

Influence on rodent population in controlled and semi controlled habitat

Omer kertes to: wild life ecology peter kabai

Many researches show a connection between human activities and rodents. Some show a direct link by habitat distraction and habitat creation. Human activities may cause extermination or almost exponential growth in rodent population. Through out history the rodents were considered a hazard that should be eliminated by any means possible, including usage of poisons and habitat distraction. Over the years those methods proved short living, no real solution was found. Is it possible to influence the rodent population by new more efficient means?

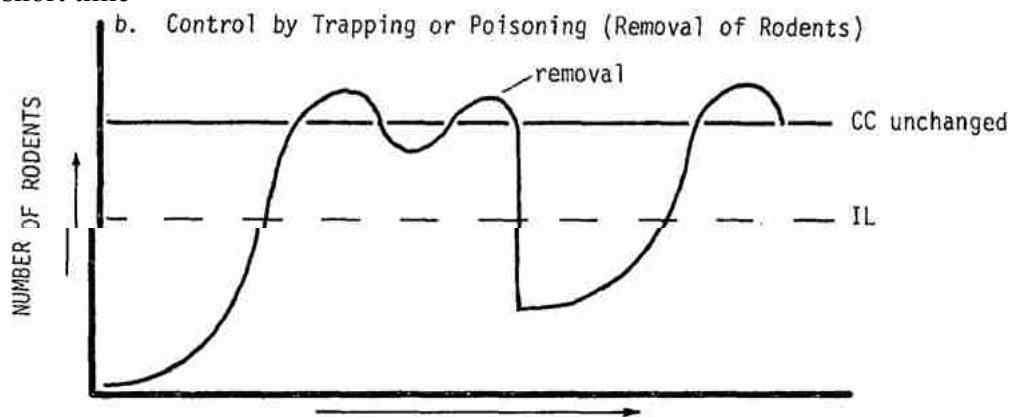
In this work I set myself a goal to find new methods of controlling rodent population by more ecological oriented solutions, the work will be focused on two major habitats:

- .1. controlled area which means fully urban areas
- .2. semi controlled area which means farm land

The traditional solution to those areas was poison distributing in great doses in order to kill as many pests as possible. This method was very efficient in the short run but caused large lateral damage mostly through second poisoning of other species, like the infamous DDT.

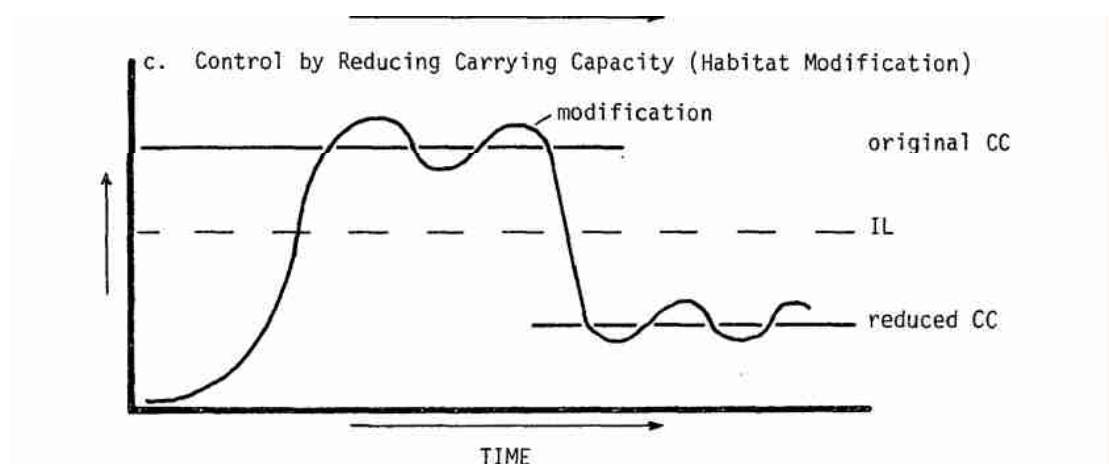
With new ecological tools we can have better analyzing methods to check the effect of poisons and rodenticides.

By killing the major part of the population the growing rate of the species shifts toward the exponential growth rate and the population will reach maximum range in very short time.



Stephen C. Frantz_ John P. Comings† 1976
EVALUATION OF URBAN RODENT INFESTATIONS—AN APPROACH IN NEPAL

With the new tool we can show that diminishing the number of individuals is not impotent as lowering the carrying capacity of the habitat itself.



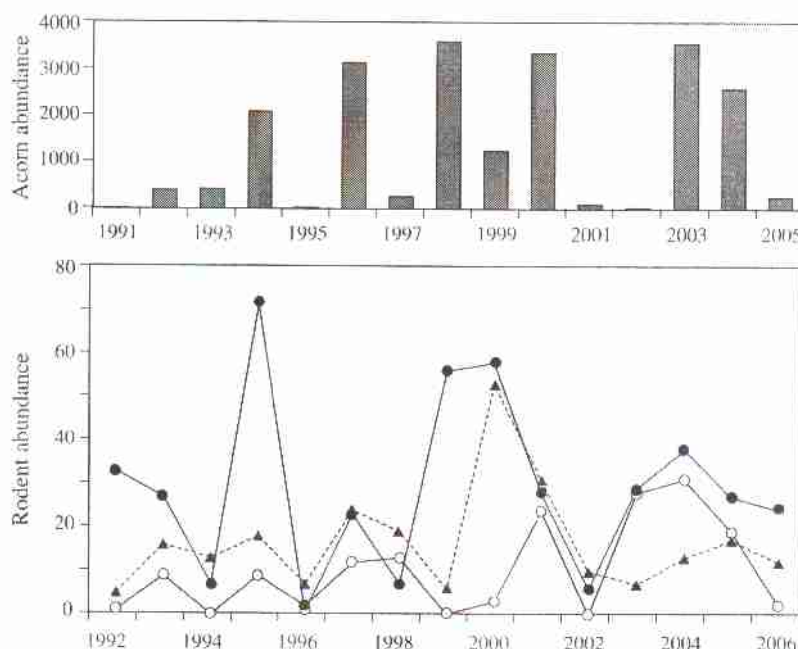
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By those two graphs we can learn that if we know the carrying capacity factors we can influence the population maximum size and by that limit the pest effect of rodents

:Two main steps still needed

- what are the main carrying capacity factors .1
- what solution based factors can be established .2

The basic factors that can be easily manipulated are different from controlled and semi controlled environment, and because of that will be examined separately

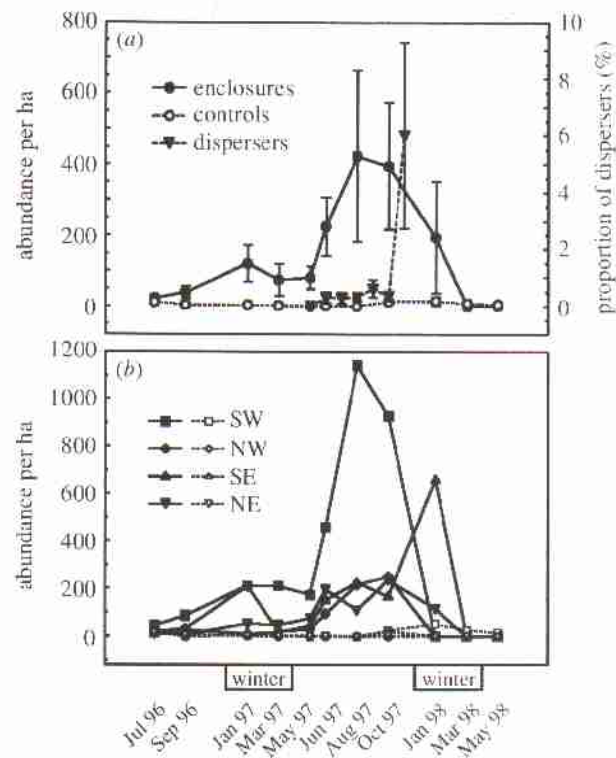


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 December 2006
 Effects of acorn masting on population dynamics of three
 forest-dwelling rodent species Hokkaido, Japan

From the graph we can learn that the size of population is food depended and .Have direct proportions between population size and food abandons .If food accessibility can be limited so also the population size will be limited In semi controlled area this method is very limited because food maximum yield is the farmers goal and mast be achieved for the profitability of the method through the .cooperation of the farmers So limiting food is very limited in semi controlled area, but in controlled area the main food source is garbage and dumpsters. Thus food can be limited by the authorities by tight garbage management, and will resolute in food shortage and the crash of the rodent population in the area. Finally the new carrying capacity will form .and will solve the pest hazard in that area

In semi controlled areas other methods will have to be considered. (see above) habitat distraction poisaning and food limitation can not be preformed because of lateral .damage to the environment and to the crops

Figure 2. (a) Mean (\pm s.e., n^4) estimates of the abundance of voles and the proportion of voles presumed to be dispersers from the enclosed populations in the first experiment, and (b) estimates for each enclosure (filled symbols) and control area (open symbols). When populations crashed only a single vole was trapped from the enclosures in March 1998 and the next trapping period confirmed that all enclosure populations were extinct.



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2000. Experimental tests of predation and food hypotheses for population cycles of voles
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In the graph we see that elimination of predators have drastic effect on the carrying capacity. The population in the enclosure was 10 time bigger the in the controlled area. In farm land the conditions for predator success is very low because of many reasons like habitat Destruction, shortage of trees for bird of pray or annual poisoning of the pray population. This situation increases the viability of very large rodent .population in semi controlled areas Introducing predator in to this area can limit the carrying capacity of the area, very important to introduce large range predators in order to prevent the crash in the .predator population because of the limited rodent population

Also area for predator habitat will have to be created in the semi controlled areas like
.trees for bird of prey and low bush area for mammals and snakes

Results: 1. in controlled areas limiting food sources will establish a new and lower
.carrying capacity for the population
in semi controlled areas introducing more predator and creating a better .2
environment for them will result in a significant drop in the carrying capacity of the
.area for rodents population

Discussion: in this paper I tried to establish a more ecological point of view for a very
.common problem in the interference between human and wild animals
The methods presented in this paper are common in same places and very rare in
.other. I hope that in time all pest problems will be faced with ecological methods

:References

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