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SURVEY OF LAND SNAILS SPECIES IN ASSIUT GOVERNORATE, EGYPT

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ABSTRACT:

This study was conducted to identification terrestrial snail species in Assiut Governorate at two successive growing years. Three locations were selected; the first location is the Experimental Farm of the Faculty of Agriculture, Assiut University which cultivated with the ornamental plants, field crops and fruit trees. The second location is a vegetated land in Bosra village which cultivated with the field crops includes Egyptian clover and wheat. The third location is new reclaimed desert in El-Ghoraib. Two feddans were selected in each location. Results showed that an inventory of the four types of land snails during the 2015-2017 study period, and they are Limax flavus, Monacha obstructa, Oxyloma elegans Eobania Vermiculata.

Also results show that the highest numbers of glass clover snails were compared to other snail species. the Experimental Farm of the Faculty of Agriculture, Assiut University recorded the highest number of Eobania Vermiculata, Comparable to other types of snails. The Bosra area also recorded the highest numbers of Monacha obstructa compared to other species, El-Ghoraib Research Farm recorded the highest rate of Monacha obstructa, Compared to other types during study period.

Keywords: *Limax flavus, Monacha obstructa, Oxyloma elegans Eobania Vermiculata*

INTRODUCTION:

Molluscs are very prevalent animals in the world, there are estimated to be 128000 species of molluscus and these include approximately 12000 species of pulmonata, both basmatophora and stylomatophora. The terrestrial chocolate band snail Eobania vermiculata (Muller) family Helicidea is one of the most commonly distributed land snails in Egypt. This snail causes great damage to all parts of different vegetations including orchard trees, vegetable, field crops as well as ornamental plants (El-Okda, 1980 and Mahrous et al., 2002).

The land Mollusca including snails and slugs are of an economic importance to man because of the damage they do in agriculture, horticulture and forestry. In addition they are of importance in medical and veterinary practice, since they serve as intermediate hosts for certain parasitic worms of man and his domestic animals (Godan, 1983). Land Mollusca pests are serious problem, every year; damage involving considerable financial losses is inflicted on cereal, potatoes, vegetables, lettuce, carrots, cabbage, maize, clover as well as other agricultural and horticultural crops.

They eat leaves, roots and tuber of nearly all vegetables, fields crops, ornamental plants as well as fruits in field, garden and greenhouse. Land snails cause heavy damage, especially to seeds and seedlings of cereals and seeds of oil plants.

Snails cause serious economic damages to the leaves and fruits, which was observed on trunk crops and ornamental plants, as well as apple, citrus, peach, palm and vegetables, i.e. cabbage, carrot and bean (Daxl, 1970).

Herbivorous mollusks are significant pests of cultivated plant species in many regions of the world . The damage of land snails caused by different methods such as: (a) direct attack to several plants (Orchard, field crops, vegetables and medical ornamental plants. (b) Indirect attack i.e. holing of potato tubers by slugs and in strawberry by snails. (c) Contamination of harvest (e.g. of veining peas by slugs and of black currants by snails may also result in the rejection by processors El-Okda et al.,1989. This study was conducted to identification terrestrial snail species in Assiut Governorate.

MATERIAL AND METHODS:

The present studies were carried out at Assiut during two successive growing years. Three locations were selected; the first location is the Experimental Farm of the Faculty of Agriculture, Assiut University which cultivated with the ornamental plants, field crops and fruit trees. The second location is a vegetated land in Bosra village which cultivated with the field crops includes Egyptian clover and wheat. The third location is new reclaimed desert in El-Ghoraib. Two feddans were selected in each location.

Survey And Population Density Of Land Snail Species:

The survey study of different terrestrial snail species and investigating of their population dynamics in the Experimental Farm, Faculty of Agriculture, Assiut University and El-Wasta in Assiut Governorate were conducted during from 2015 to 2017.

Random terrestrial snail samples were taken from the fruit and ornamental farms at the Exp. Farm, Fac. Agric., Assiut Univ., and from the wheat and Egyptian clover fields in El-Wasta using the quadrate sample size 25×25 cm as described by Staikou and Lazaridou (1990). Samples were taken two times a month, in each time five samples were taken. Snails from each host plant in each surveyed areas were transferred into muslin cloth bags to the laboratory and identified according to the key given by Godan (1983).

All specimens were classified to their respective families and an accurate recorded was maintained for the representative species of each family. Total numbers of each group of arthropods, which collected weekly, were recorded. Trapping counts were related to individual plots charted on a field map. Each count was scored into observed frequency distribution for each plot, i.e. number of samples with a count, with a count of 1,of 2, and so forth.

RESULTS AND DISCUSSION:

The data in the table 1 and figure1 shows an inventory of the four types of land snails during the 2015-2017 study period, and they are Limax flavus, Monacha obstructa, Oxyloma elegans Eobania Vermiculata . The results agreement with (Desoky et al,2015; Ramzy 2009 and Abo-El-Naser 2013).

The data in Table 2 and figure2 shows that the highest numbers of glass clover snails were compared to other snail species. The farm of the Faculty of Agriculture at Assiut University recorded the highest number of garden clams, 52.82 Comparable to other types of snails. The Bosra area also recorded the highest numbers of glass clover clams, 95.19

Compared to other species, Al-Gharib Research Farm recorded the highest rate of glassy alfalfa snails, 94.53 Compared to other types. During 2015-2016 . The results agreement with (Desoky et al,2015; Ramzy 2009 and Abo-El-Naser 2013).

The data in Table 3 and figure3 shows that the highest numbers of glass clover snails were compared to other snail species. The farm of the Faculty of Agriculture at Assiut University recorded the highest number of garden snails, 46.34 Comparable to other types of snails. The Bosra area also recorded the highest numbers of glass clover snails, 95.07 Compared to other species, Al-Gharib Research Farm recorded the highest rate of glassy alfalfa snails, 94.87 Compared to other types, may be due to the increase in orchards in the area, the preferred host for brown snails. During 2016-2017 . The results agreement with Ramzy (2009) surveyed nine land snail species in Assiut Governorate namely, E. vermiculata, M. obstructa, O. elegans, Vallonia pulechella, T. pisana, Vitrea pygmaea, Helicodiscus singleyanus inermis, Pupoides coenopictus and Cecilioides acicula. The first three species are accessory species while the accidental species include the other six snail species. In addition, O. elegans, V. pygmaea, P. coenopictus and C. acicula were recorded for the first time in Egypt. Abo-El-Naser (2013) found that four terrestrial snails include three land snails and slugs were found in the main investigated sites in Assiut Governorate. The three land snail species are Monacha obstructa (Montagu); Eobania vermiculata (Muller) and Oxyloma elegans (Risso) while a slug is Limax flavus (Muller). All terrestrial snails, M. obstructa, E. vermiculata, O. elegans and L.flavus were recorded in the Exp. Farm, Fac. Agric., Assiut Univ., while M. obstructa was recorded only in El-Wasta in Assiut Governorate, during the investigation period. L. flavus was recorded for the first time in Assiut Governorate.These results can be used for future studies as follows: future work plan in an effective strategy for the implementation of snails management programs at varying environmental regulations in Egypt. Desoky et al.(2015) the results showed that found first record and identified of two land snail species in Sohag Governorate. They are as follows Monacha obstracta and Eobania vermiculata .

Table (1): Land snail species recorded during 2015-2016 and 2016-2017 seasons, Assiut.

Class	Order	Family	Species
Gastropoda	Stylomatophora	Limacidae (Rafinesque, 1815)	*Limax flavus* (L., 1758)
		Helicidae (Rafinesque, 1815)	*Monacha obstructa* (Pfeiffer, 1842)
		Succineidae	*Oxyloma elegans* (Risso, 1826)
		Helicidae (Rafinesque, 1815)	*Eobania Vermiculata* (o.f. Müller, 1774)

Table (2): Numbers and percentage of recorded land snail species during 2015-2016 season, Assiut.

Locations	Total numbers	No and (%) of land snails / 25cm²							
		L. flavus		*O. elegans*		*E. vermiculata*		*M.obstructa*	
		No	%	No	%	No	%	No	%
Expt.farm, Fac., Agric.,	443 (11.47)	17	3.84	52	11.74	234	52.82	140	31.60
Bosra	1664 (43.08)	80	4.81	0	0	0	0	1584	95.19
El-Ghoraib	1755 (45.44)	96	5.47	0	0	0	0	1659	94.53
Grand total	3862	193	5.00	52	1.35	234	6.06	3383	87.60

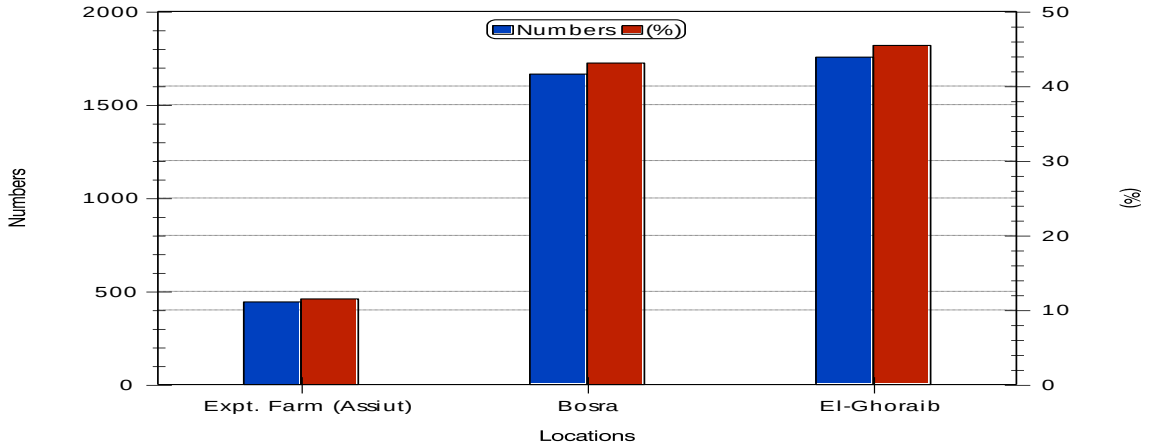

Figure (1): Numbers and percentage of recorded land snail species during 2015-2016 season, Assiut.

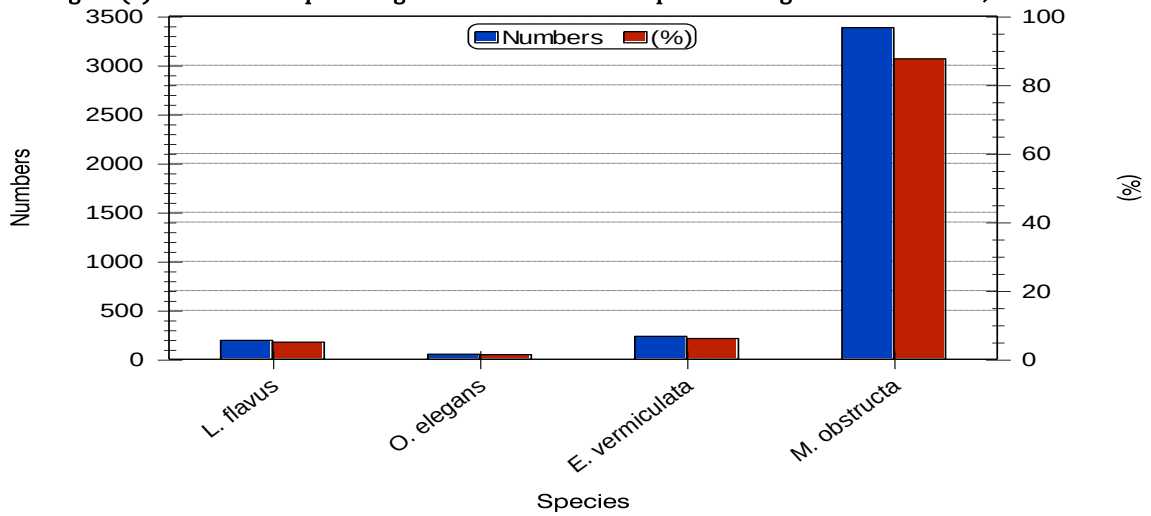

Figure (2): Land snail species recorded during 2015-2016 season, Assiut.

Table (3): Numbers and percentage of recorded land snail species during 2016-2017 season, Assiut.

Locations	Total numbers	No and (%) of land snails / 25cm²							
		L. flavus		*O. elegans*		*E. vermiculata*		*M.obstructa*	
		No	%	No	%	No	%	No	%
Expt.farm, Fac., Agric.,	423 (17.01)	33	7.8	38	8.98	196	46.34	156	36.88
Bosra	934 (37.55)	46	4.93	0	0	0	0	888	95.07
El-Ghoraib	1130 (45.44)	58	5.13	0	0	0	0	1072	94.87
Grand total	2487	137	5.51	38	1.53	196	7.88	2116	85.08

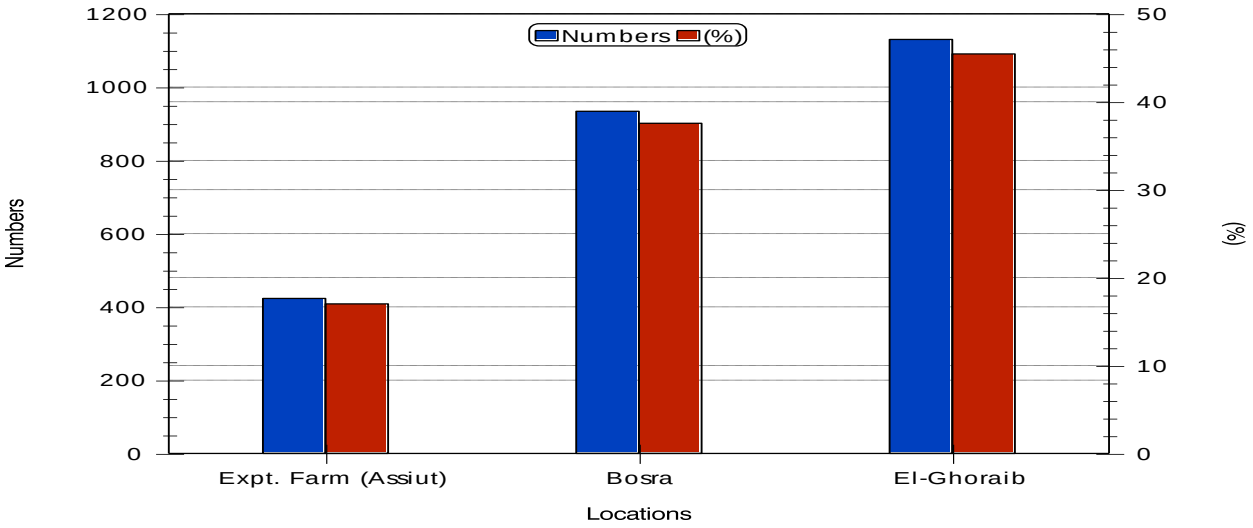

Figure (3): Numbers and percentage of recorded land snail species during 2016-20/17 season, Assiut.

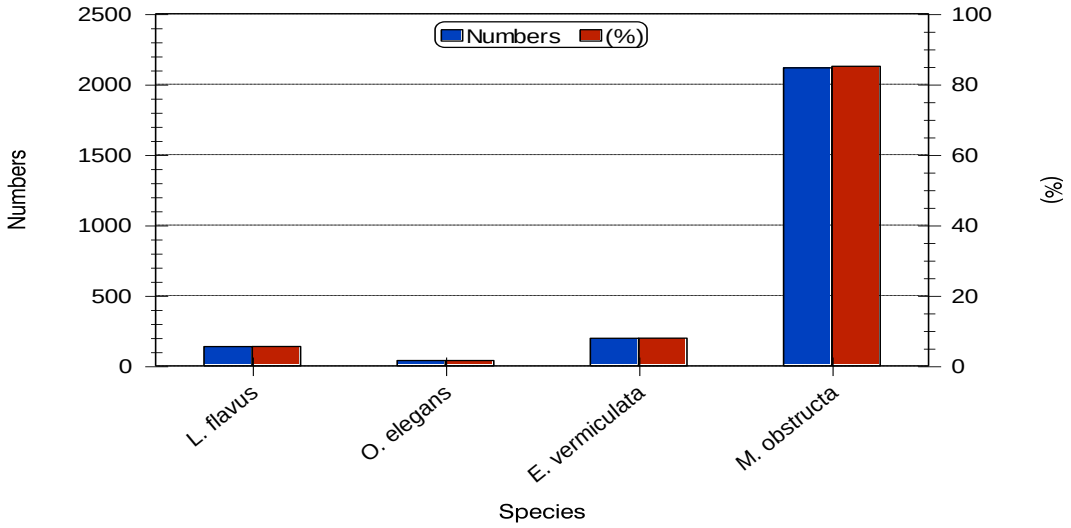

Figure (4): Land snail species recorded during 2016-2017 season, Assiut

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حصر القواقع الأرضية المنتشرة بمحافظة اسيوط – مصر

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الملخص :

أجريت هذه الدراسة بهدف حصر القواقع الأرضية المنتشرة بمحافظة أسيوط في سنتي نمو متتاليتين. تم اختيار ثلاثة مواقع ؛ الموقع الأول هو المزرعة التجريبية التابعة لكلية الزراعة بجامعة أسيوط والمزروعة بنباتات الزينة والمحاصيل الحقلية والأشجار المثمرة. الموقع الثاني عبارة عن أرض منزرعة في قرية بصرى مزروعة بالمحاصيل الحقلية تشمل البرسيم المصري والقمح. الموقع الثالث بمنطقة الغريب. تم اختيار فدانين في كل موقع. أظهرت النتائج أن هناك أربعة أنواع من القواقع الأرضية خلال فترة الدراسة ٢٠١٥-٢٠١٧ وهي **Limax flavus** و **Monacha obstructa**، **Oxyloma elegans Eobania Vermiculata**. كما أظهرت النتائج أن أعلى أعداد هو قوقع البرسيم مقارنه بأنواع القواقع الأخرى. سجلت المزرعة التجريبية بكلية الزراعة جامعة أسيوط أعلى عدد من القواقع **Eobania Vermiculata** مقارنة بأنواع أخرى من القواقع. كما سجلت منطقة بصرى أكبر عدد من أنواع **Monacha obstructa** مقارنة بالأنواع الأخرى ، وسجلت مزرعة الغريب البحثية أعلى معدل للقوقع **Monacha obstructa** مقارنة بالأنواع الأخرى خلال فترة الدراسة.

الكلمات المفتاحية: القواقع الأرضية – بمحافظة اسيوط