

PRELIMINARY STUDY OF VERTEBRATES BY MOTION-ACTIVATED CAMERAS AT TRARC PRIOR TO AMAZON FLOODING OF 2012

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Species	A0-A10, K0-K10	A10-A20, K10-K20	K0-K10, U0-U10	K10-K20, U10-U20
Agouti	X		X	X
Amazon Red Squirrel	X		X	
Common Opossum	X	X		
D. novemcinctus	X			
Golden Tegu		X	X	
Gray Brocket Deer			X	X
Jaguar	X	X	X	X
Margay			X	
Mustached Tamarin	X			
Ocelot	X	X	X	X
Paca	X	X	X	
Puma			X	
Red Brocket Deer	X			
Rufescent tiger heron			X	
Saddleback Tamarin	X	X		
Spix's Guan	X			
Tamandua	X			
Tapir		X		X
Tyra	X			

Table 1. The sightings of each species sorted by 100-hectare region.

Figure 1. Representation of ground level vertebrate activity in the TRARC over 3.5 month study prior to Amazon flooding. The sightings were obtained through the equal distribution of motion-activated cameras across the TRARC. In any week only 2.3 % of the grid intersections were under surveillance. Each column represents the total number of vertebrate sightings at each grid intersection.

Introduction

The Tahuayo River Amazon Research Center (TRARC) is a part of the Amazon floodplain of the larger 1600 mi² Tamshiyacu Nature Preserve in northern Peru. The study site is an established 400 ha grid, the first of its kind. Four different sub-ecotypes, the low restinga (50.5 %), high restinga (6.6 %), bajial (10.8 %), and palm swamp (32 %) comprise this area. The research site is home to an enormous diversity of plant and animal life. To ascertain some of the vertebrate diversity, a preliminary study using motion-activated cameras was conducted over 3.5 mo, Oct-Jan (2011-12).

Results

Ten motion-activated cameras were placed at intersections on the grid and were moved to new locations approximately every 2 wks. The resulting total of 60 locations comprised 13.6 % of the 441 grid intersections at the TRARC. Of these locations, 59% captured the movement of 11 orders of vertebrates, the bolded intersections in Fig 4. To further study the results, the grid was sub-divided into four equal regions (Fig 4). The 2 regions (rt), areas A0-A10, K0-K10 and K0-K10, U0-U10, captured approximately 75 % of the animal sightings (Fig 5). This half of the TRARC is in closest proximity to the Tahuayo River. Furthermore, 60.47% of all vertebrates sighted were located in the lower restinga sub ecotype (Fig 5 and Fig 6).

Future

Deforestation, illegal logging, pollution, climate change, and human population growth threatens the ecological balance of this diverse and sensitive habitat. The Amazonian floodplain remains difficult to study because of access and limited resources and equipment. Preservation and sustainability of this last remaining region of high diversity is imperative for Peru and the world. The Kenyon College research initiative at the TRARC is directed to a longitudinal study of tree growth, insect diversity, and water quality across the four sub-ecotypes with regard to yearly temperature and flood levels. Our intent is to generate the first 2 gene barcode database from phloem DNA taken from tree bark samples in the area. Kenyon College and students are grateful to the local people for creating and allowing us to study at the TRARC. We hope that the results of our work will provide insights to the local people in making decisions regarding sustainability in this region.

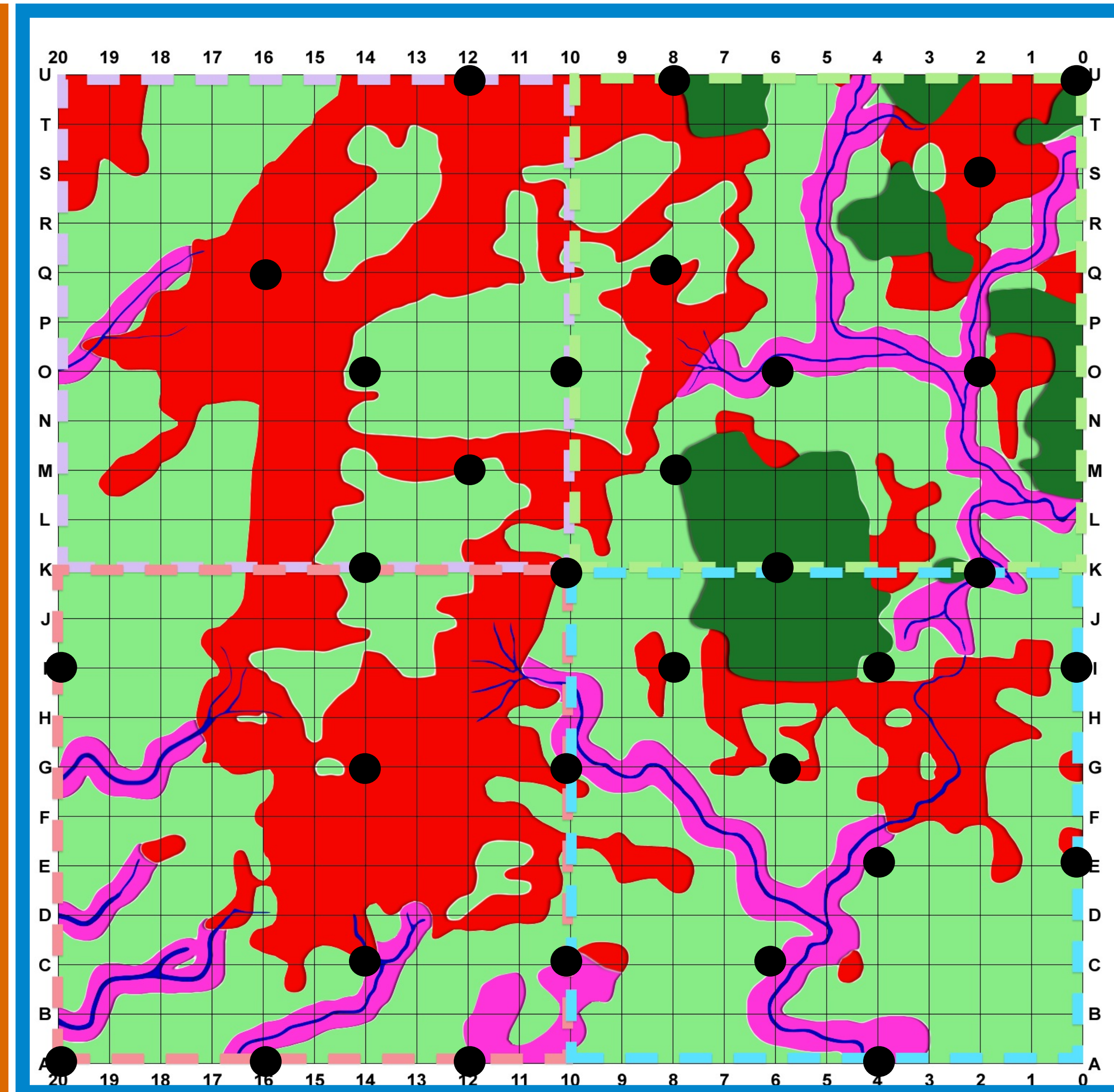


Figure 2. TRARC trail grid divided into 100-hectare regions: lower restinga=light green, higher restinga=dark green, palm swamp =red, bajial=pink. Each black dot represents a vertebrate sighting.

Forest Subtype	Area (Hectares)
Bajial	43.2
High Restinga	26.4
Low Restinga	202
Palm Swamp	128

Table 2. The area of sub-ecotypes in the TRARC grid region (400 ha).

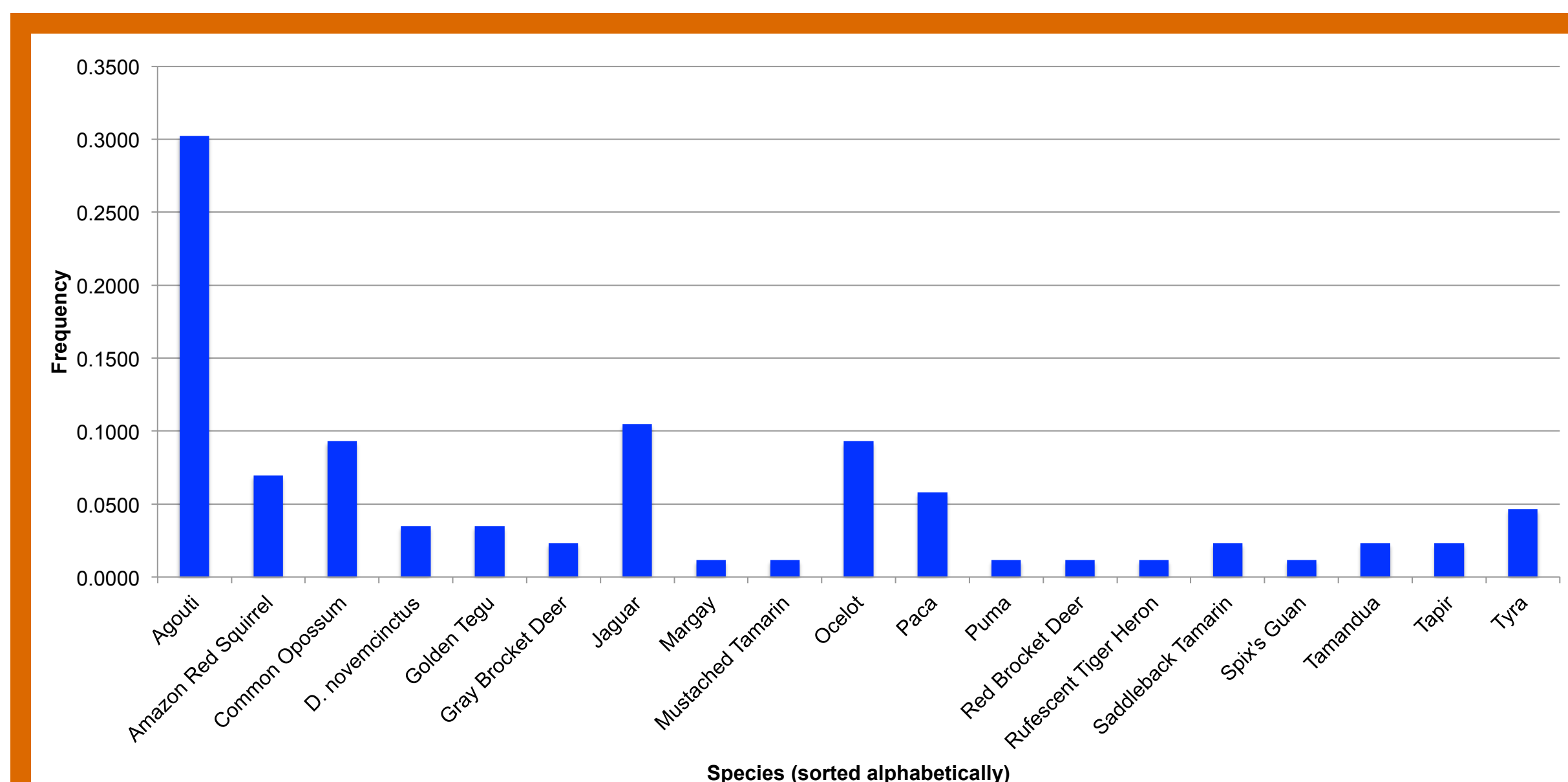
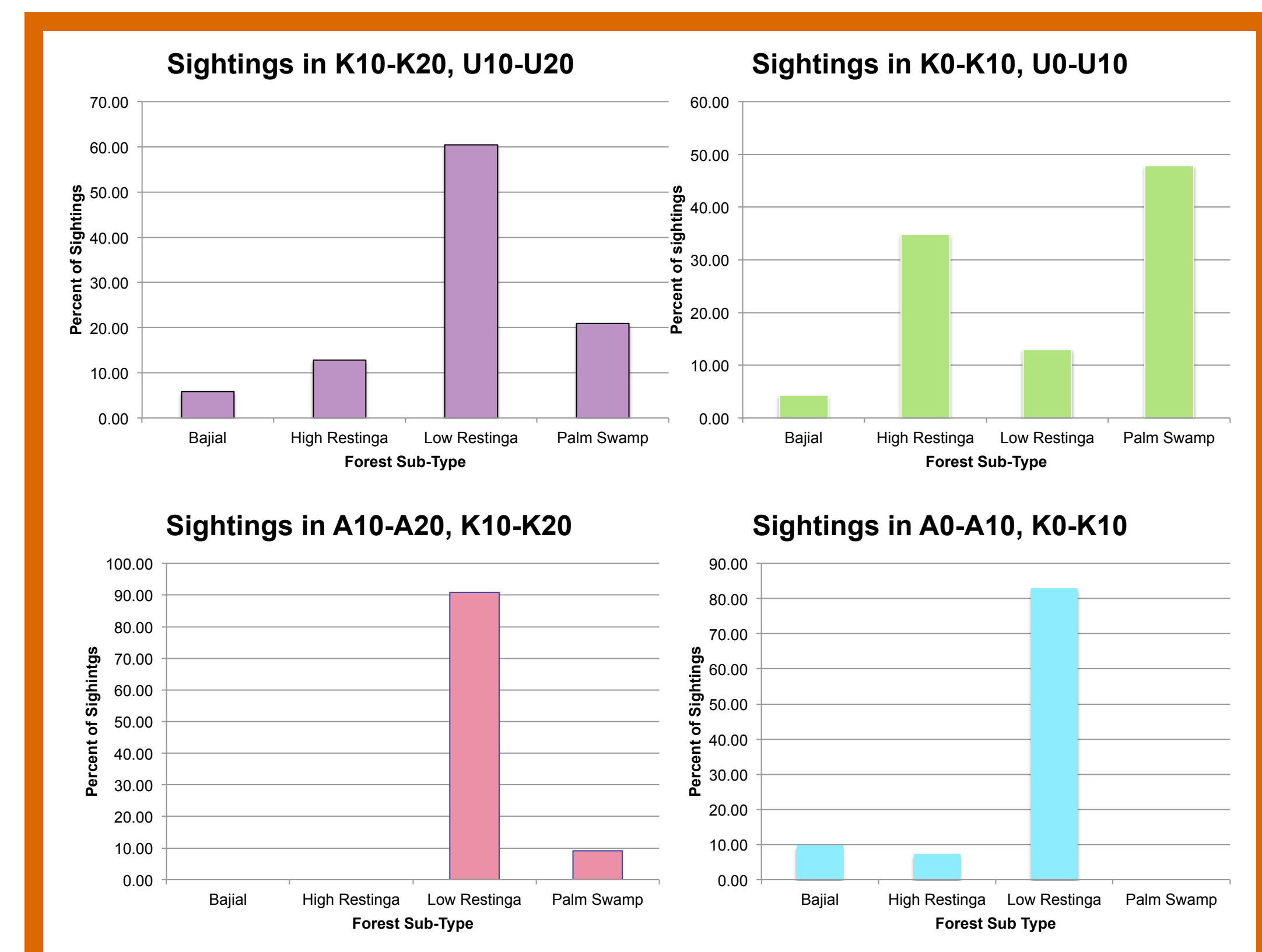


Figure 3. The frequency of vertebrate species sightings from October 3, 2011 to January 15, 2012; sorted alphabetically.



*Figure 4. The percent of sighting per forest subtype in each TRARC 100-hectare grid region. The lower restinga had the highest number of species observations. A0-A10, K0-K10 Lt. Blue (47.7 % total sightings); A10-A20, K10-K20 Pink (12.8 %); K0-K10, U0-U10 Lt. Green (26.7 %); K10-K20, U10-U20 Lavender (12.8 %).

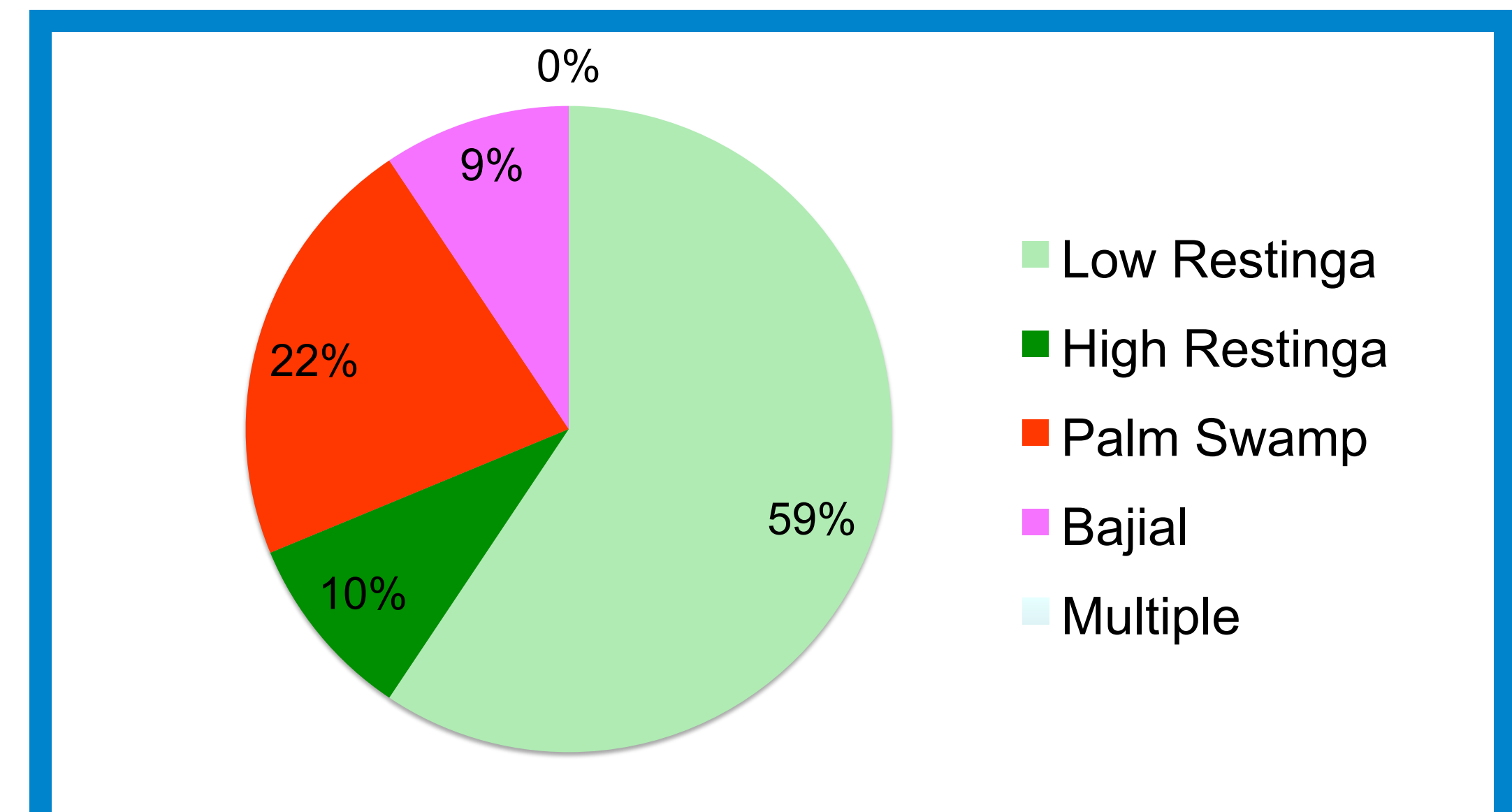


Figure 5. The percent of cameras activated within each subecotype.

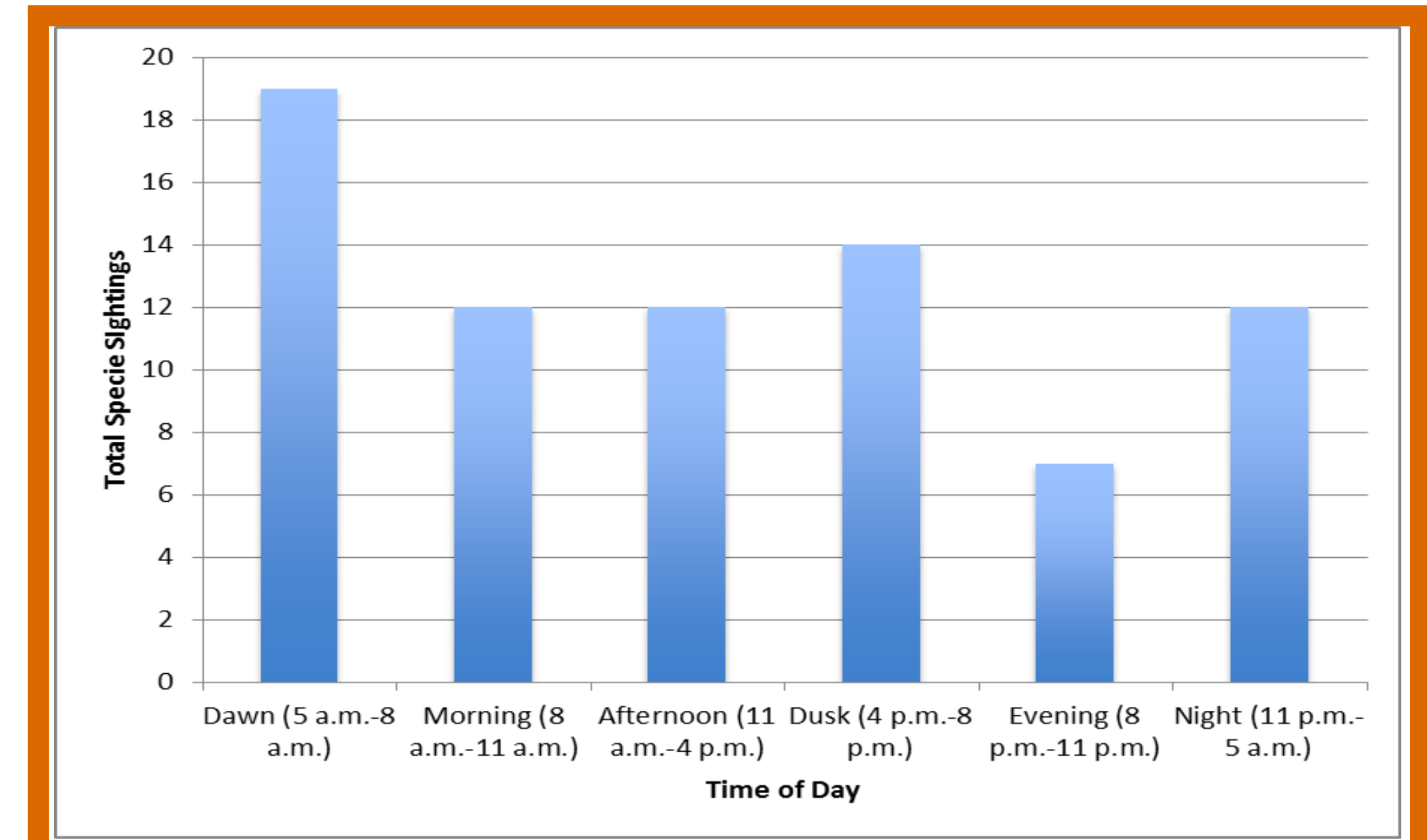


Figure 6. The number of species sightings based upon time of day. There was no large difference between the times of day in the number of sightings, but the majority appeared in the morning.

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