



# Did COVID-19 Affect Rodents in Your Country?

Please complete this survey to better gauge the influence of the COVID-19 pandemic on rodent activity

**Yasushi Kiyokawa**

**W**e, **Yasushi Kiyokawa at The University of Tokyo, Japan, and Michael H. Parsons at Fordham University, USA,** are now assessing the effects of social distancing on the emergence of rodents in Asia and Oceania. As a valued pest management professional, I would like to kindly ask for your participation in this survey. We need your help to systematically clarify the situation in your country. You can answer in your own language. We do not collect personally identifiable information. It should take approximately 1-2 minutes to complete. We would appreciate it if you kindly answer the survey by March 2021. If we receive a sufficient number of responses, we will report the results of the analyses in this magazine as soon as possible. Thank you in advance for your kind cooperation.

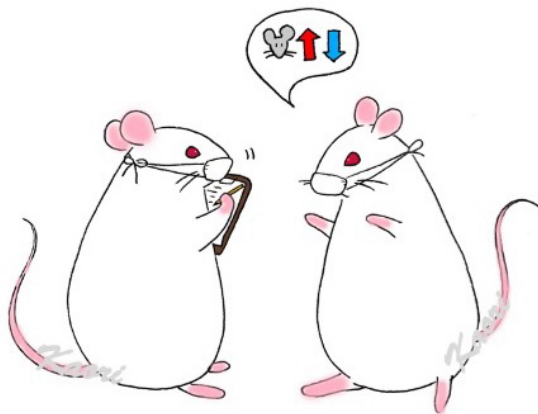
## *How Everything Started*

Following widespread social distancing to curtail the spread of SARS-CoV-2 [the virus that causes COVID-19] in spring 2020, increased sightings of rats in close proximity to people were broadly circulated in popular English media [see an example the July 2020 issue of the FAOPMA Magazine, [https://faopma.com/JournalDetail/4046/FAOPMA\\_Magazine\\_2020\\_July](https://faopma.com/JournalDetail/4046/FAOPMA_Magazine_2020_July)].

Given that urban rats are global commensal organisms that depend on humans for food, shifts in human behaviour as a result of social distancing will have pronounced effects on nearby rat populations. However, the limited number of personal experiences and/or theoretical speculations on media provide virtually no information regarding how widespread the increased sightings are in the world. In addition, a part of the increase could be an artefact of social distancing. For example, citizens have altered their daily routines and started to stay in different places at different time. This could lead to new sightings of a pre-existing rat population even if the population itself has not changed at all. Therefore, systematic research is required to clarify the effects of social distancing on rodents.

We first analysed whether social distancing changed the number of public service calls in New York City (NYC), USA, and in Tokyo, Japan. We chose these cities because the data recorded in the 311-system [a non-emergency phone number used for complaints] and Tokyo Pest Control Association (TPCA) enabled us to trace the number and location of each phone call. We found that the lockdown increased the number of phone calls in proximity to closed food service establishments in NYC. Similarly, a state of emergency declaration

[http://www.vm.a.u-tokyo.ac.jp/koudou/survey\\_index.html](http://www.vm.a.u-tokyo.ac.jp/koudou/survey_index.html)



日本語で回答する

使用语言：简体中文

한국어로 답변하기

jawab dalam bahasa Indonesia

Sila jawab dalam Bahasa Melayu

Mẫu trả lời khảo sát bằng tiếng Việt

Answer in English

使用语言:繁體中文(台灣)

ภาษา (ภาษาไทย)

اردو زبان میں جواب دینے کے لیے یہاں کلک کریں

සිංහලෙන් පිළිතුරු සපයන්න

उत्तर हिंदी में दीजिए

Survey website.

(stay-at-home order) increased the number of phone calls in the restaurant-dense eastern side of Tokyo. Therefore, the increase in rodent sightings seemed to be a common phenomenon in NYC and Tokyo.

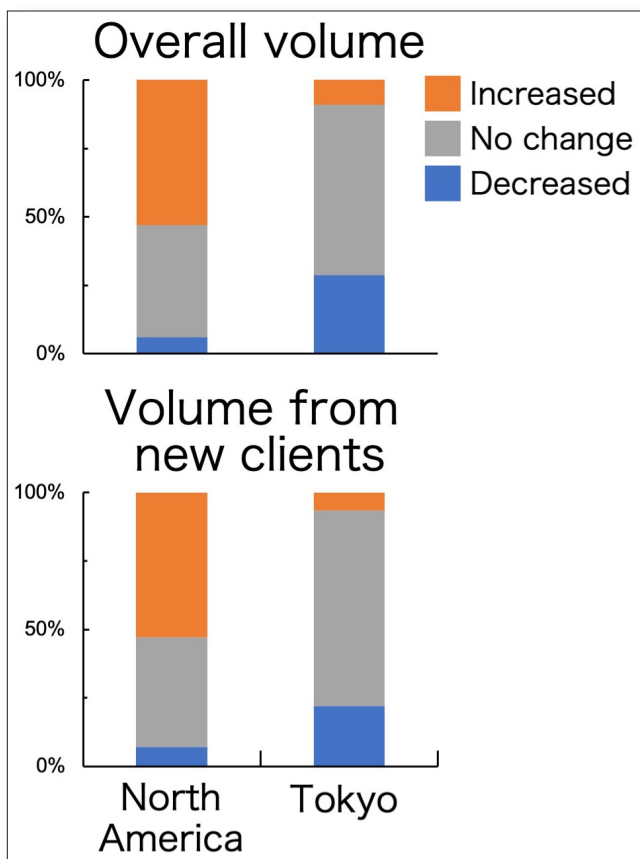
### ***The Impacts on Society were Contrasting in Tokyo and North America***

Next, in order to assess the impacts of increased sightings on our society, we distributed the above-mentioned survey sheet to pest management companies in North America and the eastern side of Tokyo (TPCA members in 23 Wards). We obtained 50 and 82 responses from North America and Tokyo, respectively.

In the survey, we first asked if social distancing affected the overall volume of rat-related calls or jobs in the respondent's company. We found that the volume was increased in more than half of the

respondents in North America (53%). In contrast, only 9% of responses from Tokyo reported an increase. The majority of the responses (61%) indicated that there was no change in the volume of rat-related calls or jobs. Next, we asked if the volume of rat-related calls or jobs from new clients was changed by social distancing. Similar to the first question, more than half of the respondents from North America (53%) reported that they had more calls from new clients. This is in contrast with the responses from Tokyo (7%). Again, the majority of the responses indicated that the volume was similar to a typical year (71%).

These results revealed that the impacts on our society were contrasting between North America and Tokyo. In North America, the increases in public service calls were accompanied by increased business in pest management companies. In addition, business from new clients also increased.



Changes in the overall business and business from new clients by social distancing.

These changes suggested that social distancing forced rats to move to new areas, which negatively impacted society. In contrast, little change was observed in the pest management companies in Tokyo, even if the number of public service calls was increased. Therefore, social distancing made virtually no impact on the society in Tokyo.

#### ***A Possible Hypothesis for the Limited Impacts in Tokyo***

One possible interpretation of the results in Tokyo could be that social distancing did not affect rodents in Tokyo. The changes in public service calls were an artefact caused by the changes in human behaviour. Unfortunately, we have no data to deny this interpretation at this time. Nonetheless, we believe that a more probable interpretation is that the limited impacts were ascribed to the predominance of roof rats [also known as 'black rats', *Rattus rattus*]. In Tokyo, brown rats [also known as 'Norway rats', *Rattus norvegicus*] are found in the downtown area and usually consume garbage placed street-side at

midnight and collected the following morning. In contrast, roof rats inhabit the inside of smaller buildings and feed on food stocks, grease vats, and oil stains in restaurants and bars. Although social distancing dramatically decreased the amount of garbage placed street-side in the downtown area, restaurants and bars remained open for 'take-away' meals in the daytime. Therefore, it is highly probable that social distancing differentially affected the two rat species. Specifically, social distancing forced brown rats to roam in order to find alternative food sources. In contrast, roof rats experienced little effects of social distancing. When we think about the proportion of the two types of rats in Tokyo, our survey simultaneously clarified that the proportion of roof rats is much higher than that of brown rats (roof rats: 79%, brown rats: 21%). Therefore, the number of roaming brown rats was estimated to be small. In addition, it is difficult for brown rats to invade the buildings in Tokyo because they were built to prevent entry of roof rats. As a result, the roaming of brown rats was not perceived as important enough to hire a private pest control specialist.

#### ***The Aim of the Coming Survey***

One of the best ways to assess this hypothesis would be to survey the effects of social distancing in countries with different proportions of rodents. We expect that the impact of social distancing decreases when the proportion of roof rats increases. Unfortunately, mostly due to the lack of information available from Asia and Oceania, European and American people believe that the situation in their countries is applicable worldwide. One example is the belief that the world is threatened by rats' movement caused by social distancing. However, as our previous survey revealed, the situation in Tokyo was totally different from that in North America. Therefore, I believe this is a great opportunity to systematically clarify the situation in Asia and Oceania and to understand and manage rodents in the world more comprehensively. Thank you in advance for your kind cooperation. ■

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