

Scientists in New York City discover a valuable method to track rats

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A new paper in *The Journal of Urban Ecology*, published by Oxford University Press, finds that rats can be baited to, or repelled from, locations using pheromones found in the scents of other rats.

Rats cost the world's economy more than \$300 billion a year. In addition to causing fines and business closures, rats spread disease, start fires, and disable motor vehicles. In Manhattan alone, rodent activity has been found in 23% of all restaurants. Despite these impacts, little is known about the behavior of urban rats, whose behaviors differ from that of laboratory rats. This lack of information is due to several factors, including the difficulty of releasing pest animals back into cities after capturing and identifying them, the reluctance of property owners to provide access to researchers, and rat control programs.

Over a one year period, researchers trapped and implanted microchips in city rats in a waste recycling center in Brooklyn, New York. To overcome issues in using GPS to track movement in dense urban environments, they utilized radio-frequency identification sensors. Male and female scents were then placed on, or near, these sensors and replaced every two weeks. To determine whether risk impacted the findings, researchers positioned these devices in sheltered, safe areas that rats were familiar with and also in more risky, open environments where rats were vulnerable to predation.

Rats reacted differently to male and female scents. In general, when rats responded to sensors with male-scents, risk was unimportant. Rats briefly visited male scents equally in exposed and sheltered areas, and then stayed away. Female scents, however, were visited significantly more often than male scents (0.2 visits/day compared to 5.02 visits/day). This implies that attractants may be more useful near sheltered areas while deterrent scents may be more useful in exposed areas where animals are vulnerable to predators. These findings address a knowledge gap about rat-[scent](#) preference that could assist in urban wildlife management tools, such as the deployment of baits or immuno-contraceptives.

"Context is everything. If we can pinpoint the scents and contexts that

are most useful, then we increase our chances of creating novel control tools, but further research is needed under a broad range of conditions"

The team at Fordham University, Columbia University and Arrow Exterminators Inc. has identified the primary reasons holding back scent-based control tools. They argue they need greater access to urban properties if they are to make scents useful in the war against [rats](#).

More information: "Differential responses by city rats (*Rattus norvegicus*) toward male or female-produced pheromones in sheltered and high-risk presentations" *The Journal of Urban Ecology*, [DOI: 10.1093/jue/juz009](#)

Provided by Oxford University Press

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