



# REPORT ACTI VITY RESULTS

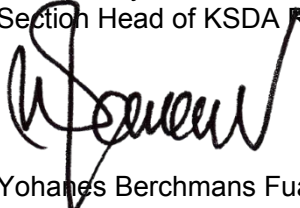
Prey Animal Inventory and Habitat Assessment of  
Komodo Dragons (*Varanus komodoensis*)  
In Torong Padang in  
2024

East Nusa Tenggara KSDA Center, Region II  
KSDA Division

## ENDORSEMENT SHEET

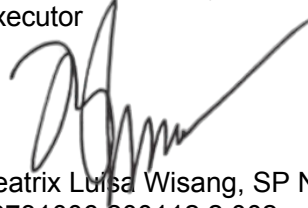
On behalf of the Head of the East Nusa Tenggara (NTT) Natural Resources Conservation Center, hereby approves and endorses the Activity Implementation Report (LPK) Inventory of prey animals and komodo dragon habitat studies on the Torong Padang Peninsula in 2024 with the methods, costs and implementation schedule as described in this implementation report.

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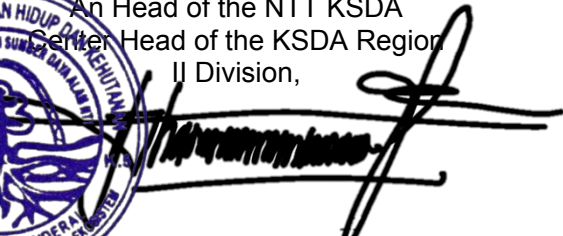
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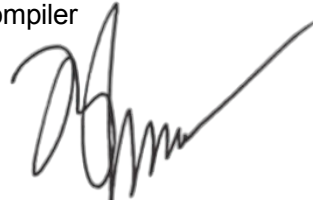
## INTRODUCTION

We are grateful to God Almighty because thanks to His faithful love, this Activity Implementation Report (RPK) of prey animal inventory and komodo dragon habitat study in Torong Padang Peninsula Year 2024 can be completed properly. This document is made as a guideline for activities to be carried out. This document is expected to be used as material and information in the process of implementing activities in the context of efforts to protect high-value conservation areas to support life in a sustainable manner.

This Activity Implementation Plan is prepared as a frame of reference in the implementation of activities in the field. We expect criticism and suggestions for the successful implementation of activities. With all humility, we hope that this Activity Implementation Plan will be useful for all parties in need.

Ruteng, November 2024

Compiler



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## I. INTRODUCTION

### A. Background

One of the rare animals living in East Nusa Tenggara that is currently the center of attention is the Komodo dragon (*Varanus komodoensis*). Komodo dragons are a national animal that is the pride of the Indonesian people through Presidential Decree No. 4 of 1992. Komodo dragons are highly protected both nationally and internationally because they are considered important in science. Based on the Minister of Environment and Forestry Regulation Number: P.92/MENLHK/ETJEN/KM.1/8/2018, Komodo dragons are included in the list of protected animals. Internationally, Komodo dragons are categorized as Vulnerable by IUCN and included in Appendix I of CITES. The Komodo dragon is generally known to exist only in Komodo National Park, but it is actually found in Flores Island and its surroundings. Although the species is known to exist, data on its population is still incomplete and difficult to track.

Komodo monitor lizards are the largest lizards in the world, with adult males reaching 3 m in length and weighing 87 kg (Jessop et al., 2006). Although it is unusual for terrestrial reptiles to be apex predators, the absence of mammal carnivores and their large size make adult Komodo monitor lizards apex predators in their ecosystem (Auffenberg, 1981; Ciofi, 2002; Jessop et al., 2006; 2007). Currently, the distribution of Komodo monitor lizards is restricted to five small islands in Eastern Indonesia, with four island populations located within Komodo National Park (TNK) and another fragmented population on the island of Flores (Ciofi & De Boer, 2004). Thus, long-term monitoring is recommended to understand the status of Komodo monitor lizard populations so that management authorities can identify threatened populations and take action to save them (Jessop et al., 2007).

According to Auffenberg (1981), the distribution of Komodo dragons includes western Flores Island, Komodo Island, Rinca Island, Padar Island, Gilimotang and Nusa Kode Island. The distribution on Flores Island can be grouped into two main parts, namely in the western part of Flores Island from Labuan Bajo to Nangalili and on the North Coast from Dampek to the west of Riung (BBKSDA NTT-KSP, 2019, Ciofi, 2002). In the NTT KSDA Center area, several conservation areas are the habitat of these animals, namely: Wae Wuul CA and TWA Tujuh Belas Pulau, including the Pota HL Essential Ecosystem Area, Longos Island, Torong Padang, Golo Mori, Kerita Mese and Nanga Bere. .

Based on the Minister of Environment and Forestry Regulation Number: P.106/MENLHK/SETJEN/KUM.1/2018, Komodo dragons are included in the list of protected animals. Internationally, Komodo dragons are categorized as Vulnerable by IUCN and included in Appendix I of CITES. The existence of this animal is generally only known in the Komodo National Park area, but the actual condition is that this rare animal can also be found in the Flores Island area and its surroundings. Komodo is one of the animals included in the list of 25 priority endangered species, stipulated by the letter of the National Park Authority.

Decree of the Director General of KSDAE Number: SK.180/IV-KKH/2015 dated June 30, 2015 so that the population must be increased. Collecting data and information on Komodo dragons is important to determine the next steps and conservation strategies. The Torong Padang Peninsula is an area outside the conservation area (ex situ), monitoring the Komodo monitor lizard population is very necessary to determine its existence and estimate the current Komodo monitor lizard population in nature, especially on the Torong Padang Peninsula. Data and information obtained through this activity will be used in management as a consideration in making policies related to Komodo monitor lizards.

## **B. Objectives and**

The purpose of the prey animal inventory and habitat assessment of Komodo dragons on the Torong Padang Peninsula in 2024 is to monitor the population of Komodo lizards and prey animals of Komodo lizards on the Torong Padang Peninsula. While the objectives of this activity are:

1. To find out information on the distribution of Komodo lizards on the Torong Padang Peninsula.
2. To estimate value site occupancy (proportion of area occupancy area), density density and abundance of Komodo monitor lizards in the study area;
3. Obtain information on the type and distribution of prey animals and other animals;
4. Identify potential threats to the Komodo monitor lizard distribution area;

## **C. Basis Law**

1. Presidential Decree No. 4 of 1993, concerning National Animals and Flowers;
2. Law No. 5 of 1990 on the Conservation of Biological Resources and Ecosystems;
3. Law No. 41 of 1999 on Forestry;
4. Government Regulation No. 28 of 2011 on Nature Reserve Areas and Nature Conservation Areas;
5. Regulation of the Minister of Environment and Forestry Number 15 of 2021 on the Organization and Work Procedure of the Ministry of Environment and Forestry;
6. Regulation of the Minister of Environment and Forestry Number 17 of 2022 concerning the Organization and Work Procedure of the Technical Implementation Unit of the Directorate General of Natural Resources and Ecosystem Conservation;
7. Task Letter of the Head of the East Nusa Tenggara KSDA Center Number: ST.772/K.5/BKWII/PEG.3/11/2024 concerning carrying out Komodo monitor lizard (*Varanus komodoensis*) population monitoring activities outside conservation areas in Torong Padang and Wolo Tadho CA in 2024.

## II. METHODOLOGY

### A. Methods for Detecting the Presence of Komodo Lizards, Prey Animals and Other Animals Using Camera Traps

Camera traps have been the primary survey method for monitoring large mammal predators (Karanth & Nichols 1998; Trolle & Kery 2003; Karanth et al. 2004; Rosellini et al. 2008; Thorn et al. 2009). Camera traps are generally used to monitor populations of species that are very difficult to observe directly, especially because they are highly sensitive to human presence (Hariyadi et al. 2008; Karanth & Cellam, 2009). The utilization of camera traps to estimate the population size of wild animals has been applied to tigers (Karanth et al. 1994; Karanth and Nichols 1998; O'Brien et al. 2002), Javan Rhinos (Griffith 1993; Hariyadi et al. 2011). In principle, camera traps are used to detect the presence of the target animal under study. Although camera traps are generally used for mammal population monitoring, research shows that camera traps can also be used to detect the presence of large reptiles such as Komodo dragons (Ariefiandy et al. 2013).

The method used in monitoring the Komodo monitor lizard (*Varanus komodoensis*) population is by using camera traps. Camera traps are considered more efficient in terms of cost and time (Ariefiandy et al. 2013).

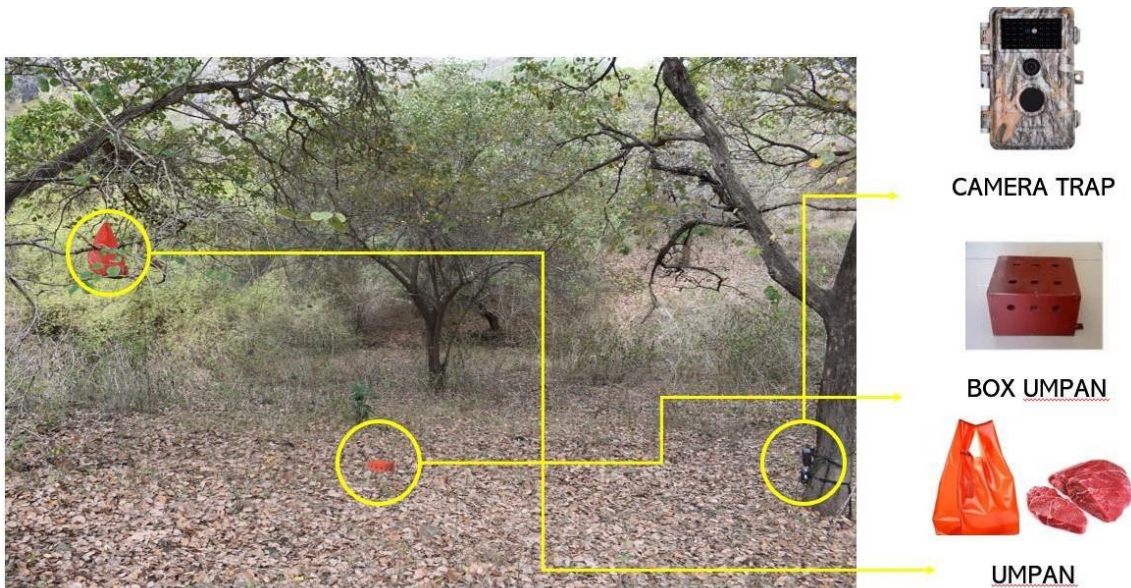
Monitoring of the Komodo monitor lizard (*Varanus komodoensis*) population was carried out from August 5, 2024 to August 14, 2024 on the Torong Padang Peninsula. At the monitoring location, 15 sampling points / camera trap installation points were determined with consideration of 1) reference from the 2016 Flores Komodo dragon expedition activities, 2) use of a 1km<sup>2</sup> grid (core home range area), 3) the area to be studied, 4) representation of habitat types preferred by Komodo monitor lizards, 5) information from the community (direct encounters), 6) resources, accessibility, and time.

At each sampling location, monitoring was conducted for 6 consecutive days (6 repetition sessions), resulting in 156 sessions of time interval periods for collecting data on the presence of Komodo dragons at each sampling location point. Thus, the overall sampling design provides 156 sessions of possible Komodo monitor lizard presence detection for each method used. Komodo monitor lizard presence data (both photos and videos) were recorded at each location for each time interval period.

Camera trap device (Blaze Video model A-252). The camera trap (A) was attached to a tree trunk at a height of 40 cm from the ground and placed at a distance of 3-4 meters from the bait box (B) and hanging bait (C) with the aim of spreading the smell of meat to attract dragons (Figure 1). Camera traps were programmed to take 3 pictures each time an animal was detected and 1 15-second video. The time interval for taking pictures and videos was set to 15 minutes to avoid taking pictures and videos of the same animal continuously. The results of the data collection were written down

Tally Sheet (attached) as an analysis material in data processing.

The purpose of using this method is to determine the distribution of komodo lizards in the presence / absence of komodo lizards at the sampling point, so that information on the distribution of komodo lizards on the Torong Padang Peninsula is obtained in the form of data on the presence and absence of komodo lizards and their distribution maps. The use of camera traps is not only for komodo monitor lizards, but also to obtain information on the presence of prey species of komodo monitor lizards and other animals, both competing predators of komodo monitor lizards such as dogs (*Canis. Sp*) and water monitor lizards (*Varanus salvator*) and animals that are not competing predators of komodo monitor lizards such as gosong birds and other bird species.



Installation of camera traps

## B. Analysis to Estimate Site Occupancy, Density and Abundance of Komodo monitor lizards

Analysis of the value of the proportion of area occupied by Komodo monitor lizards used the site occupancy model approach, with the help of the PRESENCE 2.4 program (Hines, 2006; <http://www.mbr-pwrc.usgs.gov/software/presence.html>). The analysis model used is the Royle/Nichols Heterogeneity model (Royle and Nichols, 2003) The analysis is based on a modification of the closed population Mark-Recapture method by MacKenzie et al. (2002; 2006). The model estimates population size based on temporally replicated presence/absence data at several study sites. The model assumes that heterogeneity in detection probability among study sites is due to heterogeneity in abundance, meaning that higher detection probability values indicate a tendency for higher abundance values as well (Royle and Nichols, 2003).

The single season model was chosen because when data collection is carried out in a short period of time on a regular basis without any long breaks that can interfere with data collection efforts, so that weather conditions are relatively the same (MacKenzie et al., 2002). The basic assumptions that must be fulfilled in the single season model include:

(1) the study site is free from change for the duration of sampling, (2) the probability of occupancy is the same for all areas, (3) species are well identified, (4) the probability of detection of a species in one area is independent of other areas (MacKenzie et al., 2002; MacKenzie & Kendall, 2002).

### **C. Monitoring of Ungulate Prey Animals**

Various methods have been used to conduct direct surveys of animals (Buckland et al. 2001). However, for some species there are problems with capture techniques, so indirect surveys by finding signs of their presence (pellets, droppings, nests, tracks, etc.) can provide better data.

Dung counts using line transect, quadrat sampling or line transect-based sampling methods have been used extensively to estimate the numbers, often to provide population density indices, of a wide range of vertebrate species including deer, kangaroos, elephants, possums, pigs and goats (Forsyth et al. 2003; Marques et al. 2001). The advantage of this method is that it is not influenced by avoidance behavior or the presence of dense vegetation that reduces the probability of encounter. The transect method is not difficult to implement in the field, and multiple species can be recorded at the same time. This method can be applied to monitor the ungulate prey of Komodo lizards, namely Timor deer (*Cervus timorensis*), buffalo (*Bubalus bubalis*), wild boar (*Sus scrofa*).

In the Komodo dragon monitoring activities on the Torong Padang Peninsula, the number of transects was determined as many as 15 points scattered in the study area, each camera trap has 2 transects. The length of each transect is 150 meters with a total of 30 plots, each plot is 5 meters apart with the size of each plot 3.14m<sup>2</sup> so that there are 900 observation plots. The results of the data collection are written in the form of a Tally Sheet (attached) as an analysis material in data processing.

The data output from this method is a prey density index value (not an absolute value) calculated by dividing the number of dung groups in all transects by the number of transects so as to obtain the average value of dung per transect which is then converted into dung group density per hectare.

### **D. Identification of Potential Threats to Lizard Distribution Areas Komodo dragons**

The existence of most Komodo dragon populations on the island of Flores, which are located outside protected areas, is very vulnerable to the impact of human activities, so immediate mitigation efforts are needed to avoid extinction or wider reduction of Komodo dragon habitat on Flores Island in the future (Ariefiandy et al., 2021).

The Torong Padang Peninsula is one of the Komodo monitor lizard distribution areas with a status outside the conservation area (*ex situ*), with potential threats being the presence of dogs and water monitors. These two animals are competing predators for Komodo monitor lizards.

The method used to identify the potential threat of land use change is to use a cell phone to take pictures of the condition of the land use change area.

The method used to identify the potential threat of land use change is to use a cellphone to take pictures of the condition of the Komodo monitor lizard distribution area, while the potential threat of competing predators uses the presence/absence data from the camera trap.

Ideally, a more comprehensive method would have been used, but considering the availability of resources and time, it was only done by taking pictures from mobile phones and data from camera traps.

### III. IMPLEMENTATION ACTIVITY

#### A. Tools and Materials

Tools and materials used during the activity are:

No.	Name of Tools and Materials	Usage
1	Work Map	As a reference for location and location determination monitoring of the Komodo monitor lizard population
2	GPS	Saving geographic coordinates of the location monitoring the Komodo monitor lizard population
3	Compass	Determination of cardinal directions
4	Digital Camera	Documenting the results of activities
5	Camera trap	Documenting every komodo dragon recorded by a camera with a PIR (Passive infra Red) sensor with triggers in the form of movement or heat with the type of Bushnell
6	Binoculars	View the condition of the population monitoring area of Komodo dragon lizards
7	Talley sheet and field notebook + writing pad	Document field data
8	Meat Bait	As bait to bring komodo lizards to the observation site
9	Nylon Rope	To tie bait wrapped in plastic
10	Plastic bags and bait boxes	To store meat and to spread the stench of rotting meat to attract dragons
11	Timer	To determine the observation time
12	Socialization material	As a material to convey socialization
13	Projector	As a media for photo/video playback activities

Table 1. Tools and materials

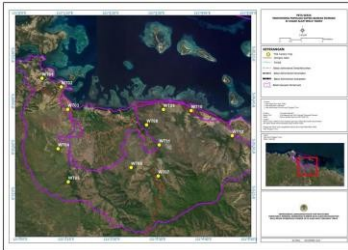
Additional information:



- a) Camera trap, the type of camera commonly used in the BBKSDA NTT working area is the Blaze Video A-252 model.



b) GPS, this tool is needed to know and mark the location where the camera trap is permanently placed, so that it will be useful for long-term population monitoring programs.



c) Map, required for guidance in camera trap positioning and sampling design activities.



d) Bait (meat), For each camera trap monitoring location, 2 Kilograms of bait meat is allocated. Bait is needed to attract Komodo monitor lizards around the camera trap location and also to attract Komodo dragons to the camera trap position, so that their presence can be detected by the camera trap.



e) Plastic bags for hanging bait, plastic bags are needed to store pieces of bait meat and then hang, to help decompose the meat and spread the stench of rotting meat to attract Komodo monitor lizards, preferably chosen in a striking color, so that later it is easier to recognize the location in the process of taking camera traps.

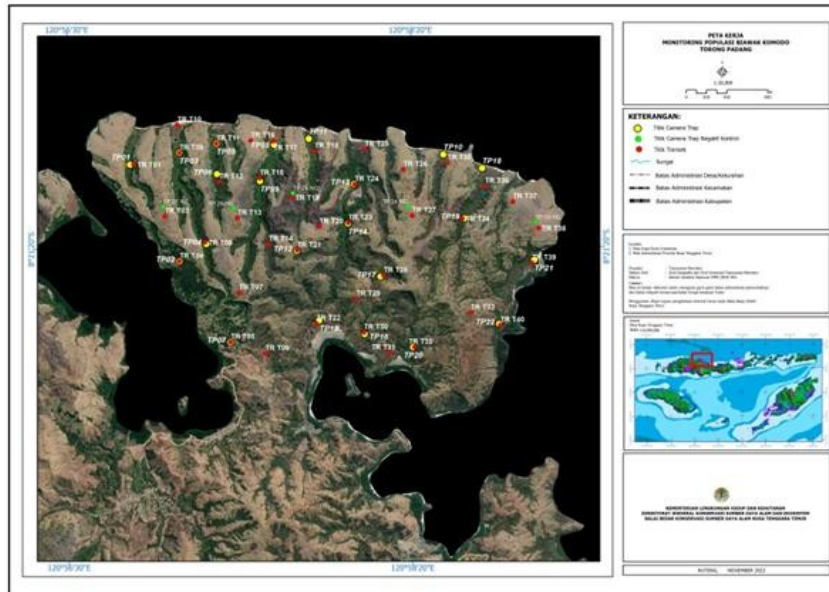


f) Bait box, a small box, a place to store bait in front, serves to attract Komodo Dragons to the front of the camera trap. It is recommended that the box size is not too small and made of strong material so that it cannot be eaten by Komodo monitor lizards and is not easily damaged / rusted.

Figure 2. Tools and materials

## B. Location

The location of the Komodo monitor lizard (*Varanus komodoensis*) population monitoring activity was carried out in an area administratively located in Sambinasi District, Ngada Regency, East Nusa Tenggara Province.



Map of camera trap installation locations on the Torong Padang Peninsula

## C. Implementation Team

The personnel for the implementation of this activity is planned to be 7 (seven) people as listed in table 2 below:

No	Name/NIP	Position
1	2	3
<b>A</b>	<b>Field/Section Personnel</b>	
1	Beatrix Luisa Wisang, SP./ 19731006 200112 2 002	Junior Expert PEH at KSDA Region II Division
2	Ferdinandus Boy Kali, S.Hut./ 19861119 202321 1 007	First Expert Extension Worker at Watunggong Resort
3	Yoseph Ricardus Rangga Wea, A.Md / 19911204 202321 1 021	Skilled PEH at Bajawa Resort
4	Wahid Fortuna Anwar / 19991019 202203 1 002	Beginner PEH at Bajawa Resort
<b>B</b>	<b>Resort Personnel</b>	
5	Dionisius Bruno Contends, S.Pi./ 19941009 20231 1 020	First PEH Expert at Riung Resort
6	Marselinus Helmanto / 19871011 202421 1 007	Manggala Agni at Riung Resort
7	Saverius Arifianto Djematu / 19920827 202421 1 024	Manggala Agni
8	Rizal Floresto Irawan / NIP. -	PPNPN at Riung Resort

Table 2. Activity Implementation Team

#### D. Time and Schedule of Implementation Activities

Monitoring implementation will be carried out for 7 (days) starting from August 05 to 11, 2024 as per the following schedule:

No	Implementation Stage	Activity Implementation Time						
		05 to 11 August 2024						
		05	06	07	08	09	10	11
1	Preparation of tools and materials							
2	Activity implementation							
3	Data recapitulation and analysis							

Table 3. Time and Schedule of Activity Implementation

#### E. Budget Details Costs

The details of the budget for this activity are as shown in table 4 below:

No	Description	Amount	Unit	Unit Price	Total Price
1	2	3	4	5	6
<b>A</b>	<b>Material Expenditure</b>				<b>Rp.13,210,000</b>
1	Tools and Materials	1	Keg	Rp.4,920,000	Rp.4,760,000
2	Personal use	10	Unit	Rp.250,000	Rp.2,500,000
3	Preparation Meeting Consumption	20	OH	Rp.50,000	Rp.1,000,000
4	Consumption of Result Discussion Meeting	20	OH	Rp.50,000	Rp.1,000,000
5	Duplication and binding of report	7	Exmp	Rp.50,000	Rp.350,000
6	Food for laborers (12 people x 6 days)	72	OH	Rp.50,000	Rp.3,600,000
<b>B</b>	<b>Other Non-Operational Goods Expenditure</b>				<b>Rp.7,200,000</b>
7	Labor Wages (12 people x 6 days)	72	HOK	Rp.100,000	Rp.7,200,000
<b>C</b>	<b>Rental/Transportation Expenditure</b>				<b>Rp.3,000,000</b>
8	Ground Vehicle Rental	1	Keg	Rp.3,000,000	Rp.3,000,000
<b>D</b>	<b>Ordinary Office Travel Expenditures</b>				<b>Rp.48,860,000</b>
9	Pre-Condition Team Travel (4 people x 3 days)	12	OH	Rp.300,000	Rp.3,600,000
10	Daily allowance for personnel from Division/Section (4 people x 10 days)	40	OH	Rp.400,000	Rp.16,000,000
11	Lodging costs for personnel from the Division/Section (4 people x 9 nights)	36	OH	Rp.200,000	Rp.7,200,000
12	Daily allowance for personnel from Resort (3 people x 10 days) + (1 person x 8 days)	38	OH	Rp.170,000	Rp.6,460,000

12	Daily travel allowance for Supervision Team (2 people x 4 days)	8	OH	Rp.400,000	Rp.3,200,000
13	Lodging for Supervision Team (2 people x 3 nights)	6	OT	Rp.400,000	Rp.2,400,000
14	Airfare for Supervision Team (2 people x 1 activity)	2	OT	Rp.5,000,000	Rp.10,000,000
<b>Total</b>					<b>Rp.72,270,000</b>

Table 4. Cost Budget Details

## F. Report

The report is prepared by the Implementation Team as documentation of the results of the activity and as an accountability material for the implementation of the activity.

#### IV. RESULTS OF THE ACTIVITY

##### A. Monitoring Komodo monitor lizards using *camera traps*

From the results of the installation of camera traps at 27 location points, it is known that as many as 5 camera trap points captured the presence of Komodo dragons, as shown in the table below

*camera trap points* that captured the presence of Komodo dragons, as shown in the table below:

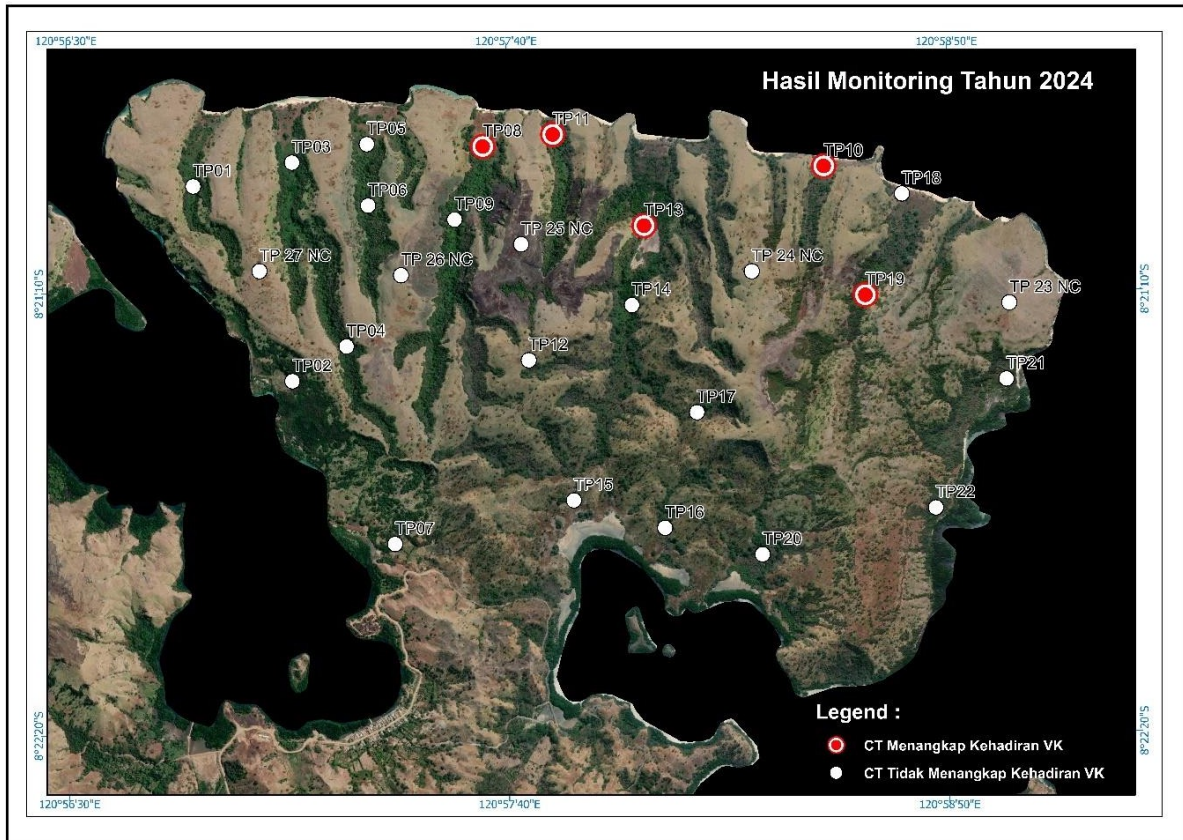
#### TALLY SHEET DATA CAMERA TRAP

Lokasi : Torong Padang Tahun: 2023

No	ID Camera	10/11/2024		11/11/2024		12/11/2024	
		pagi	sore	pagi	sore	pagi	sore
1	TP 01	0	0	0	0	0	0
2	TP 02	0	0	0	0	0	0
3	TP 03	0	0	0	0	0	0
4	TP 04	0	0	0	0	0	0
5	TP 05	0	0	0	0	0	0
6	TP 06	0	0	0	0	0	0
7	TP 07	0	0	0	0	0	0
8	TP 08	1	1	0	0	0	0
9	TP 09	0	0	0	0	0	0
10	TP 10	0	0	0	0	1	0
11	TP 11	0	0	0	0	0	1
12	TP 12	0	0	0	0	0	0
13	TP 13	0	0	0	0	1	0
14	TP 14	0	0	0	0	0	0
15	TP 15	0	0	0	0	0	0
16	TP 16	0	0	0	0	0	0
17	TP 17	0	0	0	0	0	0
18	TP 18	0	0	0	0	0	0
19	TP 19	0	1	0	0	0	0
20	TP 20	0	0	0	0	0	0
21	TP 21	0	0	0	0	0	0
22	TP 22	0	0	0	0	0	0
23	TP 23	0	0	0	0	0	0
24	TP 24	0	0	0	0	0	0
25	TP 25	0	0	0	0	0	0
26	TP 26	0	0	0	0	0	0
27	TP 27	0	0	0	0	0	0

Table 5. Komodo monitor lizard presence data

When compared to the previous year, the Komodo dragon population on the Torong Padang Peninsula is more difficult to find, so the distribution area is only in a few locations on the Torong Padang Peninsula with the following map:



Map of the distribution of Komodo lizards caught by camera traps

There are several images of Komodo monitor lizards that have been captured by camera traps:



Figure 5. Capture of Komodo monitor lizards

## **Analysis Result**

The estimated density of Komodo monitor lizards per camera trap has a value of 0.2633. The estimated value of the proportion of Komodo monitor lizard occupancy area in the study area on the Torong Padang Peninsula is 0.2315. While the estimated value of Komodo monitor lizard abundance in the Torong Padang Peninsula study area shows 7.11 and the estimated probability of detection is 0.1407.

The number of camera traps installed was 27 cameras with a distance of 500 meters between camera traps. Komodo dragon olfactory distance is 500 meters, with the detection distance of each camera overlapping and not overlapping each other, the camera detection radius is  $\pm 500$  meters.

From the results of the camera capture, it can be seen that the Komodo lizards on the Torong Padang Peninsula are relatively healthy, this is shown through photos at the base of the Komodo lizard's tail that looks fat (convex) not concave. As is known, based on several studies, the base of the tail of the Varanidae lizard family (monitor lizards) (including Komodo lizards) is a storage place for fat reserves (Ariefiandy et al, 2012). However, security of the Komodo monitor lizard population area is still considered to maintain the survival of the lizards.

## Discussion

Of the 27 camera trap installation points, there were 5 points that detected the presence of komodo lizards.

The results of the Presence analysis show that the estimated average density of Komodo dragons per camera trap during monitoring at the Torong Padang Peninsula study site in 2024 is  $0.26 \pm 0.12$  individuals with a 95% confidence level and the confidence interval value ranges from 0.05 - 0.32 individuals. While the estimated proportion of Komodo dragon occupancy area in the Torong Padang Peninsula study area during monitoring is  $0.23 \pm 0.09$  with a 95% confidence level, the confidence interval value ranges from 0% - 41%. Thus, about 23% or approximately a quarter of the study area in the Torong Padang Peninsula study site was occupied by komodo dragons during the monitoring activities.

The detection probability value of  $0.14 \pm 0.06$  with a 95% confidence level means that during the activity the probability of detecting the presence of dragons in each session is only 5% - 32%. This means that 23% of the area inhabited by komodo dragons during this activity, if a camera trap is installed for 6 sessions (3 days) of monitoring, the possibility of seeing komodo dragons around is only 17%. While the estimated population abundance of komodo lizards during this activity was  $7.11 \pm 3.34$  individuals with a confidence level of 95%, the total population ranged from 2 - 17 individuals. This shows that the Komodo monitor lizard population in the Torong Padang Peninsula study area is relatively difficult to find directly. However, periodic monitoring is needed to obtain population trend data so as to reach a conclusion on the condition of the Komodo monitor lizard population on the Torong Padang Peninsula.

The minimum number of Komodo dragon individuals known from monitoring activities carried out in the Torong Padang Peninsula study area in 2024, obtained from the data tabulation form in Form 2. Individual Estimation which is a direct count of each individual Komodo dragon caught in a camera trap. The minimum number of individual Komodo dragons in this activity is 6 Komodo dragons consisting of 1 Komodo dragon pup, 1 juvenile Komodo dragon and 4 adult Komodo dragons.

## B. Monitoring Lizard Prey Animals Komodo Dragons

From the results of camera capture, it can be seen that there are several animals that have the potential to become food animals for Komodo monitor lizards, including deer (*Rusa timorensis*), pigs (*Sus sacrofus*), cattle, long-tailed monkeys (*Macaca fascicularis*) (Figure 10.).



Deer (*Rusa timorensis*)



Pig (*Sus sacrofus*)



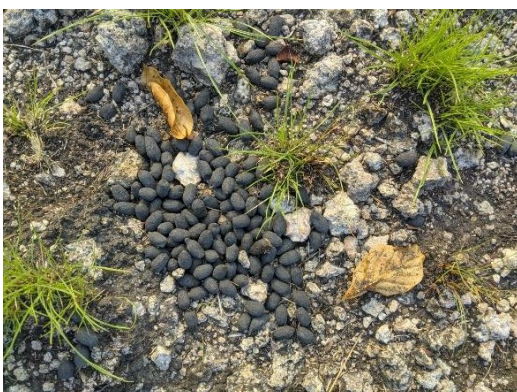
Cattle (*Bos taurus*)



Monkey (*Macaca fascicularis*)

Figure 6. Potential prey animals of Komodo dragons

Using the faecal count method (counting groups of animal feces on plots along the transect line. From 40 transect lines with a length of 150 meters, divided into 30 plots/transect with a plot area of 3.14 m<sup>2</sup>. Out of a total of 300 plots, only monkey dung was found with a density/hectare of  $53.1 \pm 14.1$ . The following is a photo documentation of animal dung found inside and outside the plots.



Deer dung (*Rusa timorensis*)



Monkey droppings (*Macaca*

*fascicularis*) Figure 7. Feces of animals preying on Komodo lizards

### C. Analysis Vegetation

Sampling intensity is a number that describes the ratio between the number of samples and the total population. Sampling intensity depends on the level of accuracy desired and the heterogeneity of the population at hand (Madyana, 1989). Boon and Tideman (1950) explained that forest groups with an area of 1,000 ha or more, the sampling intensity used should be 2%, while if less than 1,000 ha, the sampling intensity used should be 5-10%. Because Ontoloe Island is less than 1,000 ha, 358.6 ha, the IS used is 5%.

Based on the predetermined IS of 5% of the 800 ha area, one path was determined for each camera trap point with a total number of plots or measuring plots. With a list of plant species on the Torong Padang Peninsula as follows:

No	Species Name	Latin Name	Description
<b>A</b>	<b>Tree</b>		
1	Tamarind	<i>Tamarindus indica</i>	Not protected P.106
2	Pepper	<i>Piper nigrum</i>	Not protected P.106
3	Bael	<i>Aegle marmelos</i>	Not protected P.106
4	Indigo	<i>Indigofera tinctoria</i>	Not protected P.106
5	Pampa	<i>Miscanthus sinensis</i>	Not protected P.106
6	Kukun	<i>Schoutenia ovata</i>	Not protected P.106
7	Sandalwood	<i>Santalum album</i>	Not protected P.106
8	Load		Not protected P.106
9	Mbizar	<i>Kigelia africana</i>	Not protected P.106
10	Bawe		Not protected P.106
11	Tia		Not protected P.106
12	Ghelegi		Not protected P.106
13	Spruce	<i>Casuarinaceae sp.</i>	Not protected P.106
14	Bidara	<i>Ziziphus mauritiana</i>	Not protected P.106
15	Kemuning	<i>Murraya paniculata</i>	Not protected P.106
16	Tega		Not protected P.106
17	Lamtoro	<i>Leucaena leucocephala</i>	Not protected P.106
18	Noni	<i>Morinda citrifolia</i>	Not protected P.106
19	Porcupine	<i>Schleichera oleosa</i>	Not protected P.106
20	Matang Ikgang		Not protected P.106
21	Mbaring		Not protected P.106
22	Sambung Nyawa		Not protected P.106
23	Kapok		Not protected P.106

24	Coconut	<i>Cocos nucifera</i>	Not protected P.106
25	Damer		Not protected P.106
26	Rita		Not protected P.106
27	Kirinyuh	<i>Chromolaena odorata</i>	Not protected P.106
<b>B</b>	<b>Mangrove</b>		
28	Rengit		Not protected P.106
29	Resa		Not protected P.106
30	Welu Tasik		Not protected P.106
31	Banshi		Not protected P.106
32	Wuta		Not protected P.106
33	Pasi		Not protected P.106
34	Lasiruang		Not protected P.106
<b>C</b>	<b>Shrubs</b>		
35	Sukut		Not protected P.106
36	Mbra		Not protected P.106
37	Tride		Not protected P.106
38	Kembo		Not protected P.106
39	Piras		Not protected P.106
40	Toro Bolo		Not protected P.106
41	Kuku Laku		Not protected P.106
42	Wareng		Not protected P.106
43	Ganevo		Not protected P.106
44	Sarimate		Not protected P.106
45	Lili		Not protected P.106
46	Kebok		Not protected P.106
47	Mondo		Not protected P.106
48	Mamis		Not protected P.106
49	Granji		Not protected P.106
50	Kurun		Not protected P.106
51	Sasor		Not protected P.106
52	Leleng		Not protected P.106
53	Surunana		Not protected P.106
54	Warang		Not protected P.106
55	Matawara		Not protected P.106

Table 6. List of plants in Torong Padang Peninsula

## V. CONCLUSIONS AND SUGGESTIONS

Of the 27 cameras installed, 5 cameras captured the presence of Komodo monitor lizards, meaning that the Komodo monitor lizard population can still be found in the study area on the Torong Padang Peninsula. The proportion of occupied area in the study area on the Torong Padang Peninsula is  $0.23 \pm 0.09$  (95% CI = 4 - 41%) which means that approximately one quarter of the study area is inhabited by Komodo lizards with a detection probability of  $0.14 \pm 0.06$  (95% CI = 5 - 32%) which means that each session has a 14% probability of detecting the presence of Komodo dragons. The mean density of Komodo dragons in each camera trap was  $0.26 \pm 0.12$  (95% CI = 0.1 - 0.66) and the estimated abundance of Komodo lizards in the study area was  $7.11 \pm 3.34$  (95% CI = 3 - 17).

In the study area, there are animals that have the potential to feed Komodo monitor lizards, namely deer (*Rusa timorensis*) with a density per hectare of  $379.5 \pm 89.3$ . While there are animals that have the potential to become competing predators of Komodo monitor lizards from the results of camera capture in the form of dogs and water monitors.

In the study area, vegetation analysis was also conducted in 100 plots where there were 55 plant species ranging from shrubs, trees, to mangroves on the Torong Padang Peninsula.

Potential threats to Komodo dragons in the Torong Padang Peninsula habitat study are the presence of competing predators of Komodo monitor lizards in the form of dogs and water monitor lizards. As well as traditional hunting activities carried out by the Baar Tribe every 2 years. Although the intensity of customary hunting activities has been reduced, it is still a threat to Komodo monitor lizards because their prey animals have been hunted by humans.

## APPENDIX

### Appendix 1, Form 1, Raw Data

#### CAMERA TRAP DATA TALLY SHEET

Location: ToronQPadang      Year: 2023

FZSR/- DA TA      MTAM

*( diisi lengkap dengan jam )*

No.	Camera ID	a FT' "	Date	04f4212023		051212023		06M2?2023	
		..	Take	paqi	SOFP	paqi	sole	paqi	afternoon
1	TP 01	04/12/2023	06/12/2023						
2	TP 02	04/12/2024	06/12/2024						
3	TP 03	04/12/2025	06/12/2025						
4	TP 04	04/12/2026	06/12/2026					11.31	
5	TP 05	04/12/2027	06/12/2027						
6	TP 06	04/12/2028	06/12/2028						
7	TP 07	04/12/2029	06/12/2029	07.43, 07.59, 08.26					
8	TP 08	04/12/2030	06/12/2030				12.5T		
9	TP 09	04/12/2031	06/12/2031			10.31			
10	TP10	041212032	06M2?2032			7.2E			
11	TP11	041212033	06M2?2033				15,00		
12	TP12	041212034	06M2f2034						
13	TP 13	04/12/2035	06/12/2035	7.53				0925.0946	
14	TP14	041212036	06M2?2036		12.31				
15	TP15	041212037	06M2?2037						
16	TP16	041212038	06M2?2038						
17	TP17	041212039	06M2f2039						
18	TP18	04/12/2040	06/12/2040						
19	TP19	04/12/2041	06/12/2041	14.25.14.51.15.09					
20	TP20	04/12/2042	06/12/2042						
21	TP21	04/12/2043	06/12/2043						
22	TP22	04/12/2044	06/12/2044						
23	TP23	04/12/2045	06/12/2045		12.34				
24	TP24	04/12/2046	06/12/2046						
25	TP25	04/12/2047	06/12/2047						
26	TP26	04/12/2048	06/12/2048						
27	TP27	04/12/2049	06/12/2049						

Appendix 2, Form 2, Individual Estimation

CAMERA TRAP DATA TALLY SHEET

Location M.ToronQPadanQ

FORM 2 : ESTIMASI INDIVIDU

[ diisiurut dengan kode alfabet, A, B dst... ]

No	ID Camera	Date	Date	04/12/2023		05/12/2023		06/12/2023	
		Pasanq	Take	paqi	afternoon	paqi	afternoon	paqi	afternoon
1	TP 01	04/12/2023	06/12/2023	C		E		E	
?	TP 02	04/12/2024	06/12/2024						
	TP 03	04/12/2025	06/12/2025						
4	TP 04	04/12/2026	06/12/2026				C A1		
*	TP 05	04/12/2027	06/12/2027						
E	TP 06	04/12/2028	06/12/2028						
7	TP 07	04/12/2029	06/12/2029	B1					
E	TP 08	04/12/2030	06/12/2030			C 02			
9	TP 09	04/12/2031	06/12/2031			D2			
10	TP 10	04/12/2032	06/12/2032			E3			
11	TP 11	04/12/2033	06/12/2033			C F3			
11	TP 12	04/12/2034	06/12/2034						
1E	TP 13	00/12/2035	06/12/2035	G1			E H3		
14	TP 14	04/12/2036	06/12/2036	C I1					
1?	TP 15	04/12/2037	06/12/2037						
1E	TP 16	04/12/2038	06/12/2038						
17	TP 17	04/12/2039	06/12/2039						
1E	TP 18	04/12/2040	06/12/2040						
19	TP 19	04/12/2041	06/12/2041	C J3					
20	TP 20	04/12/2042	06/12/2042						
21	TP 21	04/12/2043	06/12/2043						
21	TP 22	04/12/2044	06/12/2044						
2E	TP 23	04/12/2045	06/12/2045	C K1					
24	TP 24	04/12/2046	06/12/2046						
2?	TP 25	04/12/2047	06/12/2047						
2E	TP 26	04/12/2048	06/12/2048						
27	TP 27	04/12/2049	06/12/2049						

Number of individuals

Child: 5  
 Rema(i): 2  
 a: Oew: 4  
 asa: 11 individuals  
 Total :

Appendix 3, Form 3, Occupancy Data

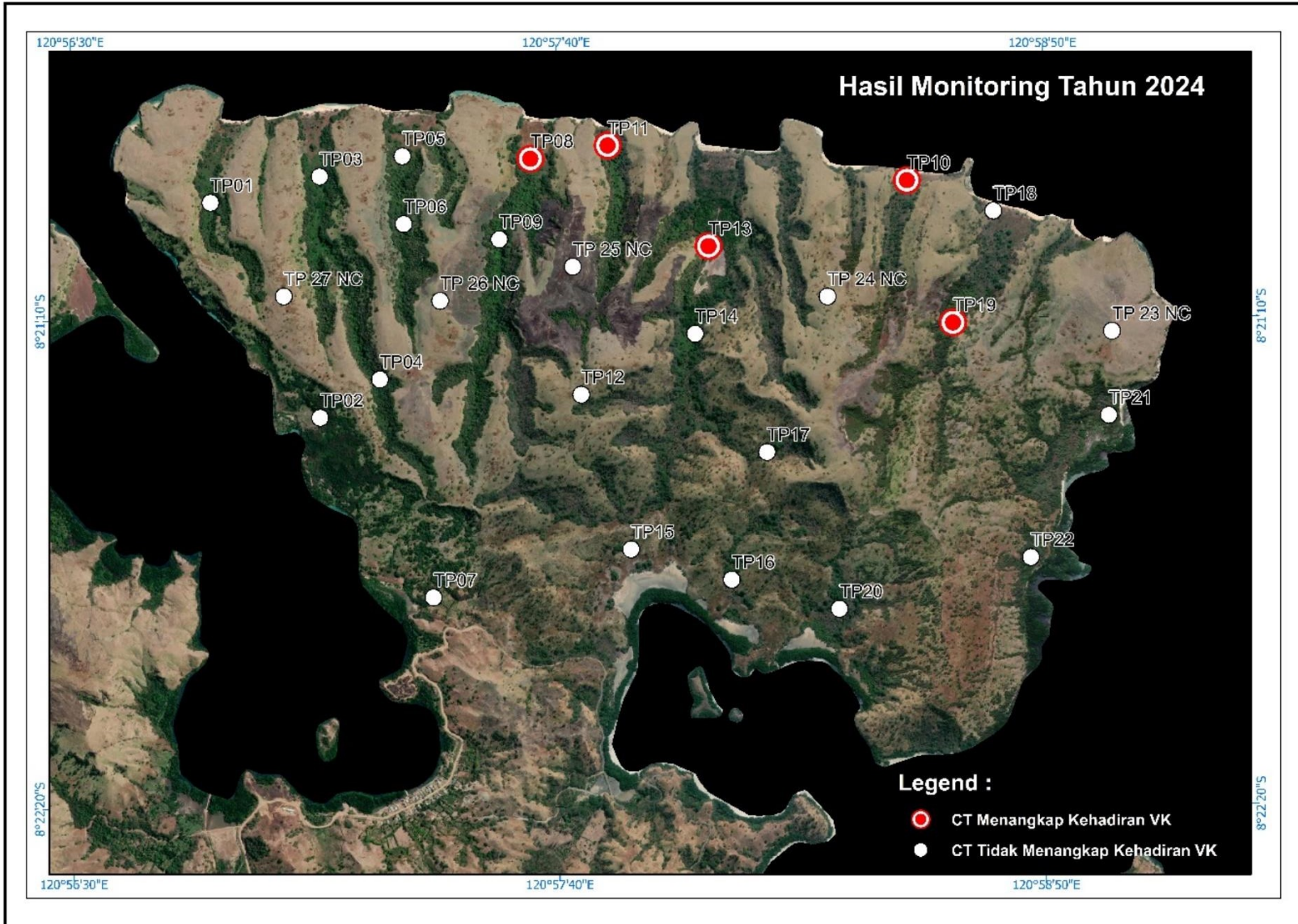
TALLY SHEET DATA CAMERA TRAP

Lokasi : Torong Padang Tahun: 2023

**FORM 3 : DATA OCUPANCY**  
*( diisi data kehadiran komodo, 0= tidak ada, 1= ada. )*

No	ID Camera	04/12/2023		05/12/2023		06/12/2023		Total Count	Manyet	Anjing	B. Decubelang	Kucing	B. Kutilang	B. Garang	B. Piko Eloqan	Londak	Babi Hutan	B. Kacamata	Salvatar	Ular Pitan
		pagi	sore	pagi	sore	pagi	sore													
1	TP 01	0	0	0	0	0	0	0	1	1										
2	TP 02	0	0	0	0	0	0	0												
3	TP 03	0	0	0	0	0	0	0	1		1	1	1							
4	TP 04	0	0	0	0	1	0	1												
5	TP 05	0	0	0	0	0	0	0						1						
6	TP 06	0	0	0	0	0	0	0						1						
7	TP 07	1	0	0	0	0	0	1			1				1					
8	TP 08	0	0	0	1	0	0	1												
9	TP 09	0	0	1	0	0	0	1												
10	TP 10	0	0	1	0	0	0	1	1			1								
11	TP 11	0	0	0	1	0	0	1												
12	TP 12	0	0	0	0	0	0	0								1				
13	TP 13	1	0	0	0	1	0	2								1	1			
14	TP 14	0	1	0	0	0	0	1												
15	TP 15	0	0	0	0	0	0	0									1			
16	TP 16	0	0	0	0	0	0	0												
17	TP 17	0	0	0	0	0	0	0												
18	TP 18	0	0	0	0	0	0	0												
19	TP 19	0	1	0	0	0	0	1										1		
20	TP 20	0	0	0	0	0	0	0												
21	TP 21	0	0	0	0	0	0	0												
22	TP 22	0	0	0	0	0	0	0						1					1	1
23	TP 23	0	1	0	0	0	0	1					1							
24	TP 24	0	0	0	0	0	0	0												
25	TP 25	0	0	0	0	0	0	0												
26	TP 26	0	0	0	0	0	0	0												
27	TP 27	0	0	0	0	0	0	0												

Appendix 4, Distribution of CTs that captured the presence of Komodo monitor lizards



## Documentation

### 1. Preparation Meeting with residents



### 2. Camera Trap Setting



### 3. Camera Trap Installation



### 4. Traditional Ceremony of Pintu Manuk



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