Advances in Bioscience and Biotechnology, 2026, 17(5), 169-184
https://www.scirp.org/journal/abb
ISSN Online: 2156-8502
ISSN Print: 2156-8456

Composition of Species, Distribution of Rodents and Insectivores (Small Mammals) in the Four Natural Regions of the Republic of Guinea

Namory Keita[1,2*], Sergey Yakovlev[3], Amara Cisse[3], Mikhail Korneev[4], Aboubacar Hady Toure[3], Raphael Dore[3], Ibrahima Baïlo Diallo[3], Abdoulaye Baldé[3], Mariama Bah[1,2], Souleymane Diallo[1,2], Bonaventure Kolie[2], Ibrahima Gouressy[5], Alphonse Keller Konkon[3], Siba Kalivogui[1,6]

[1]Applied Research Laboratory in Natural Sciences, University of Kindia, Kindia, Republic of Guinea
[2]Department of Biology, Faculty of Science, University of Kindia, Kindia, Republic of Guinea
[3]Guinean Institute of Applied Biological Research, Kindia, Republic of Guinea
[4]Russian Research Institute of Antipest "Microbe", Saratov, Russian
[5]Department of English Language, Faculty of Languages and Literature, University of Kindia, Kindia, Republic of Guinea
[6]Department of Mathematics, Faculty of Science, University of Kindia, Kindia, Republic of Guinea
Email: *keitanamory13@gmail.com

How to cite this paper: Keita, N., Yakovlev, S., Cisse, A., Korneev, M., Toure, A.H., Dore, R., Diallo, I.B., Baldé, A., Bah, M., Diallo, S., Kolie, B., Gouressy, I., Konkon, A.K. and Kalivogui, S. (2026) Composition of Species, Distribution of Rodents and Insectivores (Small Mammals) in the Four Natural Regions of the Republic of Guinea. *Advances in Bioscience and Biotechnology*, **17**, 169-184.
https://doi.org/10.4236/abb.2026.175012

Received: April 2, 2026
Accepted: May 26, 2026
Published: May 29, 2026

Abstract

Choosing this topic would contribute to a better understanding of the ecology of these near-threatened species and should facilitate the development of a sustainable conservation strategy. The objective of this study was to investigate the distribution of small mammals, their seasonal trends, and their abundance within the territory of the Republic of Guinea. This study was conducted from December 6, 2017, to August 4, 2019, in inhabited areas, Forests with sparse undergrowth or savanna, Agricultural ecosystems (vegetable gardens and plantations), Coastal areas and Forests. The traps were baited with dried fish and set from 7:00 pm. to 6:00 am, after which they were collected and taken to the laboratory for identification. These 1220 rodents, representing 14 species, were captured using snap traps or Sherman H.B. traps: *Mastomys erythroleucus* 412 (33.77%), *Rattus rattus* 361 (29.59%), *Mus musculus* 139 (11.39%), *Mastomys natalensis* 121 (59.91%), *Crocidura olivieri* 71 (5.81%), *Praomys daltoni* 31 (2.54%), *Cricetomys gambianus* 23 (1.88%), *Mus minutoides* and *Mus musculoides* have the same number of small mammals captured and the same percentage: 16 (1.31%), *Gerbilliscus guinea* 8 (0.65%), *Arvicanthis ansorgei and Lemniscomys striatus* have the same number of small mammals captured and the same percentage: 7 (0.57%), *Lophuromys sikapusi* 6 (0.49%) and *Praomys derooi* 2 (0.16%). A total of 643 rodents were captured during the dry season,

compared to 577 during the rainy season. The largest number of rodents was captured in the Kindia region (882), compared to 68 rodents captured in the Kankan region. Rodents do not appear to have a particular preference for any type of trap; however, by using both types of traps, different results can be obtained and utilized for further studies. Finally, 410 rodents were captured in occupied houses during the rainy season, compared with 234 rodents in the same type of habitat (occupied houses) during the dry season.

Keywords

Rodents, Insectivores, Abundance, Distribution by Habitat and Season, Republic of Guinea

1. Introduction

Small mammals, particularly rodents, play an important role in food webs and ecosystem dynamics; however, when their populations explode, they can cause damage to crops or stored goods, and under certain circumstances, pose significant risks to human health. Thus, these small mammals (rodents and marsupials) are particularly useful for studying the impacts of environmental variables due to their importance in natural systems as seed dispersers, pollinators, and predators of arthropods, as well as food sources for carnivores, birds of prey, and reptiles [1].

Thanks to its rich and varied ecosystem, the territory of the Republic of Guinea is home to countless plant and animal species, including a wide variety of mammals. Rodents are animals sensitive to the environmental conditions of their habitat, and a change in these conditions can lead to the proliferation of a species. Furthermore, certain rodent species live in close proximity to humans, even in human habitats sometimes as pests, but also, in recent years, as pets. This proximity to humans, and the planet's increasing urbanization are causes for concern, as these species carry diseases transmissible to humans, the incidence of which may increase significantly depending on changes in the living conditions of both these animals and humans [2].

Rodents interact with humans in ways that significantly influence the survival, distribution, and even proliferation of many of these species. At the same time, ecological changes in the environment including climate change, urbanization, deforestation, agricultural, and water management practices, significantly affect rodent population densities and spatial distribution, thereby facilitating their contact with humans [3].

Awareness of this loss of wildlife biodiversity due to hunting has led scientists from various disciplines to examine the issue of hunting and analyze wildlife conservation strategies [4]-[6]. The rapid population growth characteristic of sub-Saharan African countries is creating an imbalance between the demand for and supply of animal protein [7].

As a result, the natural resources that could ensure food security are under considerable human-pressure. In addition, climate change and desertification beyond unexpected agricultural disasters are making the population vulnerable and leading to the disappearance of flora and fauna [8].

According to [9], 47% of the world's population lived in urban areas in the 2000s, and by 2030, this percentage will rise to 60%. Thus, the global urban population will reach 2.1 billion. Such an explosion will inevitably benefit commensal rodents, especially those in informal settlements lacking adequate sanitation, housing, and infrastructure [10].

Biogeographic studies of these organisms are of interest for species conservation because they provide a better understanding of their interaction with the environment [11].

In Guinea, most of our knowledge is based on the study conducted by [12]-[14]. The first authors report the collection of 674 specimens (300 complete specimens from the Nimba region itself and 374 skull specimens from owl pellets collected 100 km north of the subprefecture of Gouéké [12]-[14].

The fauna and distribution of various groups of small mammals in West Africa, and particularly in the Republic of Guinea, have been studied by numerous researchers [15]-[19]. The available publications address issues of zoogeography and the abundance of rodent and insectivore species in urban areas and their surroundings. However, there is insufficient literature on the distribution of rodents and insectivores. Questions regarding the seasonal distribution of small mammals and species dominance in different biotopes are also insufficiently addressed [15]-[20] (**Figure 1**).

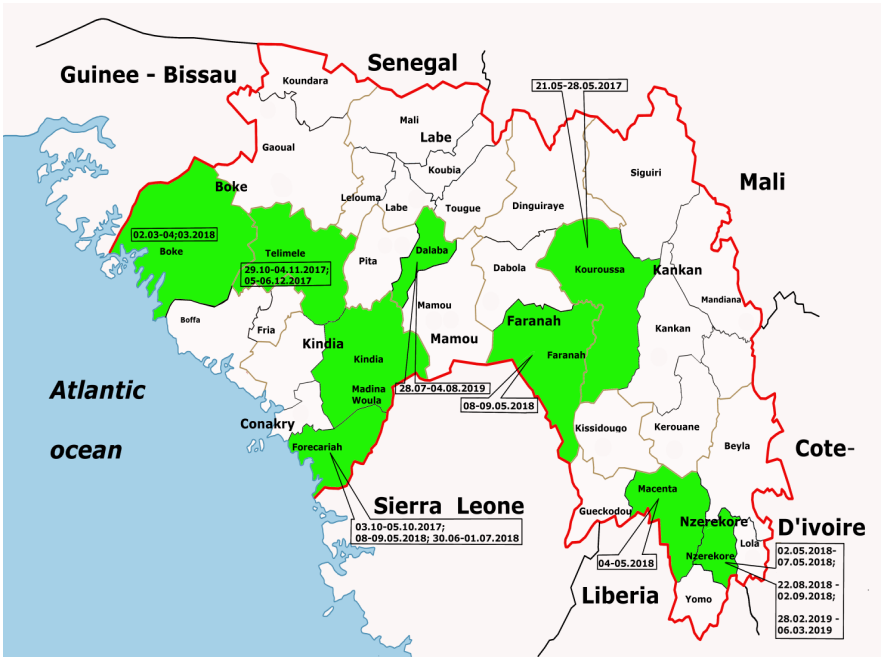

Figure 1. Map of small mammal trapping expeditions in the Republic of Guinea (2017-2019), Sergey, Y./GLONASS GPS satellite [20].

General objective

To study the distribution of small mammals and the seasonal dynamics of their abundance within the territory of the Republic of Guinea.

2. Materials and Methods

2.1. Study Environment

This study was conducted between 6 December 2017 and 4 August 2019 [20]. Guinea is divided into four (4) natural regions: Lower Guinea (Kindia), Middle Guinea (Labé), Upper Guinea (Kankan), and Forest Guinea (N'zérékoré) [21] (**Figure 2**) and eight (8) administrative regions: Kindia, Labé, Boké, Conakry, Faranah, Mamou, Kankan, and N'zérékoré [22]. These eight regions, nine prefectures were surveyed, namely: Boké, Kindia, Télimélé, Forécariah, Dalaba, Faranah, Kouroussa, Macenta, and N'zérékoré [22] (**Figure 3**).

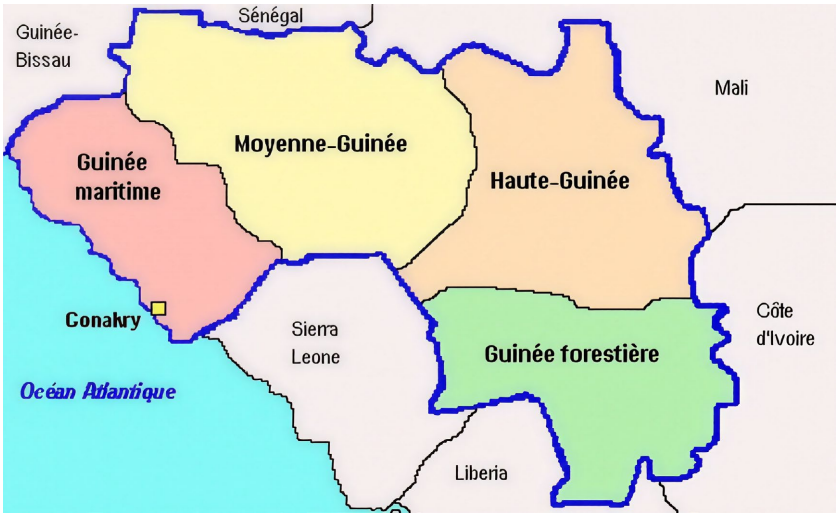

Figure 2. Natural regions of the Republic of Guinea [21].

Figure 3. Administrative regions of the Republic of Guinea [22].

The Republic of Guinea is located in the western part of the African continent and shares borders with Guinea-Bissau to the northwest, Senegal to the north, Mali to the northeast, Côte d'Ivoire and Liberia to the east, Sierra Leone to the south, and the Atlantic Ocean to the west. The coastline is approximately 320 km long [23]. The country covers an area of 245,860 km^2 [23] and has an estimated population of 17,521,167 in 2025 [24]. It has a tropical climate with two distinct seasons: a dry season and a rainy season. Annual rainfall ranges from 1200 to 1500 mm in inland regions and 4000 mm along the coast (https://ru.climate-data.org). Precipitation levels, humidity, air temperature, and vegetation conditions are the key factors determining the habitat of vectors and carriers of naturally occurring infectious diseases [23].

2.2. Materials

The biological material consists of rodents captured in various biotopes or habitats, and the sampling method was random. Small mammals were captured using snap traps or Sherman H.B. traps, and 7320 traps were used for this study.

2.3. Study Setting

The Guinean Institute for Applied Biological Research and the Laboratory for Applied Research in Natural Sciences served as the setting for the study.

2.4. Methods

This study was conducted from 2017 to 2019, and each habitat or region was surveyed using a standardized quantitative method. Trapping effort depended on environmental conditions, and traps were set between 7:00 p.m. and 6:00 a.m. The habitats surveyed included: sparse scrub or savanna forests, coastal areas, agricultural ecosystems (vegetable gardens and plantations), inhabited houses, and forests. The trapping data for each site and each season are presented in **Table 3**. The dates were not taken into account in this study. A total of 7320 traps were set, and the study covered 7789 nights.

2.5. Trapping and Identification

The bait used was dried fish.

During the study period, traps were set in the various habitats surveyed (regardless of the number of days) from 7:00 p.m. to 6:00 a.m., with strict instructions to residents not to touch them even if a rodent was caught. Very early in the morning, any catches were retrieved with the utmost safety precautions (gloves, alcohol, lab coat, plastic bag). These small mammals raise ethical concerns, but this depends on the type of study being conducted. In some cases, they are euthanized, whereas in others, they are released after infection.

According to the standard method recommended by: [13] [25], species identification was performed at the Mammalogy Laboratory of the Guinean Institute of Applied Biological Research (GIABR), Applied Research Laboratory in Natural

Sciences, taking into account coat color and texture, characteristics of the head, mouth, and dentition, tail shape, head and body length, and the number of teats in females. Once the species have been identified, the bodies or carcasses are buried to prevent further contamination.

2.6. Quantitative Analyses

The analyses are mainly descriptive and qualitative. The processed data were entered into spreadsheets (Excel 2010).

3. Results

The sampling focused on small mammals encountered and captured in the various habitats surveyed. A total of 1220 small mammals were captured between December 6, 2017, and August 4, 2019, using snap traps or Sherman H.B. traps. Three families of rodents and insectivores were identified: the *Muridae*, the *Nesomyidae*, and the *Soricidae*. These families comprise 14 genera and species.

Table 1 shows the most frequently captured rodent and insectivore species: *Mastomys erythroleucus* 412 (33.77%) and the least frequently captured: *Praomys derooi* 2 (016%) as well as their dominance index.

Table 1. Distribution of small mammals captured during the survey.

Species	Number of small mammals captured	Dominance Index (%)
Arvicanthis ansorgei (Thomas, 1910)	7	0.57
Lemniscomys striatus (Linnaeus, 1758)	7	0.57
Lophuromys sikapusi (Temminck, 1853)	6	0.49
Cricetomys gambianus (Waterhouse, 1840)	23	1.88
Gerbilliscus guinea (Thomas, 1910)	8	0.65
Mastomys natalensis (Smith, 1834)	121	9.91
Mastomys erythroleucus (Temminck, 1853)	412	33.77
Mus musculus (Linnaeus, 1758)	139	11.39
Mus minutoides (Smith, 1834)	16	1.31
Mus musculoides (Temminck, 1853)	16	1.31
Praomys daltoni (Thomas, 1892)	31	2.54
Praomys derooi (Vander Straetenand Verheyen, 1978)	2	0.16
Rattus rattus (Linnaeus, 1758)	361	29.59
Crocidura olivieri (Lesson, 1827)	71	5.81
Total	1220	99.95

Figure 4 shows a statistically significant difference between the dry season and the rainy season. In conclusion, fewer small mammals were captured during the dry season than during the rainy season.

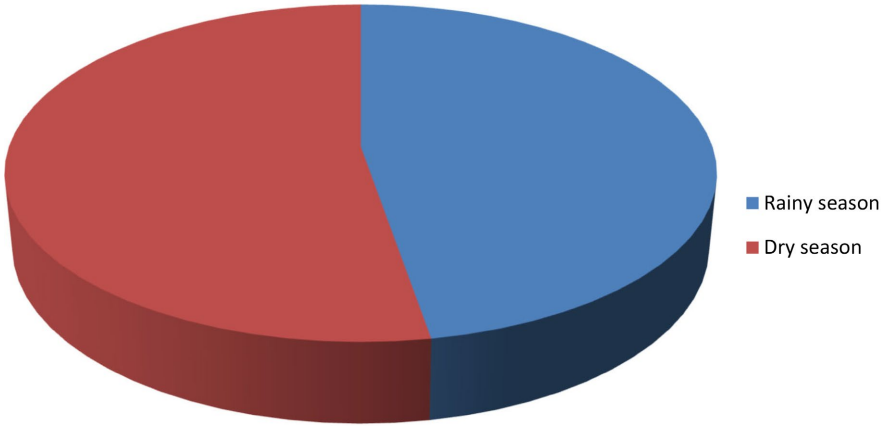

Figure 4. Distribution of small mammals captured by season (P-value = 0.0002).

Table 2 shows that *Mastomys erythroleucus* 179 (31.02%), *Rattus rattus* 171 (29.63%), *Mus musculus* 99 (17.15%) and *Mastomys natalensis* 50 (8.66%) were the most frequently captured and abundant species, while the least frequently captured were: *Crocidura olivieri* 26 (4.50%), *Praomys daltoni* 13 (2.25%), *Cricetomys gambianus* 10 (1.73%), *Mus musculoides* 9 (1.55%), and *Mus minutoides* 7 (1.21%). The least frequently captured species were: *Gerbilliscus guinea* 5 (0.86%), *Arvicanthis ansorgei* and *Lemniscomys striatus* 3 (0.51%) each, and *Lophuromys sikapusi* 2 (0.34%). The results obtained during the dry season are as follows: *Mastomys erythroleucus* 233 (36.23%), *Rattus rattus* 190 (29.54%), *Mastomys natalensis* 71 (11.04%), *Crocidura olivieri* 45 (6.99%), and *Mus musculus* 40 (6.22%) were the most frequently captured and abundant species, while the least frequently captured species were: *Praomys daltoni* 18 (2.79%), *Cricetomys gambianus* 13 (2.02%), *Mus minutoides* 9 (1.39%), and *Mus musculoides* 7 (1.08%). Those captured in small numbers were represented by: *Arvicanthis ansorgei*, *Lemniscomys striatus*, and *Lophuromys sikapusi*, 4 (0.62%) each; *Gerbilliscus guinea*, 3 (0.46%); and *Praomys derooi*, 2 (0.31%). A comparision of the number of small mammals captured during the two seasons shows that significantly more captures occurred during the dry season than during the rainy season, which may be due to environmental conditions.

Table 2. Distribution of species caught by season and their dominance index.

Species	Number of small mammals captured per rainy season	Dominance Index (%)
Arvicanthis ansorgei (Thomas, 1910)	3	0.51
Lemniscomys striatus (Linnaeus, 1758),	3	0.51
Lophuromys sikapusi (Temminck, 1853)	2	0.34
Cricetomys gambianus (Waterhouse, 1840)	10	1.73
Gerbilliscus guinea (Thomas, 1910)	5	0.86

Continued

Mastomys natalensis (Smith, 1834)	50	8.66
Mastomys erythroleucus (Temminck, 1853)	179	31.02
Mus musculus (Linnaeus, 1758)	99	17.15
Mus minutoides (Smith, 1834)	7	1.21
Mus musculoides (Temminck, 1853)	9	1.55
Praomys daltoni (Thomas, 1892)	13	2.25
Praomys derooi (Vander Straetenand Verheyen, 1978)	-	-
Rattus rattus (Linnaeus, 1758)	171	29.63
Crocidura olivieri (Lesson, 1827)	26	4.50
Total	577	99.92

Species	Number of small mammals captured per dry season	Dominance Index (%)
Arvicanthis ansorgei (Thomas, 1910)	4	0.62
Lemniscomys striatus (Linnaeus, 1758),	4	0.62
Lophuromys sikapusi (Temminck, 1853)	4	0.62
Cricetomys gambianus (Waterhouse, 1840)	13	2.02
Gerbilliscus guinea (Thomas, 1910)	3	0.46
Mastomys natalensis (Smith, 1834)	71	11.04
Mastomys erythroleucus (Temminck, 1853)	233	36.23
Mus musculus (Linnaeus, 1758)	40	6.22
Mus minutoides (Smith, 1834)	9	1.39
Mus musculoides (Temminck, 1853)	7	1.08
Praomys daltoni (Thomas, 1892)	18	2.79
Praomys derooi (Vander Straetenand Verheyen, 1978)	2	0.31
Rattus rattus (Linnaeus, 1758)	190	29.54
Crocidura olivieri (Lesson, 1827)	45	6.99
Total	643	99.93

Table 3 shows that more small mammals were captured in inhabited houses that in other habitats, with only a slight increase compared to forests.

Table 3. Distribution of small mammals captured by habitat, season, and trap type.

Habitats	Small mammals caught during the rainy season	Number of traps per catch
Inhabited areas	410	2032

Continued

Forests with sparse undergrowth or savanna	81	861
Agricultural ecosystems (vegetable gardens and plantations)	67	381
Coastal areas	18	240
Forests	1	50
Total	577	3564

Habitats	Small mammals caught during the dry season	Number of traps per catch
Inhabited areas	234	904
Forests with sparse undergrowth or savanna	171	1400
Agricultural ecosystems (vegetable gardens and plantations)	145	890
Coastal areas	88	412
Forests	5	150
Total	643	3756

This analysis of Table 4 highlights the diversity of rodents and insectivores in the Republic of Guinea. The highest number of captures was recorded in Kindia, followed by N'zérékoré, Boké, and Kankan.

Table 4. Distribution of small mammals captured by region and trap types.

Regions	Small captured mammals/Traps	Percentage of the total number of traps used (%)
Kindia	882/4964	17.76
Boké	128/548	23.35
N'zérékoré	142/1398	10.15
Kankan	68/410	16.58
Total	1220/7320	

An analysis of Table 5 allowed us to identify three families of rodents and insectivores: *Muridae*, *Nesomyidae* and *Soricidae*. These families comprise 14 genera and species (*Mastomys erythroleucus*, *Rattus rattus*, *Mastomys natalensis*, *Crocidura olivieri*, *Mus musculus*, *Praomys daltoni*, *Cricetomys gambianus*, *Mus minutoides*, *Mus musculoides*, *Arvicanthis ansorgei*, *Lemniscomys striatus*, *Lophuromys sikapusi*, *Gerbilliscus guinea*, *Praomys derooi*. *Cricetomys gambianus* should no longer be classified in the Muridae family but rather in the *Nesomyidae* family, within the *Cricetomyinae* subfamily.

Table 5. Distribution of small mammals captured by family and species.

Order	Families	Species
Rodentia	Muridae	*Mus musculus* (*Linnaeus*, *1758*)
		Mus minutoides (*Smith*, *1834*)
		Mus musculoides (*Temminck*, *1853*)
		Rattus rattus (*Linnaeus*, *1758*)
		Mastomys erythroleucus (*Temminck*, *1853*)
		Mastomys natalensis (*Smith*, *1834*)
		Lemniscomys striatus (*Linnaeus*, *1758*)
		Lophuromys sikapusi (*Temminck*, *1853*)
		Praomys daltoni (*Thomas*, *1892*)
		Praomys derooi (*Vander Straeten and Verheyen*, *1978*)
		Gerbilliscus guinea (*Thomas*, *1910*)
		Arvicanthis ansorgei (*Thomas*, *1910*)
	Nesomyidae	*Cricetomys gambianus* (*Waterhouse*, *1840*)
	Soricidae	*Crocidura olivieri* (*Lesson*, *1827*)

4. Discussion

The composition of rodent and insectivore populations across different habitats during our research was as follows: 14 species were recorded representing 3 families and one order.

Based on research conducted by [26] in certain areas of Guinea, 1660 rodents were found, comprising 11 species, including 997 *Mastomys ssp.*, 535 *Mus musculus*, 13 *Mus minutoides*, 19 *Praomys tulbergi*, 58 *Rattus rattus*, 6 *Tatera kempi*, 22 *Crocedura spp.*, 3 *Dasymys incomtus*, 2 *Hyllomyscus alleni*, 1 *Malacomys longipes ssp.*, and 4 *Uranomys ssp.*

Research conducted in 2021 by [27] led us to find 412 rodents belonging to 12 species.

The species encountered were: *Mastomys spp.* 167, *Rattus rattus* 166, *Mus musculus spp.* 22, *Cricetomys gambianus* 19, *Crocidura spp.*11, *Lemniscomys striatus* 10. In contrast, the least frequently encountered are: *Praomys rostratus* 9, *Pelomys fallax* 2, *Arvicanthis rufinus* 2, *Malacomys edvardsi ssp.* 2, *Lophuromys sikapusi* 1, and *Lophuromys ansorgei* 1.

When comparing our results to those reported by [28], a total of 587 rodents belonging to 18 species were captured: 299 *Mastomys spp.*, 169 *Rattus rattus*, 37 *Mus musculus* spp., 24 *Cricetomys gambianus*, 16 *Crocedura spp.*, 13 *Mus spp.*, 8 *Praomys spp.*, 5 *Hellosciurus gambiannus*, 3 *Myomys daltoni*, 3 *Lophuromys ansorgei*, 2 *Pelomys fallax*, 2 *Colomys goslingi*, 1 *Otomys tropicalis*, 1 *Arvicanthis*

abyssinicus, 1 *Arvicanthis rumruti pallescens*, 1 *Lophuromys sikapusi*, 1 *Lemniscomys spp.*, and 1 *Rattus norvegicus*. These species represent the bulk of the rodent fauna captured in the various habitats and locations surveyed in the prefecture of Kindia.

According to [29], the data collected in the various regions of Guinea were as follows: Forest Guinea: 738 specimens; Lower Guinea: 435 specimens; Upper Guinea: 427 specimens; and Middle Guinea: 255 specimens, for a total of 1,855 rodents representing 18 species.

For our study, we captured many more rodents during the dry season than during the rainy season, and food abundance in the capture areas may be an important factor affecting catch rates. The presence of Mastomys erythroleucus was notable in both seasons, whereas in African countries, contact between introduced and endemic commensal rodents dates back to the first half of the 20th century and was not observed until later. The current situation in Guinea will allow us to monitor this competition in real time.

Changes in rodent populations are highly dependent on human use of the environment. Changes in farming practices and land left fallow are all conditions that favor rodent outbreaks. Species reported in certain localities were not encountered during this study. These would be either species for which our traps were not suitable, rare species, or species whose range lay outside the study area. In contrast, there are many more species during the dry season, when high densities of rodents are found in our homes, savannas, plantations, and coastal areas, as shown by these results.

In the Djurdjura region of Kabylie, [30] recorded 85 individuals over 4015 trap-nights (2.1%). In the Béni Abbès region, [31] trapped a total of 177 rodents over 5815 trap-nights (3.04%). In the El Bayadh region, [32] also recorded an average of 3.04 individuals per 100 trap-nights (for 1500 trap-nights). The highest trapping effort was recorded in the Touggourt region (six species) by [33], with 78 captures over 1422 trap-nights, or 5.48%.

In the city of Cotonou, the following three species were the most abundant: *Muridae* (59.77%), *Rattus rattus* (59.77%), and *Mastomys spp.* (8.6%). (13.5%), as well as a shrew, *Crocidura olivieri* (8.6%). The capture of a large number of *Rattus rattus* is linked to its wide global distribution [34] and its documented presence in other African cities, such as Kinshasa (DRC) [35], Makurdi (Nigeria) [36], Harare (Zimbabwe), and Niamey (Niger) [37]. The relatively high number of *Mastomys spp.* and *Crocidura olivieri* is confirmed by recent studies in Africa [38].

This is due in part to a constant availability of food and continuous reproduction. However, it should also be noted that *Cricetomys gambianus* should no longer be classified in the *Muridae* family but rather in the *Nesomyidae* family, subfamily *Cricetomyinae*. However, this study should be expanded across the entire territory of guinea to better characterize small mammal populations on a semi-quantitative basis, improve understanding of habitat-species relationships, and produce more accurate distribution maps.

5. Conclusion

Following our research conducted in the four natural regions of the Republic of Guinea on Composition of Species, Distribution of Rodents and Insectivores in the four natural regions of the Republic of Guinea, several specimens were captured and classified into different families and species. A total of 1220 small mammals were captured, representing three families and 14 species. *Cricetomys gambianus* should no longer be classified in the *Muridae* family but rather in the *Nesomyidae* family, within the *Cricetomyinae* subfamily. Rodent populations in our various habitats were generally abundant and exhibited greater seasonal fluctuations than wild populations. This is due in part to a constant food supply and continuous reproduction. In contrast, there are many more species of rodents in our inhabited areas, Forests with sparse undergrowth or savanna, Agricultural ecosystems (vegetable gardens and plantations), Coastal areas and Forests. However, this study warrants expansion across the entire territory of Guinea in order to better characterize small mammal populations primarily on a semi-quantitative basis to clearly understand the habitat-species relationships, and to produce more accurate distribution maps. Based on our observations, the overall health situation does not seem to be particularly concerning. However, the presence of potentially dangerous zoonotic diseases, particularly for healthcare professionals, should not be overlooked. These diseases are transmitted from one host to another when conditions are favorable, which highlights their dependence on ecosystem disturbances. It is therefore likely that these diseases and their vectors circulate across borders, thereby increasing the risk of human infection. Wild animals, particularly rodents, constitute a major reservoir of zoonotic pathogens. It is therefore essential to identify and understand the routes of transmission between wildlife and humans.

Acknowledgements

We extend our heartfelt thanks to the Directors of the Russo-Guinean Research Center for Epidemiology and Prevention of Infectious Diseases (CRRGEPMI), to the Guinean Institute of Applied Biological Research (GIABR), the Laboratory for Applied Research in Natural Sciences (LARASCINA), and to all the staff at GIABR and the University of Kindia for their efforts.

Contribution of the Authors

- **Conceptualization:** Namory KEITA, Sergey YAKOVLEV, Amara CISSE, Makhail KORNEEV, Aboubacar Hady TOURE, Raphael DORE, Ibrahima Baïlo DIALLO, Abdoulaye BALDE.
- **Data curation:** Namory KEITA, Sergey YAKOVLEV, Amara CISSE, Makhail KORNEEV, Aboubacar Hady TOURE, Raphael DORE, Ibrahima Baïlo DIALLO.
- **Formal analysis:** Namory KEITA, Sergey YAKOVLEV, Amara CISSE, Makhail KORNEEV.

- **Investigation:** Namory KEITA, Sergey YAKOVLEV, Amara CISSE, Makhail KORNEEV, Aboubacar Hady TOURE, Raphael DORE, Ibrahima Baïlo DIALLO, Abdoulaye BALDE, Mariama BAH, Souleymane DIALLO, Bonaventure KOLIE, Ibrahima GOURESSY, Alphonse Keller KONKON.
- **Methodology:** Namory KEITA, Sergey YAKOVLEV, Amara CISSE, Makhail KORNEEV, Aboubacar Hady TOURE, Raphael DORE, Ibrahima Baïlo DIALLO.
- **Project administration:** Sergey YAKOVLEV, Makhail KORNEEV, Aboubacar Hady TOURE.
- **Supervision:** Sergey YAKOVLEV, Aboubacar Hady TOURE.
- **Validation:** Namory KEITA, Sergey YAKOVLEV, Amara CISSE, Makhail KORNEEV, Aboubacar Hady TOURE, Raphael DORE, Ibrahima Baïlo DIALLO.
- **Visualization:** Namory KEITA.
- **Editing original project:** Namory KEITA, Sergey YAKOVLEV, Amara CISSE, Makhail KORNEEV, Aboubacar Hady TOURE, Raphael DORE, Ibrahima Baïlo DIALLO.
- **Writing revision and editing:** Namory KEITA, Sergey YAKOVLEV, Amara CISSE, Makhail KORNEEV, Aboubacar Hady TOURE, Raphael DORE, Ibrahima Baïlo DIALLO, Abdoulaye BALDE, Mariama BAH, Souleymane DIALLO, Bona venture KOLIE, Ibrahima GOURESSY, Alphonse Keller KONKON, Siba KALIVOGUI.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding this article.

References

[1] Vieira, M.V., Olifiers, N., Delciellos, A.C., Antunes, V.Z., Bernardo, L.R., Grelle, C.E.V., *et al.* (2009) Land Use vs. Fragment Size and Isolation as Determinants of Small Mammal Composition and Richness in Atlantic Forest Remnants. *Biological Conservation*, **142**, 1191-1200. https://doi.org/10.1016/j.biocon.2009.02.006

[2] (2014) Eden-Emergingdiseases/Home. https://www.eden-fp6project.net/emerging-diseases

[3] Duplantier, J.M. (1992) Diseases Transmissible to Humans Associated with the Genera Arvicanthis and Mastomys (Rodents, Muridae). *OMS Meeting on Rodents Ecology, Population Dynamic and Surveillance Technology in Mediterrean Countries*, Genéve, 14-16 April 1992, 24 p.

[4] Dirzo, R., Young, H.S., Galetti, M., Ceballos, G., Isaac, N.J.B. and Collen, B. (2014) Defaunation in the Anthropocene. *Science*, **345**, 401-406. https://doi.org/10.1126/science.1251817

[5] Ripple, W.J., Abernethy, K., Betts, M.G., Chapron, G., Dirzo, R., Galetti, M., *et al.* (2016) Bushmeat Hunting and Extinction Risk to the World's Mammals. *Royal Society Open Science*, **3**, Article 160498. https://doi.org/10.1098/rsos.160498

[6] Kouakou, J., Gonedelé Bi, S., Bitty, E.A., Kouakou, C., Yao, A.K., Kassé, K.B., *et al.* (2020) Ivory Coast without Ivory: Massive Extinction of African Forest Elephants in Côte d'ivoire. *PLOS ONE*, **15**, e0232993. https://doi.org/10.1371/journal.pone.0232993

[7] FAO (2015) Regional Overview of Food Insecurity in Africa: Prospects More Favorable than Ever. FAO, 39 p.

[8] Bourque, A. (2000) Climate Change and Its Impacts. *VertigO*, **1**, 18 p. https://doi.org/10.4000/vertigo.4042

[9] Baker, P.J. and Harris, S. (2007) Urban Mammals: What Does the Future Hold? An Analysis of the Factors Affecting Patterns of Use of Residential Gardens in Great Britain. *Mammal Review*, **37**, 297-315. https://doi.org/10.1111/j.1365-2907.2007.00102.x

[10] Taylor, P.J., Arntzen, L., Hayter, M., Iles, M., Frean, J. and Belmain, S. (2008) Understanding and Managing Sanitary Risks Due to Rodent Zoonoses in an African City: Beyond the Boston Model. *Integrative Zoology*, **3**, 38-50. https://doi.org/10.1111/j.1749-4877.2008.00072.x

[11] Thiam, M., Bâ, K., Duplantier, J.M. (2008) Impacts of Climatic Changes on Small Mammal Communities in the Sahel (West Africa) as Evidenced by Owl Pellet Analysis. *African Zoology*, **43**, 135-143. https://doi.org/10.3377/1562-7020-43.2.135

[12] Heim, de B. and Lamotte, M. (1958) Ecological and Biological Study of *Cricetomys spp*-Estimation of Its Reproductive Potential in the Kaloum Peninsula, Republic of Guinea, Page: 3. First Phase of the Project (1986-1989). Project Report, 3-6. In: *Annals of Guinean Institute of Applied Biological Research*, Kindia, Republic of Guinea.

[13] Roche, J. (1971) Ecological and Biological Study of *Cricetomys spp*-Estimation of Its Reproductive Potential in the Kaloum Peninsula, Republic of Guinea, Page: 3. First Phase of the Project (1986-1989). Project Report, 3-6. In: *Annals of Guinean Institute of Applied Biological Research*, Kindia, Republic of Guinea.

[14] Gautun, J.C., Sankhon, I. and Tranier, M. (1984) Ecological and Biological Study of *Cricetomys spp*-Estimation of its Reproductive Potential in the Kaloum Peninsula, Republic of Guinea, Page: 3. First Phase of the Project (1986-1989). Project Report, 3-6. In: Annals of Guinean Institute of Applied Biological Research, Kindia, Republic of Guinea.

[15] Weber, N., Wistuba, R., Jonas, J.A. and Decher, J. (2019) New Records of Bats and Terrestrial Small Mammals from the Seli River in Sierra Leone before the Construction of a Hydroelectric Dam. *Biodiversity Data Journal*, **7**, e34754. https://bdj.pensoft.net/article/34754/instance/5122360/

[16] Kingdon, J., Happold, D., Butynski, T., Hoffmann, M., Happold, M. and Kalina, J. (2013) Mammals of Africa. Bloomsbury Publishing, 6. https://www.google.ru/books/edition/Mammals_of_Africa_Volume_I/_krrDwAAQBAJ?hl=ru&gbpv=1&dq=Kingdon,+J.,+Happold,+D.,+Butynski,+T.,+Hoffmann,+M.,+Happold,+M.+%26+Kalina,+J.+(eds)+2013.+Mammals+of+Africa+(6+vols).+Bloomsbury+Publishing,+London.&pg=PA4&printsec=frontcover

[17] Demby, A.H., Inapogui, A., Kargbo, K., Koninga, J., Kourouma, K., Kanu, J., *et al.* (2001) Lassa Fever in Guinea: II. Distribution and Prevalence of Lassa Virus Infection in Small Mammals. *Vector-Borne and Zoonotic Diseases*, **1**, 283-297. https://doi.org/10.1089/15303660160025912

[18] Popov, N.V. and Krasnoshchekov, A.A. (2001) Species Composition and Abundance of Ground-Dwelling Rodents in Rural Neighborhoods of Guinea. *RET-Info*, **3**, 24-26.

[19] Konstantinov, O.K., Inapogui, A.P., Labzin, V.V. and Popov, N.V. (2004) The Mammal Fauna of the Republic of Guinea as Reservoirs and Carriers of Pathogens of Natural Focal Infections. *Medical Parasitology and Parasitic Diseases*, **2**, 20-24.

[20] Sergey, Y. (2017) Map of Small Mammal Trapping Expeditions in the Republic of Guinea (2015-2020). GLONASS GPS Satellite.

[21] Jacques, L. (2014) Language Planning around the World. Natural Regions of the Republic of Guinea. https://www.axl.cefan.ulaval.ca/afrique/guinee_franco.htm

[22] Jacques, L. (2014) Language Planning around the World. Administrative Regions of the Republic of Guinea. https://www.axl.cefan.ulaval.ca/afrique/guinee_franco.htm

[23] Beckley, C.S., Shaban, S., Palmer, G.H., Hudak, A.T., Noh, S.M. and Futse, J.E. (2016) Disaggregating Tropical Disease Prevalence by Climatic and Vegetative Zones within Tropical West Africa. *PLOS ONE*, **11**, e0152560. https://doi.org/10.1371/journal.pone.0152560

[24] National Institute of Statistics (Guinea) (2025) Guinea Population and Housing Census (RGPH-4).

[25] Rosevear, D.R. (1969) Rodents of West Africa. Trustees of the Birtish Museum (Nat. Hist.), 604 p.

[26] Inapogui, A.P., Bausch, D.B. and Demby, A.H. (2000) Lassa Virus Activity in Small Mammals Captured in Guinea. In: Ed., *Scientific Report*, *GIABR Mammalogy Laboratory*, 28-34.

[27] Keita, N., Sakho, A.M., Diallo, A., Sergeev, A.A., Bah, T.A.T., Soumah. L.II., Toure, A.H, Kourouma, K., Dore, R., Bah, B.S.S. and Balde, M.C. (2021) Seasonal Dynamics of Rodents (Muridae and Soricidae) in Kindia Prefecture (Lower Guinea), Republic of Guinea. *Journal de Recherche Scientifique de l' Université de Lomé*, **23**, 105-118.

[28] Keita, N., Sangare, M., Yakovlev, S., Cisse, A., Toure, A.H. and Dore, R. (2024) Distribution of Small Mammals Captured by Location and Habitat in Kindia Prefecture, Republic of Guinea. *International Journal of Biological and Chemical Sciences*, **18**, 1541-1553. https://doi.org/10.4314/ijbcs.v18i4.25

[29] Kolié, B., Bah, M., Konaté, D., Kamissoko, M., Diallo, A.O.S., Bah, B.S.S., *et al.* (2025) Rodents as Reservoirs of Zoonotic Diseases in Guinea: Implications for Surveillance and Public Health. *Advances in Bioscience and Biotechnology*, **16**, 471-486. https://doi.org/10.4236/abb.2025.1611031

[30] Khidas, K. (1993) Distribution of Rodents in the Djurdjura region, in Kabylie (Algeria). *Mammalia*, **57**, 207-212. https://doi.org/10.1515/mamm.1993.57.2.207

[31] Hamdine, W. (2002) Biosystematics and Population Ecology of Gerbillids in the Arid Habitats of the Béni-Abbès Region (Algeria). Doctoral Dissertation in Agricultural Sciences, National Institute of Agronomy, 140 p.

[32] Djelaila, Y. (2008) A Study of Rodents in the El Bayadh Region. Master's Thesis, National Higher School of Agronomy, 166 p.

[33] Hadjoudj, M., Manaa, A., Derdoukh, W., Guerzou, A., Souttou, K., Sekour, M. and Doumandji, S. (2011) Rodents of the Touggourt Region. In: *Proceedings of the International Seminar on Faunal Biodiversity in Arid and Semi-Arid Zones*, National Higher School of Agronomy, Department of Agricultural and Forest Zoology, 251 p.

[34] Vanasco, N.B., Sequeira, M.D., Sequeira, G. and Tarabla, H.D. (2003) Associations between Leptospiral Infection and Seropositivity in Rodents and Environmental Characteristics in Argentina. *Preventive Veterinary Medicine*, **60**, 227-235. https://doi.org/10.1016/s0167-5877(03)00144-2

[35] Laudisoit, A. (2004 Do Ectoparasites of Small Mammals in the City of Kinshasa, Democratic Republic of the Congo, Pose a Risk to Public Health? Master's Thesis, University of Liège, 75.

[36] Omudu, Edward, A. and Ati, T.T. (2010) A Survey of Rats Trapped in Residential Apartments and Their Ectoparasites in Makurdi, Nigeria. *Research Journal of Agri-*

cultural and Biological Sciences, **6**, 144-149.

[37] Garba, M. (2012) Urban Rodents and Biological Invasion in Southwestern Niger: Community Ecology and Population Genetics. Doctoral Dissertation, Abdou Moumouni University, 261 p.

[38] Houemenou, G., Ahmed, A., Libois, R. and Hartskeerl, R.A. (2013) *Leptospira* spp. Prevalence in Small Mammal Populations in Cotonou, Benin. *International Scholarly Research Notices*, **2013**, 1-8. https://doi.org/10.5402/2013/502638