

MONITORING OF BROWN RATS ON THE TERRITORY OF MEGALOPOLIS



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Questions of the questionnaire

1. Have you ever seen rats in your home and / or in the surrounding area: since the spring (in the survey in June); since the autumn this year (in the survey in October) till the present time? (If no, pass to question 3, if so, to question 2).

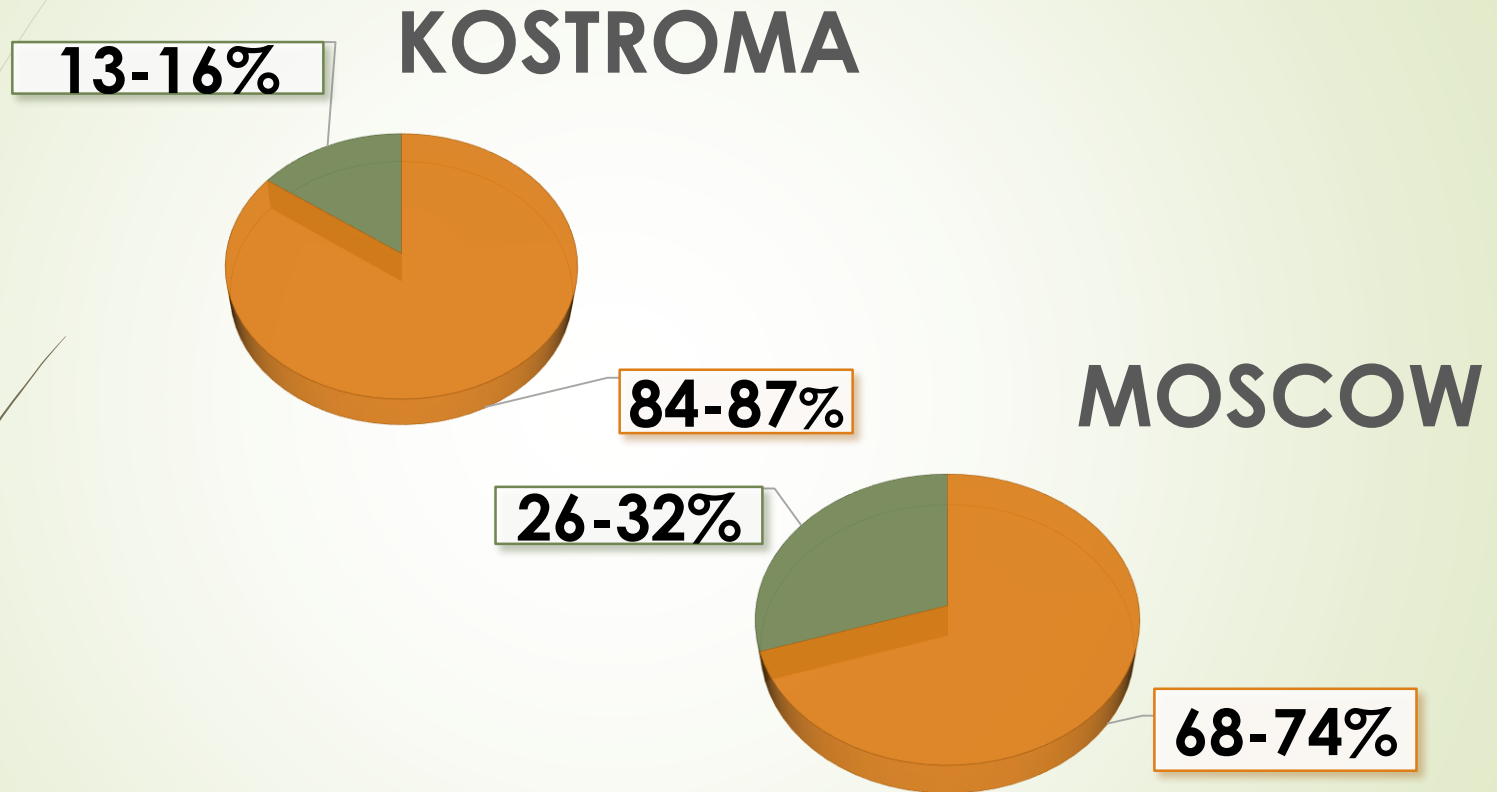
2. Please let us know the street and house number, where you have seen rats.

3. How do you think that promotes the appearance of rodents in the territory?

4. Can you name the other addresses, where you have seen rats?

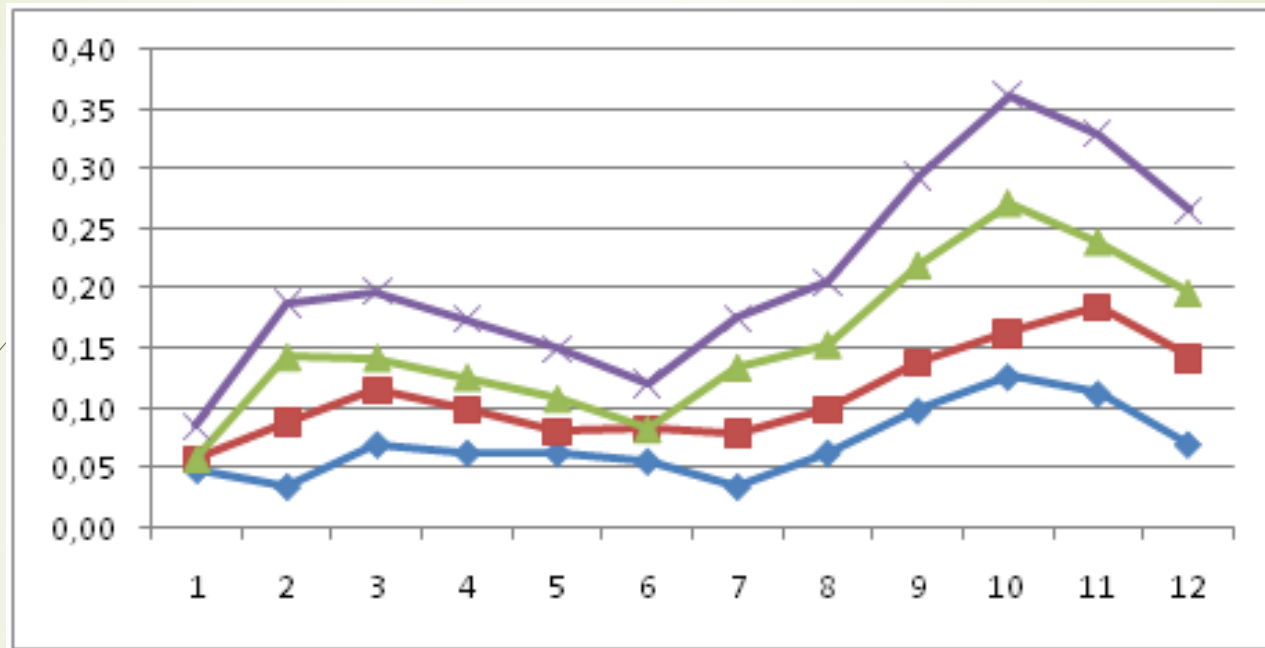
5. Do you feed stray cats and dogs in your yard?

The proportion of respondents who met rats in Moscow and Kostroma in 2014-2016



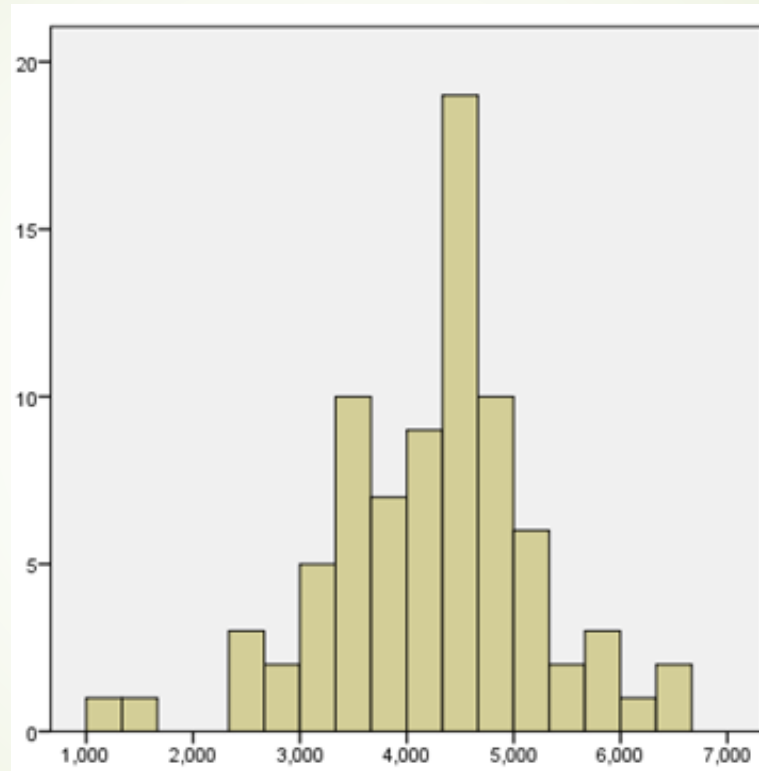
Green - number of respondents who meet rats,
brown - number of respondents who did not meet rats

Rats' detection density in Kostroma based on average data for 2014-2015 monitoring in buildings



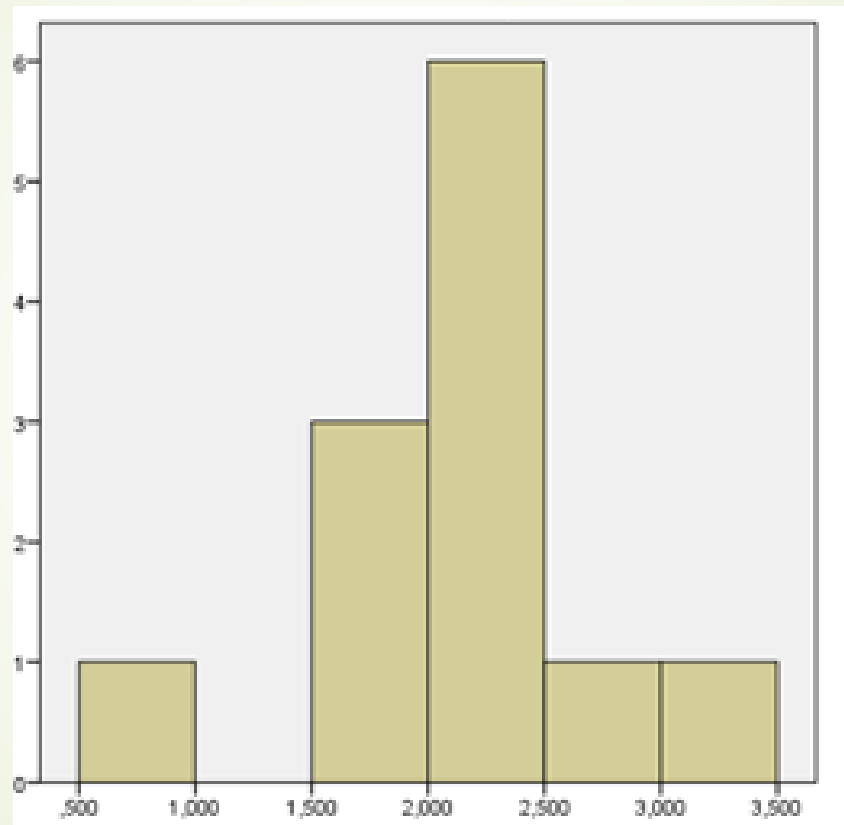
Ordinate axis- density of the rats 'detection places, abscissa axis- the number of survey month. 1 – Central district, 2 - Fabrichny district, 3- Zavolzhsy district, 4- Summary municipal data

Logarithmic distribution the places of rats' locations in Moscow (rats/km²) according to generalized interviews data 2013-2016



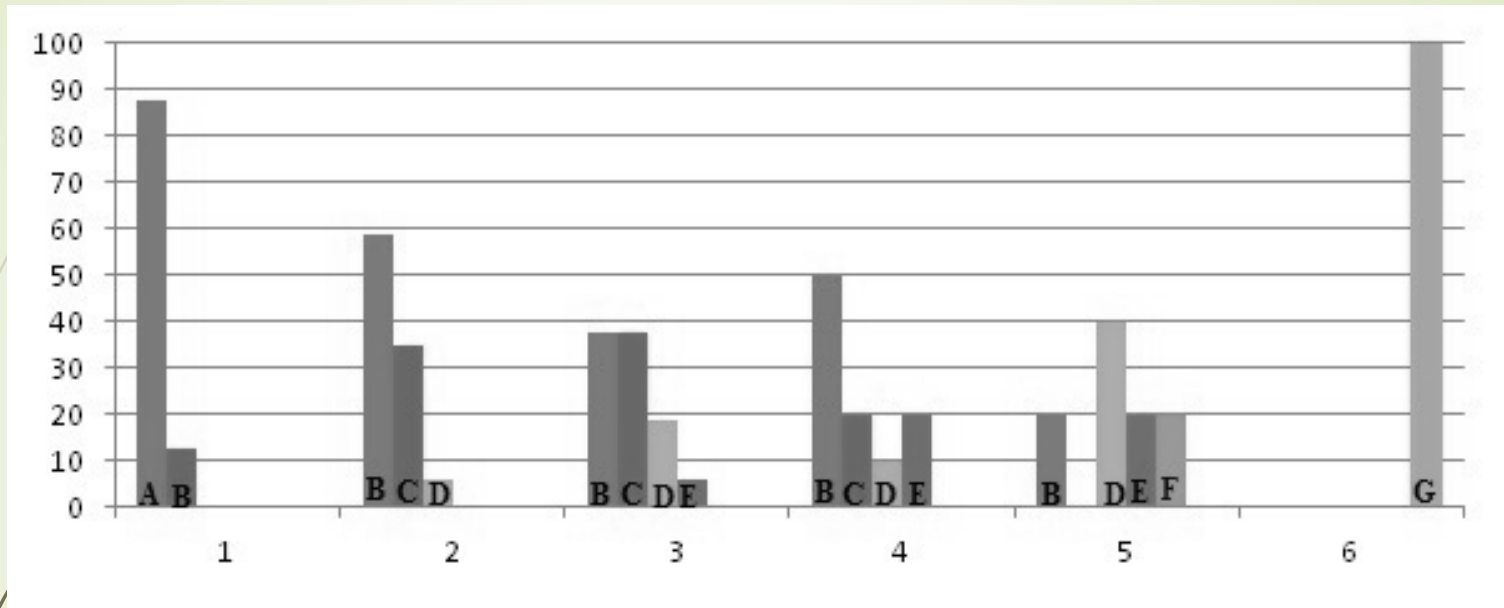
Ordinate axis - the relative frequency of rats' location index,
abscissa axis - logarithm of values of rats' location index (rats/km²).

Logarithmic distribution the places of rats' locations in Kostroma according to generalized interviews data 2014-2016



Ordinate axis - the relative frequency of rats' location index,
abscissa axis – logarithm of values of rats' location index (rats/km²).

The density of rats' detection Moscow



On the abscissa axis - the group of respondents by density.

1 — 0,1-2,74 people/km², **2** — 2,75-5,48 people/km², **3** — 5,49-8,22 people/km², **4** — 8,23-10,96 people/km², **5** — 10,97-13,70 people/km², **6** — more than 13.70 people/km².

On the ordinate axis - the share of rats' groups of with different densities. A — 0-0,84 rats/km², B — 0,85-1,68 rats/km², C — 1,69-2.52 rats/km², D — 2.52- 3.36 rats/km², E — 3,36-4,2 rats/km², G — more than 4.3 rats/km²

The tasks and solutions

correction of a priori hypotheses about the probability of the presence of rats in the municipal districts with favorable conditions for their dwelling can be carried out using a model based on Bayes' formula, in which, to confirm the data of the survey population can be used;

the index of rats' detection (rats/km²) is proportional to the number of respondents (people/km²);

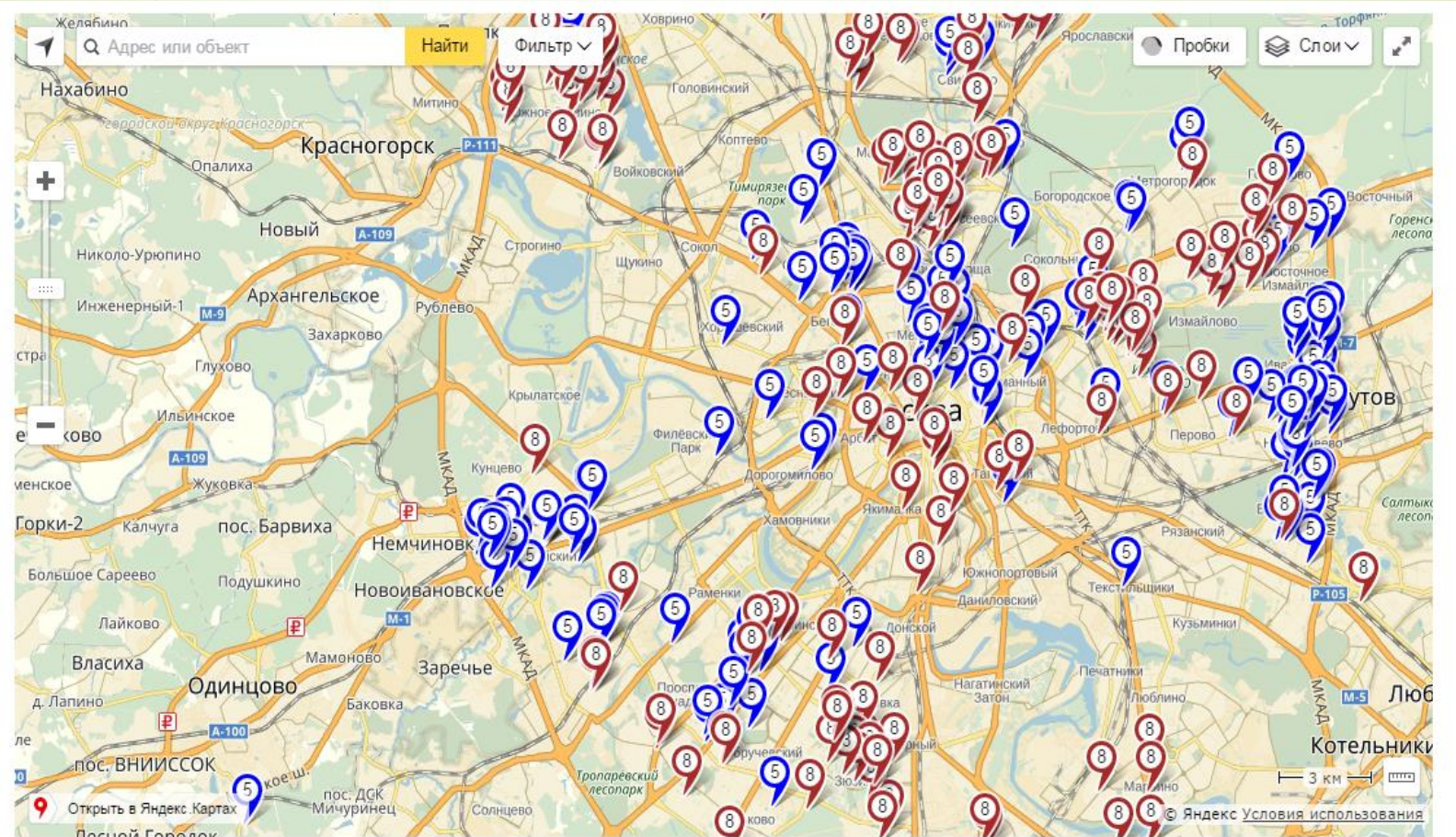
hypothesis of logistical dependence of the rats' detection index on the number of respondents (people/km²) can find evidence under higher respondents density;

the frequency of the detection rats generally corresponds to a logo-normal distribution;

the data of interviewing may be used as a reconnaissance estimation of rats' abundance in the city, including quality evaluation of conducted disinfestation.

if there is information on the number and distribution of brown rats in the city is possible to predict the risk of rats' appearance anywhere in the city and rural settlements.

Virtual maps with marks of rats meetings in Moscow and Kostroma



Thank you for your attention

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megalopolis

