

OBSERVATION REGARDING THE PELLETS AND FOOD BEHAVIOUR IN CAPTIVITY OF *BUBO BUBO*

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Abstract. *Bubo bubo* is one of the largest owls from our country who has a diet generally consisting of insects, rodents and a small quantity of birds. The collection of pellets of *Bubo bubo* was made around the wintering places, around nests in the village of Satchinez (Timis county). Some of the samples were from some older and already abandoned nests from Sânicolau Mare, but at several sites we also found and collected fresh *Bubo bubo* pellets. Observations on the *Bubo bubo* species were carried out in captivity at the Timisoara Zoological Garden, where observations were made on the behavior of the species in captivity, mode, type of food and the consumption time. To determine the feeding behavior of owls the pellets were collected weekly during October 2018 - March 2019. At the *Bubo bubo* species, measurements were made on the length, width, and weight of 100 pellets. The food behavior of the *Bubo bubo* species was studied at the Timisoara Zoological Garden, based on the quantity of food administered by the caretakers and the pellets found in the shelter. The feeding at *Bubo bubo*, in captivity, takes place at seven o'clock a.m. in a single meal, the food consisting of chicken breast weighing 311g. The consumption time was about 24 minutes, and it was interrupted several times being influenced by our presence in the area that caused a state of agitation. Due to the fact that the food is administered without bones, the pellets at *Bubo bubo* from captivity, found in the shelter were consisting of dried grasses, feathers and some of them had bones from the captured prey that entered the cage (mice, rabbits). The pellets of *Bubo bubo* is gray to black. At *Bubo bubo* species the size of the pellets is larger, the maximum length of the pellet was 6.12 cm, and the minimum length was 4.13 cm. The average length was $4.8 + 0.6$ cm. Regarding the width of the pellet and it averaged $2.83 + 0.75$. The average thickness was $2.94 + 0.77$ cm. Regarding the dry weight of the pellets, it has an average of $8.07 + 2.33$ g. The winter prey of these species are rodents, voles (*Microtidae*) and field mice (*Muridae*).

Keywords: *Bubo bubo*, pellets, food behaviour, captivity

INTRODUCTION

"Owl" is a common name for night-ordering birds of the order *Strigiformes* and due to its ability to adapt to both hot and cold climates, it can be found all over the globe.

Although this bird has attracted a negative reputation because of the gloomy sound, it is a very useful bird, hunting in a year around 10,000 mice, mice that multiplying would consuming huge quantities of food and would spread many diseases.

The food of these birds is composed of rodents or insects that hunt at night or in the twilight and usually swallowed whole. Food waste is discarded in pellets form.

The *Bubo bubo* diet has been studied in various countries in European countries such as Greece (PAPAGEORGIOU et al. 1993; ALIVIZATOS et al. 2005), Slovakia (OBUCH & KARASKA 2010), Italy (MARCHESI et al. 2002) and Spain (DONÁZAR 1987); Portugal (HOOPER, 2005), (MIKOLA, 1983); Western Asia, including Syria (SHEHAB, 2004), Iran (OBUCH, 2014), Turkey (OBUCH, 1994, De CUPERE et al. 2009), Palestina (QUMSIYEH et al, 2014) Israel (CHARTER, 2007, SHIRIHAI, 1996) and China (ZHENG, 1983). The diet of the owl species is known from Western Egypt (GOODMAN, 1990), northern Saudi Arabia (EVANS & BATES 1993), and Jordan (AMR et al. 1997; SHEHAB & CIACH 2008).

However, the diet of long-eared owls in our country is poorly known. The present study is focusing on the analyze of the pellet size of *Bubo bubo* in Western part of Romania.

MATERIAL AND METHODS

The collection of pellets of *Bubo bubo* was made at the wintering places, around nests in the village of Satchinez and Sânicolau Mare (Timis county) and at the Timisoara Zoological Garden, where observations were made on the behavior of the species in captivity, mode, type of food and its consumption time.

The pellets were collected weekly from October 2018 to March 2019, from the Western part of Romania, with the help of surgical gloves and to a vessel in which over 100 pellets were collected to determine the food behavior of owls (Figure 1).



Figure 1. The pellet of *Bubo bubo*

The collected pellets were dried, sorted, measured and weighed (Figure 2).



Figure 2. The weighting of the pellets at *Bubo bubo*

Then the pellets were soaked in hot water and 95% ethanol, to better separate the parts corresponding to the consumed species (Andrews 1990) and then they were dissected (Figure 3).



Figure 3. The dissection of the pellets

At the *Bubo bubo* and *Asio otus* species, were made measurements on the length, width, and weight of 100 pellets.



Figure 4: The measuring of the pellets at *Bubo bubo*

RESULTS AND DISCUSSIONS

At the *Bubo bubo* species, were made measurements on the length, width and weight of 100 pellets. As we can see from Table 1 for large owl species, the size of the pellets is larger.

Table 1

Pellet size of *Bubo bubo*

Nr.	Pellet length (cm)	Pellet width (cm)	Pellet thickness (cm)	Pellet dry weight (g)
Min	4,13	1,41	1,6	4,2
Max	6,12	4,31	4,33	12,41
Average	4,8	2,83	2,94	8,07
Standard deviation (s)	0,6	0,75	0,77	2,33

The pellets of *Bubo bubo* is gray to black. The maximum length of the pellet at *Bubo bubo* specie was 6.12 cm, and the minimum length was 4.13 cm. The average length was 4.8 ± 0.6 cm. (Figure 5) Regarding the width of the pellet, it averaged around 2.83 ± 0.75 , the highest width was 4.31 cm and the smallest was 1.41 cm.

The largest thickness of the pellets was 4.33 cm and the smallest was 1.6 cm. The average thickness was 2.94 ± 0.77 cm.

Regarding the dry weight of the pellets, it had an average of 8.07 ± 2.33 g, the highest reached the weight of 12.41 g, and the smallest was 4.20 g.

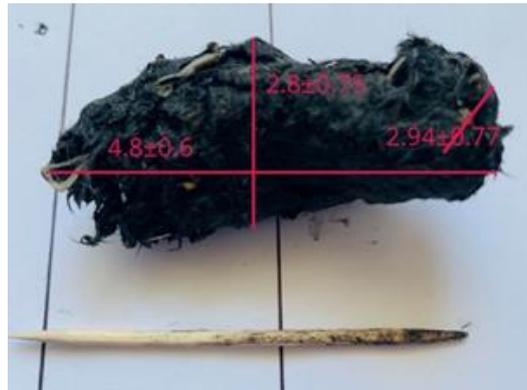


Figure 5: The pellet size of *Bubo bubo*

Bubo bubo is one of the largest owls from our country, with a size between 55 - 80 cm and a wingspan of 120 - 200 cm (Figure 6).



Figure 6. *Bubo bubo*

The feeding behavior of the *Bubo bubo* species was studied at the Timisoara Zoological Garden, based on the quantity of food administered by the caretakers and the pellets found in the shelter.

The feeding at *Bubo bubo*, in captivity, takes place around seven o'clock a.m. in a single meal, the food consisting of chicken breast weighing 311 g. The consumption time was around 24 minutes, and it occurred in several periods being influenced by our presence in the area that caused a state of agitation (Figure 7).



Figure 7. The food behaviour at *Bubo bubo* in captivity

Due to the fact that the food is administered without bones, the pellets at *Bubo bubo* from captivity, found in the shelter were consisting of dried grasses, feathers and some of them head bones of captured prey that entered the cage (mice, rabbits) (Figure 8 and 9)



Figure 8. The pellets at *Bubo bubo* in captivity



Figure 9. The pellets with feathers

Some factors, such as environmental conditions (temperature, humidity, and precipitation), can affect owls' survival habits, influencing prey behavior and ability to locate prey (RUBOLINI et al., 2002). It was determined that the climatic conditions, which are different according to the season, may influence the hunting behavior (FERICEAN, RADA, 2013).

Rodents, voles (*Microtidae*) and field mice (*Muridae*) are the staple winter prey of these owls.

CONCLUSIONS

The pellets of *Bubo bubo* is gray to black. The size of the pellets is larger, the maximum length of the pellet was 6.12 cm, and the minimum length was 4.13 cm. The average length was $4.8 + 0.6$ cm. Regarding the width of the pellet and it averaged $2.83 + 0.75$. The average thickness was $2.94 + 0.77$ cm. Regarding the dry weight of the pellets, it had an average of $8.07 + 2.33$ g.

The feeding at *Bubo bubo*, in captivity, takes place around seven o'clock a.m. in a single meal, the consumption time was about 24 minutes, and it occurred in several periods being influenced by our presence in the area that caused a state of agitation

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