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Foundation Chimbo  
Van Hall Larenstein

Menno de Boer



# [INTENSITY OF CHIMPANZEE ACTIVITY]

Comparing intensity of activity of Pan  
troglodytes during different day parts

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## Preface

There is a lot to know about the behaviour and ecology of the Chimpanzees in the Boé. A lot of research has been done, and there are endless possibilities. This research is a small step in this area of interest, and will hopefully trigger other students and volunteers to conduct research on Chimpanzees.

This paper is addressed to Foundation Chimbo, who made it possible for me to conduct this research. Furthermore, it is addressed to the future eco volunteers, who I hope can use the outcome of this research to be able to see and study Chimpanzees in the area of the Boé.

I would like to thank Annemarie Goedmakers and Piet Wit for giving me the opportunity of conducting my internship with Foundation Chimbo. Furthermore, grateful acknowledgement is made to Joost van Schijndel, for collecting the majority of the trail camera footage. It is because of this that this research could be conducted.

Without the help of my colleges, this research would not have reached its present form.

It was sometimes difficult to oversee what was possible with the very limited resources available. In the end, most resources available, human and material, have been used to their full potential.

Doing research in Guinea Bissau was one of the biggest opportunities in my life. Guinea Bissau is a country with many problems, but it has a great attraction to me. I enjoyed my time here like I never did before. This experience gave me new insights and showed me many different opportunities.

# 1. Abstract

*In this chapter, first the objectives will be described. After that, the research questions, methodology and finally results and conclusions are explained shortly.*

## 1.1 Objectives

This is the first study that has been conducted to investigate the difference in intensity of chimpanzee appearance during different day parts in this area of Guinea Bissau. Based on the available footage of trail cameras, this research will draw conclusions on the difference in intensity of Chimpanzees during the day, with the aim to be able to plan future field trips on the right time of the day.

## 1.2 Research questions

The research question, "To what extend is there difference in the intensity of Chimpanzee (*Pan troglodytes verus*) appearance during different day parts on the trail camera footage in the area of Aicum and Quebube?" will be answered by answering the following sub questions:

1. Is there a difference in the number of Chimpanzees that occur on the trail camera footage during the 4 different day parts?
2. Is there a difference in the number of Chimpanzees that occur on the trail camera footage during the 8 different day parts?

## 1.3 Methodology

The data of all camera footage available from both Quebube and Aicum have been entered into a table. The data of this table were summed up with the 'count if' function in Excel, and entered into two frequency tables. The data was grouped in two systems; day parts of 4 hours (A, B, C and D), and day parts of 2 hours (A1, B1, C1, D1, E1, F1, G1 and H1).

A Chi-squared test pointed out whether there is a difference in the amount of sighting between the different day parts.

## 1.4 Results and conclusions

There is no significant difference between the day parts which were grouped every four hours. There is however a difference between the day parts which were grouped every two hours.

The best time to go into the field for Chimpanzee observation is from 06h00 until 08h00.

## 2. Introduction

Foundation Chimbo mainly focuses its efforts on the protection of Chimpanzees and their habitat in the Boé, Guinea Bissau.

### 2.1 Research programmes

In order to be able to set up an effective conservation program, Chimbo asked Joost van Schijndel to conduct ecological research on Chimpanzees and other animals in this area. In 2013, Foundation Chimbo has signed a cooperation agreement with the Max Planck institute in Leipzig, Germany. The Max Planck institute states that: *“Chimpanzees are disappearing from many regions in Africa at an alarming rate, while our understanding of chimpanzee biology, social life, tool use and culture is still strongly limited by our narrow sampling of their population diversity.”* (MPI, year unknown)

Chimbo is carrying out a chimpanzee survey programme following a protocol that is developed by MPI and applied in all countries where chimpanzee populations occur. *“The aim of this program is to answer specific hypotheses about the evolutionary-ecological drivers that have generated the behavioural variability that we find in chimpanzees across Africa - The specific project aim is to collect systematic ecological, social, demographic and behavioural data on 35 to 40 chimpanzee populations spread out over their whole natural range. This will include both ‘temporary research sites’ (TRS) with totally unhabituated chimpanzees as well as established ‘long-term research sites’ (LRS) with well-studied chimpanzees.”* (MPI, year unknown) The research site in the Boé is one of the many temporary research sites.



Figure 1. Map of Quebube and Aicum, with their location in Guinea Bissau. The top-right square indicates the temporary research site of the Chimbo-MPI research program. The red square in the bottom-left indicates the research area of Quebube, which is used by Chimbo for other research purposes.

## 2.2 This research

Before the cooperation agreement with the Max Planck institute, Joost van Schijndel has been collecting data with the use of trail cameras, through sampling faeces, and with opportunistic sampling. This has been done in the area of Aicum and Quebube, both located in the Boé, Guinea Bissau. A lot of footage of different terrestrial mammals has been captured, with the use of 33 trail cameras. This footage was not yet analysed in a systematic way. This research serves as the start of the analysis of the footage, and focuses on the time of appearance during the day, and the difference in intensity of appearance during different day parts of Western Chimpanzees (*Pan troglodytes verus*). The footage which is used for this research was collected by 33 trail cameras which are placed in the area of Aicum and Quebube (figure 1). Aicum is the main survey area for the Chimbo-MPI programme. Quebube is an area where many trail cameras have been placed over the years, supplying a lot of footage of Chimpanzees and other mammal species. The research will be setup in such a way that it can be repeated for the other species of terrestrial mammals which show up on the trail camera footage.

## 2.3 Problem statement and research objectives

Over the years, many different terrestrial mammal species have been captured on video and photo by Chimbo. This footage is categorized by location, date, time, and species. It is clear that various animals occur on different times of the day, but the footage had not been analysed to answer specific research questions. It is yet unclear what animals occur at what time of the day in this region. In the literature available, it seems that no research has been conducted on the topic of intensity of appearance of chimpanzees during different times of the day.

When volunteers, interns or other students want to go into the field to find and study Chimpanzees, it was not known at what time the chance of seeing Chimpanzees is the biggest. For example, if eco tourists want to see Chimpanzees, it is useful to know when they are most active. If it turns out that Chimpanzees are mostly active between 7 and 10 o'clock in the morning, it is best to go out in the field to look for them at that time.

The objective of this research was to draw conclusions on the difference in intensity of Chimpanzees on the trail camera footage during different parts of the day. This research makes a start in the analysis of time of appearance of Chimpanzees, meaning how often Chimpanzees appear on the footage, and if there is a difference in intensity between different day parts.

## 2.4 Relevance

This research also provides a database of all terrestrial mammal species which occur on the trail camera footage (Found in Appendix A). This is useful for different reasons. The database can function as a start to many different types of research. It provides a base on which other students can build their theses. In Chapter 8, Recommendations, possible follow-up researches are elaborated on.

Furthermore, any conclusions which are drawn about Chimpanzees are useful. Chimpanzees are a rare and threatened species, and it is important to know as much about them as possible.

## 2.5 Research questions

This research has one main research question, which is answered after answering the 2 sub questions. The main research question is:

“To what extent is there difference in the intensity of Chimpanzee (*Pan troglodytes verus*) appearance during different day parts on the trail camera footage in the area of Aicum and Quebube?”

### Sub questions

These sub questions will be different for different mammal species. For example, when it is clear that a species is strictly nocturnal, only different day parts during night time will be compared. The same goes for the diurnal animal species.

Since Chimpanzees are diurnal, only different day parts when it is light are compared, starting at day part “04h00-08h00”, and ending at day part “16h00-20h00”. Furthermore, a comparison was made between day parts that were grouped in 2 hours.

1. Is there a difference in the number of Chimpanzees that occur on the trail camera footage during the 4 different day parts?
2. Is there a difference in the number of Chimpanzees that occur on the trail camera footage during the 8 different day parts?

## 2.4 Literature review

Literature studies have been conducted, but due to the very limited amount of literature available in the village where this research is conducted, Belí, it was not possible to find any relevant information. There is a lot of information available on general behaviour of Chimpanzees, nesting behaviour, feeding behaviour, ecology and research methods, but on the topic of activity during certain hours or day parts, there was no literature available.

Furthermore, the lack of access to internet in Belí made it impossible to search for more relevant literature.

## 2.5 Assumptions

It is assumed that Chimpanzees are generally not active during the night. This assumption is based on the fact that on all the trail camera footage available, there is not a single appearance of Chimpanzees during the night (between 20h00 and 04h00). Furthermore, it is common knowledge that Chimpanzees spend the night in their arboreal nests.

## 2.6 Limitations

There are limitations to the methods used. It is not known how accurate the trail cameras are. For example, there is a possibility that the camera is more or less sensitive to light availability. This could influence the amount of footage shot at different times of the day.

The number of Chimpanzees that occur on the footage is not taken into account. It could be that Chimpanzees move in bigger groups during certain hours of the day, but this has not been investigated in the present study.

### 3. Methodology

The methodology how to analyse the footage is developed so that it can be applied to the footage of all species of terrestrial mammals; however, this research focuses only on the footage of Chimpanzees.

#### 3.1 Materials

The data had already been collected over the previous three years. These data have been organized, and the species on the footage have been identified. The data are stored on different hard disks (raw and categorized), to ensure that the data will not be accidentally lost. In this research, the data showing Chimpanzees were used. This meant that for this research, no data collection tools were needed. Microsoft Excel has been used to organize and analyse the available data.

#### 3.2 Day parts

To answer sub question 1, the hours of the day were grouped per four (4) hours; from 04h00 until 08h00, from 08h00 until 12h00, from 12h00 until 16h00 and from 16h00 until 20h00. These have been named respectively A, B, C and D. In order to answer the second research question, day parts have been grouped in day parts of 2 hours; 04h00 until 06h00, 06h00 until 08h00, 08h00 until 10h00, 10h00 until 12h00, 12h00 until 14h00, 14h00 until 16h00, 16h00 until 18h00 and finally 18h00 until 20h00. These day parts have also been assigned letters; A1, B1, C1, D1, E1, F1, G1 and H1. The research would be even more interesting if all the different hours of the day could be compared to each other, but the database was not sufficiently large. The main research question has been answered by comparing the chosen parts of the day.

#### 3.3 Frequency table

In the first Excel tab, each camera location (1-33) has its own column. In this column, the hours in which the Chimpanzees occur were entered. If a Chimpanzee walks past the camera at 08h33, it was entered in the 9<sup>th</sup> hour. In case an appearance of a group of Chimpanzees takes more than one hour it was noted in both hours. For example, if the first Chimpanzees occur at 08h53 and keep appearing until 09h58, the data were entered in two hours, one in the 9<sup>th</sup> hour and one in the 10<sup>th</sup> hour. The amount of Chimpanzees in one picture or video clip is irrelevant in this research. If one chimpanzee occurs at 10h13, one sighting was added to the frequency table. If 12 Chimpanzees occur at 10h09, one sighting was added to the frequency table.

If an appearance started at the end of an hour, for example 08h53 and takes less than one hour, it was only entered into the 9<sup>th</sup> hour. This generates a list of times of appearances below each camera location.

In the second tab, a frequency table was composed. In this frequency table there is a division between the hours which are used in the sub-questions, in the case of Chimpanzees, every two hours from 4 in the morning until 8 in the night. With the use of the "count-if" function in Microsoft Excel, the frequency table was filled with the data from the first Excel tab.

#### 3.4 The Chi-square test

A chi-square test defined whether there are significant differences between the number of appearances of Chimpanzees during certain parts of the day. Each sub question was be answered by comparing the different day parts with the use of the Chi-square test. The Chi-square test compares observed data with expected data. In this case, the observed data are the amount of appearances on the trail camera footage during a certain day part. The expected data were calculated by taking the total amount of appearances of Chimpanzees, and dividing this number by the amount of day parts, in the case of sub question 1 and 2 respectively 4 and 8. This number can be different for other species, depending on the sub questions.

The statistical hypotheses are:

$H_0$ : The observed frequencies are homogeneous and the difference is merely due to sampling error or scatter.

$H_1$ : The observed frequencies depart from those expected of a homogeneous distribution by an amount that cannot be explained by sampling error.

This test answers the sub questions. After this, conclusions as to appearance in the time of day were drawn and the main research question was answered.

## 4. Results

The table of all the times of appearance on different camera locations can be found in appendix B. The cameras were divided in the different columns. The Camera location, either Quebube or Aicum, with their GPS coordinates also displayed. In each column, all the starting time of their appearance were entered. The information of this table was used to construct the two frequency tables. These tables show the different steps of the Chi-squared tests. Figure 2 shows the number of Chimpanzees per hour. The X-axis shows the start of every hour during the day, and the Y-axis shows the total number of Chimpanzees that occur on the footage. There were no Chimpanzees appearances during night-time (20.00 until 04h00).

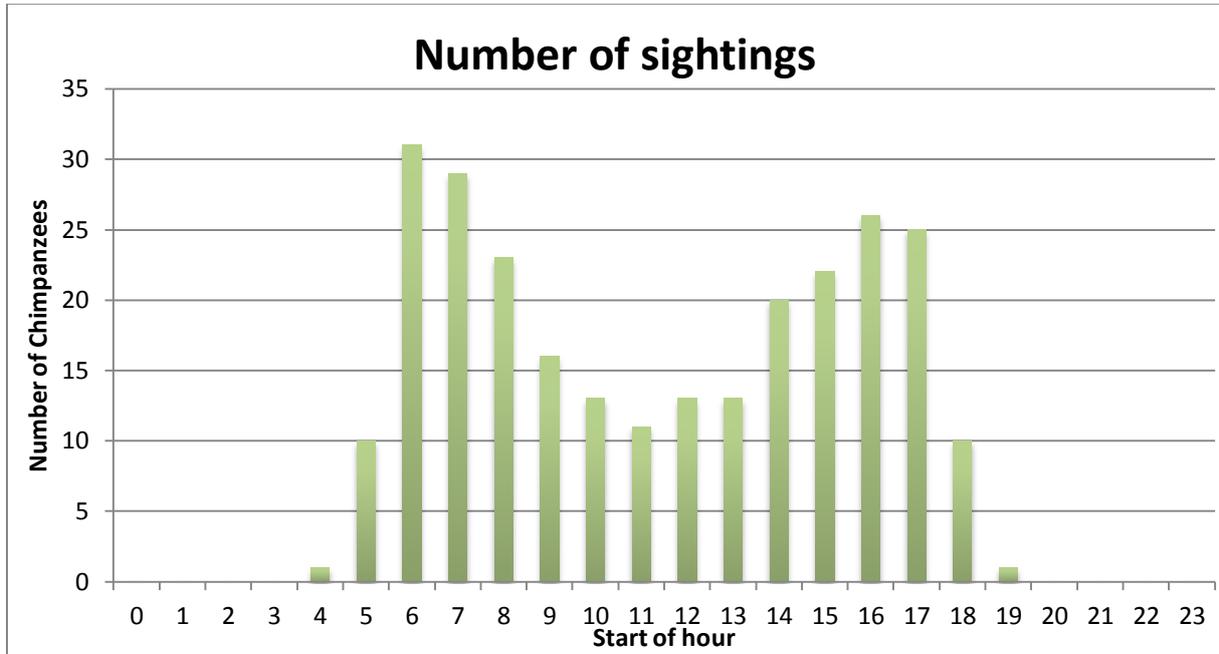


Figure 2. This graph displays the number of Chimpanzees per hour.

#### 4.1 Four-hour day parts

The day parts have been compared, and there is no significant difference between the four different day parts (A, B, C, and D). This frequency table can be found in appendix C. The four values of the Chi-squared test added up is 0,82, as seen in table 1 (part of the frequency table). This does not exceed the limit of 11.43 (4 degrees of freedom), given in the Chi-squared distribution table (Fowler, J, et al., 1998). This means that for the first sub question  $H_1$  is rejected and  $H_0$  is accepted; the observed frequencies are homogeneous and the difference is merely due to sampling error or scatter.

Day part	Chi-square value
	$(\text{Every 4 hours} - \text{Expected})^2 / \text{Expected}$
A	0,378787879
B	0,136363636
C	0,060606061
D	0,242424242
<b>Sum</b>	<b>0,818181818</b>

Table 1. Chi-square values of the four different day parts, compared to answer sub-question 1.

## 4.2 Two-hour day parts

There is however a difference between the day parts which were grouped in 2 hours (A1, B1, C1, D1, E1, F1, G1 and H1). The sum of the Chi-square values greatly exceeds the value of 18.48, given in the Chi-squared distribution table (Fowler, J, et al., 1998). This given value is higher for the comparison between 8 day parts than the comparison between 4 day parts. This is because there are different degrees of freedom for these comparisons.

Table 1 shows that the chi squared values. (the complete frequency table can be found in appendix D). This means that for the second sub question, the  $H_0$  is rejected and  $H_1$  is accepted; the observed frequencies depart from those expected of a homogeneous distribution by an amount that cannot be explained by sampling error.

Day part	Chi-square value
	<i>(Every 2 hours- Expected)^2/Expected</i>
<b>A1</b>	15,34090909
<b>B1</b>	21,28030303
<b>C1</b>	0,916666667
<b>D1</b>	2,734848485
<b>E1</b>	1,704545455
<b>F1</b>	2,189393939
<b>G1</b>	9,28030303
<b>H1</b>	15,34090909
<b>Sum</b>	68,78787879

Table 2. Chi-square values of the 8 different day parts, compared to answer sub-question 2.

## 5. Discussion

With the method used, it is not possible to compare the different individual day parts with each other. It would be very interesting to research whether there is a significant difference between every individual day part. For example, is there a difference between day part A and day part C?

With the method used, it is possible to see that there are significantly more chimpanzees occurring on the footage during the day part B1 than during day part A1, because these are the most extreme values. However, it is impossible to see whether there is a significant difference between for example day part C1 and D1 (refer to appendix C for this table). These comparisons have not been made due to lack of statistical ability and resources available in Belí.

## 6. Conclusion

There is no significant difference when the data are compared of the four different chosen day parts. However there is a difference when the number of appearances of chimpanzees is compared between day parts of two hours.

The conclusion is that there is a significant difference between the day parts which are grouped in two hours. There are significantly less chimpanzees occurring between the first and the last day parts, and there are significantly more chimpanzees occurring between 06h00 and 08h00 than during the other day parts.

This information can be used to plan field trips. When there are people who have the objective of seeing or studying Chimpanzees and their behaviour, the best time to go would be between 06h00 and 08h00.

## 7. Recommendations

*There are many research possibilities in the natural areas around Belí. This can be done with the footage which is already available. Furthermore, data could be gathered with special focus on aspects of mammal activity.*

First of all, the research method developed can be used to categorize footage of other mammal species which occur on the trail camera footage. This can be done by eco volunteers or students. After this analysis, a large database for future investigations will be available. Not only will the first analysis produce interesting information (for example unknown species for these areas, relative appearance of species on footage etc.), but it also provides a start in ecological research for future volunteers or students.

Furthermore, research can be done that links the location to the intensity of appearance of terrestrial mammals. The GPS coordinates of the trail cameras can be used to draw conclusions as to where the highest intensity of mammals is found. It is possible that Chimpanzees are mainly active in one part of Quebube and one part of Aicum. Afterwards, this can be combined with this research to know where and when is the highest intensity of mammal activity.

Moreover, it is very interesting to draw conclusions to difference in spatial activity during different times of the year. For this however, it is necessary to collect data more systematically. The same amount of data needs to be gathered every month, and it needs to be gathered at the same locations.

## 8. List of references

### 8.1 Sources

1. Max Planck Institute (Year unknown), *Pan African Programme, the Cultured Chimpanzee*
2. Fowler, J., Cohen, L., Jarvis, P. (1998), *Practical Statistics for Field Biology second edition*, John Wiley & Sons, Chichester.

### 8.2 Figures

1. Serviço Cartográfico do Exército (April 1959), Map Guinea Bissau and The Boé
2. Graph of the total number of Chimpanzees per hour on the trap camera footage

## Appendices

### A. Mammal species on trail camera footage

<b>Mammal Species</b>	<b>Latin Name</b>
Western African Chimpanzee	<i>Pan troglodytes</i>
Guinea Baboon	<i>Papio papio</i>
Sooty Mangabey	<i>Cercocebus atys</i>
Calistrix Monkey	<i>Chlorocebus aethiops sabaesus</i>
Patas Monkey	<i>Cercopithecus patas</i>
Crested Porcupine	<i>Hystrix cristata</i>
Marsh Cane Rat	<i>Thryonomys swinderianus</i>
Side-Striped Jackal	<i>Canis adustus</i>
Ratel (Honey Badger)	<i>Mellivora capensis</i>
African Clawless Otter	<i>Aonyx capensis</i>
Banded Mongoose	<i>Mungos mungo</i>
Gambian Mongoose	<i>Mungos gambianus</i>
Ichneumian Mongoose	<i>Herpestes ichneumon</i>
Slender Mongoose	<i>Galerella sanguinea</i>
Marsh Mongoose	<i>Atilax paludinosus</i>
White-tailed Mongoose	<i>Ichneumia albicauda</i>
Spotted Hyaena	<i>Crocuta crocuta</i>
Genet (sp.)	<i>Genetta (sp.)</i>
African Civet	<i>Civettictis civetta</i>
African Palm Civet	<i>Nandinia binotata</i>
Serval	<i>Felis serval</i>
Caracal	<i>Felis caracal</i>
Leopard	<i>Panthera pardus</i>
Hippopotamus	<i>Hippopotamus amphibius</i>
Red River Hog	<i>Potamochoerus porcus</i>
Common Warthog	<i>Phacochoerus africanus</i>
African Buffalo	<i>Syncerus caffer</i>
Bushbuck	<i>Tragelaphus scriptus</i>
Bush Duiker	<i>Sylvicapra grimmia</i>
Maxwell's Duiker	<i>Cephalophus maxwellii</i>
Red-flanked Duiker	<i>Cephalophus rufilatus</i>
Yellow-backed Duiker	<i>Cephalophus silvicultor</i>
Bay Duiker	<i>Cephalophus dorsalis</i>
Kob	<i>Kobus kob</i>
Waterbuck	<i>Kobus ellipsiprymnus</i>

## B. Starting hours of Chimpanzee activity

Activity of Chimpanzees				
Camera location (Number)	1	2	3	4
Camera location (GPS point)	611114-1310121	611223-1309503	610745-1310212	610678-1310222
Location (Aicum/Quebube)	Q	Q	Q	Q
Starting time of appearance (h)		17	15	12
		17	12	14
			14	7
			7	8
			8	9
			9	10
			10	11
			11	17
			17	

<b>Activity of Chimpanzees</b>				
Camera location (Number)	5	6	7	8
Camera location (GPS point)	610282-1310071	611101-1310051	611134-1310085	610323-1310596
Location (Aicum/Quebube)	Q	Q	Q	Q
Starting time of appearance (h)	10	16	16	
	18	18	7	
	18	8	12	
	16	13	12	
		19	9	
		19	18	
		8	17	
		9	8	
		19	15	
		16	17	
		7	11	
		11	17	
		7	17	
		8	17	
		18	12	
		18	12	
		7	12	
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		17	10	
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		18	15	
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		18		
		11		
		16		
		10		
		17		
		18		
		9		

<b>Activity of Chimpanzees</b>	<i>Continued</i>			
Camera location (Number)	5	6	7	8
Camera location (GPS point)	610282-1310071	611101-1310051	611134-1310085	610323-1310596
Location (Aicum/Quebube)	Q	Q	Q	Q
Starting time of appearance (h)		13		
		14		
		11		
		14		
		19		
		8		
		11		
		10		
		7		
		10		
		17		
		7		
		19		
		6		

<b>Activity of Chimpanzees</b>				
Camera location (Number)	9	10	11	12
Camera location (GPS point)	622030-1320620	617361-1318393	616838-1318471	621166-1320552
Location (Aicum/Quebube)	A	Q	Q	A
Starting time of appearance (h)	11			
	7			
	14			
	16			

<b>Activity of Chimpanzees</b>				
Camera location (Number)	13	14	15	16
Camera location (GPS point)	621166-1320444	622369-1320848	622331-1320854	611076-1310036
Location (Aicum/Quebube)	A	A	A	Q
Starting time of appearance (h)		17	12	9
		10	13	9
			18	18
			16	18
			7	8
			9	8
			10	9
			10	18
			7	8
			8	8
			17	9
			7	13
			8	18
			10	8
			13	10
			6	18
			7	12
			7	8
			7	17
			7	9
			7	9
			17	13
			15	14
			17	9
			17	19
			8	19
			9	16
			15	8
			13	10
			16	9
			14	8
			18	16
			7	12
			5	16
			15	19
			9	12
			14	16
			15	16
			6	11

<b>Activity of Chimpanzees</b>	<i>Continued</i>			
Camera location (Number)	13	14	15	16
Camera location (GPS point)	621166-1320444	622369-1320848	622331-1320854	611076-1310036
Location (Aicum/Quebube)	A	A	A	Q
Starting time of appearance (h)			9	12
			11	8
			13	9
			16	8
			7	11
			18	18
			7	13
			9	15
			13	16
			20	10
			11	16
			18	7
			7	18
			16	8
			16	9
			19	8
			18	9
			11	10
			13	
			7	
			9	
			8	
			16	
			7	
			15	

<b>Activity of Chimpanzees</b>				
Camera location (Number)	17	18	19	20
Camera location (GPS point)	624198-1321373	624116-1321349	611123-1310102	622746-1320560
Location (Aicum/Quebube)	A	A	Q	A
Starting time of appearance (h)			8	6
				8
				9
				18
				8
				18
				16
				17
				18
				6
				6
				8
				8
				19
				17
				6
				15
				15
				7
				16
				17
				9
				17
				11
				17
				15
				15

<b>Activity of Chimpanzees</b>				
Camera location (Number)	21	22	23	24
Camera location (GPS point)	622478-1321196	621673-1320560	610470-1310172	622383-1320859
Location (Aicum/Quebube)	A	A	Q	A
Starting time of appearance (h)			10	13
			6	14
			7	15
			10	17
			7	14
			17	7
				14
				16
				17
				15
				6
				6

### C. Frequency table of every 4 hours

Day part	Hours		Amount of sightings		Expected every 4 hours	Chi-square value
	From	Until	Observed	Every 4 hours		
			<i>(count if in frequency table)</i>	<i>(sum)</i>	<i>(total amount of sighting divided by amount of dayparts)</i>	<i>(Every 4 hours-Expected)^2/Expected)</i>
	0	1	0			
	1	2	0			
	2	3	0			
	3	4	0			
A	4	5	1			
	5	6	10			
	6	7	31			
	7	8	29	71	66	0,378787879
B	8	9	23			
	9	10	16			
	10	11	13			
	11	12	11	63	66	0,136363636
C	12	13	13			
	13	14	13			
	14	15	20			
	15	16	22	68	66	0,060606061
D	16	17	26			
	17	18	25			
	18	19	10			
	19	20	1	62	66	0,242424242
	20	21	0			
	21	22	0			
	22	23	0			
	23	24	0			
	<b>Sum</b>		<b>264</b>			<b>0,818181818</b>

### D. Frequency table of every 2 hours

Day part	Hours		Amount of sightings		Expected	Chi-square value
	From	Until	Observed	Every 2 hours		
			<i>(countif in frequency table)</i>	<i>(sum)</i>	<i>(total amount of sighting divided by amount of dayparts)</i>	<i>(Every 2 hours-Expected)^2/Expected)</i>
	0	1	0			
	1	2	0			
	2	3	0			
	3	4	0			
	4	5	1			
<b>A1</b>	5	6	10	11	33	15,34090909
	6	7	31			
<b>B1</b>	7	8	29	60	33	21,28030303
	8	9	23			
<b>C1</b>	9	10	16	39	33	0,916666667
	10	11	13			
<b>D1</b>	11	12	11	24	33	2,734848485
	12	13	13			
<b>E1</b>	13	14	13	26	33	1,704545455
	14	15	20			
<b>F1</b>	15	16	22	42	33	2,189393939
	16	17	26			
<b>G1</b>	17	18	25	51	33	9,28030303
	18	19	10			
<b>H1</b>	19	20	1	11	33	15,34090909
	20	21	0			
	21	22	0			
	22	23	0			
	23	24	0			
	<b>Sum</b>		<b>264</b>			<b>68,78787879</b>

