

# Inventory of the Different Species of Rodents in Haradia Village, El Maragha City, Sohag Governorate, Egypt

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## Abstract

The present work was aimed to identify of rodent species at in Haradia village, El Maragha city, Sohag Governorate, Egypt during 2013-2015 years. The results were revealed the presence of four species of rats included the white bellied rat, *Rattus rattus frugivorus* the dominant species from, *Rattus rattus alexandrines*, the Nile grass rat, *Arvicanthis niloticus* and *Rattus norvegicus*. These results to be used in the development of a future plan in effective strategy for implementation of rodent management programs in cultivated in Sohag Governorate.

**Keywords:** *Arvicanthis niloticus*, *Rattus rattus alexandrines*, *Rattus r. frugivorus*, *Rattus norvegicus*

## 1. Introduction

Rodentia is one of the most important mammalian order which has a great numbers of rodent species with their effect on the environment. Directly, through their destructive feeding habits and indirectly by a stable food items for many predators in the food chains. In Egypt changes in the agro-ecosystem, during the last 40 years, have had a great effect on the distribution and abundance of field rodent population (El-Sherbiny, 1987). Rodents are implicated in many types of damage, including crop and tree damage, structural property and cable damage, disease transmission (Witmer et al., 1998).

Rodents are known for their high reproductive potential; however, there is much variability among species as to the age at first reproduction, size of litters, and the number of litters per year. Under favorable conditions, populations of some species such as the microtines (e.g., voles) can irrupt, going from less than 100 per ha to several thousand per ha in the period of a few months (O'Brien 1994). 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 microtines 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). The present work was aimed to identify of rodent species at in Haradia village, El Maragha city, Sohag Governorate in Upper Egypt 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. Methods and Materials

Location of the study site:

- The study sites in Haradia village, El Maragha city Northward away from Sohag Governorate, about 25 kilometers.

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 in Table (1) show the species composition of rodents trapped from two different areas in Haradia village, El Maragha city, Sohag Governorate. during the period from 2013 till 2014. Species recorded were the white bellied rat, *Rattus rattus frugivorus*, the grey bellied rat, *Rattus rattus alexandrinus* and the Nile grass rat, *Arvicanthis niloticus*. Norway rat, *Rattus norvegicus*.

In the Houses region found that the presence of four species of rats included the white bellied rat, *R. r. frugivorus* the dominant species from the *Rattus rattus alexandrinus*, Nile grass rat, *A. niloticus*. and *Rattus frugivorus* 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 in the fields crops the Nile grass rat, *A. niloticus* the dominant species from *R. r. frugivorus*, *Rattus r. alexandrinus*, However, *R. norvegicus* was not captured by the traps

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 competition 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).

Table (1): List of rodent species collected in Haradia village, El Maragha city, Sohag Governorate in Upper Egypt

Rodent species	STUDY AREA				Common name
	Houses		Fields		
	2013	2014	2013	2014	
<i>Rattus rattus frugivorus</i>	+++	+++	++	++	white bellied rat, date palm rat
<i>Rattus rattus alexandrinus</i>	++	+	+	+	the grey bellied rat
<i>Arvicanthis niloticus</i>	+	+	+++	+++	Field rat, grass rat, Nile rat, Nile grass rat
<i>Rattus norvegicus</i>	+	-	-	-	street rat, sewer rat, Norway rat, brown Norway rat, Norwegian rat

+++ = High population  
 ++ = Moderately population  
 + = Slightly population  
 - = Absent

#### **4. References**

- [1] Abdel-Gawad KH (1987). Seasonal distribution of rodent species and their associated ectoparasites in new cultivated lands. *Assiut J. Agric. Sc.*, 18 (3): 343-352.
- [2] Abdel-Gawad KH (2010). Rodent species composition in the present compared with past, the 5 Scientific Conferences for Agric. Assiut Univ. Oct. 16-17, 2010 (159-167).
- [3] Ali, MK (1985). Studies on rodents and their ectoparasites in Sohag Governorate. M.Sc. Thesis Fac. Agric., Assiut Univ.
- [4] Barras SC, Seamans TW (2002). Habitat management approaches for reducing wildlife use of airfields. *Proceedings of the Vertebrate Pest Conference* 20:309-315.
- [5] Desoky ASS (2007). Management strategies for rodents within different ecosystems. M. Sc. Thesis, Fac. Agric. Assiut Univ. 124.
- [6] Desoky ASS, Baghdadi SAS, Ahmed HSK (2014). Population density and seasonal distribution of rodent species at sheep farming in el-kawther city, Sohag region, Egypt. *J. Plant Prot. and Path.*, Mansoura Univ., Vol. 5 (10): 903- 907.
- [7] Edge, WD, Wolff J, Carey RL (1995). Density-dependent responses of gray-tailed voles to mowing. *Journal of Wildlife Management* 59:245-251.
- [8] El-sherbiny A H (1987). Cyclic fluctuation in rodent population: Review of current researches. *Egypt wild and not resources* Vo: 19 pp 17.
- [9] O'Brien JM (1994). Voles. Pages B177 – B182 in Hygnstrom S, Timm R, Larson G, editors. *Prevention and control of wildlife damage*. Cooperative Extension Service, University of Nebraska, Lincoln, NE, USA.
- [10] Witmer G, Campbell EW, Boyd F (1998). Rat management for endangered species protection in the U.S. Virgin Islands. *Proceedings of the Vertebrate Pest Conference* 18:281-286.
- [11] Wolff JO, Schauber EM, edge WD (1997). Effects of habitat loss and fragmentation on the behavior and demography of gray-tailed voles. *Conservation Biology* 11:945-956.