Health Information : A Survey Study of Rat Vector in the Working Area of The Port Health Office Class II, Tarakan City

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ABSTRACT

Rats are carriers and breeding grounds for a variety of parasites. The existence of a large population of rats can cause zoonotic diseases. This research is a survey and identification of the presence of rats in the Tarakan Class II Port Health Office Juwata Tarakan Airport and Port Working Area as an effort to prevent zoonotic disease caused by rat vectors. This research is descriptive with quantitative data types, measuring the presence of rats for 4 days and identification of rat species using survey and observation data collection methods. The results showed that the rats caught were still in low numbers with the types of rats caught being *Rattus rattus* and *Rattus novergicus*. Observation of the area showed that poor sanitation conditions, the density of piles of goods, sewerage, and the distance between the trash can and the canteen were opportunities for rats.

Keywords: Rat, *Rattus rattus*, *Rattus novergicus*, zoonotic diseases

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ABSTRAK

Tikus adalah pembawa dan tempat berkembang biak berbagai parasit. Keberadaan populasi tikus yang besar dapat menyebabkan penyakit zoonosis. Penelitian ini merupakan survei dan identifikasi keberadaan tikus di Kantor Kesehatan Pelabuhan Kelas II Tarakan Wilayah Kerja Pelabuhan dan Bandara Juwata Tarakan sebagai upaya pencegahan penyakit zoonosis yang disebabkan oleh vektor tikus. Penelitian ini bersifat deskriptif dengan jenis data kuantitatif, pengukuran keberadaan tikus selama 4 hari dan identifikasi jenis tikus menggunakan metode pengumpulan data survei dan observasi. Hasil penelitian menunjukkan bahwa jumlah tikus yang tertangkap masih sedikit dengan jenis tikus yang tertangkap adalah Rattus rattus dan Rattus novergicus. Pengamatan wilayah menunjukkan bahwa kondisi sanitasi yang buruk, kepadatan tumpukan barang, saluran pembuangan, dan jarak antara tempat sampah dengan kantin merupakan peluang bagi tikus.

Kata kunci: *Tikus, Rattus rattus, Rattus novergicus*, *zoonotic diseases*

INTRODUCTION

Rats are wild animals that are often encountered by humans. A high rat population can cause various losses in human life. One of the disadvantages can affect public health. Rats can be a reservoir or a mechanical vector of several pathogens that endanger public health. Urine in rats can be a transmission of leptospira bacteria that cause leptospirosis. It is reported that leptospirosis cases reach more than one million each year with 58,000 deaths worldwide. Ticks on the body of mice can be pathogenic bubonic plague. Other diseases that can be caused by rat vectors are murine typhus, salmonellosis, rich psial, rabies, and trichinosis.(1–3)

Rats are cosmopolitan animals that have high adaptability in all places.(4) In addition, mice have high reproductive abilities and are omnivorous animals that can eat all kinds of food.(4) The slum environment, poor sanitation, and enormous piles of garbage are the preferred habitat for rats.(5) This research was conducted at the Port Health Office Class II, Tarakan City.

Port is a meeting place for all activities, both people and goods leaving or entering a country through the entrance of the country with dense activities and high mobility. The high density and mobility have potential sites for the growth and development of rats. Malundung Port, Tengkayu Port I and Juwata Airport Tarakan are the working areas of the Class II KKP Tarakan.

Efforts to monitor the possible spread of vector-borne diseases at the work site of the Tarakan Class II Port Health Office. The Environmental Risk Control Section of the Tarakan Class II Port Health Office carries out rat vector control services, especially in the areas of the ports of Malundung, Tengkayu, and Juwata Tarakan international airport. This study aims to identify the presence of rats in the working area of the Class II Tarakan Port Health Office.

METHOD

This research is descriptive, by describing the number of rats found in the working area of the Tarakan Class II Port Health Office. The type of data in this study is quantitative, with survey data collection techniques. The study was conducted on December 3-6, 2021.

Rat traps were installed using salted fish, tempeh, bread, and coconut as bait. Rat traps were installed in the working area of the Malundung port, including the waiting room and harbor yard. In the Tengkayu work area, mouse traps are installed in the area, arrival terminal, departure terminal, counter, technical implementation unit office, Camfilo cafe, *Paman* stall, cooperative canteen, and grocery shop. In the working area of Juwata Tarakan international airport, mouse traps are installed in the area, airport yard, arrival terminal, terminal canteen, meteorological office, Pertamina office, runway office, cargo, and fire department.

RESULT

The surveys activity was carried out for 4 days, from December 3-6, 2021. Identification of the presence of rats in the working area of the Malundung port, including the waiting room and port yard. The results of the survey at Malundung port are presented in table 1. Meanwhile, the results of the survey in the working area of the Tengkayu port are presented in table 2 and the Juwata Tarakan international airport in table 3 below,

Table 1. Results of The Rat Survey in The Malundung Port Working Area on December 3-6, 2021

Trap installation location	Sum of traps	Sum of rats caught	Type of Rat
Waiting room	50	2	*Rattus rattus*
Port yard	50	3	*Rattus rattus*

Table 2. Results of The Rat Survey in The Tengkayu Port Working Area on December 3-6, 2021

Trap installation location	Sum of traps	Sum of rats caught	Type of Rat
Arrival terminal	15	0	-
Departure terminal	10	0	-
Counter	5	0	-
Technical implementation unit office	25	1	*Rattus rattus*
Camfilo cafe	5	1	*Rattus rattus*
Paman stall	5	1	*Rattus novergicus*
Cooperative canteen	5	2	*Rattus rattus*
Grocery shop	30	2	*Rattus novergicus*

Table 3. Results of The Rat Survey in The Juwata Tarakan International Airport Working Area on December 3-6, 2021

Trap installation location	Sum of traps	Sum of rats caught	Type of Rat
Airport yard	18	1	*Rattus rattus*
Arrival terminal	20	0	-
Terminal canteen	7	0	-
Meteorological office	10	0	-
Pertamina office	10	1	*Rattus rattus*
Runway office	10	1	*Rattus novergicus*
Cargo	10	3	*Rattus rattus*
Fire department	15	3	*Rattus novergicus*

Table 1 shows the survey results that the number of rats caught in the waiting room and port yard areas was five with the identified rat species being *Rattus rattus*. Table 2 shows the results of a survey in the working area of the Tengkayu port, seven rats were caught in the technical support unit office, Camfilo cafe, *Paman* stall, cooperative canteen, and grocery shop, with the identified rat species being *Rattus rattus* and *Rattus novergicus*. Meanwhile, table 3 explains the results of a survey in the working area of The Juwata Tarakan International Airport, nine rats were caught in the airport yard, Pertamina office,

runaway office, cargo, and fire departments with the identified rats being *Rattus rattus* and *Rattus novergicus*.

DISCUSSION

The survey results show that the types of rats identified in the working area of the Malandung port are *Rattus rattus*. Observations at the Tarakan Class II Health Office, rats caught in a trap close to the sewer at the port yard. Meanwhile, in the waiting room area, rats were caught in traps adjacent to the warehouse. This is following research conducted in the Seaport Area of Manokwari.(6) The results of another similar survey conducted at the Soekarno-Hatta port of Makassar in 2021, identified rats of the *Rattus* species. Rats like a slum, humid, and dense environmental conditions.(7) Judging from the rat density level, the working area of the Malundung port is in the low category. The survey activity in the working area of the Malundung port only identified the presence of rats and their types, but they did not identify ectoparasites.

The survey results show that the types of rats identified in the working area of the Tengkayu port are *Rattus rattus* and *Rattus novergicus*. The results of observations in the office area of the technical implementing unit, there are a lot of piles of goods with a room area that is not too large. Meanwhile, in the area of Camfilo cafe, Paman stall, Cooperative canteen, and Grocery shop, this is due to unsanitary environmental conditions, close to sewers, and garbage dumps. This is in line with survey activities conducted at the Kuala Tungkal port, that poor sanitation, and adjacent a garbage dump have the potential for the presence of rats.(8) Other similar studies were also found in the ports of Semarang, Kupang, and Maumere regarding poor sanitation.(9) While researching at the Cilacap Seaport, the presence of rats is influenced by the presence of a place to hide (a pile of goods in a room that is not too wide).(3) Judging from the rat density level, the working area of the Tengkayu port is in a low category. The survey activity in the working area of the Tengkayu port only identified the presence of rats and their types, but they did not identify ectoparasites.

The survey results show that the types of rats identified in the working area of the Juwata Tarakan International Airport are *Rattus rattus* and *Rattus novergicus*.Rats were found in the airport yard, Pertamina office, runaway office, and cargo dam fire department. Dense environmental conditions due to piles of passenger goods in cargo are potential habitats for rats. Places adjacent to sewers such as airport yards and runaway offices also have potential as rat habitats. This is following research on the presence of rats at Abdurrahman Saleh Probolinggo airport.(10) Judging from the rat density level, the working area of the Juwata Tarakan International Airport is in a low category. The survey activity in the working area of the Juwata Tarakan International Airport only identified the presence of rats and their types, but they did not identify ectoparasites.

CONCLUSION

The Tarakan Class II Port Health Office has made efforts to prevent and control rat vectors against zoonosis disease. The results of the survey activity showed that the density of rats was in the low category with the identified rat species being *Rattus rattus* and *Rattus novergicus*. Observation of the area showed that poor sanitation conditions, the density of piles of goods, sewerage, and the distance between the trash can and the canteen were opportunities for rats. Recommendations for further survey activities are to identify ectoparasites and success traps.

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