

PEPERPOT NATUUR BOS



# Report on the medium and large terrestrial mammal species of Peperpot Nature park

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Findings of twenty one month's camera trapping

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# **Species composition and richness of medium and large size mammals within Peperpot Nature Park**

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## **Abstract**

Camera Trapping was first initiated in Peperpot Nature Park starting on April 2015. The area has a size of 800 ha and is located in the Commewijne district in Suriname. The park consists of five abandoned plantations on which formerly cocoa and coffee was planted. Twelve PC 800 Reconyx camera traps have been set out in the accessible areas of Mopentibo, Puttenzorg and La Liberte for nearly two years. In total sixteen species of both medium and large size mammals were captured on camera. When comparing species among these areas, La Liberte and Mopentibo had the same species numbers and also more species compared to Puttenzorg. Puttenzorg, which is less forested, consists of water bodies and more open grassland area.

**Key words:** Plantation, Camera traps, Mammals, Commewijne

## **Introduction**

Peperpot Nature Park is well known among birdwatchers, but the mammal fauna was understudied. The intent to start with the large mammals started since tourist guides and the park management itself were curious to know about the existing medium and large size species. The foundation Peperpot Natuur Bos also believes that only by knowing of the presence of species, it can plan the management of the park. Also from an educational perspective it is valuable to know what mammals exist. The start was made in April 2015 and camera traps were set in the Mopentibo, Puttenzorg and La Liberte area. It is known that Mammals are part of key role functions in maintaining tropical rainforest, since they disperse seeds, pollinate, graze and feed on fruits (Cuaron, 2000; Sheil and van Heist, 2000). According to Putz et al. (2001), disturbing forests will lead to changing in its structure, composition and function, which on its turn will affect modifications or loss of the existing wildlife and its habitats. These given facts set the justification to initiate the camera trap project.

## **Methodology**

A total of twelve Reconyx PC 800 camera traps were set on tree trunks at a height of 40-50 cm from the ground. The choice to place a camera trap was based on the accessibility, in terms of existing trails and also on existing animal trails. During twenty one months no big shifting of cameras from their locations took place. The few that have been moved, were moved due to habitat destruction or because too much misfires were obtained. In three areas within the park the traps were located. Those areas were: Mopentibo, La Liberte and Puttenzorg. Data from

Mopentibo traps were pooled and analyzed as data from the Mopentibo area. The same strategy was used with trap data from La Liberte and Puttenzorg.

All pictured animals that were positively identified were considered for analyses. Captured mammals were identified to species with Emmons (1997). Twenty one Month's data (April 2015 - December 2016) were analyzed. A capture record or detection was considered to be independent when identified as a different individual or species. Detection rates were therefore based on individual numbers per species. In order to analyze for species richness detection rate data was analyzed (see Appendix II).

The Bray-Curtis measure of similarity was used for MDS (Clarke, 1993). Primer (version 6.1.16), was used to perform these analysis. To have diversity tested, both the Shannon-Wiener Index ( $H'$ ) and Pielou's Evenness ( $J$ ) diversity indices were calculated with the help of Species Diversity & Richness (version 4.1.2) software of Pisces.

## Results

**Table I. Species encountered within the studied areas**

Species	Mopentibo (16 Species)	La Liberte (15 Species)	Puttenzorg (9 Species)
Jaguar	X	X	
Ocelot	X	X	
Puma	X	X	X
Jaguarundi	X	X	
Tapir	X	X	
Coati	X	X	
Crab eating raccoon	X	X	X
Giant anteater	X	X	X
Red rumped agouti	X	X	X
paca	X	X	X
Capybara	X		X
Four eyed opossum	X	X	X
Common opossum	X	X	X
Red brocket deer	X	X	X
Tayra	X	X	
Nine banded armadillo	X	X	

A total of 16 mammal species were recorded (see table I and II). Table II indicates the IUCN Red list status of the captured mammal species.

**Table II. IUCN status of species**

Species	IUCN status (Redlist version 3.1)
Jaguar <i>Panthera onca</i>	Near Threatened
Puma <i>Puma concolor</i>	Least Concern
Ocelot <i>Leopardus pardalis</i>	Least Concern
Jaguarundi <i>Herpailurus yagouaroundi</i>	Least Concern
Tapir <i>Tapirus terrestris</i>	Vulnerable A2cde+3cde
Capybara <i>Hydrochoerus hydrochaeris</i>	Least Concern
Red rumped agouti <i>Dasyprocta leporina</i>	Least Concern
Paca <i>Cuniculus paca</i>	Least Concern
Common opossum <i>Didelphis marsupialis</i>	Least Concern
Four eyed opossum <i>Philander opossum</i>	Least Concern
Giant anteater <i>Myrmecophaga tridactyla</i>	Vulnerable A2c
Tayra <i>Eira Barbara</i>	Least Concern
Coati <i>Nasua nasua</i>	Least Concern
Crab eating raccoon <i>Procyon cancrivorus</i>	Least Concern
Nine banded armadillo <i>Dasypus novemcinctus</i>	Least Concern
Red brocket deer <i>Mazama Americana</i>	Data Deficient

\* Peperpot Nature Park has two species that are vulnerable and one species that is Near Threatened.

**Table III. Species diversity and evenness during rainy and dry seasons**

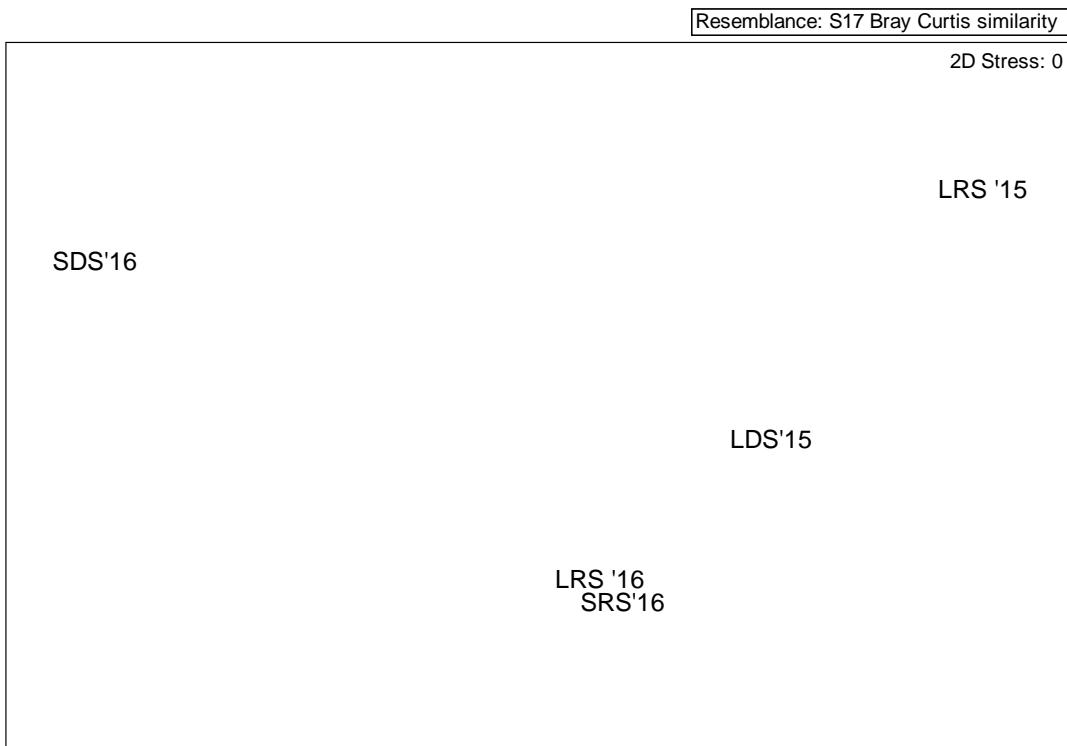
Plot type	Shannon-Wiener (H')	Pielou's Evenness (J)	Chao & Lee1
LRS'15	0.7356	0.3195	9.44
LDS'15	0.85	0.3421	12.82
SRS'16	0.8537	0.3708	13.41
SDS'16	0.8914	0.643	13.8
LRS'16	1.039	0.4728	14

\*\* LRS'15 Long Rainy Season of 2015  
 LDS'15 Long Dry Season of 2015  
 LRS'16 Long Rainy Season of 2016  
 LDS'16 Long Dry Season of 2016  
 SDS'16 Short Rainy Season of 2016

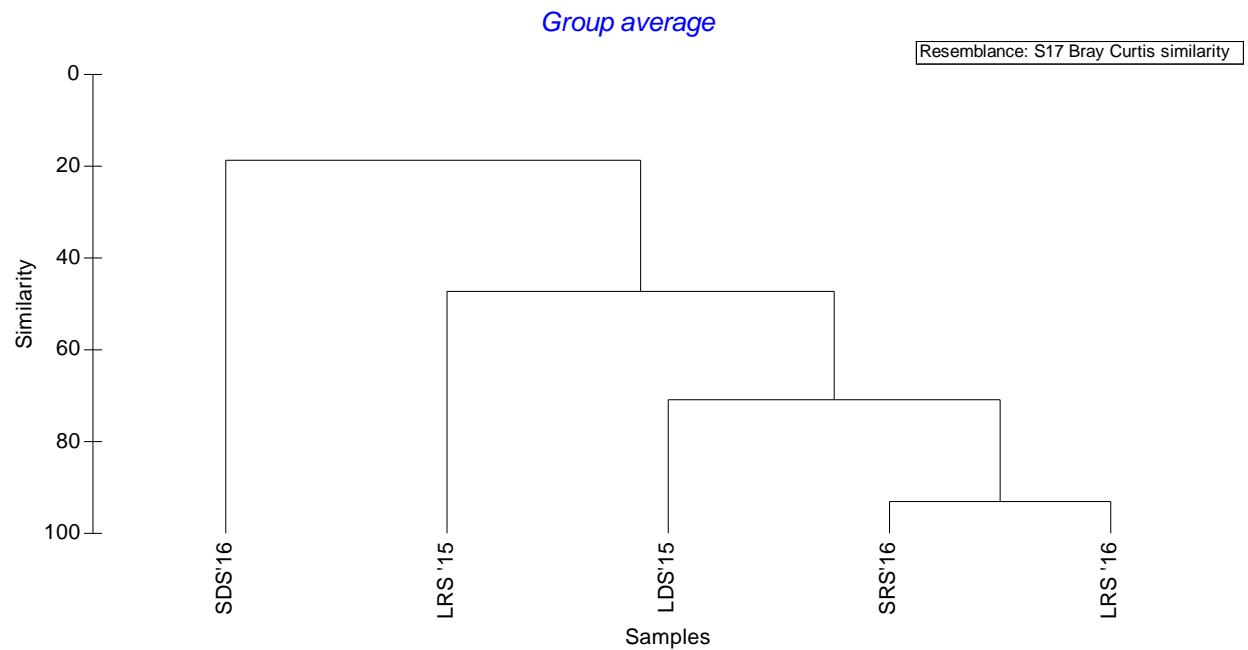
The detection rate value was used to analyze for diversity and evenness. Also data of seasons was compared, since the area is too small to compare the studied areas.

Both the Shannon-Wiener and Pielou's Evenness tests reveal differences among the seasons during both dry and rainy season. This might have been the cause of trapping effort difference. When comparing Chao & Lee1 values per season, some were considerably higher. This means that sampling has not been fully adequate.

**Figure 1. 2 D resemblance of season data**



**Figure II.** A resemblance dendrogram



Both Figure I and Figure II reveal that the collected data is different among the different seasons. This means that sampling efforts are different or sampling must still continue to look for differences.

### Conclusion and discussion

A total of sixteen medium to large species were captured on camera. Among the captured species two vulnerable species are present according to the IUCN Red list version 3.1. This values the Park, in terms of being a protected area. Also do we extract from the collected data, that six cat species are present, which is valued for the Park as a nature park and protected area; knowing that all these cat species populations are decreasing. The existence of cat species also indicates the healthiness of the present ecosystems in terms of their capacity to sustain these top predators. This project should definitely proceed for at least five years to follow the trend of the existing mammals and to look for seasonal differences. Differences in camera trap efforts might have reveal for difference in species diversity and evenness among the seasons and more time is needed to understand this. Appendix II reveals the detection rates for each captured mammal, including domestic dogs. It is recommended to make an effort to reduce the presence of dogs, since these might disturb the existing wildlife. Camera trap records showed human hunters, fishermen and Acai (*Euterpe oleracea*) poachers. The park management have to sort these issues in order to have the wildlife protected. The detection rates also reveal that the

most captured mammal species is the Red rumped agouti. This species might be a good prey item for the cat species that are captured on camera in the Park.

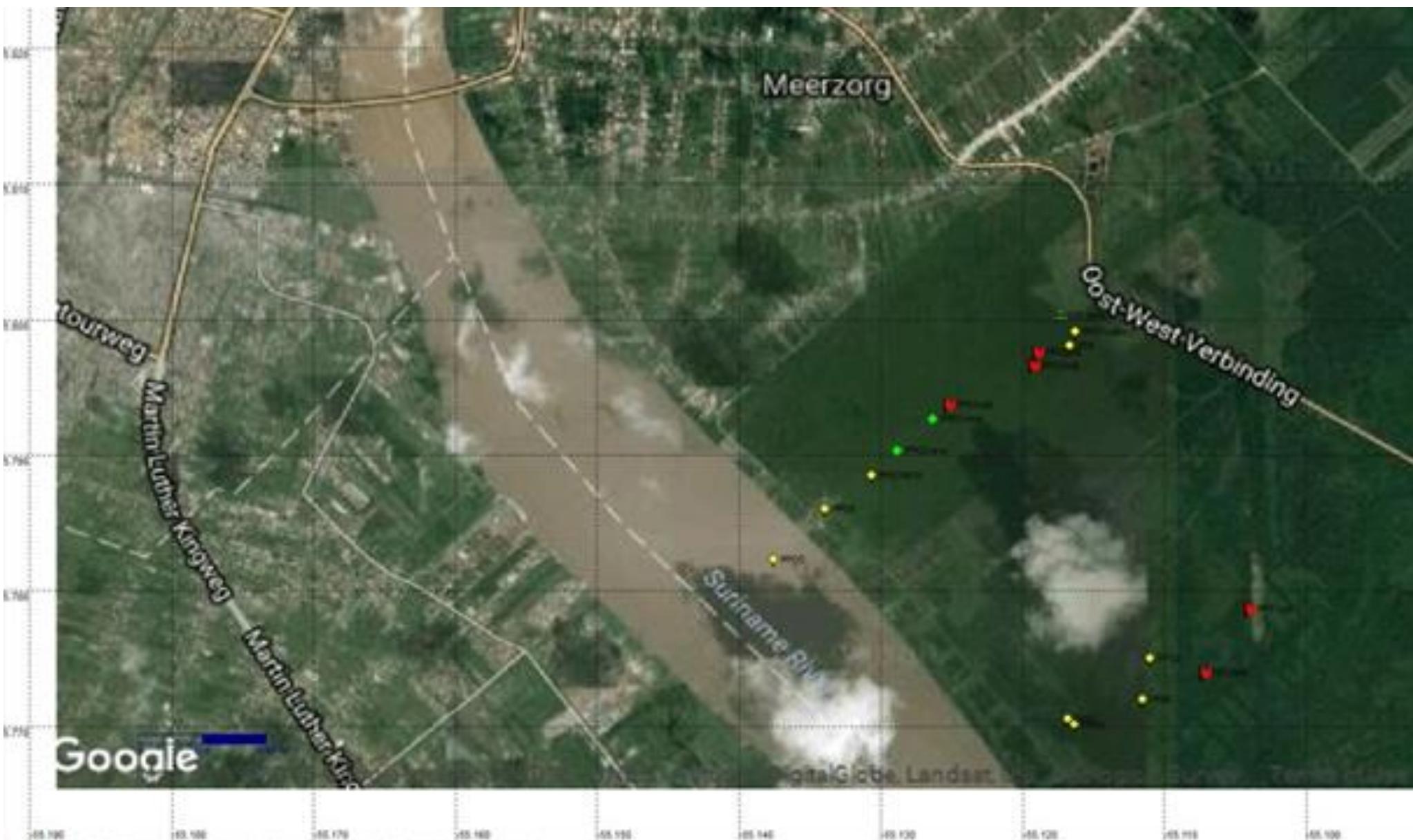
## Acknowledgement

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## References

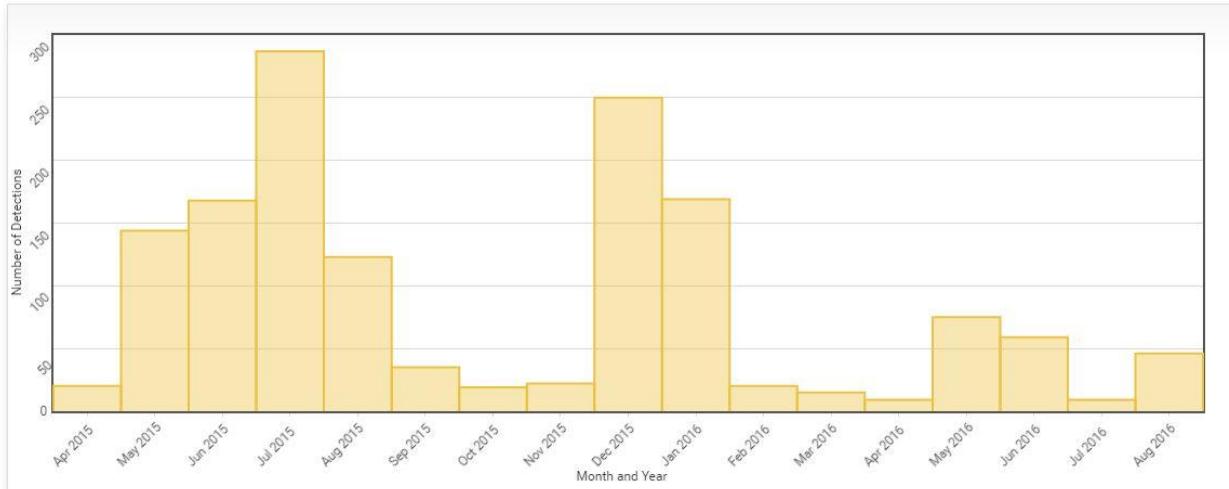
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Appendix I Research area

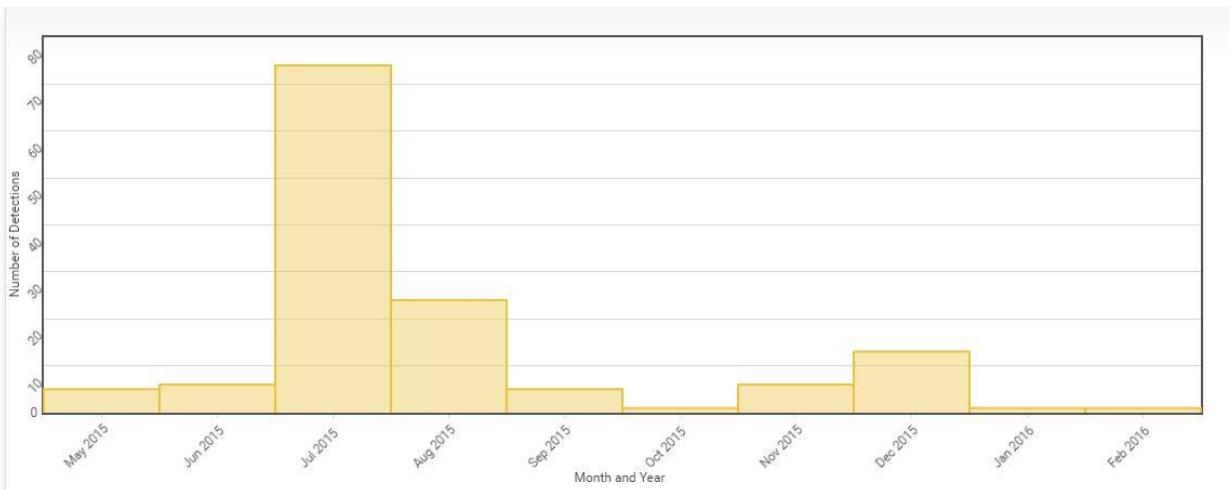


## **Appendix II      Detection rates of all trapped mammals from April 2015-August 2016**

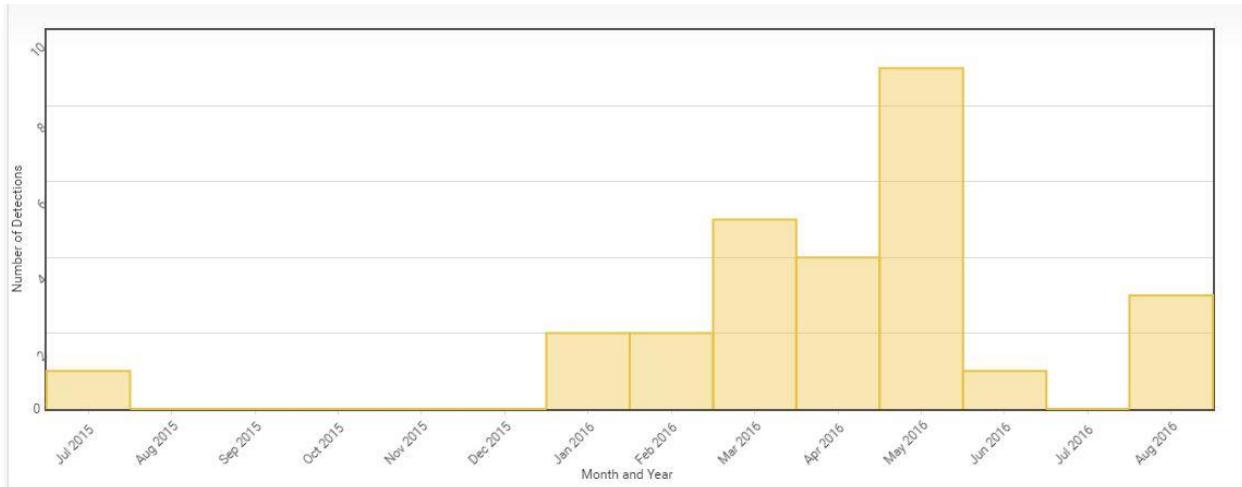
### **Red rumped agouti**



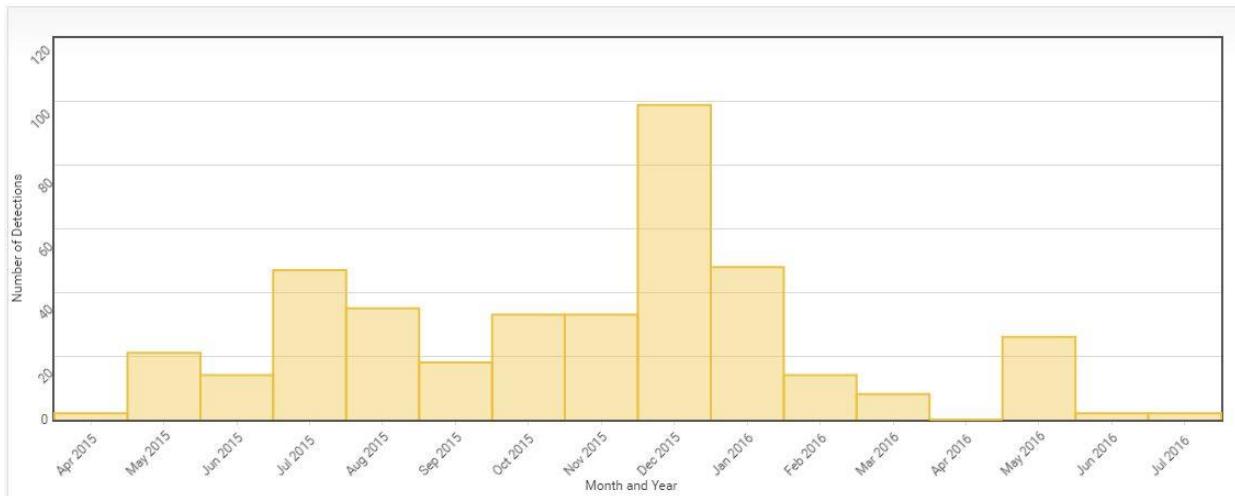
### **Paca**



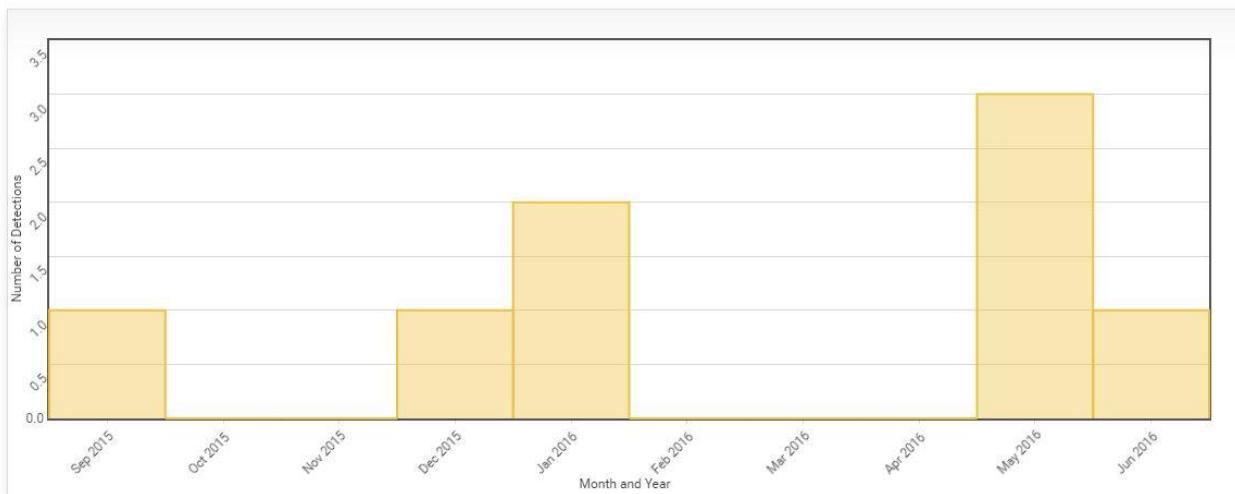
### **Nine banded armadillo**



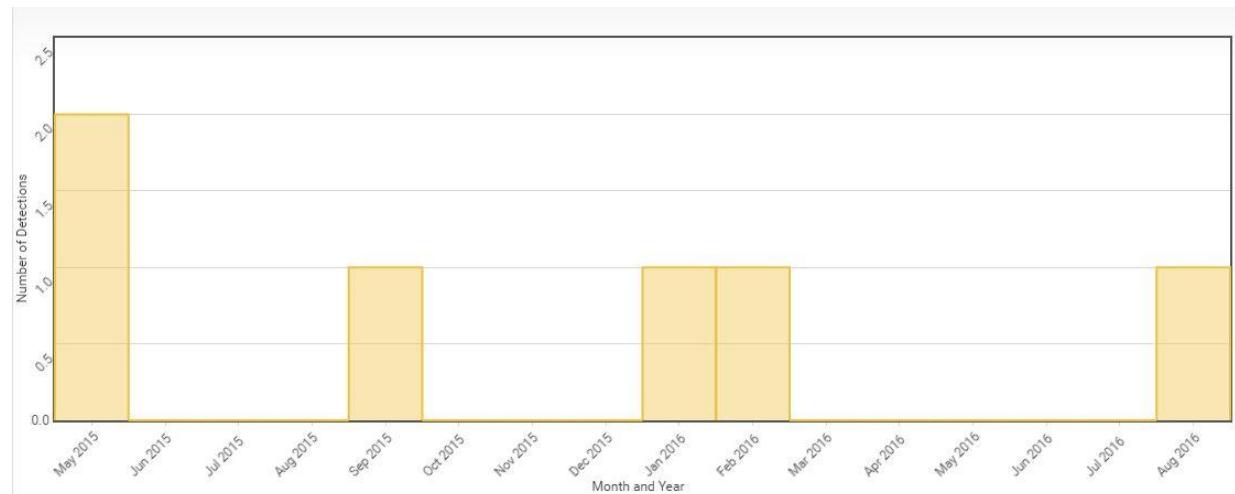
### Common opossum



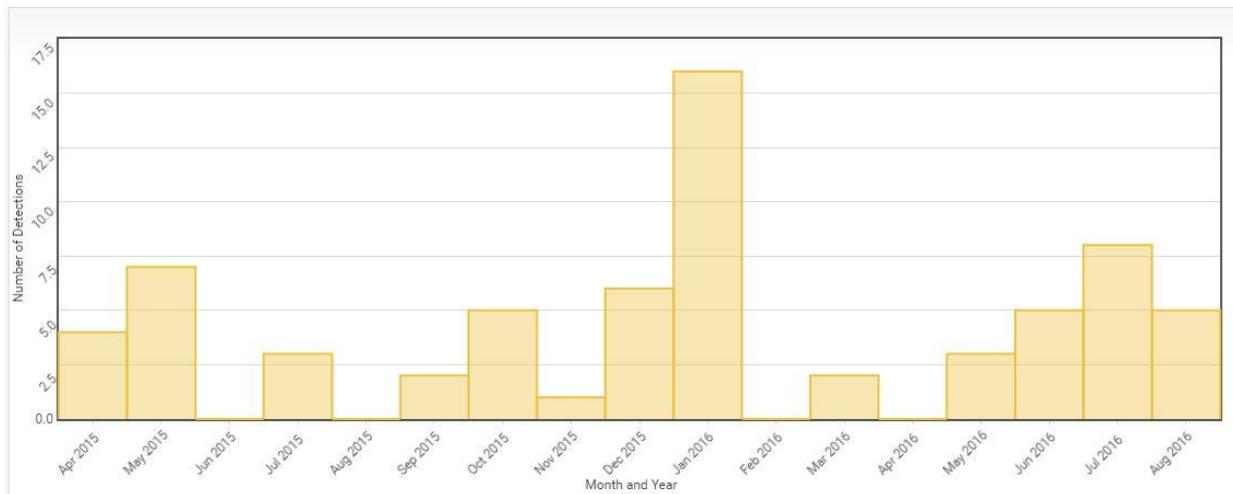
### Tayra



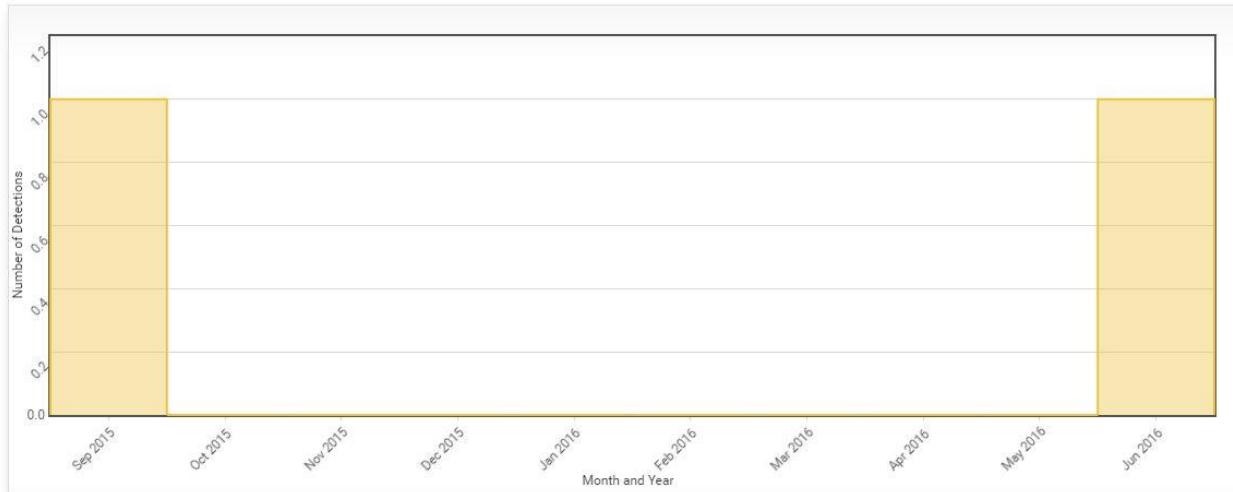
### Capybara



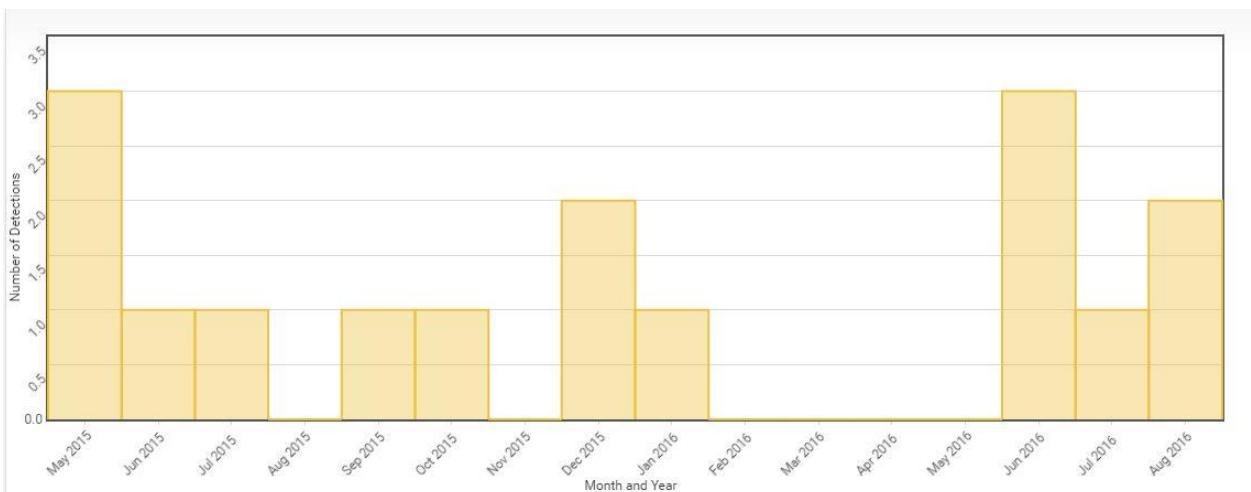
## Ocelot



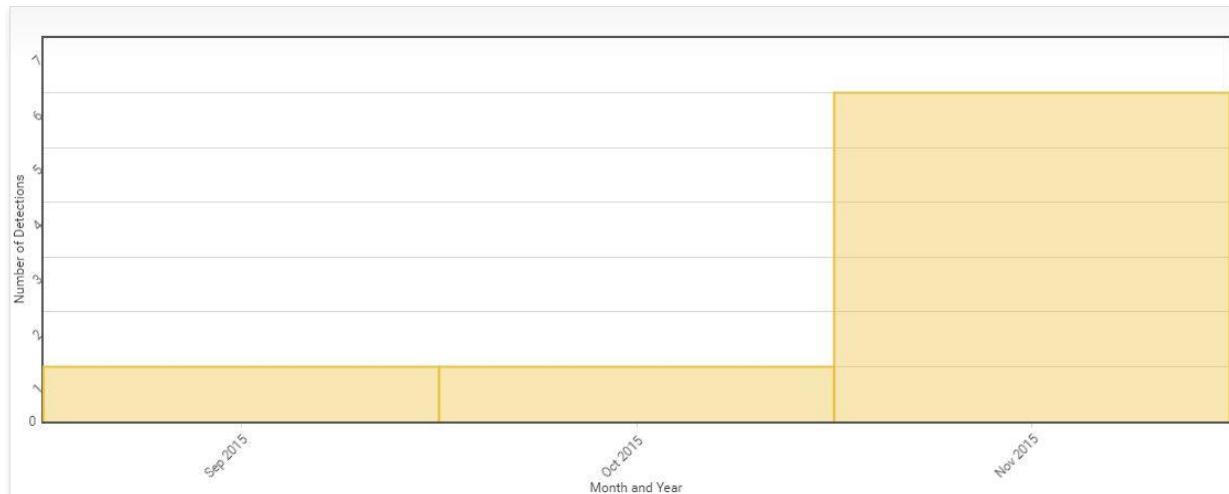
## Jaguarundi



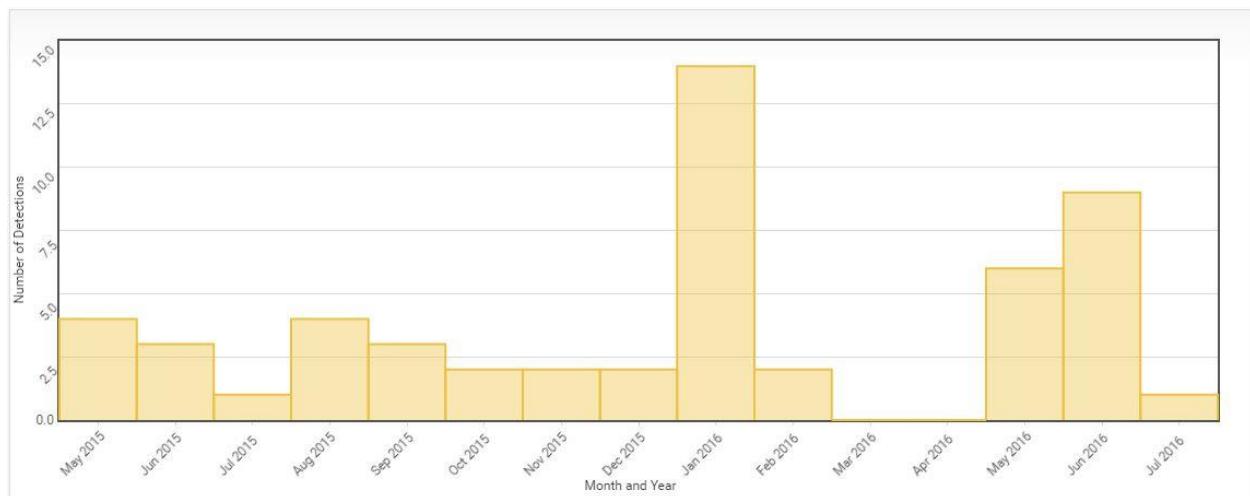
## Jaguar



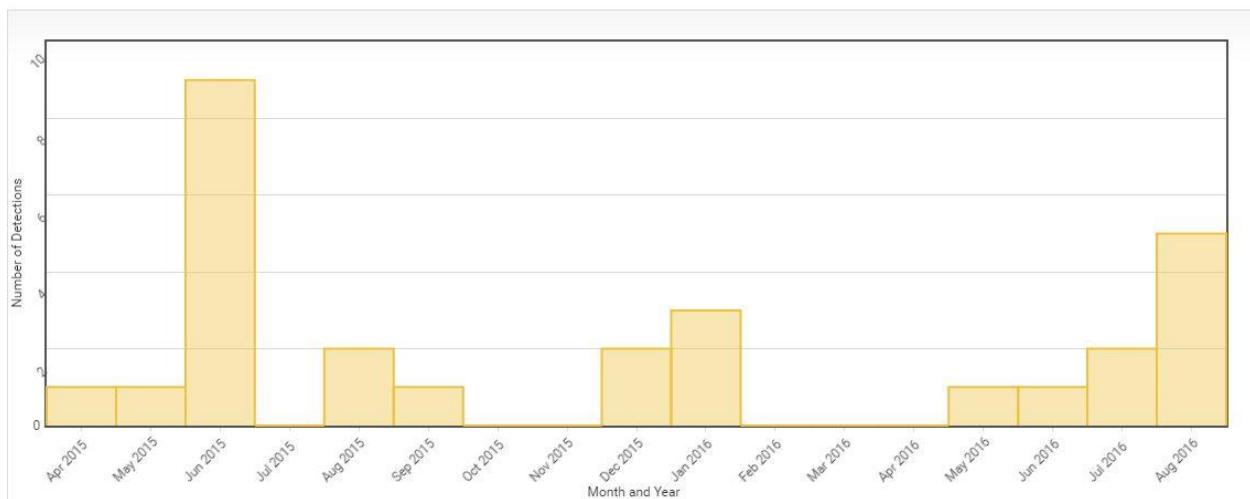
## Puma



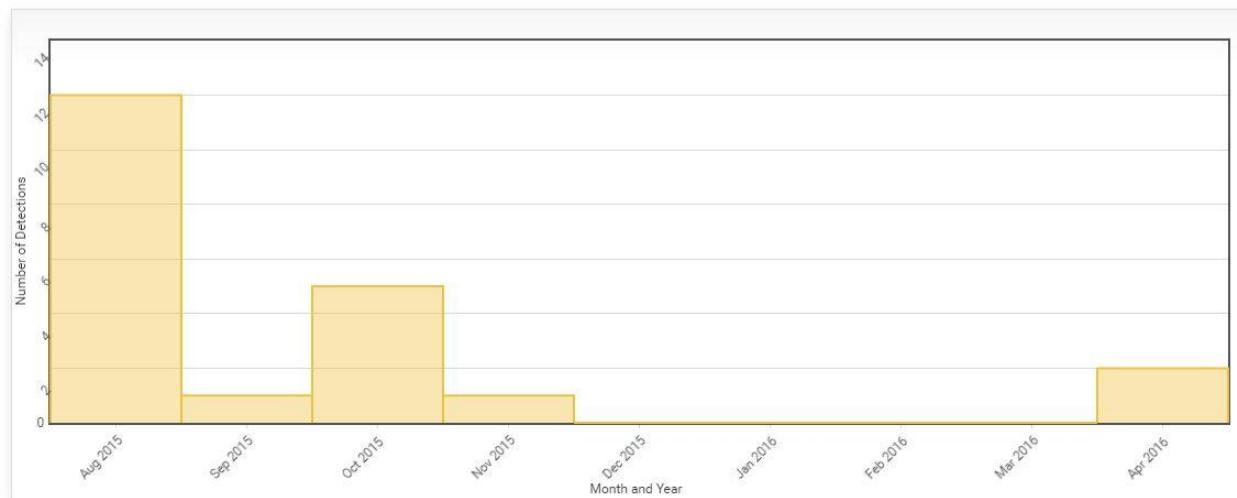
## Giant anteater



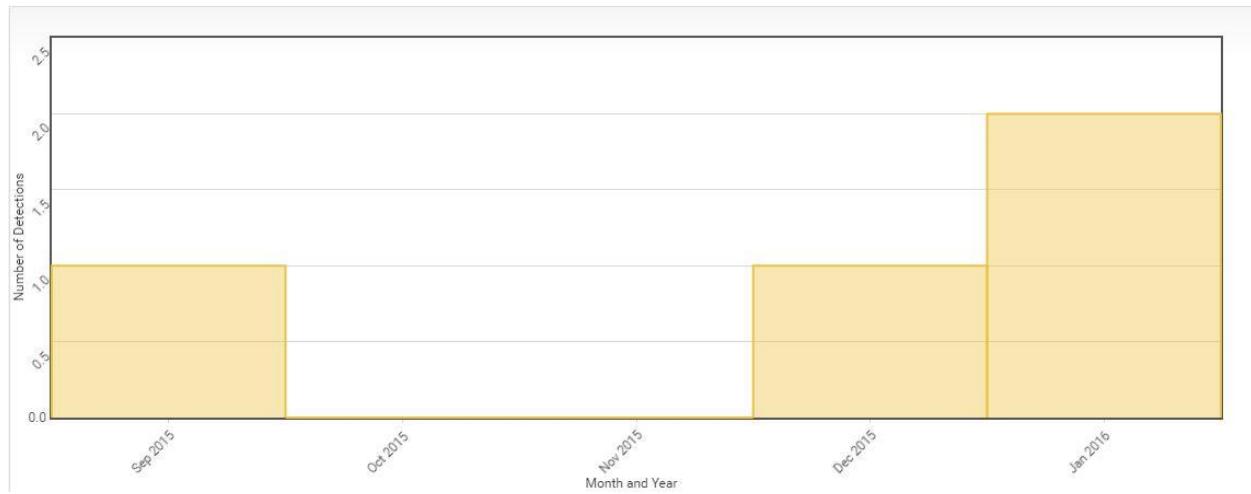
## Crab eating Racoon



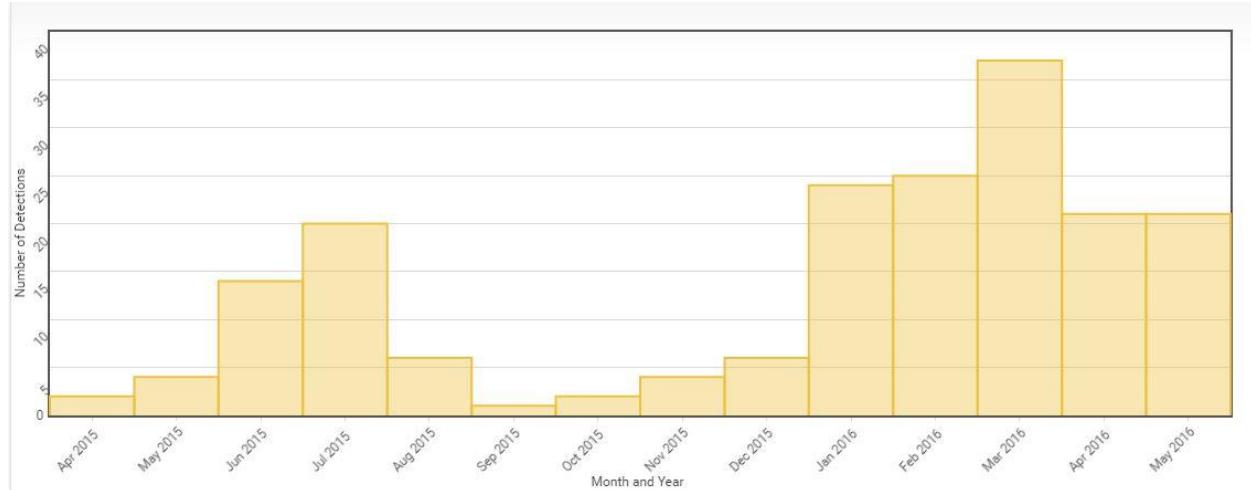
## Coati



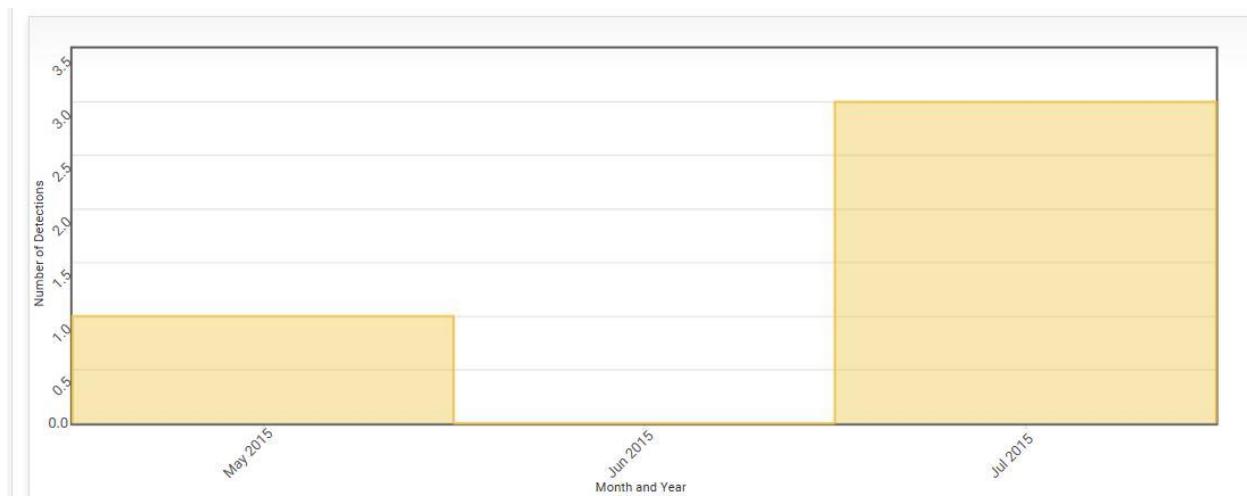
## Red brocket



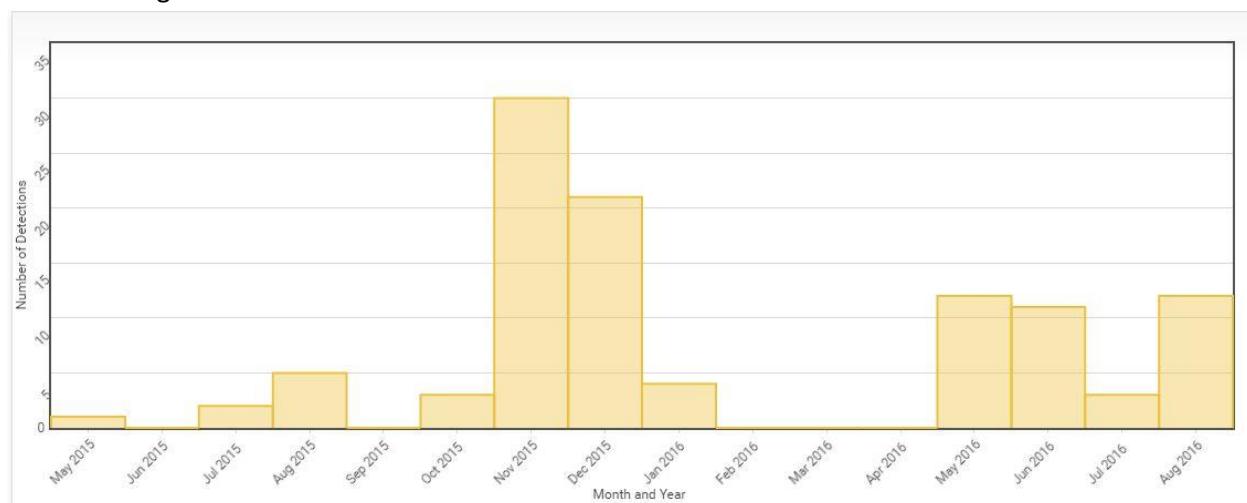
## Four Grey eyed Opossum



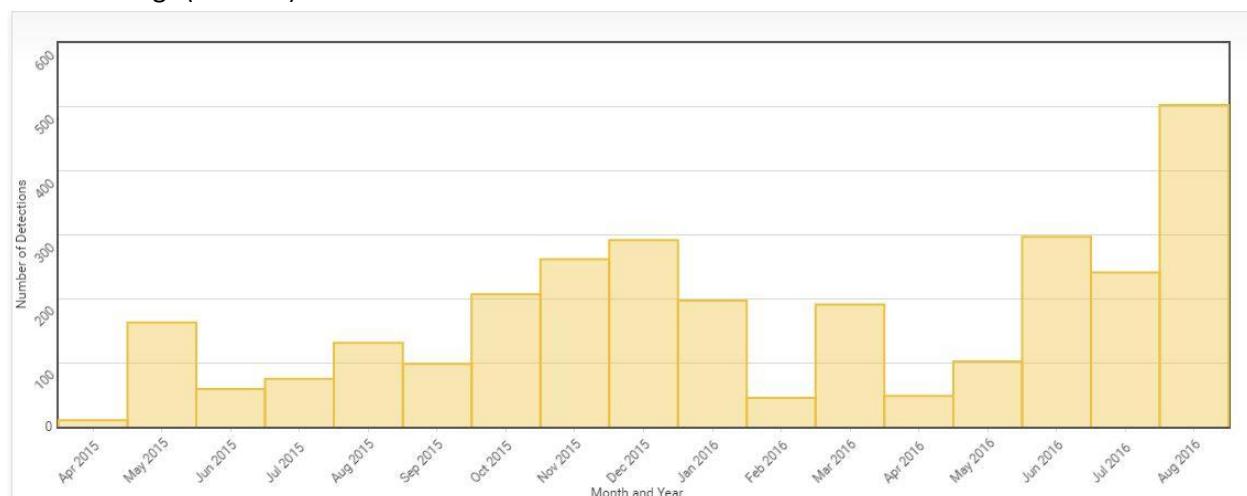
## Tapir



## Domestic dog



## Human beings (Tourists)



Appendix III. Medium – Large terrestrial mammals captured during 21 months data collection (April 2015 - December 2016)

Red rumped agouti



Crab eating raccoon



Paca



Four eyed opossum



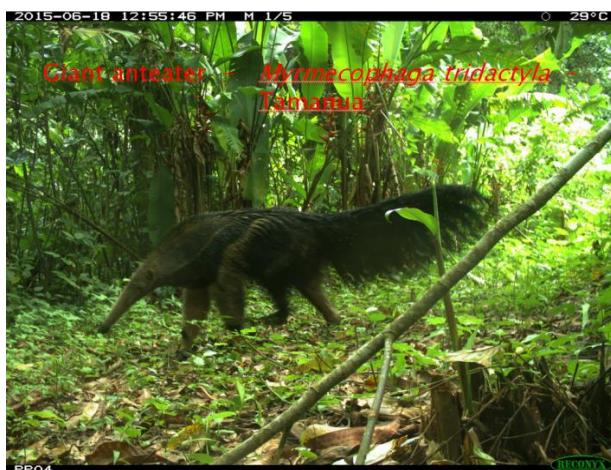
Tapir



Coati



Giant anteater



Nine banded armadillo



Tayra



Jaguar



Ocelot



Jaguarundi



Puma



Red Brocket deer



Common opossum



Capybara

