



E-ISSN: 2320-7078
P-ISSN: 2349-6800
JEZS 2016; 4(5): 116-118
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Received: 18-07-2016
Accepted: 19-08-2016

Shehzad Zareen
Department of Zoology, Kohat
University of Science and
Technology-26000, KPK,
Pakistan

Hameed Ur Rehman
Department of Chemistry, Kohat
University of Science and
Technology-26000, KPK,
Pakistan

Hira Zareen
Department of Zoology, Kohat
University of Science and
Technology-26000, KPK,
Pakistan

Kausar Saeed
Department of Zoology, Abdul
Wali Khan University Mardan
Buner Campus

Raqeebullah
Department of Zoology, Abdul
Wali Khan University Mardan

Waqar Ahmad
Department of Chemistry,
Islamia College University
Peshawar

Muhammad Shoab
Department of Pharmacy, Kohat
University of Science and
Technology-26000, KPK,
Pakistan

Waqas Ahmad Shams
Department of Zoology, Abdul
Wali Khan University Mardan
Buner Campus.

Correspondence
Hameed Ur Rehman
Department of Chemistry, Kohat
University of Science and
Technology-26000, KPK,
Pakistan

A diminutive analysis of parental care of *Columba livia* reared at KDA Kohat

Shehzad Zareen, Hameed Ur Rehman, Hira Zareen, Kausar Saeed, Raqeebullah, Waqar Ahmad, Muhammad Shoab and Waqas Ahmad Shams

Abstract

A total of 32 pairs i.e. 64 domesticated Pigeons (*Columba livia*) were reared in a private aviary situated at KDA district Kohat. About four breeds of *Columba livia* were included in this study i.e. Indian Fantails, English Pouters, Strasser pigeons and Racing Homers. During breeding time, behaviour of all mentioned breeds was studied. All breeder pairs were closely examined time to time for analysis of parental care ethology. Pigeons are considered to be monogamous but their pair can be broken by either death of one partner or by separating them for few days. Male were found opportunistic to mate with the new female. Both of the partners within a pair were found responsible for making the nest and for incubation of the eggs as well. This study reveals that both of the partners within a pair were responsible for making the nest and for incubation of the eggs as well. Feeding the squabs was also found to be the major duty of both the partners in a pair. Feed that was provided to the pigeons was also found within the dissected crop of a squab which indicates that squabs are provided with the food upon which the parents feeds and pigeon milk as well is secreted by the body of both the partners in a pair. If squabs are exchanged in early life, parents can accept the new squabs if their body and feathers are not recognizable to the parents.

Keywords: Pigeon, *Columba livia*, behaviour, parental care

Introduction

Pigeons are also termed as Rock Dove or Rock pigeon, they belong to Columbidae family and genus *Columba* [1]. A large variety of breeds of *Columba livia* is found throughout the world including Pouters and Fantails [2]. Pigeons are monogamous they show great occupancy towards its partners [3, 4]. Both of the partners take responsibility to make nest and to feed their squabs [3, 5]. Pigeon dance is well known courtship behaviour among all the breeds of pigeons [6, 7].

Materials and methods

A total of 32 pairs i.e. 64 domesticated Pigeons (*Columba livia*) of four were reared in a private aviary situated at KDA district Kohat. About four breeds of *Columba livia* were included in this study i.e. Indian Fantails, English Pouters, Strasser pigeons and Racing Homers. During breeding time, behaviour of all mentioned breeds was studied. All breeder pairs were closely examined time to time for analysis of parental care ethology. Time frame of the investigation was about 1 year to observe and to confirm the observed behavior repeatedly. Pigeons were not caged to avoid any stressful effect on their behavior.

Results

Pigeons were observed on the basis of conducts mentioned below:

Monogamy

All breeds of pigeons were observed as monogamous as both of the partners lived together throughout the course of investigation. It was observed that both of the partners took responsibility not to leave each other throughout the life. Pair can be broken either by isolating both of the partners or by death of one of the partner. In this study 1 Male Racing Homer, 1 Male English Pouters and 1 male Indian Fantails was found to show courtship behaviour to a female of another pair, and started breeding. Afterwards come back to their own partners.

Nesting

During breeding season, in all breed studied, both of the partners were found responsible for the preparation of nest. Males were found more active in this activity as compared to females. Racing Homers and Strasser Pigeons were found more active in this regard. Rest of the two breeds were not so much active as they laid eggs in breeding boxes, do not prepare proper nest. Nests of Strasser pigeons were found more filled with down feathers as compared to rest of the breeds which preferred grass and small shrubs.

Egg laying and incubation

Female laid 2 eggs after reaching sexual maturity. There is no specific season of laying eggs of *Columba livia*. In an experiment 3rd egg was kept in the nest. Indian Fantails, Strasser pigeons and Racing Homers accepted the 3rd egg while English Pouters didn't accept the foreigner egg. Those who accepted foreigner egg, incubated normally. Incubation period was observed from 17 to 20 days. 3 chicks were hatched from all three eggs but one among those 3 chicks died. Because the parents were unable to feed all three chicks equally that is why one out of three chicks died of malnutrition. In another experiment it was observed that if eggs were removed from nest, within a week all breeds started laying a couple of more eggs. But if one of the eggs is removed, the pigeons do not lay another egg rather incubate only one egg. Parents remove the egg shell out of nest soon after hatching the squab. Both of the partners in a couple are responsible to incubate the eggs. It was observed that female sits about 12 to 16 hours for incubation while rest of the time is utilised by male for incubation. When one of the partners is sitting on eggs, the second one take food, even take flight and get relax till his turn.



Fig 1: Fantails incubating eggs



Fig 2: An 18 hours old squab

Feeding squab

Pigeons feed their squabs in the same partnership as they incubated eggs. They feed squabs by a material which is secreted by crop of both parents. Unlike other birds which open their beak and mother put food in it, squab suck the secretion from the opened beak of parent as it regurgitates and mix the eaten food, along with the secretion. Beak of the entire breed was observed to be very soft to prevent any damage to parent's mouth. It was observed in this study that all selected breeds except English Pouters, right after feeding grains, drunken water, flew to the nest, and fed the squabs. It was found after dissection of the crop of one of the squab that it was filled with those grains and a milky liquid. This revealed that pigeon not only feed its squab that secretion but also the food it eats.

Feeding squab of another pigeon

It was revealed that pigeons do not allow any squab of another pair in their nest. If the foreigner squabs are so small and cannot be differentiated, in an experiment one squab was replaced by a squab of another pair, the male was unable to identify substitution while female did. She didn't allow new squab in her nest, either she injured or removed it outside the nest. In another case the squabs of a Racing Homers were died, within 10 days' female laid a couple of eggs, both of the partners were busy in incubating eggs, meanwhile Male Homer fed all the squabs in that aviary one by one. Even that Homer was not welcomed by other parents, but when the parents were not in the nest and squabs were making noise of hunger, this Homer fed all those squabs which even didn't belong to his family, even from different breed.

Hatching next round of egg

It was observed in 3rd week when squabs are partially covered with feathers, all breeds laid a couple of more eggs even squabs were not yet independent to take their own food. At this stage both of the partners become busier because they had to incubate the new eggs and also feed the existing squabs as well. It was observed in all breeds that in the beginning of 4th week the female partner stopped feeding squabs, she restricted her duty just up to incubating the new couple of eggs while male was held responsible for feeding as well as incubation of new eggs. During 27 to 29 day after hatching chicks became mature and were able to feed themselves, now parents didn't allow these chicks to rest in the nest. Racing Homers were found more possessive for their nest in this regard. Squabs hatched in summer were found more susceptible to diseases and unhealthy as compared to hatchlings of spring and winter.

Cleanliness Behavior of squabs

Squabs are very helpless soon after hatching. They have membrane (closed) eyes, even they are unable to move. In the 6th to 10th days of their birth when they started moving within the nest they started dropping their fecal material outside the nest. As they may know consequences of fecal material dropped inside the nest.

Handling of chicks

There is a misconception about pigeons that if squabs are handled by man or once removed from nest, the parents will not accept that. This is wrong. In so many experiments squabs were handled by researcher, also fed by him but parents accepted that squab. Yes, they showed an aggressive behavior for putting up the squabs from the nest, which is obvious.

Conclusions and discussions

Pigeons are considered to be monogamous but their pair can be broken by either death of one partner or by separating them for few days. This study is parallel to the study of *Shehzad et al*, 2016^[9] in which isolated members of a pair to make a new pair of pigeons. Male were found opportunistic to mate with the new female. Both of the partners within a pair were found responsible for making the nest and for incubation of the eggs as well. Feeding the squabs was also found to be the major duty of both the partners in a pair. Feed that was provided to the pigeons was also found within the dissected crop of a squab which indicates that squabs were provided with the food upon which the parents feed and pigeon milk as well which is secreted by the body of both the partners in a pair. If squabs are exchanged in early life, parents can accept the new squabs if their body and feathers are not recognizable to the parents. In rare cases male pigeons were found to feed the squabs of another pair. This study reveals that when squabs are few days old they drop their fecal material outside the nest to avoid any sludge in the nest. They were found to keep themselves clean.

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