



Monthly and seasonal fluctuations study of some harmful birds in old lands at Sohag Governorate

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Abstract:

The present work was carried out the effect of habitat types and daytime of the population density of house sparrow, *Passer domesticus niloticus* (L.) (Passeriformes: Passeridae) , hooded crow, *Corvus corone sardonius* (L) (Passeriformes:Corvidae) and palm dove, *Streptopelia senegalensis egyptica* (L.) (Columbiformes: Columbidae) at Tahta district, Sohag Governorate were studied in four major habitat nearby (buildings, field crops, trees and water canals). The results revealed that the highest value of population density of *P. domesticus niloticus*; *C. corone sardonius* and *S. senegalensis egyptica* was recorded in fields nearby trees (54.88, 5.25 and 3.21 birds). Followed by buildings (48.13, 4.50 and 2.42 birds). Then the lowest value was recorded in fields nearby field crops of *P. domesticus niloticus* and *S. senegalensis egyptica* (23.13 and 0.75 birds) and fields near by water canals of *C. corone sardonius* (1.46 birds). The yearly population trend *P. domesticus niloticus* indicated the presence of three major peak of abundance. The first peak was recorded in March, April and May (58.25, 43.38 and 47.25 birds). The second peak was recorded in September (100.38 birds) and third peak was recorded in December (94.50 birds). The highest value of *P. domesticus niloticus* was recorded during autumn (48.29 birds). The yearly population trend of *C. corone sardonius* indicated the presence of one major peak of abundance. Peak was recorded in December, October and November (12.38, 9.25 and 9.75 birds). The highest value of population *C. corone sardonius* was recorded during autumn (10.46 birds). The highest values were recorded in two months October and December (4.38 and 5.00 birds), followed by September and November (3.50 and 2.63 birds). The highest value of population was recorded during autumn (4.29 birds).

Introduction

Agricultural ornithology aims to obtain scientific information on birds in relation to agriculture and use this information for their management. Most

of bird species play a useful role in agriculture by having a potent check on insect and rodent pests. Birds are a group of Animals following to Subkingdom

Metazoa, Phylum Chordata, Class Aves and Subclass Newornithes. Class Aves divided into 19 orders of which the order Passeriformes, which consists of 56 family and 5000 species, this order contain different species existing in different habitats in Egypt. Among them, some birds beneficial and harmful birds. Also, it was divided to resident and migratory birds. In Egypt, the number of bird species were 515 the resident birds are 186 bird species, 12 are extinct and 17 are endemic. The rest of bird species and subspecies 300 bird species are migratory (Tharwat, 1997). Birds dominated the air and managed to invade a lot of different environments, whether land or water due to their unique anatomical and morphological structure. These make the existence of factions in the movement of permanent and continuous environment, to others and from country to country. For example, house sparrow, *Passer domesticus niloticus* (L.) (Passeriformes: Passeridae) , hooded crow, *Corvus corone sardonius* (L.) (Passeriformes: Corvidae) and palm dove, *Streptopelia senegalensis egyptica* (L.) (Columbiformes: Columbidae) were the resident birds in Egypt during all seasons of year (Metwally *et al.*, 2009 and Omar , 2010). The present work was done in the fields of old lands at Tahta district at Sohag Governorate in order to study the monthly and seasonal fluctuation of some harmful bird species.

Materials and methods

These studies were carried out under the field conditions in old lands at Tahta districts at Sohag Governorate. The work

it has been conducted at four different habitats representing different environmental and ecological areas. These habitats were nearby each of (buildings, field crops, trees and water canals). The field trails started from April 2014 to March 2015. The resident bird species were surveyed two feddans inside the chosen cultivated habitat. Number of the different bird species was counted in each habitat, by using the method of Redinger and Libay (1979) as a plot equivalent two feddans from the determined cultivated area in each habitat. The identification and counts of bird species were achieved by using field glass (binoculars) from rising position, which gave clear sighted vision of the plots. This work has been accomplished twice daily, the first at sunrise and second at sunset during one hour for four days monthly. Bird classification were carried out according to Sibley and Monroe (1990) under review by the checklist committee of the American Ornithologists Union (A. O. U.) were followed in bird classification. The population fluctuations of bird species were studied monthly daytime (Sunrise and Sunset) at four different habitats which were mentioned above to find the relationship between population of bird species and different seasons of year. The population fluctuation and daily activities of dominant harmful bird species (i.e. house sparrow, *P. domesticus niloticus* (L.), hooded crow, *C. corone sardonius* (L.) and palm dove, *S. senegalensis egyptica* (L.).

Data obtained were statistically analyzed using a randomized complete block design. Means were compared according to Duncan's Multiple Range test, at 0.05 level of probability.

Results and discussion

The effect of habitat types and daytime of the population density of house sparrow, *P.domesticus niloticus*, hooded crow, *C. corone sardonius* and palm dove, *S. senegalensis egyptica* in Tahta district at Sohag Governorate were studied in four major habitat nearby (buildings, field crops, trees and water canals) from April 2014 to March 2015.

1. Population fluctuation of house sparrow, *Passer domesticus niloticus*:

Data in Table (1) showed the highest value was recorded in fields nearby trees (54.88 birds). Followed by buildings (48.13 birds). Then the lowest value was recorded in fields nearby field crops and fields near by water canals with means (23.13 and 28.08 birds). The statistically analysis for means indicated that there were highly significant differences between the fields nearby trees and fields nearby field crops and water canals. The allow level of abundance during June with mean (3.50 birds). While there were no individuals recorded during July. Through the next months, August and September, the population trend of increase gradually and reached to relatively high levels of abundance with means (15.50 birds) and (100.38 birds), respectively. After wards, the population density trends to decrease gradually for two months October and November with means (37.50 and 12.88

birds). Regarding to the general means, the highest value was recorded during December with mean (94.50 birds). The statistically analysis for September and December the results indicated that there were highly significant differences between other months of the study period. Throw, the population of sparrows decreased during January (7.50 birds). Then the population started to grow up slightly for four months February and March with means (42.00 and 58.25 birds), respectively. Generally, the yearly population trend of house sparrow indicated the presence of three major peak of abundance. The first peak was recorded in March, April and May. This may be due to the adult sparrows starting in nesting and reproduction season. Or the appearance of wheat ears and broad bean horns till the harvest during this period. On the other hand, the second beak was recorded in September; this may be due to the appearance of the head sorghum crops in the studied areas. Faunally, peak was recorded in December; this may be due to the planting of wheat crops during this month and the sparrows starting of stay nests and reproduction season. With aspects, the seasonal fluctuation of house sparrow birds in Tahta district. Data in Table (2) showed the highest value of population abundance of house sparrow birds were in autumn with mean (48.29 birds). Moderate numbers of house sparrow were recorded in summer and winter (38.63 and ۳۵,۹۲ birds). While, the low level of population was recorded in spring (31.38 birds). **Mosallm (2017)**

reported that seasonal fluctuation of the highest values of house sparrow birds during summer with following by spring

and autumn seasons. While the lowest value was recorded during winter.

Table (1): Monthly of population fluctuation of house sparrow, *Passer domesticus niloticus* at Tahta district, Sohag Governorate during 2014/2015.

Month	Different habitats				Mean*
	Buildings	Field crops	Trees	Water canals	
Apr.	68.00	19.50	56.50	29.50	43.38bcde
May	67.00	22.00	76.00	24.00	47.25bc
Jun.	0.00	0.00	0.00	14.00	3.50 ef
Jul.	0.00	0.00	0.00	0.00	0.00f
Aug.	29.50	0.00	32.50	0.00	15.50cdef
Sep.	135.50	51.50	175.00	39.50	100.38a
oct.	0.00	47.50	69.50	33.00	37.50bcdef
Nov.	0.00	0.00	0.00	51.50	12.88cdef
Dec.	137.50	71.50	122.50	46.50	94.50a
Jan.	0.00	0.00	0.00	30.00	7.50cdef
Feb.	61.50	23.00	47.50	36.00	42.00bcdef
Mar.	78.50	42.5	79.00	33.00	58.25bcd
Mean	48.13ab	23.13b	54.88a	28.08b	

* Means have the same are not significantly differed by using Duncan's analysis.

Table (2): Seasonal fluctuation of house sparrow, *Passer domesticus niloticus* (L.) at Tahta district, Sohag Governorate from 2014 to 2015.

Season	Different habitats				Mean*
	Buildings	Field crops	Trees	Water canals	
Spring	45.00	13.83	44.17	22.50	31.38b
Summer	55.00	17.17	69.17	13.17	38.63ab
Autumn	45.83	39.67	64.00	43.67	48,29a
Winter	46.67	21.83	42.17	33.00	35.92ab
Mean	48.13a	23.13b	54.88a	29.09b	

* Means have the same are not significantly differed by using Duncan's analysis.

2. Population fluctuation of hooded crow, *Corvus corone sardonius*:

Data in Table (3) showed the highest value was recorded in fields nearby trees (5.25 birds) followed by fields nearby buildings and field crops (4.50 and 3.42 birds). While, the lowest value of population was recorded in fields nearby water canals with mean (1.46 birds). The highest value of population abundance was recorded during December with (12.38 birds). Followed by October and November (9.25 and 9.75 birds). Moderate value of population abundance of hooded crow was recorded during September with (5.25 birds) followed by January and February (2.13 and 1.50 birds). The lowest value of

population abundance of hooded crow was recorded during months, April, May, June, July, August and March (0.75, 0.75, 0.88, 0.38, 0.13 and 0.75 birds), respectively. Generally, the yearly population trend of hooded crow indicated the presence of one major peak of abundance. Peak was recorded in December, November and October. This may be due to the appearance of maize and sunflower crops horns, till the harvest during this period.

With respect to seasonal fluctuation of hooded crow birds in Tahta district at Sohag Governorate. Data in Table (4) showed the highest value of population Hooded crow was recorded during autumn with mean (10.46 birds).

Moderate numbers were during summer and winter (1.92 and 1.46 birds). While the lowest value was recorded during spring (0.79 birds). Bonnah (2007) studied the population density of hooded crow, *C. corone sardonius* occurred all-over the year in Sohag Governorate. The population density of each month expressed in terms of percent of individual numbers from their overall

year grand total. El-Danasory (2006) stated that the population fluctuation of dominant bird species viz., house sparrow, *P. domesticus niloticus* and hooded crow, *C. corone cornix* at El-Behira Governorate and El-Menofia Governorate were studied in five major locations (near buildings, near orchards, near trees and near water canals).

Table (3): Monthly of Population fluctuation of hooded crow, *Corvus corone sardonius* (L.) at Tahta district, Sohag Governorate during 2014/2015.

Month	Different habitats				Mean*
	Buildings	Field crops	Trees	Water canals	
Apr.	0.50	0.00	1.50	1.00	0.75e
May	0.00	0.00	3.00	0.00	0.75e
Jun.	0.50	0.00	3.00	0.00	0.88e
Jul.	0.00	0.50	0.00	1.00	0.38e
Aug.	0.00	0.00	0.00	0.50	0.13e
Sep.	7.00	6.00	6.50	1.50	5.25cd
oct.	12.00	9.50	12.00	3.50	9.25ab
Nov.	12.50	11.00	11.50	4.00	9.75ab
Dec.	17.00	14.00	15.00	3.50	12.38a
Jan	2.50	0.00	3.50	2.50	2.13de
Feb.	1.50	0.00	4.50	0.00	1.50de
Mar.	0.50	0.00	2.50	0.00	0.75e
Mean	4.50ab	3.42ab	5.25a	1.46b	

* Means have the same are not significantly differed by using Duncan's analysis.

Table (4): Seasonal fluctuation of hooded crow, *Corvus corone sardonius* (L.) at Tahta district, Sohag Governorate from 2014 to 2016.

Season	Different habitats				Mean*
	Buildings	Field crops	Trees	Water canals	
Spring	0.33	0.00	2.50	0.33	0.79b
Summer	2.33	2.17	2.17	1.00	1.92b
Autumn	13.83	11.50	12.83	3.67	10.46a
Winter	1.50	0.00	3.50	0.83	1.46b
Mean	4.50ab	3.42b	5.25a	1.47b	

* Means have the same are not significantly differed by using Duncan's analysis

3. Population fluctuation of palm dove, *Streptopelia senegalensis egyptica*:

Data in Table (5) showed the highest value of palm dove were in fields nearby trees with mean (3.21 birds). Followed by in fields nearby building (2.42 birds). The moderate number was recorded in fields nearby water canals (1.38 birds). While, the lowest value of palm dove was in fields nearby field crops (0.75 birds). The monthly

population abundance of palm dove. The lowest values were recorded in May, July, February and March (0.63, 0.75, 0.75 and 0.88 birds), respectively. The moderate values were in April, June and January (1.63, 1.50 and 1.63 birds), with insignificant differences between them. While, the highest values were recorded in two months October and December (4.38 and 5.00 birds), followed by September and November (3.50 and 2.63

birds).

The highest value of population was recorded during autumn (4.29 birds). While, the lowest values were during winter, summer and spring, (1.09, 1.13 and 1.25 birds) (Table,6).

Omar (2010) stated that the population of palm dove birds was more abundant during summer season. Spring ranked the second order regarding the population for the studied year. The minimum numbers were recorded during winter season. Noura-Barakat (2016) studied that the highest values of palm dove, *S. senegalensis* were in field nearby buildings (2.437). While the lowest

values were in field nearby field crops (0.562). El-Sawy (2017) revealed that the high average number of population fluctuation of palm dove, *S. senegalensis* in different habitats during (December 2013 and November 2015) recorded with (24.00 and 22.50 birds), during (June and May 2014) nearby water canals and trees habitats respectively, while the low level of population was recorded during (April 2014) nearby trees and water canals, as well as with mean number (0.5 birds) during (November 2014 and March 2015) nearby buildings and field crops respectively.

Table (5): The monthly population abundance of palm dove *Streptopelia senegalensis egyptica* at Tahta district, Sohag Governorate during 2014/2015

Month	Different habitats				Mean*
	Buildings	Field crops	Trees	Water canals	
Apr.	2.00	0.50	2.50	1.50	1.63 bcde
May	0.00	0.50	0.00	2.00	0.63 cde
Jun.	2.00	0.50	3.50	0.00	1.50 bcde
Jul.	0.00	0.00	0.00	3.00	0.75 cde
Aug.	0.00	0.00	0.00	0.00	0e
Sep.	4.00	2.00	4.50	0.00	2.63abcde
Oct.	5.00	2.50	7.50	2.50	4.38 ab
Nov.	6.00	1.00	7.00	0.00	3.50 abcd
Dec.	7.00	1.50	8.50	3.00	5.00a
Jan	2.00	0.00	2.00	2.50	1.63 bcde
Feb.	0.00	0.00	1.00	2.00	0.75 cde
Mar.	1.00	0.50	2.00	0.00	0.88 cde
Mean	2.42ab	0.75b	3.21a	1.38b	

* Means have the same are not significantly differed by using Duncan's analysis

Table (6): The seasonal population abundance of palm dove *Streptopelia senegalensis egyptica* at Tahta district, Sohag Governorate during 2014/2015

Season	Different habitats				Mean*
	Buildings	Field crops	Trees	Water canals	
Spring	1.33	0.50	2.00	1.17	1.25b
Summer	1.33	0.67	1.50	1.00	1.13b
Autumn	6.00	1.67	7.67	1.83	4.29a
Winter	1.00	0.17	1.67	1.50	1.09b
Mean	2.42ab	0.75b	3.21a	1.38b	

* Means have the same are not significantly differed by using Duncan's analysis

References

Bonnah, A. A. M. M. (2007): The damage and control of hooded crow on some plantation in Sohag Governorate. Ph.D. Thesis, faculty

of Agriculture, Assiut University, Egypt.

El-Danasory, M.A.M. (2006): Studies on some wild birds species in

- Egypt. Ph. D. Thesis Faculty of Agric., Al – Azhar University.
- El-Sawy, M. F. S. (2017):** Biological and ecological studies on harmful birds of agriculture land at Alexandria governorate. M.Sc. Thesis, Faculty of Agric. Al-Azhar University.
- Metwally, A.M.; Mahmoud, N.A.; Ahmed, M.A. and Omer, M.M.A. (2009):** incidence of some wild birds at Assiut Governorate. J. Agric. Sci. Mansoura Univ., 34 (2): 933-939.
- Mosallm, M. A. S. (2017):** Ecological and Toxicological Studies on Some Wild Birds Species at Assiut Governorate. M.Sc. Thesis Fac. Agric., Al – Azhar University.
- Noura-Barakat, M.E. (2016):** Ecological and biological studies on some wild bird species at Gharbia Governorate M.Sc. Thesis Fac. Agric., Al – Azhar University.
- Omar, M. M. A. (2010):** Studies on some wild birds in Assiut with special reference to harmful birds and its control. Ph.D. Thesis Fac. of Agric. Al-Azhar University.
- Redinger, R.F. and Libay, S.L. (1979):** Perches courted with glue reduce bird damage in rice field plots. Proceeding Eighth bird control, seminar, Bowling green, Ohio, Nov. 201 – 206.
- Sibley, C.C. and Monoroe, L.B. (1990):** Distribution and taxonomy of birds of the world. New haven Yale University press.,34-38.
- Tharwat, M.E. (1997):** Birds known to occur in Egypt. Publication of National biodiversity, Unit. No. 8, 1997, EEAA, El-Walid Press, Cairo, Egypt.