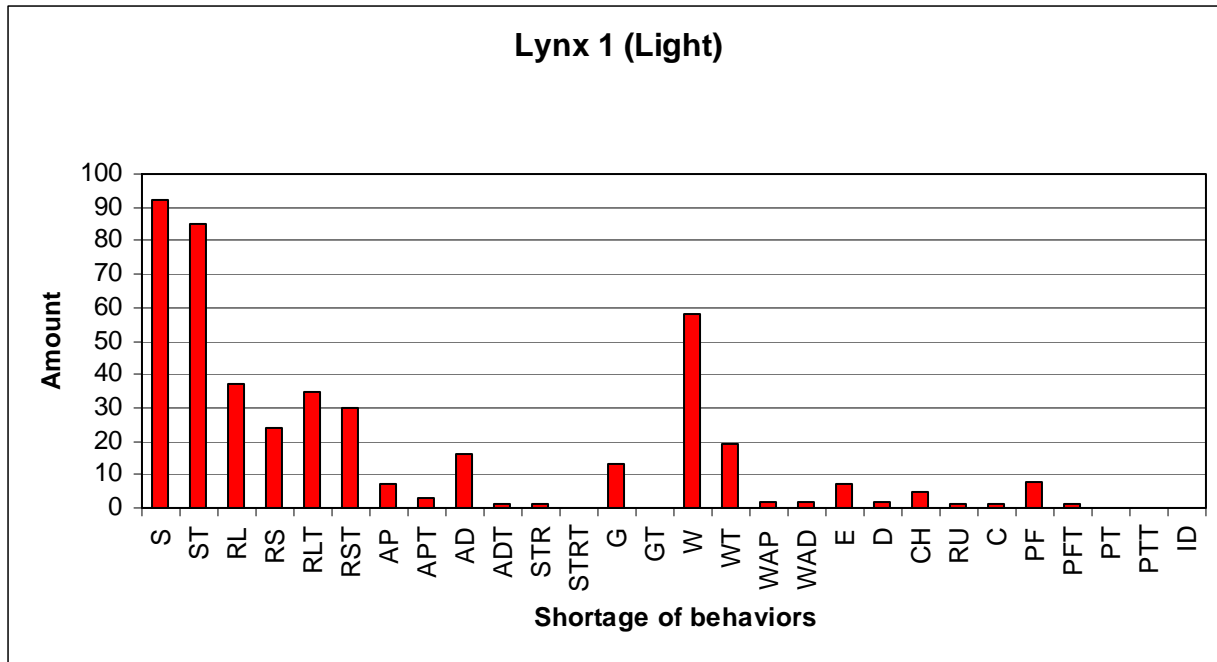
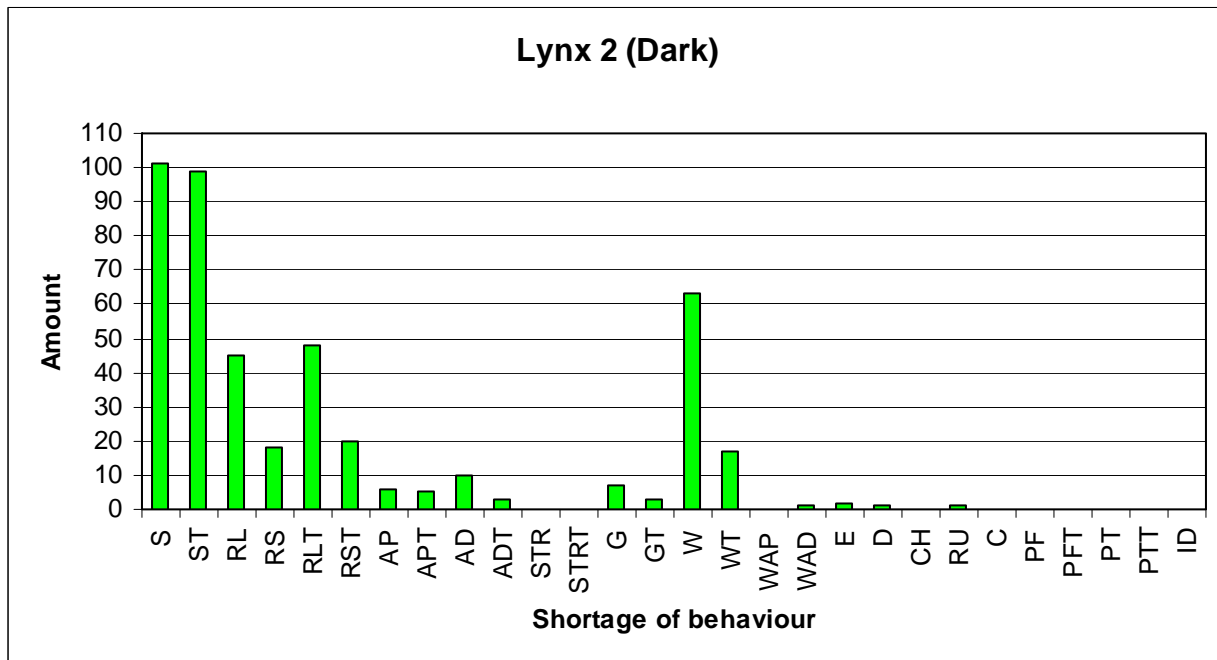
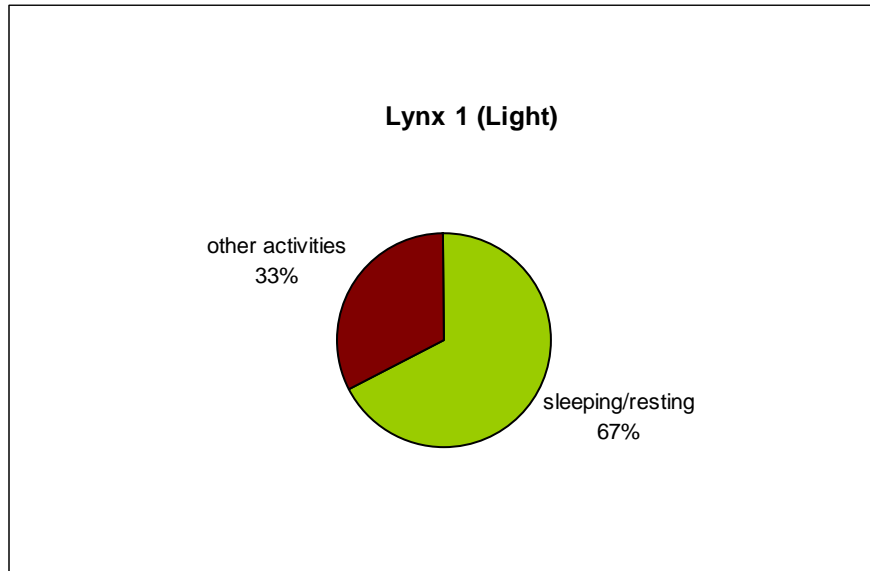


Figure 7, The amount of the behaviours shown in the study.

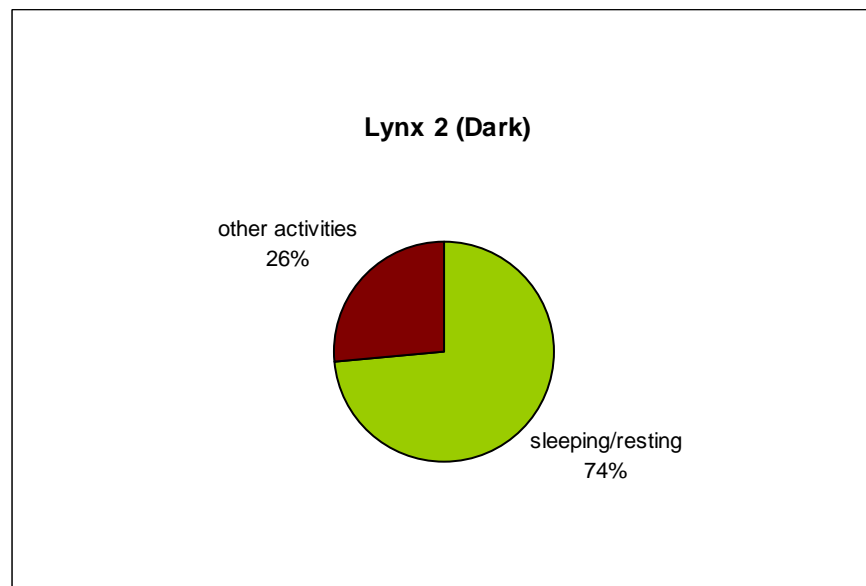


The circle diagrams (see figures 8 and 9) show that most time of the day the lynx are sleeping or resting. Lynx 1 (light) is more active than Lynx 2 (Dark). For Lynx 1 (Light) 67% presents 606 minutes, which is 10.1 hours during a day from 6:00 till 21:00. For Lynx 2 (Dark) 74% presents 662 minutes, which is 11.03 hours during a day from 6:00 till 21:00.

**Figure 8, Comparing the amount of time spend on sleeping/resting and other activities.**



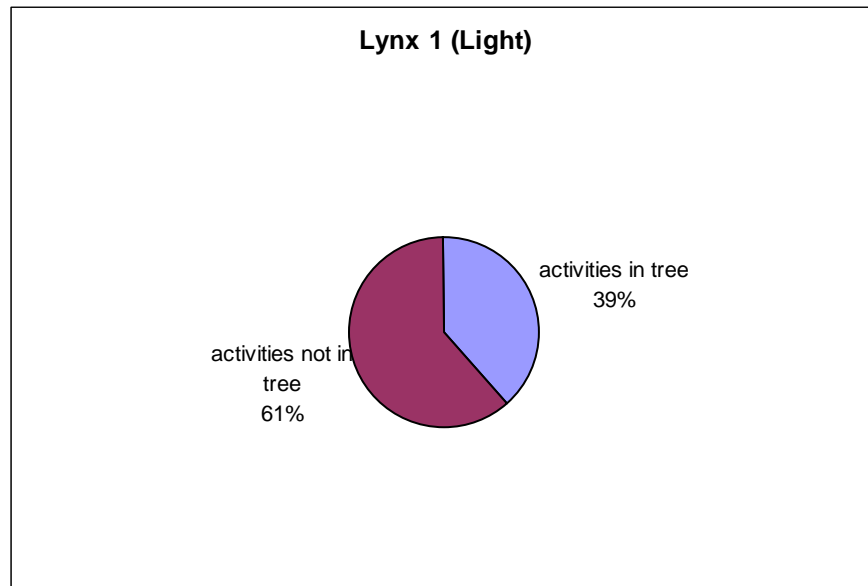
**Figure 9, Comparing the amount of time spend on sleeping/resting and other activities.**



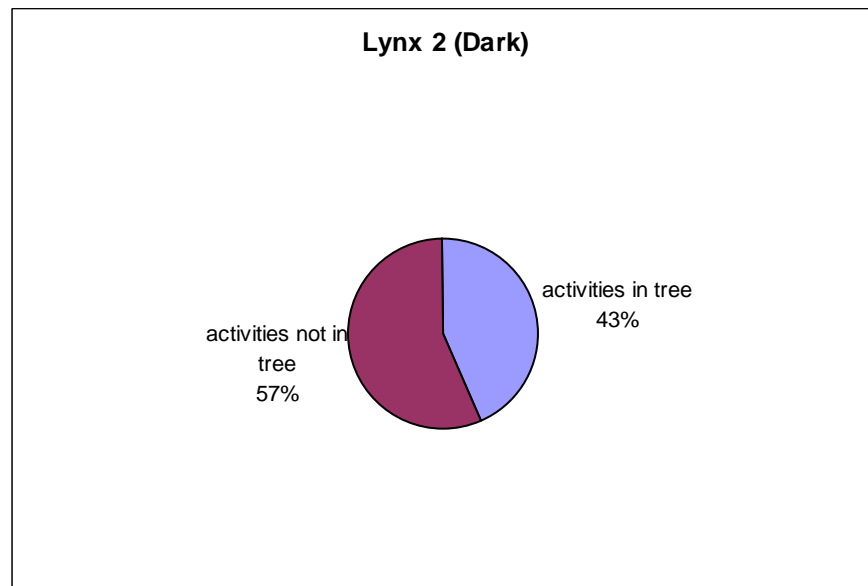


The circle diagrams (see figures 10 and 11) show that both lynx spend a lot of the time during the day in the tree. Both lynx spend around 40% of the time during the day in the tree. For Lynx 1 (Light) 39% presents 348 minutes, which is 5.8 hours during a day from 6:00 till 21:00. For Lynx 2 (Dark) 43% presents 390 minutes, which is 6.5 hours during a day from 6:00 till 21:00.

**Figure 10, Comparing the amount of time spend with activities in the tree and activities not in the tree.**

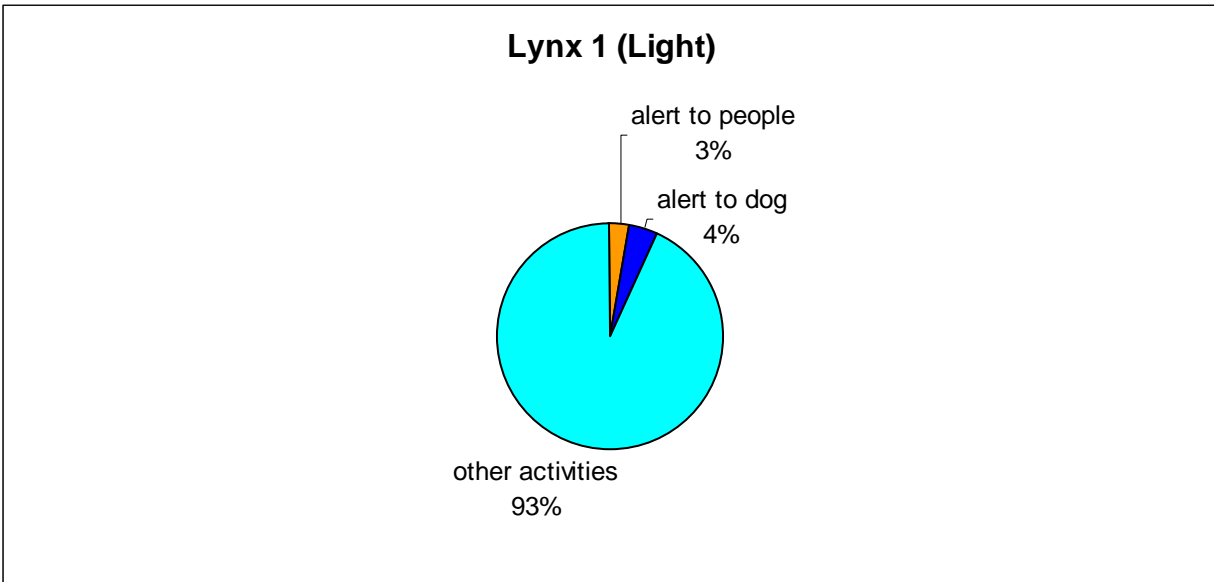


**Figure 11, Comparing the amount of time spend with activities in the tree and activities not in the tree.**



The circle diagrams (see figures 12 and 13) show that both lynx do not spend a lot of their days activity alert to people or dogs, but it is still significant. People and dogs do influence their daily activity. For Lynx 1 (Light) 7% presents 62 minutes, which is 1.03 hours during a day from 6:00 till 21:00. For Lynx 2 (Dark) 5% presents 50 minutes, which is 0.83 hours during a day from 6:00 till 21:00.

**Figure 12, Comparing the amount of time spend on being alert to people or dogs and other activities.**



**Figure 13, Comparing the amount of time spend on being alert to people or dogs and other activities.**



This study showed that the lynx are active in the early morning till 8:00 and start getting active later in the afternoon and evening again. Most of their day activity consists of sleeping and resting. (Respectively 67 and 74 percent). This matches the fact that Lynx are nocturnal animals, who normally hunt at night.

The lynx spend a lot of the observed time in the spruce tree.