

## Dominant Rodent Species in Animal Production Farms at Sohag Governorate, Egypt

Abd El-Aleem Saad Soliman Desoky

Plant protection Department (Agriculture Zoology), Faculty of Agriculture, Sohag University, Egypt

**\*Corresponding Author:** Abd El-Aleem Saad Soliman Desoky, Plant protection Department (Agriculture Zoology), Faculty of Agriculture, Sohag University, Egypt

**Abstract:** The present work was aimed to identify of rodent species in animal production farms at the Experimental Stations of the Faculty of Agriculture, Sohag University, Sohag Governorate, Egypt, during 2015-2017 years. Four rodent species were found, one species belonged to family Cricetidae, named lesser garbia, *Gerbillus gerbillus* Olivier and three species of family muridae were recorded. Species of family muridae include field rat *Arvicanthis niloticus* Desmarest, grey bellied rat *Rattus rattus alexandrinus* Linnaeus, white bellied rat *Rattus rattus frugivorus* Linnaeus.

**Keywords:** *Arvicanthis niloticus*, *Mus musculus*, lesser garbia, *Rattus rattus alexandrines*, *Rattus rattus frugivorus*

### 1. INTRODUCTION

Rodents are known for their high reproductive potential, there are many interesting dynamics to various rodent populations that should be understood to better facilitate their management and to reduce damage. The population goes through an annual cycle that may include high and low densities, active and inactive periods, reproductive and non-reproductive periods, and dispersal periods. To avoid inclement periods, some species exhibit winter dormancy (hibernation), and some species have summer dormancy (estivation) during hot, dry periods. Some species exhibit multi-year cycles; for example, the rodents often reach population peaks (irruptions) every 3-5 years (Edge *et al.*, 1995 and Wolff *et al.*, 1997).

All rodents require food, shelter, and water. The shelter provides protection from predators, inclement weather, and a favorable place to bear and rear their young. Although rodents require water, those water requirements vary greatly by species. Because rodent food and cover (i.e., vegetation) can be influenced by human activities, there has been considerable development of strategies to reduce populations and damage by manipulating vegetation. We will discuss some of these habitat management approaches, but caution that many of them have not been thoroughly investigated or tested on a large scale (Barras and Seamans, 2002).

In Egypt, the changes of the environment by reclamation the desert and increase the cover plant in this area have been a great effect to the distribution of rodent species on abundance in the studied area (Desoky, 2007 and Abdel-Gawad, 2010). The present work was aimed to identify of rodent species at animal production farms to be used in the development of a future plan in effective strategy for implementation of rodent management programs in newly reclaimed land in Egypt.

### 2. MATERIALS AND METHODS

The present work was carried out in animal production farms at the experimental stations of the Faculty of Agriculture, Sohag University in two area during March 2015 till February 2017 years.

**Area (1)** El-Kawther city It is located in newly reclaimed area at the Eastern desert area as arid region (15km. East of Sohag Governorate). This area has been planted from along period about (30 years) with isolated patches of vegetables, wheat, Egyptian clover, alfalfa, certain orchards and have a sheep farm, this farm about 10 Faddens, including the crops, buildings of animal sheds and animal food storages.

**Area (2)** El-Kawamel city, it is located in newly reclaimed area at the Egypt western desert area (15 km. west of Sohag Governorate). This area has been planted from along period about (15 years) with isolated patches of vegetables, wheat, Egyptian clover, alfalfa and certain orchards, and have a cattle and buffaloes farms, this farm about 10 Faddens, including the crops, buildings of animal sheds and animal food storages.

The present work was initiated to study the following main points:

- Identification of the different species of rodents

Rodent species were collected from the above mentioned sites by applying the common wire traps. Each trap was baited by bread and distributed twice every 15 days at 6 pm. Next morning at 7 am, traps were checked and rodents were identified and recorded for data processing. The captured rodents were classified and recorded.

### 3. RESULTS AND DISCUSSION

Data show the species composition of rodents trapped from study areas, El-Kawther city, El-Kawamel city. four rodent species were concerned as shown in table (1). One species belonged to family cricetidae, named lesser garbia *G. gerbillus* Olivier and three species of family muridae were recorded. Species of family muridae include field rat *A. niloticus* Desmarest, grey bellied rat *Rattus r. alexandrinus* Linnaeus, white bellied rat *Rattus r. frugivorus* Linnaeus, Norway rat *R. norvegicus* Berkenhout and house mouse *Mus musculus* Linnaeus.

**Area (1)** In El-Kawther city found that the presence of four species of rats included the white bellied rat, *R. r. frugivorus*, *Rattus r. alexandrines*, Nile grass rat, *A. niloticus*. and Lesser garbia, *Gerbillus* sp at the study area. *Rattus r. frugivorus* the dominant species, this may be due to the presence of attributed to the availability of food and shelter as well as prefers trees for nesting in houses. Also this may be due to the inter-specific competition between this species and other species. On the other hand *R. norvegicus* and *Mus musculus* were not captured by the traps

**Area (2)** In El-Kawamel city found that the presence of four species of rats included the white bellied rat, *R. r. frugivorus*, *Rattus r. alexandrines*, Nile grass rat, *A. niloticus*. and Lesser garbia, *Gerbillus* sp., at the study area. *Rattus r. frugivorus* the dominant species, this may be due to the presence of attributed to the availability of food and shelter as well as prefers trees for nesting in houses. Also this may be due to the inter-specific competition between this species and other species. On the other hand *R. norvegicus* and *Mus musculus* were not captured by the traps. These results to be used in the development of a future plan in effective strategy for implementation of rodent management programs in animal production farms.

**Table (1).** List of rodent species collected in animal production farms at the Experimental Stations of the Faculty of Agriculture, El-Kawther city and El-Kawamel city, Sohag University, during 2015-2017 years.

Animal production farms			
Area	El-Kawther city (Eastern desert) Cattle and buffaloes farms	El-Kawamel city (Western desert) Sheep farm	Common name
Fam. Cricetidae: <i>Gerbillus gerbillus</i> . (Olivier)	*	**	Lesser garbia
Fam. Muridae <i>Rattus rattus frugivorus</i> (Linnaeus)	***	***	white bellied rat, date palm rat
<i>Rattus rattus alexandrines</i> (Linnaeus)	*	**	grey bellied rat
<i>Rattus norvegicus</i> Berkenhout	-	-	Norway rat, Brown rat and Sewer rat
Fam. Muridae <i>Arvicanthis niloticus</i>	*	**	Field rat, grass rat, Nile rat , Nile grass rat
<i>Mus musculus</i> Linnaeus	-	-	House mouse

- \*\*\* = High population
- \*\* = Moderately population
- \* = Slightly population
- = Absent

The results similar with Ali (1985) recorded six species of rats and mice in Sohag Governorate. The species density percentages were arranged quantitatively in the following descending order *R. norvegicus* (35.17%), *A. niloticus* (19.86%), *R. r. frugivorus* (19.39%), *R. r. alexandrinus* (13.88%), *M. musculus*, (11.00%), *Acomys cahirinus* (0.72%).

Abdel-Gawad (1987) found those, three rodent species *A. niloticus* (Desm.), *R. r. frugivorus* and *Gerbillus* spp Desm., in Wady El-Assiuty area, Assiut Governorate. He noticed that, *A. niloticus* (Desm.) preferred areas planted with the field crops and some parts under cultivation beside old cultivated land while *R. r. frugivorus* was found in citrus orchards and around fanners buildings, whereas *Gerbillus* spp Desm., lived in desert and semi-desert parts where wild plants and weeds were grown.

Desoky *et al.*, (2014) finding is in agreement with The results show in the experimental station of the Faculty of Agriculture, El-Kawther city, Sohag University , found that the presence of three species of rats included the Lesser garbia, *Gerbillus* sp. was recorded (1.08%) from newly reclaimed area; the Nile grass rat, *A. niloticus* (4.44%.) This may be attributed to the availability of food in neighbored field crops and vegetables plantations also, the white bellied rat, *R. r. frugivorus* the dominant specie (94.27 %.) This may be due to several factors e.g., intra-specific competition, fecundity increasing and in habitat the ecosystems in which poultry buildings established in the faculty farm the presence of palm trees in the preparation of farm animal production, or poultry farm nearby, this provides shelter and increase in feed stores.

The differences in species composition of rodents depending on locality, neighboring, habitat type, inter specific computation and preferred food (Desoky *et al.*, 2014). Identification of rodent species in the study area can be used in the development of a future plan in effective strategy for implementation of rodent management programs in newly reclaimed land in Egypt. (El-Sherbiny, 1987 ; Desoky, 2007).

Desoky (2016) found that in the experimental station of the Faculty of Agriculture, El-Kawamel city, Sohag University in table (1) found that the presence of two species of rats included the Nile grass rat, *A. niloticus* (27.52%.) the white bellied rat, *R. r. frugivorus* the dominant specie (72.48 %.) This may be due to the presence of attributed to the availability of food and shelter as well as prefers trees for nesting. On the other hand this may be due to the inter-specific competition between this species and other species.

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