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A Study of Distribution for Rodent Species in Old Agricultural and Newly Cultivated Lands in the Desert of Sohag Governorate, Egypt

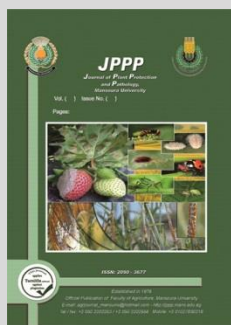
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ABSTRACT

The study was conducted to identify of rodent species and their distribution between the old agricultural and the newly reclaimed lands at The farms of the Faculty of Agriculture, Sohag University during 2018/2019. The results showed that there are three field rats, *Rattus rattus frugivorus*, *Rattus rattus alexandrinus*, *Arvicanthus niloticus* a high-density rodents in the old lands to increase vegetation and food preferred in crops to attract rodents on feed and reproduce. While, in the newly cultivated lands found four rodents, three field rats *Rattus r. frugivorus*, *Rattus r. alexandrinus*, *A. niloticus* and one desert rat, *Gerbillus gerbillus* as low-density may be due to several factors, for example decrease food, the vegetation cover, difficult weather, reproduction decreased, specific competition on feeding. Also, It was also noted that the agricultural rodents occupied the desert lands for the aforementioned reasons and to change the desert ecosystem.

Keywords: rodent species, agricultural land, newly reclaimed land, high-density, vegetation cover.

INTRODUCTION

Rodents are one of the most important order of mammals that have a high numbers of rodent species with their effect on the environment through their bad feeding habits. In Egypt, changes in the agricultural ecosystem during the last forty years have had a major effect on the distribution of abundance of field rodent numbers. (El-Sherbiny, 1987). Rodents are considered one of the most importance pests in Egypt, causing great economic losses to farmers, such as (damage growing crops, stored products, poultry and animal farm); and to food manufactures by damaging the structure and fabric of buildings. In addition, they eliminate almost anything on their way to obtain food and shelter, Abdel-Gawad and Ali (1982). In Egypt, there were environmental changes in the desert and the increase in vegetation in it had a major impact on the increase in rodent species. (Abdel-Gawad, 2010). The main objective of this study to identify and distributions of rodent species in old and new cultivated lands.

MATERIALS AND METHODS

The study was carried out in two farms Faculty of Agriculture, Sohag University:

- The first farm in Al Kawthar city, located about fifteen km east of Sohag Governorate, which is old reclaimed land for nearly forty year, and it is grown with many crops, vegetables and trees.
- The second farm in Al-Kwamel city, located about fifteen km west of Sohag Governorate, which is a newly

reclaimed land for about fifteen years and is cultivated with few crops and vegetables.

fifty traps were baited an distributed in each study area twice every fifteen days during 2018/2019. Every time, the traps were baited and distributed at night and examined in the morning. Captured rodents were taken to the laboratory for identification and classification, as well as how to distribute them.

RESULTS AND DISCUSSION

Data in table (1) showed the presence of three species of rodents in the old land included the white bellied rat, *R. r. frugivorus*, grey bellied rat *Rattus r. alexandrines*, Nile grass rat, *A. Niloticus* at the study area. The white bellied rat was the highest dominant in the study area, may be due to the availability of food, preferred habitat from palm trees and interspecific competition. It was noticed from the results that the population density of rodents increased in the old lands because abundance of food, water and habitat factors for life.

Table 1. Identification of rodent species in the old and newly reclaimed lands, Sohag University, during 2018/2019.

Area	Old Agricultural land	Newly reclaimed land	Common name
Rodent species			
<i>G. gerbillus</i>	-	*	Lesser garbia
<i>Rattus r. frugivorus</i>	***	**	Date palm rat
<i>Rattus r. alexandrinus</i>	**	*	Alexandrian rat
<i>A. niloticus</i>	**	*	Nile field rat

*** = High densit
* = Slightly density

** = Moderately density
- = Absent

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While the results showed that there are four rodent species in the newly reclaimed land, included the contained the white bellied rat, *R. r. frugivorus*, grey bellied rat *R. r. alexandrines*, Nile field rat, *A. niloticus*. and Lesser garbia (desert rat), *G. gerbillus*, at the study area. *R. r. frugivorus* the more numbered species, may be due to Competition between the species and another. From the results, it was observed that the population density in newly reclaimed lands decreased, may be due to the vegetation and water cover and habitat decreased and temperature increased. The results agreement with Ali, 1985; El-Sherbiny, 1987; Desoky *et al.*, 2014 and Desoky, 2016 & 2017.

CONCLUSION

Density of rodent species and their distribution are more in the old lands compared to newly cultivated lands due to the following reasons:

- The availability of habitat
- Increase the vegetation cover
- Availability of food preferred
- Because of the availability of food, the fertility and reproduction of rodents increases
- Weather and environmental factors are good
- Increased specific competition on feeding .
- The results of the research can be used to develop an integrated control program in the agricultural and desert systems

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دراسة توزيع أنواع القوارض في الأراضي الزراعية القديمة والمزروعة حديثاً في صحراء محافظة سوهاج، مصر
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أجريت الدراسة للتعرف على أنواع القوارض وتوزيعها بين الأراضي الزراعية القديمة والأراضي حديثة الاستصلاح بمزارع كلية الزراعة بجامعة سوهاج خلال 2019/2018. أوضحت النتائج وجود ثلاثة أنواع من القوارض الحقلية *Rattus rattus alexandrinus* و *Rattus rattus frugivorus* و *Arvicanthis niloticus* عالية الكثافة في الأراضي القديمة لزيادة الغطاء النباتي والأغذية المفضلة في المحاصيل لجذب القوارض على الغذاء والتكاثر ، بينما وجدت في الأراضي حديثة الاستصلاح اربعة انواع من القوارض منها ثلاثة انواع حقلية وهي *Rattus rattus frugivorus* و *Rattus rattus* و *Arvicanthis niloticus* و نوع واحد صحراوي *Gerbillus gerbillus* حيث تكون منخفضة الكثافة بسبب عدة عوامل ، على سبيل المثال انخفاض الطعام ، الغطاء النباتي ، الطقس الصعب ، انخفاض التكاثر ، التنافس بين الانواع على الغذاء، كما لوحظ أن القوارض الزراعية احتلت الأراضي الصحراوية لأسباب سابقة الذكر و لتغيير النظام البيئي الصحراوي.