RELATIVE ABUNDANCE OF POTENTIAL PREY OF THE ASIATIC GOLDEN CAT (*Catopuma temminckii*) IN THE BATUTEGI PROTECTED FOREST BASED ON CAMERA TRAP

An Undergraduate Thesis

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FACULTY OF MATHEMATICS AND SCIENCES
UNIVERSITY OF LAMPUNG
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ABSTRACT

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By

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Prey species are priority components of habitat areas and play a crucial role in supporting the existence of predatory animals. The asiatic golden cat (*Catopuma temminckii*) is a predator within the food pyramid and is near-threatened based on the IUCN. This study aims to compute the relative abundance index of the asiatic golden cat's potential prey within the Batutegi Protected Forest. The data collection involves utilizing camera traps installed using a systematic purposive sampling method with a determined grid that covers the paths frequented by wild cats, particularly the sumatran tiger and their potential prey. This process is supervised by YIARI, and forty-one camera traps were installed starting in February 2022. All cameras remained active during the same period time, from March 2022 to November 2022. Monthly maintenance is conducted within three months to ensure proper maintenance of the cameras, including the replacement of batteries and memory cards. There are 12 species of potential prey for the asiatic golden cat, namely: barking deer (*Muntiacus muntjak*) (6.92), wild boar (*Sus scrofa*) (0.97), sambar deer (*Cervus unicolor*) (0.40), pig-tailed macaque (*Macaca nemestrina*) (12.25), mitered langur (*Presbytis mitrata*) (0.18), long-tailed macaque (*Macaca fascicularis*) (0.07), mouse deer (*Tragulidae*) (0.26), red junglefowl (*Gallus gallus*) (0.01), murids (*Muridae*) (1.28), great argus (*Argusianus argus*) (5.12), crested partridge (*Rollulus rouloul*) (0.09), and squirrels (*Tupaiidae*) (1.12). The highest relative abundance index of potential prey is the pig-tailed macaque and the lowest is the red junglefowl.

Keywords: The Asiatic golden cat, Batutegi Protected Forest, camera trap, potential prey, relative abundance index, YIARI.

ABSTRAK

KELIMPAHAN RELATIF SATWA MANGSA POTENSIAL KUCING EMAS (*Catopuma temminckii*) DI HUTAN LINDUNG BATUTEGI BERDASARKAN DATA KAMERA JEBAK

Oleh

Jihan Kamila Wardani

Satwa mangsa merupakan salah satu komponen prioritas pada suatu wilayah untuk dapat dijadikan habitat dan faktor penunjang kehidupan satwa predator. Kucing emas (*Catopuma temminckii*) merupakan salah satu satwa predator puncak dalam piramida makanan dan termasuk sebagai spesies payung yang statusnya rentan punah berdasarkan IUCN. Penelitian ini bertujuan untuk menghitung nilai kelimpahan relatif satwa mangsa potensial kucing emas di Hutan Lindung Batutegi. Pengambilan data menggunakan metode kamera jebak dibawah pengawasan YIARI dengan metode pemasangan kamera *systematic purposive sampling* berupa titik yang telah ditentukan yang melewati jalur yang dilewati kucing liar (khususnya harimau sumatera) dan satwa mangsa potensialnya. Kamera jebak dipasang sebanyak 41 kamera mulai dipasang pada bulan Februari 2022 dan seluruh kamera aktif pada bulan Maret 2022 selama 9 bulan sampai bulan November 2022 dengan pemeliharaan untuk dilakukan pergantian baterai dan kartu memori setiap 1 bulan dengan durasi 3 bulan untuk menjangkau seluruh kamera yang dipasang. Terdapat 12 jenis satwa mangsa potensi kucing emas yakni: kijang (*Muntiacus muntjak*) (6.92), babi hutan (*Sus scrofa*) (0.97), sambar (*Cervus unicolor*) (0.40), beruk (*Macaca nemestrina*) (12.25), simpai (*Presbytis mitrata*) (0.18), monyet ekor panjang (*Macaca fascicularis*) (0.07), pelanduk (*Tragulidae*) (0.26), ayam hutan (*Gallus gallus*) (0.01), tikus hutan (*Muridae*) (1.28), kuau raja (*Argusianus argus*) (5.12), puyuh sengayan (*Rollulus rouloul*) (0.09), dan tupai (*Tupaiidae*) (1.12). Nilai kelimpahan relatif satwa mangsa potensial tertinggi yakni beruk dan terendah yakni ayam hutan.

Kata kunci: Satwa mangsa potensial, kucing emas, kelimpahan relatif, kamera jebak, hutan lindung Batutegi, YIARI.

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Is truly and entirely my own work, created in accordance with the applicable norms and academic ethics. Furthermore, I do not object to the use of some or all of the data from this undergraduate thesis by faculty members and/or the study program for publication purposes, provided that my name is mentioned.

If it is later proven that my statement is untrue, I am willing to accept academic sanctions, including the revocation of my bachelor's degree, as well as legal consequences.

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BIOGRAPHICAL SKETCH

The author, **Jihan Kamila Wardani,** was born on March 17, 2001 in Metro City. She is the second child among the three childern of Mr. Dr. Mahrus As'ad M. Ag. and Mrs. Yeti Rachmayati, S.E.

She began her education in the elementary school at Sekolah Dasar (SD) Negeri 5 Metro Pusat from the academic year 2007 – 2013. She finished her junior high school at Madrasah Tsanawiyah (MTs) Negeri 1 Lampung Timur from the academic year 2013 – 2016. Furthermore, she finished her senior high school at Sekolah Menengah Atas (SMA) Negeri 1 Metro from the academic year 2016 – 2019. In 2019, she enrolled at University of Lampung, under the Bachelor of Science in Biology department.

Throughout her time as a biology student, she was a member of the Biology Student Association (HIMBIO) FMIPA University of Lampung in 2020 and held the positon of Secretary for Leadership Development Division at HIMBIO FMIPA University of Lampung in 2021. She also served as a laboratory assistant for courses such as Introductory Botany, Advance Botany, Ecology, Parasitology, and Basic Laboratory Skills.

During her studies, she completed an internship at Yayasan Inisiasi Rehabilitasi Alam Indonesia (YIARI) from Januari – Februari 2022. Her internship focused on **"Inventory of Potential Prey of Asiatic Golden Cat (*Catopuma temminckii*) in the Batutegi Protected Forest Based on Camera Trap From 2017 – 2018"**. She conducted further research on the **"Relative Abundance of Potential Prey of Asiatic Golden Cat (*Catopuma temminckii*) in Batutegi Protected Forest Based on Camera Trap".** Additionally, she participated in Community Service (Kuliah

Kerja Nyata) in Desa Sukamerindu, Kec. Talang Padang, Kab. Tanggamus, Provinsi Lampung for 40 days in Juli – Agustus 2022.

She also had the opportunity to contribute as a student peer in the international accreditation procedure organized by ASIIN (Akkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematik). She participated in the accreditation prosedure for the undergraduate biology and postgraduate biology program at Universitas Andalas, Padang, on March 01 – 02, 2023, as well as the undergraduate biology and biochemistry programs at IPB University, Bogor, on June 14 – 15, 2023.

MOTTO

“Do not be afraid, I am with you all the time, listening and seeing.”
Q. S. Thaha, 20: 46

“…and do not kill yourselves, Allah is Merciful to you.”
Q. S. An-Nisa, 4: 29

“It is Allah who saves you from every distress…”
Q. S. Al-An’am, 6: 64

DEDICATION PAGE

This undergraduate thesis is dedicated as heartfelt tribute to my beloved parents: my mother, Yeti Rachmayati, S.E., and my father, Dr. Mahrus As'ad, M. Ag., as well as my older and younger brothers.

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In the name of Allah, the Almighty, the Omni Potent and the Most Gracious. Praise onto Him, the Lord of these universes. By His will, this undergraduate thesis entitled **"Relative abundance of potential prey of asiatic golden cat (Catopuma temminckii) in The Batutegi Protected Forest Based on Camera Trap"** is accomplished. During the writing of this undergraduate thesis, the author acknowledges the limitation, abilities, and knowledge, thus requiring support and motivation from various parties. On this page, the author would like to express gratitude to:

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The author ackowledges that this undergraduate thesis is far from perfect. The author hopes that this undergraduate thesis can serve as a reference for the readers who will conduct another research in the future.

Bandarlampung, June 19, 2023

The author

Jihan Kamila Wardani

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I. INTRODUCTION

1.1. The Background of Research

There are more than 36 species of wild cats distributed worldwide (Macdonald *et al*., 2010), Sumatra is one of the natural habitats for seven species of wild cats (Nowell & Jackson, 1996; Sunquist & Sunquist, 2002). Wild cats have a significant role in maintaining ecosystem stability and existing biodiversity because wild cats are large predators and top predators and can be considered umbrella species (Berger, 1999; Croocks, 1999; Miller *et al*., 2001; Mangas *et al*., 2008). According to Povey & Spaulding (2006) and Mangas *et al*. (2008), umbrella species such as wild cats need a wide area to be able to fulfill survival, including food, space, and protection, so when the top predator population is protected, it likely that other wild animal populations in the ecosystem are also is covered. Efforts to protect wild cats also seek to protect other animals around them.

One of the wild cats is The asiatic golden cat (*Catopuma temminckii*). According to the International Union for The Conservation of Nature (IUCN), the asiatic golden cat is a medium-sized wild cat found in Southeast Asia with Near-Threatened (NT) status. Studies about the asiatic golden cat are typically low in natural habitat and captivity (McCarthy *et al*., 2015).

Based on the Decree of Minister of Forestry Number SK.68/MenhutII/2010, January 28, 2010, decided that the Batutegi Protected Forest became one of Indonesia's protected forests managed by the Protected Forest Management

Unit (KPHL) in the Batutegi region. Protected forest areas have a lot of species diversity in birds, primates, and mammals, such as the asiatic golden cat for carnival mammals (KPHL, 2012; Huda *et al*., 2018; Shancez, 2010). One of the non-government organizations interested in conservation in the Batutegi Protected Forest is International Animal Rescue (IAR) Indonesia, or in Indonesia, known as Yayasan Inisiasi Rehabilitasi Alam Indonesia (YIARI). YIARI has a conservation program focused on conserving sunda slow-rise and wild cats, particularly\ the sumatran tiger (YIARI, 2022).

As carnivoran mammals, the asiatic golden cat needs to prey on other animals for food sources. Animals require food sources to provide energy to support all the body's metabolic processes and activities, such as moving, looking for food, digestion, maintaining body temperature, reproduction, growth, and other activities (Sumatro *et al*., 2016). The existence of prey becomes one of the essential components of survival. Therefore, a study must be conducted to determine the relative abundance index of the asiatic golden cat's potential prey in its habitat, including in the Batutegi Protected Forest, Tanggamus, Lampung.

1.2. The Research Purposes

This study aims to compute the relative abundance index of the asiatic golden cat's potential prey animal based on a camera trap in Batutegi Protected Forest, Tanggamus, Lampung.

1.3. The Benefit of the Research

The result of this study is expected to provide information regarding the relative abundance index of the asiatic golden cat's potential prey to determine the existence of prey for the asiatic golden cat in Batutegi Protected Forest, Tanggamus, Lampung.

1.4. Theoretical Framework

The existence of the asiatic golden cat as one of the umbrella species has an important role in the balance of the ecosystem. The ability of habitat is needed to provide habitat carrying capacity of the asiatic golden cat, such as water, shelter, and food sources, to maintain the existence of the asiatic golden cat. The relative abundance index can determine the availability of prey as a food source for the golden cat. To determine the relative abundance index of the asiatic golden cat's potential prey used camera trap data to simplify collecting data in nature. This study used the camera trap method to compute the relative abundance index of the asiatic golden cat's potential prey in the Batutegi Protected Forest. In addition, an analysis of the type of habitat where the camera traps were installed and the activity pattern of the asiatic golden cat and its potential prey to find out things that can affect the relative abundance index of the asiatic golden cat's potential prey.

II. LITERATUR REVIEW

2.1. The Asiatic Golden Cat (*Catopuma temminckii*)

The asiatic golden cat is red-listed animals by IUCN as Near-Threatened (NT) and Appendix I by CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) due to the degrading population. Deforestation that occurs in the asiatic golden cat's habitat has led to a degrading in many factors of survivals support for the asiatic golden cat, including prey for the asiatic golden cat (Nowell & Jackson, 1996, Kinnaird *et al.*, 2003, Gaveau *et al.*, 2007, and Achard, *et al*., 2002).

According to Vigors & Horsfield (1827) in Solari & Baker (2007), the classification of the asiatic golden cat is as follows:

Kingdom : Animalia
Phylum : Chordata
Class : Mammalia
Ordo : Carnivora
Family : Felidae
Genus : *Catopuma*
Species : *Catopuma temminckii*

The asiatic golden cat is one of the wild cat categories, which has a natural habitat in tropical rain forests, one of which is in Southeast Asia in Indonesia (Kawanishii & Sunquist, 2008). The asiatic golden cat has the morphological characteristics of a black and white face with dense, coarse hair (Figure 1). The color of the body hair is reddish-dark brown with a lighter color on the

shoulders. There is a white pattern on the face of the asiatic golden cat as its characteristic. The direction of hair growth on the neck differs from the rest of the body (KLHK, 2019). According to Sunquist & Sunquist (2002), the asiatic golden cat has a medium-sized body, with a length from head to body is 66 – 105 cm (26 – 41 inches), the length of the tail around 40 – 57 cm (16 – 22 inches), and the body height up to 56 cm (22 inches). The asiatic golden cat's body weight is around 9 – 16 kg, which is two or three times the body size of the domestic cat (*Felis catus*).

Figure 1. The asiatic golden cat (*Catopuma temminckii*)
(Source: YIARI 2022)

2.2. The Prey

The existence of an organism in an area cannot be separated from the habitat capacity to provided habitat's component. Food, water, and shelter are important animal habitat components, in addition to special requirements such

as water sources and wallowing areas for herbivores (Putri, 2010). As carnivore animals, the asiatic golden cat needs the availability of prey, which is the main priority to fulfill the main habitat components besides water and dense vegetation for shelter (Foulton *et al*., 2022).

As a wild cat, the asiatic golden cat has potential prey, which is can found in its natural habitat. Potential preys for the asiatic golden cat have various body sizes, which are categorized based on body weight according to Davis (2010) in Subagyo *et al*. (2013), namely large prey with a body weight more than 20 kg (sambar deer, wild boar, and barking deer), medium size with body weight between 5 – 20 kg (mitered langur and pig-tailed macaque), and small size with body weight less than 5 kg (long-tailed macaque, mouse deer, spotted dove, sumatran crested fireback, red junglefowl, grey-capped emerald dove, great argus, crested partridge, squirrels, murids, and chipmunk). These prey animal species can be found on Sumatra island and mainland Asia (Hutajulu, 2007; Cheyne & Macdonald, 2011).

2.3. The Batutegi Protected Forest

Based on the Decree of the Minister of Forestry Number SK.69/Menhut-II/2010, January 28, 2010, Batutegi is one of the protected forests in Indonesia managed by Protected Forest Management Unit or in Indonesia as Kesatuan Pengelolaan Hutan Lindung (KPHL) Batutegi. Batutegi Protected Forest has an administrative area of 58,174 ha and is located on 104°27' - 104°54' E dan 5°5' - 5°22' S. KPHL Batutegi location is in three parts of the area, a part of Register 32 of Protected Forest Rindingan Hill, part of Register 22 of Protected Forest Way Waya, and part of Register 39 of Protected Forest, Kota Agung

Utara. KPHL Batutegi location is also in Sekampung's watershed with three main rivers (RPHJP KPHL Batutegi, 2013):

1) Way Sekampung flows from the mountains to the west;
2) Way Sangharus, flows from Rindingan’s hill;
3) Way Rilau flows from the northern mountains.

KPHL Batutegi is one of the essential areas in Lampung Province. Most of the water catchment area is from the Batutegi dam. This area consists of a forest area of ±35.711 Ha (82,28%) and a non-forestland area of ±7.693 Ha (17,72%). KPHL Batutegi has borderline as follows (RPHJP KPHL Batutegi, 2013) (Figure 2):

- North : non-forestland and KPHL Unit VII
- South : non-forestland
- West : non-forestland and KPHL Kota Agung Utara
- East : non-forestland and KPHL Unit VII

Batutegi Protected Forest has a wide diversity of animals because of various species of birds, mammals, and primates. Batutegi Protected Forest is a habitat for two Indonesia’s endemic species, sumatran tigers (*Panthera tigris sumatrae*) and mitered langur (*Presbytis mitrata*). Batutegi Protected Forest is a habitat for 55 species of mammals, such as malayan tapir (*Tapirus indicus*), pangolin (*Manis javanica*), siamang (*Symphalangus syndactylus*) and sumatran kukang (*Nycticebus coucang*). There are 245 species of birds recorded in the Batutegi Protected, 61 families with several species such as green-backed heron (*Butorides striata*), javan munia (*Lonchura leucogastroides*), and great argus (*Argusianus argus*). There are 54 species of amphibians and reptiles, such as the Asia forest tortoise (*Manouira emys*). Also, there are 75 identified insect species (Huda, 2022).

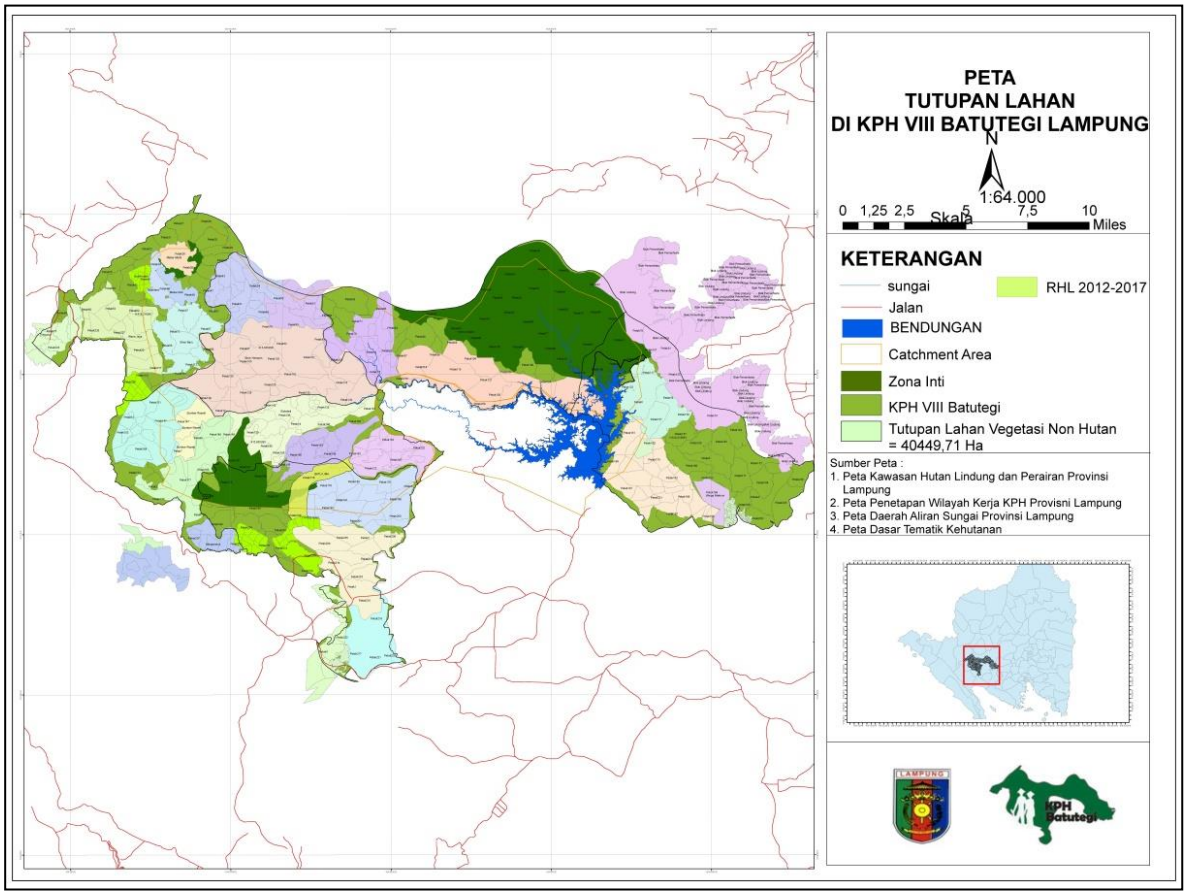

Figure 2. Landcover of Batutegi Protected Forest (Source: RPHJP KPHL Batutegi, 2013)

2.4. The Camera Trap

Camera traps (Figure 3) are automatic camera systems in the form of tools and systems to monitor wildlife activities and the conservation of wildlife more accurately and effectively. The camera traps have been through many changes to developt the capture-recapture system. It has increased the effectiveness of survey and monitoring methods for terrestrial animals and arboreal mammals found in their natural habitats (Karant & Nichols, 2002). The basic principle of camera traps is to capture images automatically due to triggers by sensors from

animals' body heat around the camera traps and infrared sensors with low light intensity (Wearn & Glover-Kapfer, 2017).

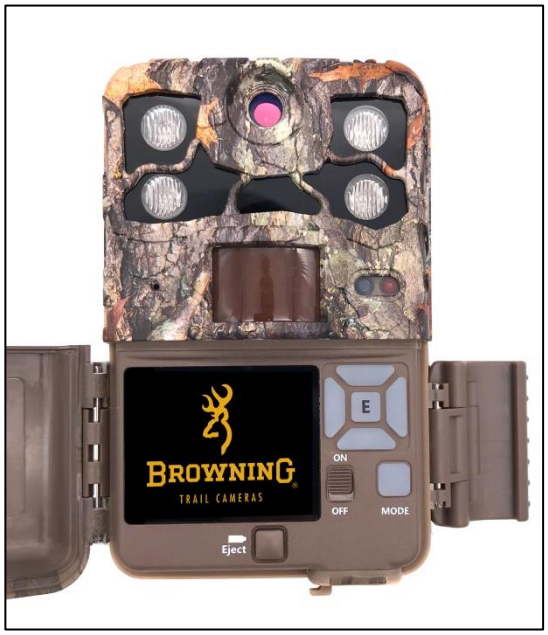

Figure 3. Browning's Camera trap BTC 7E (Source: Browning©)

Using camera trap technology has greatly assisted wildlife conservation efforts in Indonesia. With this technology, the monitoring of endangered wildlife populations in the wild can be monitored. Camera traps are always installed in places with high wildlife mobility, such as water and food sources (Fonseca *et al.*, 2003).

It is difficult to calculate the population of each individual using camera traps because it is often difficult to identify one individual from another. As the solutions, two approaches were carried out as follows 1) taking as many sample images as possible so that the abundance index can be calculated, 2)

explicitly attempting to model the process of detected animals and obtain absolute abundance estimates (Wearn & Glover-Kapfer, 2017).

The effectiveness of camera traps can be disrupted because of some obstacles. According to Bostani & Apriawan (1997), the weakness and problems that can occur in camera traps include:

a. Pressure from the intensity of sunlight;
b. Theft and destruction of camera traps installed at the research location;
c. Technical error during camera trap installation;
d. Disturbance from wildlife.

2.5. The Relative Abundance

According to Campbell & Reece (2010), abundance is the number of each species available from all individuals in a community. The relative abundance index (RAI) is the abundance of species at a location at a particular time with relative abundance values correlated with the actual density (Hutajulu, 2007). The relative abundance index is an important parameter in the diversity component to determine the abundance of a species, so the species can be identified as common or will become extinct in its habitat (Campbell & Reece, 2010).

III. RESEARCH METHODOLOGY

3.1. The Time and Place of Research

This study was conducted by installing 41 camera traps in the Way Rilau landscape, including the forest area of Way Sekampung Resort, Batutegi and Way Waya, Way Waya in Batutegi Protected Forest (Figure 4).

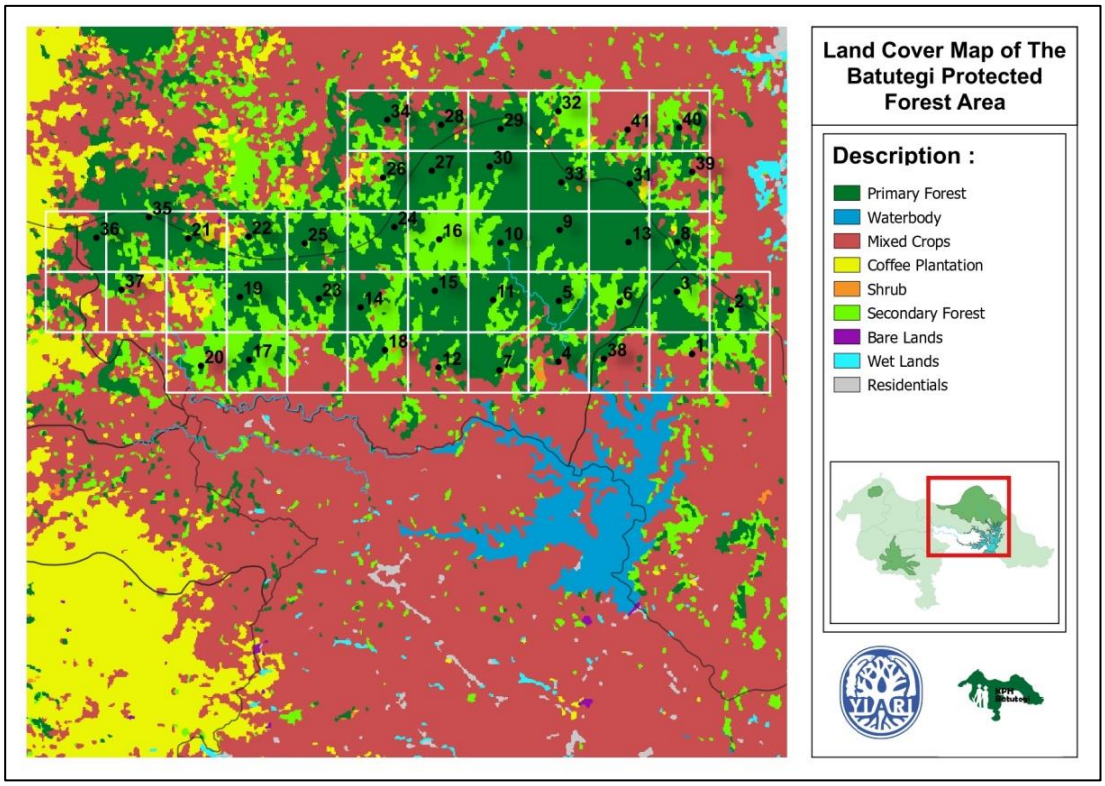

Figure 4. Landcover and Installed Camera Map by YIARI in Batutegi Protected Forest (Source: YIARI 2022)

The camera traps were installed in February 2022, and all camera traps were activated simultaneously in March 2022 using a systematic purposive

sampling method to determine the location of the camera traps on the determined grids. The camera traps were installed for nine months, from March to November 2022.

This research, which included installing camera traps, data collection in the field, and data processing were under and supervised by the YIARI program Batutegi Protected Forest Conservation Program, Tanggamus, Lampung. Installing the camera traps in the Batutegi Protected Forest area required permission from KPHL Batutegi regarding the purpose of the installation by submitting the permission letter from the University. Furthermore, preliminary surveys were conducted to determine the camera trap installation grids.

3.2. The Material

This study used Browning's camera traps BTC & 7E model, memory card, GPS Garmin 64s, digital camera, and a laptop equipped with Microsoft Excel, Picture Information Extractor (PIE), Zoological Society of London Camera Trap Analysis Package (ZSL CTAP) and Quantum Geographic Information System (QGIS). The photographs of the asiatic golden cat's potential prey from camera trap are the material for this study.

3.3. The Research Procedure

This research required indirect observation using camera traps (Figure 5) installed on 41 grids. Using camera traps is more effective for doing the observation without requiring direct encounters with wild animals. The parameters observed were the species of the asiatic golden cat's potential prey,

the relative abundance index of the asiatic golden cat and its potential prey, the habitat type around the camera traps were installed, and the activity pattern of the asiatic golden cat and its potential prey.

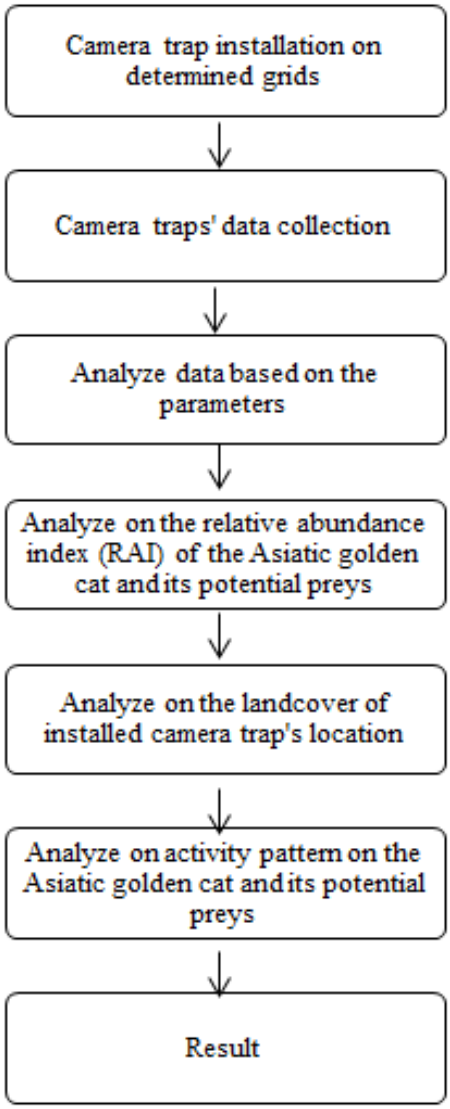

Figure 5. The flowchart research method of Relative Abundance of Potential Prey of The Asiatic Golden Cat (*Catopuma temminckii*) in The Batutegi Protected Forest Based on Camera Trap

3.3.1. The Research Parameters

The result from installed camera trap is photographs of identified animals compared with the result from Subagyo *et al*. (2013). According to Subagyo *et al*. (2013), 17 species of animals are potential prey for the asiatic golden cat, which is categorized by body size such as large-size with a body weight of more than 20 kg, medium-size with a body weight between 5 – 20 kg and small-size with body weight less than 5 kg, as follows sambar deer, wild boar, barking deer, mitered langur and pig-tailed macaque, long-tailed macaque, mouse deer, spotted dove, sumatran crested fireback, red junglefowl, grey-capped emerald dove, great argus, crested partridge, squirrels, murids, and chipmunks that commonly found in Way Kambas National Park. After identifying each species, the relative abundance indexes from the asiatic golden cat and its potential prey were calculated. The habitat type where the camera trap was installed was also observed so the habitat of the asiatic golden cat and its potential prey could be determined. The activity pattern between the asiatic golden cat and its potential prey was also observed to determine their encounter.

3.3.2. The Camera Traps Installation

The installation of camera traps using systematic purposive sampling by installing 41 camera traps out of 45 grids (Figure 4) with intervals ± 1,5 – 2 km with a 2 x 2 km grid. The camera trap installations were in the potential path of the wild cats, especially the sumatran tiger, and its potential prey. By selecting the sumatran tiger's potential path because the sumatran tiger has a significant role in the presence of other animals, including smaller wild cats, which can become its potential prey (Sunarto, 2010). Out of 41 camera traps, 30 were installed in the primary forest, 10 in the secondary forest, and 1 in the mixed crop.

Camera traps were installed at determined grids in February 2022 and all cameras were active simultaneously starting in March 2022. Camera traps are installed on tree trunks with a diameter of about 30 – 200 cm, a height of about 12 – 50 meters, and installed 30 – 50 cm from the ground level of the wildlife path. The camera traps are set to operate continuously for 24 hours by taking three series of photos with a 10-second difference consecutively. The quality of the camera traps' photographs is 12 megapixels using a motion sensor to record the movement of animals, plants, and humans. Camera traps are checked once a month for three months for battery and memory card replacement.

3.3.3. Data Analysis

The photographs from camera traps are identified by the morphology characterized and compared with the reference from *Panduan Identifikasi Jenis Satwa Liar Pada Mamalia* by the Ministry of Environment and Forestry (Kementerian Lingkungan Hidup dan Kehutanan) 2019 and *Burung liar Kawasan Hutan KPH Batutegi*. If the quality of the photographs is low and hard to identify, they will classify as unidentified photos. After the photographs are identified, then the photographs are analyzed by independent events to get independent photographs. According to O'Brien *et al*. (2003), the independent photograph is a photograph that meets these requirements:

1) Consecutive photographs from different individuals or species in the one-roll film;
2) Consecutive photographs from the same individuals or species in one roll film with 30 minutes of period or consecutive photos of different individuals if they can be distinguished clearly;

3) Nonconsecutive photographs from the same or different species in the one-roll film.

The independent photographs were analyzed by computing the relative abundance indexes of the asiatic golden cat and each species of its potential prey using the Zoological Society of London Camera Trap Analysis Package (ZSL CTAP) (Appendix 1) and presented descriptively. Furthermore, the condition of the habitat was analyzed descriptively, considering the impact on the presence of the potential prey. The number of independent photographs is also analyzed for the activity pattern between the asiatic golden cat and its potential prey to determine their overlaps.

3.3.4. The Relative Abundance Index (RAI)

Abundance is the number of each species available from all individuals in a community (Campbell & Reece, 2010). The relative abundance index (RAI) is the abundance of species at a location at a particular time with relative abundance values correlated with the actual density (Hutajulu, 2007). The relative abundance index indicates the estimated abundance based on photographs or videos, which may result in variations in the availability of each species. The relative abundance index of each species of The asiatic golden cat and its potential prey can be computed using a formula according to O'Brien *et al*. (2003).

$$RAI = \frac{n_i}{\Sigma TN} \times 100$$

RAI = Relative Abundance Index

n_i = number of independent photographs of species - i

ΣTN = number of trap nights

3.3.5. The Habitat Type

In this study, the habitat type is described by using spatial data. Spatial data represents the earth's surface appearance (Sekeon *et al*., 2016). There are two kinds of spatial data, vector and raster. This study uses raster data to display the earth's space as pixels (picture elements) as grids. The resolution on the raster determines the actual size of the earth. In other words, the smaller the size of the displayed earth, the higher the solution. Raster is better because it also displays the soil type, vegetation, and soil moisture. Raster provides higher accuracy than the vector. Raster is displayed as a map with information on every pixel (Sekeon *et al*., 2016). This study uses raster data made by YIARI in 2022 and then displayed on maps using QGIS.

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V. CONCLUSION AND SUGGESTION

5.1. The Conclusion

In conclusion, this study has several findings:

1. There are twelve species of the asiatic golden cat's potential prey in Batutegi Protected Forest, namely: barking deer, wild boar, sambar deer, pig-tailed macaque, mitered langur, long-tailed macaque, mouse deer, red junglefowl, murids, great argus, crested partridge, and squirrel.
2. The highest abundance index of the asiatic golden cat's potential prey is 12.25 is pig-tailed macaque and the lowest is 0.18 is red junglefowl. The relative abundance index of pig-tailed macaque is higher than the asiatic golden cats.
3. The higher abundance index of potential prey of asiatic golden cat than the relative abundance index of asiatic golden cat in the Batutegi Protected Forest indicates that the potential prey for asiatic golden cats is still well fulfilled.

5.2. The Suggestion

Based on the findings from this study, it is recommended to conduct further research through analysis of the asiatic golden cat's scat to find out the specific preferences of the asiatic golden cat's prey in the Batutegi Protected Forests. Another recommendation based on this research is to promote community awareness and strengthen the regulation for accessing the Batutegi Protected Forest to anticipated from human-induced damages, ensuring the long-term preservation of its ecological integrity and biodiversity.

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