Average Daily Food Consumption and Live Body weight of Captive Common Buzzards (*Buteo buteo*)

Okoli, C. P.
Department of Veterinary Medicine and Surgery,
Faculty of Veterinary Medicine,
University of Abuja, Abuja, Nigeria.
E-mail: Prochuks64@yahoo.co.uk

Aiyedun, J. O.
Department of Veterinary Public Health/Preventive Medicine,
Faculty of Veterinary Medicine,
University of Ilorin, Ilorin, Nigeria
E-mail: olaaiyedun@yahoo.com

ABSTRACT

Twenty five common buzzards randomly picked at the reception of the Hellenic wild life hospital and Rehabilitation Centre, Aegina, Greece were weighed and put in separate well ventilated paper boxes in a large room (30m x 15m x5m). At entry, the birds weight ranged from 499g to 796g. They were weighed 4 times during the study at fairly regular intervals. The birds were fed on chicken with bones every morning. A control was set up in a 26th paper box in which the same quantity of meat was placed but without any buzzard. The control was to find out the quantity of moisture lost to the atmosphere through evaporation. The moisture lost daily was recorded and the average computed and corrected and used for calculating the average quantity of food consumed by the buzzards. A unit increase in the average quantity of food consumed per day and the initial weight resulted to a corresponding increase of 1.495 and 1.265 respectively in the final weights of the buzzards. The approximate daily food consumed by a buzzard of average weight of 691g was 115.1g which translates to 16.7% of its live body weight. The initial weight is significant in predicting the final weight with the criterion P value < 0.05. The range of weight gain for the studied buzzards was with an average of 19.4%. The approximate daily quantity of food consumed by a common buzzard of average weight of 691g was 115.1g which translates to 16.7% of its live body weight.

Keywords: *Daily food, Live weight, Captive, Common buzzards.*

INTRODUCTION

Common buzzards, apart from being a threatened species are vulnerable to human persecution and abuse particularly in Italy and the Balkans where illegal shooting and poisoning are a common scourge. Worse still is in Africa and other developing nations where they are hunted and eaten as "bush meat" because of insufficient animal protein. The common buzzard is the most accipitrid bird of prey in central Europe (Mebs, 1964). Timbergen (1965) emphasized the need to study animals in their natural surroundings, especially where their bahaviour evolved. Captivity is stressful but it is inevitable in giving care to the birds to get over their conditions before returning them to the wild. According to Merck veterinary manual (6th edition), animals require some stimulation to overcome stress or boredom in a barren environment but the import of adequate feeding for captive common buzzards cannot be overemphasized. The

species is therefore often brought into wildlife rehabilitation centers following gunshots, poisoning, electrocution, and early loss of parents, harsh and extreme weather conditions, food scarcity, natural disasters and inability to migrate during winter. Free living buzzards feed essentially on small rodents, small mammals, birds, reptiles, amphibians, large insects and worms. They hunt over open country and their preys include field voles, local rabbits, moles, leverets, shrews, wood mice, squirrels, rats, newly fledged subjects, and offals from slaughter houses can be important as part of their diet. Common buzzards brought into wildlife rehabilitation facilities are stabilized and treated for whatever ailment or condition they have, rehabilitated and taken back to the wild to live their independent and free life. Those considered unable to survive in the wild are permanently in the rehab facility for captive breeding, teaching, research and tourism. A major challenge for rehabbers is how to feed captive common buzzards, the right quality and quantity of food similar to what they take in the wild. Bird and Ho (1976) attempt to give the nutrient composition of basic food types for raptors.

It is important to determine the quantity of food adequate for various species of raptors for knowledge and logistic purposes. Redig (1993) states that there is an inverse correlation between the size of a bird and the amount of food they eat per day. Cooper (1985) states that raptors such as saw-whet owls and kestrels will eat about 30 percent of their body weight per day, red-tailed Hawks will maintain themselves on 15 to 20 percent per day, and eagles require about 8 to l0 percent of their body weight per day. These are general guidelines. According to Redig (1993), the actual quantity of food consumed by any species of raptors should be gauged by the body weight as determined by daily weighting of the patients. The prohibitive cost and logistic challenges of feeding commercially reared quails to birds of prey which was put at $1/day/kg by Redig makes the feeding of captive common buzzards on pre-slaughtered bony chicken inevitable. This is because it is cheaper and more readily available. This experiment was carried out at the Hellenic wildlife Hospital and rehabilitation centre, Aegina, Greece with 25 common buzzards randomly picked in order to evaluate the average food consumption and live body weight of captive common buzzards otherwise known as *buteo buteo*.

MATERIALS AND METHOD

After clinical examination, diagnosis and recording, 25 common buzzards were randomly picked for this experiment. The birds were weighed with electronic weighing scales and put individually in perforated paper boxes measuring 90cm x 75cm x 75cm. The paper boxes were all kept in one large room on top of raised wooden pallets. In the rehab facility, common buzzards were fed with preslaughtered frozen bony chicken. The chicken was brought ahead of time, chopped into smaller pieces and allowed to thaw slowly. Clean flat round bottom ceramic bowls 2cm deep with a diameter of 12cm were used in serving the chicken. The ceramic bowls were weighed and recorded. Thereafter a handful of the thawed chicken was taken and put in the bowl and their combined weight taken and recorded to determine the quantity of meat served. The weighed meat was then carefully lowered into the boxes containing individual common buzzards labeled B1-B25. Each bird was kept in one box throughout the study period and the boxes were destroyed at the end of the study as the

birds were transferred to bigger rooms. The birds were closely monitored for 24hours till the next morning when the buzzards were carefully picked up and wrapped with clean dry cloth by one person, while the second person gathered the leftover meat for re-weighting. The underlay glossy paper was changed and the bird put back in the box. The leftover meat were painstakingly gathered and put in the ceramic bowl and weighed. The weight of the ceramic bowl which has been predetermined was subtracted from the combined weight to determine the quantity of the meat left over. After the measurement and recording of the leftover meat for each bird, the birds were returned and another meat for the day weighed and served. The buzzards were studied in batches of 5 for a period ranging from 30 to 36 days each. The quantity of meat consumed by buzzards for each day was determined by subtracting the quantity of leftover meat from the quantity of meat served the bird the previous day.

The birds were served once a day and the records were compiled and kept throughout the study period for an overall average daily consumption to be computed. In the course of the study, the weight of the birds were taken at fairly equal intervals about 4 times each and recorded. The average of the four weights W_1 to W_4 was used as the average weight of the studied common buzzards. In order to take cognizance of moisture lost by the served meat meals to the atmosphere through evaporation controls were set up each day of the study. The same quantity of meat served the buzzards each day was put in ceramic bowls of the same capacity and dimension and lowered into the 26th paper box in the same room without any buzzard. The meat in the control bowl was reweighed the next day and recorded. The difference in weight represented the amount of moisture lost to the atmosphere by the meat through evaporation.

RESULTS AND DISCUSSION

This experiment sort to establish the average quantity of meat consumed per day by captive common buzzards in rehabilitation. Brown and Amadon (1968) put the approximate daily food intake of a red-tailed Hawk weighing 1150g at 10.7% of its body weight. Similarly they put the approximate daily intake of a 200g sparrow-Hawk at 26.5% of its body weight. From the Regression model, Final Wt. = -175.0199 + 1.1495Xav. food + 1.265Xinitial wt. This implies that a unit increase in the average quantity of food consumed per day resulted in a corresponding increase of 1.495 in the final weight of the studied captive common buzzards and a unit increase in their initial weight led to a corresponding increase of 1.265 in their final weight. The coefficient of initial weight is significant in predicting the final weight with the criterion P value < 0.05. According to Afonja (1982), regression coefficient is a measure of the degree of dependence of one variable on another while correlation coefficient is a measure of the linear association between various values or quantities.

In the final analysis, the result of the studied sample population put the approximate food consumed by a 691 g captive common buzzard at 115.1 g per day which is 16.7% of its live body weight. This result is in agreement with Redigs (1993) assertion that there is an inverse correlation between the size of a bird and the amount of food they eat as Brown and Amadon (1968) put the daily food intake of a 1150g red Hawk and a 200g Sparrow-Hawk at 10.7% and 26.5% of their body weights respectively. It is important to note that there was a positive

right shift in the weight of the studied common buzzards as the least weight gained by any of the birds was 2.7% with a maximum of 32.9% at the end of the investigation. This is a pointer to the effectiveness of the rehabilitation efforts at the wildlife rehab facility and it could also be one of the bases for the release of the birds back to the wild.

CONCLUSION

This research on average daily food consumption and live body weight of captive common buzzards (buteo buteo) is important as a logistic tool for wildlife rehabilitation facilities, zoo keepers, veterinarians and teachers of wildlife medicine and ecology. A knowledge of the daily quantity of food required by common buzzards in captivity, will help keepers and care givers in planning for their feeding which is paramount to their survival prior to release back to the wild or dedication for captive breeding. The findings of the study in conclusion, can also be rationally adjusted and used for other raptor species in captivity.

Table 1: Interval weights (W_1 - W_4) of the studied common buzzards (B_1-B_{25}) for food, their Average weight for the study period, their average daily food consumption and their average weight gain or lost wt. gained in percent

Buzzard	W (g)	W_2 (g)	W3 (g)	W_4(g)	Average Wt(g)	W_4 - W_1 Wt. gained/lost (g)	Average qty of food per day (g)	% weight Gain/Loss
B_1	628.4	634.5	792	787.3	710.6	158.9	97.9	25.3
B_2	598	632	661.5	671	640.6	73	96	12.2
B_3	622	727.5	820	821.5	747.8	199.5	113.4	32.1
B_4	579	580.4	661.8	683.4	626.2	104.4	106.4	18
B_5	569.3	581	611.5	658	605	88.7	118.4	15.6
B_6	796	944.3	930.5	929	897.5	123	101.5	15.5
B_7	695	829.3	769.1	908	800.4	213	107.8	30.6
B_8	623.5	759	767.5	808	739.5	184.5	120.5	29.6
B_9	559	578.9	603.7	619.4	590.3	60.4	110.6	10.8
B_{10}	669	723	726.2	803.5	730.4	134.5	125	20.1
B11	551	632.2	649	644.7	619.2	93.7	130.2	17
B12	601.4	621.9	632	629.8	621.3	28.4	125.1	4.7
B13	661.4	673.2	689	695.4	679.8	34	114.2	5.1
B14	564	568.8	573	579.1	571.2	15.1	104.2	2.7
B15	689	723.5	784	819	753.9	130	127.7	18.9
B16	633.5	684	700.5	716	683.6	82.1	111.7	13
B17	603.5	711	743	802	714.9	198.5	122.3	32.9
B18	591.3	639	692.5	713.4	659.1	122.1	111.7	20.6
B19	683.9	751.2	798	803	759	119.1	118.3	17.4
B20	753.5	802	884.5	911	837.8	157.5	110.1	20.9
B21	629	678.1	713.4	747	691.9	118	113.1	18.8
B22	557.4	603	674.5	725	640	167.6	119.9	30.1
B23	499	534	578.4	622	558.4	123	127.5	24.6
B24	565	644	673.3	690.1	643.2	125.1	121.6	22.1
B25	654.2	731	790	833.5	752.2	179.3	123.3	27.4
Average	623.1	679.5	716.8	744.4	691	121.3	115.1	19.4

Table 2: Regression model coefficients

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-175.0198927	196.0679205	-0.89265	0.38216033	-582.765455	232.725669
Average food	1.149279016	1.207797123	0.95155	0.35214979	-1.3624726	3.66103063
initial weight	1.265447281	0.172053661	7.354957	3.0845E-07	0.907642105	1.62325246

Figure 1: Bar Chart of weights (g) (W1, W2, W3 & W4)

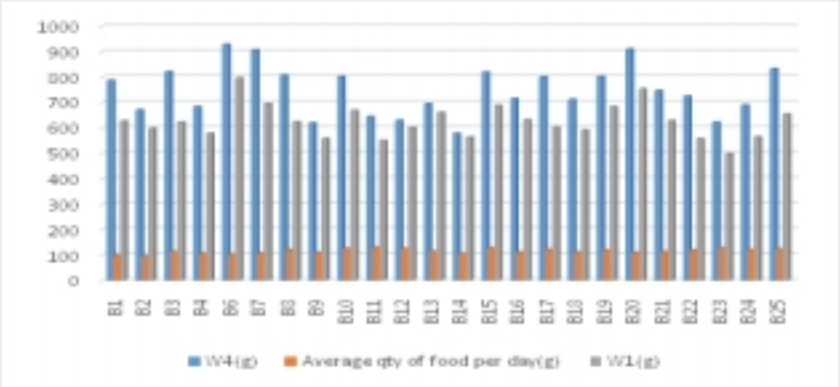

Figure 2: Bar-chart of W1 (g), Average qty of food per day and W4(g)

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