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CHARACTERISTICS OF RATS AND ECTOPARASITES ON ANIMAL QUARANTINE HEALTH IN PORTS

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ABSTRACT

Rats are wild animals that can cause disease. Diseases that can be caused by Toxoplasma caused by parasites. One that can be transmitted from rat urine, saliva, feces and fleas. This research is a qualitative research that uses a descriptive observational approach. Identification was carried out at the Kendari Class II KKP Laboratory. The disease is directly bitten by ectoparasites in the body of mice (fleas, fleas, ticks and mites). The study was conducted by observing at the same time (point time approach) which included all rats in the Perimeter area of the People's Harbor Area, Nusantara Port, Ferry Port and Bungkutoko Port. 100 traps were set and placed scattered around in the Perimeter area. The catch was carried out in the afternoon and taken in the morning. The rats and ectoparasites obtained were then identified. In the trap taking in April obtained as many as 30 tails. The rats found were Norvegicus, Mus Muscular and Hundred diardi species. The number of ectoparasites found was 29 types of pinja. In the trap taking in June, 18 individuals were found. Ectoparasites were found with Norvegicus species with 156 fleas, Hundred diardi with 2 fleas. Conclusion The rats in the people's port and Ferry had the highest number of rats and had the highest number of extoparsites compared to the ports of Nusantara and Bungkutoko..

Keywords Rats, Characteristics, Ectoparasites.

INTRODUCTION

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Penulis korespodensiRats are wild animals that often exist with human life. The high population of rats can have an impact on losses in various areas of human life. One of them has a big impact on the health sector. In the health sector, rats can be a reservoir for several pathogens that cause disease in humans. Rat urine and saliva can cause leptospirosis. Bites of fleas on the body of mice, can cause bubonic plague. In addition, rats can also transmit, including murine typhus, salmonellosis, richettsial pox, rabies, and trichinosis (Annashr 2017).

Handling of animals at the port, especially for the animal quarantine and

* Penulis korespodensi

health section. One of the animals that can transmit disease transmission in the port is rats. Menurur (Raharjo and Wijayanti 2021) Plague/sampardi disease is caused by the zoonotic bacterium Yersinia pestis, usually found in small mammals and their fleas. Rats are wild animals that can cause disease. Diseases that can be caused by Toxoplasma caused by parasites. One that can be transmitted from rat urine, saliva, feces and fleas. According to Kijlstra et.al 2008, an active mouse control program was able to reduce the prevalence of toxoplasmosis in pigs, thus preventing the transmission of toxoplasmosis to humans.

Rats are part of the rodents that carry a lot of losses, one of which is described on page 1, in addition to agriculture and animal husbandry because rats are pests or diseases. Diseases caused by various disease agents such as viruses, rictetsia, bacteria, protozoa, fungi or worms that can be transmitted directly through contact or bites or indirectly. Rats can be a reservoir for zoonotic diseases such as protozoan parasites such as toxoplasmosis, babesiosis and leishmaniasis (Seifollahi et.al 2016).

Jurnal Sultra SainsSeveral factors that influence the development of rats are the type of food, the composition of the goods, the temperature and humidity. Foods that are often liked by humans such as carbohydrates, proteins, fats and making nests are not far from food sources (Mayasari 2013). The presence of rats in the port area is very risky to health, both for humans and animals/livestock. This research can be used as a precautionary measure for rodet and vector communicable diseases in ports related to the density of rats and their extoparsites in the port.

The spread of bubonic plague in Indonesia cannot be separated from the role of ports as entry points for the flow of transport, passengers and goods. It has the potential as a gateway for the transformation of the spread of diseases that have an impact on public health so that with the quarantine, new emerging diseases can be identified, as well as re-emerging diseases. The potential for the spread of the disease is the impact of rapid advances in information technology and transportation, free trade, and rapid population mobility between countries and regions (Priyotomo 2015).

In the field of animal husbandry as a pest in livestock, especially in poultry. Diseases can be caused by various disease agents such as viruses, rickettsiae, bacteria, protozoa, fungi or worms that can be transmitted directly through contact or bites of rodents. In addition, rats can also indirectly through ectoparasite vectors

such as fleas, fleas, mites and ticks. Mice can be a zoonotic reservoir such as protozoan parasites such as toxoplasmosis, babesiosis and leishmaniasis (Seifollahi et al 2016).

The presence of port area rats is a risk factor for public health and animal/livestock health problems. This research can be used as an early warning for rodet and vector communicable diseases in ports related to the density of rats and their ectoparasites. This article aims to measure the success rate of catching rats, identify rat species and ectoparasites.

MATERIAL AND METHOD

This research was conducted on April and June 2022 in the People's Harbor Area, Nusantara, Ferry and Bungkutoko. Identification was carried out at the Kendari Class II KKP Laboratory. This research is a qualitative research that uses a descriptive observational approach.

The tools used in this research are mouse trap, looper, pliers, wire, comb, microscope, ruler, scales, object glass, petridish, flea suction. The materials used in this study were rat box, chloroform, plastic canton, cotton

Research Procedures

- The samples taken were rats and ectoparasites that were caught and found during the study.
- Catching rats using liver traps containing corn bait. The use of traps is installed in the afternoon and morning. In the morning the traps are taken and the traps containing rats will be replaced with new traps, each port is installed in duplicate as many as 25
- The sample was taken purposively with the form of activity in the form of a rat survey using a single live trap
- The captured rats were anesthetized using Chloroform at a dose of 0.02 – 0.05 mg/kg.
- Furthermore, identification of mice was carried out
- The results of the identification found extoparasites that can be seen in the microscope

Research Variables

Variables observed in rats were body length (cm), body weight (grams), type of rat and extoparasites. Data processing is based on the results of the identification of rats against ectoparasites caught in the port. The calculation of the number of positive rat traps is carried out to determine the success of catching and the formula for calculating trap success:

$$= \frac{\text{Number of Positive Rat Traps}}{\text{Numberof Traps Installed x Day of Arrest}} X\ 100$$

RESULT AND DISCUSSION

Result

Based on the results of the installation in April, the traps carried out at the Ferry port had the most rats. There were 30 rats that **contained** ectoparasites, which can be seen in table 1. The body length measurements of male rats ranged from (9.2 to 23 cm) and females ranged from 17.5 to 20 cm. The results showed that the body weight of male rats ranged from 190 to 520 grams and female rats ranged from 150 to 290 grams. Species The type of rat obtained was R Norvegicus

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Table 1 Results of Identification of Rats at the Harbor in April

No	Gender	Body Length (cm)	Weight (Gram)	Ectoparasite	Desc
1.	Male	19,3	520	-	6
2.	Male	9,2	402	-	5
3.	Male	23	280	-	-
4.	Female	18	220	-	-
5.	Female	17,5	150	-	2
6.	Male	20	400	-	-
7.	Male	14,5	190	-	-
8.	Male	13	200	-	-
9.	Female	17	230	-	-
10.	Male	20	330	-	-
11.	Female	18	290	-	-
12.	Female	18	100	-	-
13.	Male	19	200	-	-
14.	Male	21	250	-	13
15.	Male	18	230	-	-
16.	Female	20	290	-	4
17.	Female	15	100	-	-
18.	Male	19	200	-	-
19.	Male	20	370	-	-
20.	Male	9,2	400	-	-
21.	Male	19	200	-	-
22.	Male	21	250	-	-
23.	Female	18	290	-	-
24.	Female	20	290	-	-
25.	Female	18	290	-	-
26.	Male	9,2	402	-	-
27.	Male	19	200	-	-
28.	Male	21	250	-	-
29.	Male	20	400	-	-
30.	Male	9,2	402	-	-

Body length measurements of male rats ranged from (13 to 18 cm) and females ranged from 15 to 18 cm). Body weight in male rats ranged from 200 to 230 grams and 100 grams in females. The rat species obtained were R. rattus Diadi.

The body length of male rats ranged from (13 to 18 cm) and females ranged from 15 to 18 cm). Body weight in male rats ranged from 200 to 230 grams and 100 grams in females. Species The type of rat obtained by Mus Domesticus.

The results of the installation in June of traps carried out at the ports of Rakyat, Nusantara, Ferry and Bungkutoko contained 18 rats and ectoparasites can be seen in table 5. The body length of male rats ranged from (9.2 to 23 cm) and female (13.5 to 20 cm). ,1 cm). Body weight in male rats ranged from 200 to 520 grams and females 100 to 330 grams. The rat species is R Norvegicus and has extoparasites.

Table 2. Results of Identification of Rats at the Harbor in June

No	Gender	Body Length (cm)	Weight (Gram)	Ectoparasite	Desc
1.	Male	23,	520	-	21
2.	Male	9,2	402	-	32
3.	Male	23	280	-	80
4.	Female	18	220	-	21
5.	Female	17,5	150	-	2
6.	Male	20	400	-	-
7.	Male	14,5	190	-	-
8.	Male	13	200	-	-
9.	Female	17	230	-	-
10.	Female	22	330	-	-
11.	Female	22	290	-	-
12.	Female	13,5	100	-	-
13.	Male	19,5	200	-	-
14.	Male	21,5	250	-	-
15.	Male	18,5	230	-	2

Body length measurements of male rats ranged from (13 to 18.5 cm) and females ranged from 13.5 cm). Body weight in male rats ranged from 190 to 230 grams. The rat species obtained by R. rattus Diadi and has extoparsite

DISCUSSION

Based on the results obtained, the density level of rats in the perimeter area in April was 30 rats. The success of catching rats at ports in the perimeter area is an illustration of the relative density of the rat population in that location. The success of catching rats shows a low density of rats as seen in table 1. The results of the study in April found that the rat species were R Norvegicus, rattus Diadi and Mus Musculas.

Characteristics of the species R Norvegicus Large body size, weight 300 grams, snout nose (blunt), ears (small covered with short hair), eyes (small). Tail (dark upper part, lower part light), tail shorter than body, hair (coarse brown scattered irregularly in growth, belly hair gray to white) Zain et.al 2012. Species Mus Domesticus body size (small slender) , weighs 15 grams , snout nose (taper), ears (large, small eyes). Tail (small, plain dark), hair (shiny brown, shiny gray) Mulyadi 2016. Characteristics of Rat species R. rattus Diardi small body size, weight 200 grams, snout nose (pointy), ears (large without short hair)), eyes (large and prominent), tail (dark plain), hair (gray to black color, fine hair) Suryanto 2006.

The rats caught came from the canteen and snack stalls. This indicates that rats enter the stall in search of food. Rat species caught were R. rattus Diadi and R Norvegicus. The rat species index at the Rattus Diardi people's port was obtained in the canteen section and could not be obtained elsewhere. Rat species R Norvegicus in the sewer section. The sex of the rats caught in this study were mostly female. Female rats are easier to catch because female rats are more often out of the house looking for food for their young, while male rats are more often in their nests to defend the area to defend the area (Ernawati et.al 2013).

Male rats (12.5%) were more commonly caught than female rats (6.25%) for this study. Some of the results captured by mice were positive for extoparsites. Male rats in the rat species R Norvegicus have the most types of ectoparasites while in the Mus Musculas species have the few extoparasites. The type of extoparasite that was found was the type of flea. This shows that in the harbor area the perimeter shows

that there is a zoonotic disease spread in rats. According to Wijayanti et.al 2018, a high rat population in an area is one of the risk factors for the transmission of zoonotic diseases such as moist leptospirosis (Annashr et.al 2017).

Four of the 30 mice were infected with the extoparasite. Each infected rat harbored a large number of exoparasites R. norvegicus (2.5%) and Rattus Diardi (0.8%) infected with ectoparasites. Type of extoparsite infected with pinja (Xenopsylla cheopis), the head of Xenopsylla cheopis with light yellow color. The most indexed ports found extoprasites are at the Ferry port and the People's Harbor compared to the Nusantra port and Bungkutoko port.

Picture 1. Xenopsylla cheopis in April

In June, the density of rats decreased, the number of rats found in the perimeter of 18 individuals. The rat species caught were R Norvegicus and R. rattus Diadi. Six of the 18 mice were infected with the extoparasite. Each infected rat harbored a large number of exoparasites R. norvegicus (6.9%) and Rattus Diardi (1.3%) infected with ectoparasites.

Picture 2. Xenopsylla cheopis in June

Catching rats at the Nusantara port is an illustration of the rat population in that location. The success of the rat density is slightly seen in table 1. When using traps to control house mice, there are several things that need to be considered,

including: rats have a trap-syness trait, which is an event where rats do not want to enter the trap provided. At the beginning of trapping the rats were easy to catch, but at the next trapping the rats were difficult to trap. Greaves in Smith recommends that traps should only be used for 2-4 times of trapping (Darmawansyah 2008).

Results of Rat Catching in the Harbor in April

Table 3. Success of Traps in People's Rakyat

Time Implementation	Trap Installed	Rat Caught	Succsses Trap %
Day 1	25 trap	4 tail	16
Day 2	25 trap	4 tail	16
Day 3	25 trap	1 tail	4
Day 4	25 trap	0 tail	0
Amount	100 trap	9 tail	

Source: Primary Data 2022

Table 4. Success of Traps in People's Nusantara

Time Implementation	Trap Installed	Rat Caught	Succsses Trap %
Day 1	25 trap	3 tail	12
Day 2	25 trap	1 tail	4
Day 3	25 trap	0 tail	0
Day 4	25 trap	0 tail	0
Amount	100 trap	4 tail	

Source: Primary Data 2022

Table 5. Success of Traps in People's Ferry

Time Implementation	Trap Installed	Rat Caught	Succsses Trap %
Day 1	25 trap	10 tail	40
Day 2	25 trap	5 tail	20
Day 3	25 trap	1 tail	4
Day 4	25 trap	0 tail	0
Amount	100 trap	16 tail	

Source: Primary Data 2022

Results of Identification of Rats at the Port in June

Table 3. Success of Traps in People's Rakyat

Time Implementation	Trap Installed	Rat Caught	Succsses Trap %
Day 1	25 trap	1 tail	4
Day 2	25 trap	0 tail	0
Day 3	25 trap	0 tail	0
Day 4	25 trap	0 tail	0
Amount	100 trap	9 tail	

Source: Primary Data 2022

Table 3. Success of Traps in People's Nusantara

Time Implementation	Trap Installed	Rat Caught	Succsses Trap %
Day 1	25 trap	0 tail	0
Day 2	25 trap	0 tail	0
Day 3	25 trap	0tail	0
Day 4	25 trap	3 tail	12
Amount	100 trap	3 tail	

Source: Primary Data 2022

Table 3. Success of Traps in People's Ferry

Time Implementation	Trap Installed	Rat Caught	Succsses Trap %
Day 1	25 trap	2 tail	8
Day 2	25 trap	4 tail	16
Day 3	25 trap	0 tail	0
Day 4	25 trap	3 tail	12
Amount	100 trap	9 tail	

Source: Primary Data 2022

Table8 . Success of Traps in People's Bungkutoko

Time Implementation	Trap Installed	Rat Caught	Succsses Trap %
Day 1	25 trap	2 tail	8
Day 2	25 trap	0 tail	0
Day 3	25 trap	0 tail	0
Day 4	25 trap	0 tail	0
Amount	100 trap	0 tail	

Source: Primary Data 2022

CONCLUSION

The rats at the Rakyat and Ferry ports had the highest number of rats and had a high number of extoparsites compared to the Nusantara and

Bungkutoko ports. The mice we get are male and female mice. The species are R. Hundred diardi, R Norvegicus, Mus muscukar,

SUGGESTION

It needs to be done every 3 months in dealing with the density of rats, in order to always carry out control efforts that can suppress and avoid the breeding of rats.

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