Global Journal of Medical Research: K
Interdisciplinary
Volume 14 Issue 6 Version 1.0 Year 2014
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Behavioural Patterns in Captive Common Buzzards Buteobuteo

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Abstract- Captive common buzzards develop adaptive behaviors for survival or vices in response to the stress of captivity, reduced living space, regular handling and change in diet and environment. The studied buzzards showed behaviors suggestive of hierarchy, domination and subservience. Strong and dominant birds would walk briskly across the rooms, stepping on others without challenge or resistance. The weak birds lie prostrate and motionless on the floor anytime the dominant bird spurs up aggressively. This investigation sort to find the purpose mews serve buzzards in captivity; the factors that influence them and the number of mews per minute in different circumstances. They were studied in groups in different rooms to find the mew rate with the observer out of sight, in sight and waving hand.

Increase in buzzard population did not increase the mew rate significantly with the observer in sight. The observer coming to sight or otherwise produced a disproportionate increase and decrease in mew rate as the population increased. The study shows that mews by captive buzzards are means of communication and signals and their pitch and frequency were positively influenced by sight and movement.

Keywords: *behavioural, patterns, captive, common buzzards.*

GJMR-K Classification: *NLMC Code : WB 286*

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Increase in buzzard population did not increase the mew rate significantly with the observer in sight. The observer coming to sight or otherwise produced a disproportionate increase and decrease in mew rate as the population increased. The study shows that mews by captive buzzards are means of communication and signals and their pitch and frequency were positively influenced by sight and movement. The non-parametric methods (sign test) of comparing mew rates with observer waving hand and not waving hand shows that;

z-value=2.04 p=0.041

wilcoxon matched paired test

z-value=2.04 p=0.028

Both analysis show significant differences as waving of hand triggered off an exaggerated response as it indicates imminent danger attack or disturbance.

Buzzards mew in sympathy to themselves and the high-pitched mews may be their defense against apparent treats, invasion or response to movement. The pitches of the mews were higher with the observer in sight and the observer waving hand. The figures recorded with the observer out of sight,in sight and waving hand suggested that there must be a neuro-endocrinal or nervous/humoral interplay which accounts for the exaggerated responses in terms of pitch and frequency. The display of domination and subservience by captive buzzards may help rehabersand captive breeders as dominant birds have better survival trait and are believed to be better survivors of natural selection pressure.

Keywords: behavioural, patterns, captive, common buzzards.

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I. Introduction

Behavior in animals, including birds is an amalgam of inherited and acquired attributes. It is usually species specific and closely knotted to the survival instincts of the species in question.

Birds communicate by means of visual signals and vocalization (songs and calls) and communication involves a signals passing between two or more individuals. Vocalization and signals display in birds which may be described as sign language, are used often in conjunction with calls or songs to advertise a territory, repel a rival, attracts a mate and in some birds to reinforce the bond between pairs.

Wiley (1994) and Endler (1992) stated that signals may however portray conflicting messages. Vocal communication in birds is divided rather arbitrarily into calls and songs. Calls are simple notes and they are produced by both sexes at any time of the year while songs are acoustic and musical usually advertising ownership of a territory. Common buzzards vocalize by making a high pitched noise which is referred to as "Mew". This investigation was to find the purpose the mews serve buzzards in captivity, the factors that influence them the number of mews per minute in different circumstances. The second objective was to find out some behavioral adaptations developed by buzzards in captivity for survival or vices if any developed following the stress of captivity, regular handling and change of environment

II. Materials and Method

On the whole 142 common buzzards housed in a perforated paper box and four well ventilated rooms were studied closely at the Hellenic Wildlife Hospital and Rehabilitation centre, Aegina, Greece- The distribution of the birds were one in a paper box, 16, 30, 45 and 50 in 4 different other rooms. The rooms were equipped with suspended twigs and wood stumps on the floor for recreation and exercise. The floors were partly concreted with large quantity of leafy straw from the sea for easy cleaning. A strip of uncovered but concreted area was left in each room where the meat meals were served.

At the beginning of the study, ample time was spent by the observer for a close look at the birds without disturbing them. The study lasted 3 months with each set of birds observed closely and records kept.

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The record of the buzzards mew rates per minute were taken using electronic stop-watch, with (a) Observer out of sight, (b) Observer in sight and (c) Observer waving hand.

These series of investigation were conducted severally for 30days throughout the duration of the study. At the end of each day, the means of the data generated were computed and recorded for subsequent use and further analysis. The stop watch was held with the left hand while the counting of the mews started as soon as the knob was pressed with the left thumb. The counting stopped when the second arm went one full cycle from where it started, which was one minute.

For the second series of counts of mews per minute, the observer quietly stepped in front of the open doors to the rooms covered wire mesh such that the birds will notice him. The observer ensured that he made no noise while the counting lasted. Thirdly, the observer appeared quietly in front of the rooms covered with wire mesh holding the stop watch on the left hand and waving the right hand 180 degrees or half cycle The stop watch knob was pressed as the waving of the hand was on and the counting stopped as soon as 1 minute was up. The counts were done severally for each set of buzzards in the various rooms each day of the study and the average recorded. The mews were counted at least an hour after serving their meals.

III. Results

Table I : Mew Rate of Captive Common Buzzards

Days	No of Buzzards in Room	No of Mews Per/Min. with Observer Out of Sight	No of Mews Per/Min. with Observer in Sight	No of Mews Per/Min. with Observer Waving Hand
1	30	10	29	
2	16	7	21	29
3	16	3	25	
4	30	10	53	
5	16	3	5	
6	45	12	48	
7	50	3	37	9
8	16	12	28	40
9	45	6	48	
10	50	7	38	
11	45	5	42	
12	16	1	10	16
13	50	6	42	
14	16	1	10	
15	50	14	66	
16	16	7	31	
17	45	23	51	68
18	45	26	48	
19	16	2	14	
20	50	13	48	
21	45	11	60	
22	16	3	24	36
23	50	11	49	
24	16	3	15	
25	45	8	40	
26	50	8	37	
27	30	7	28	43
28	30	8	23	

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29	30	8	23	
30	45	13	47	

Table II : Summary of Statistics of Mew Rate by Captive Common Buzzards

Summary						
Groups	*Count*	*Sum*	*Average*	*Variance*		
out of sight	30	248	S.266667	32.71564		
in sight	30	1049	34.96667	254.6622		
waving hand	7	241	34.42557	321.3885		

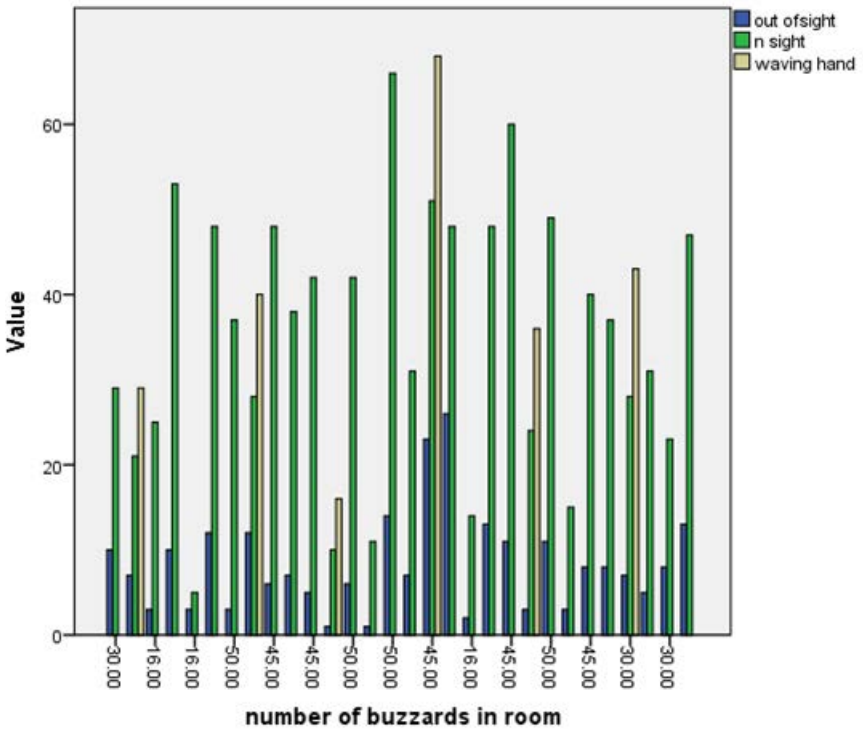

Figure I : Bar chart of mew rates by captive common buzzards

Mew Rate by Captive Buzzards
Observer out of sight with observer in sight
t-value =-8.82p =0.000 (significant difference)

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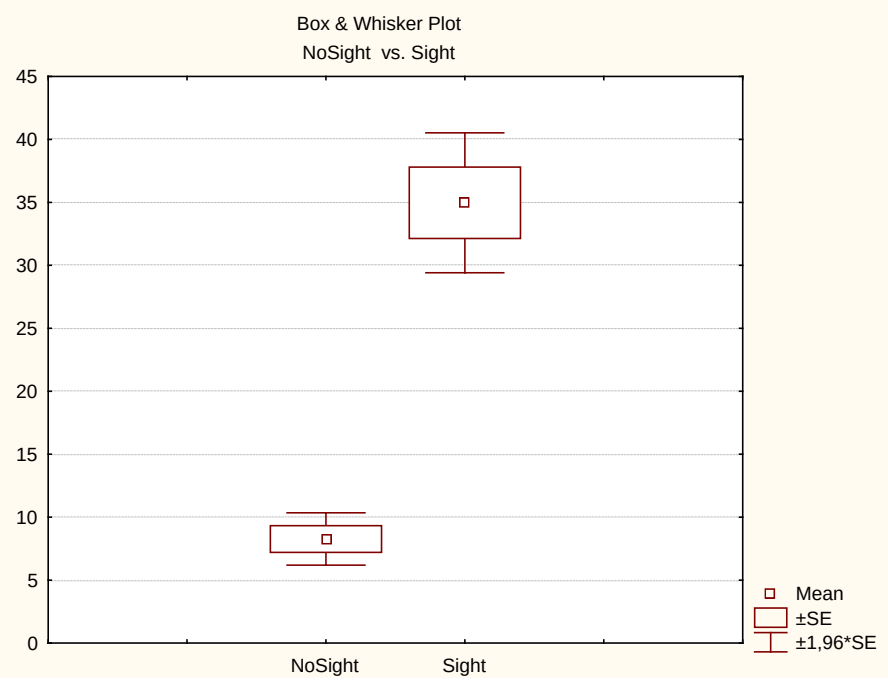

Figure II : Box and whisker plot comparing mews by buzzards per minute with the observer in and out of sight

Non Parametric Methods Comparing Mew Rates with Observer Waving Hand and without Waving Hand

Sign -test

z- value = 2.04 p =0.041

Wilcoxon Matched Paired Test

z-value = 220 p = 0.028

Both analyses show significant difference as waving of hand triggers off an exaggerated response as it portends imminent danger, attack or disturbance.

IV. Observation on Behavior and Discussion

The aspects of behavior which were studied very closely, although not exhaustively are vocalization displays and attitude to food. Some of these behaviors are species specific and inherited. They could also be influenced or altered by the environment or experience. Some birds played dead in the face of aggression from dominant buzzards for a long time. They lay down motionless pretending not to be breathing. This attempt to play dead as observed and recorded for some buzzards cannot be far from a design by the birds who exhibit them to survive by dodging attacks, resting for proper healing and recovery from diseases. It may also be a striking display of an evolving behavioural change following captivity and handling.

Brown and Amadon (1968) Endler, J.A., (1992), Forest, (1994) and Glutz (1971) variously highlighted trends amongst buzzards in the wild in regard to aggression, cannibalism, pair-formation, pair-contact, and territorial display. Tubbs (1974) recorded inter-sibling aggression, while Robert (1985) and Ingram (1959) talked about occurrences of cannibalism and some cases of death. It was also observed that inspite of the fact that large quantity of meat was served each time, some of the buzzards would not go close to the meat meals until the domineering ones are through and retire to the area covered with straw or perch on the tree twigs.

Glutz (1971) stated that in buzzard communities, subordinates adopt crouching posture, and if attacked may throw themselves on their back and present talons, eventually lying motionless with upper wing raised id submissive display if it cannot escape.

A number of the behaviours exhibited by the buzzards studied in captivity were in line with what the aforementioned workers reported for them in the wild. These include subordinate going prostrate and lying motionless on the floor in submission in the face of aggression. Since buzzards are reported to display their territories by moving round, and short flights, it is evident that earlier occupants or stronger inmates dominate new entrants and weak birds. Such must be what happened when three buzzards were seen lying motionless on the floor.

For the study on vocalization, analyses show that increase in buzzard population did not increase the mew rate significantly with the observer in sight. The observer coming to sight or otherwise produced a

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disproportionate increase and decrease in mew rate as the buzzard population increased. However, the study clearly shows that mews by buzzards in captivity in spite of being means of communication and signals have their pitch somehow dependent on sight and movement. There is abundant evidence that buzzards mew in sympathy to themselves and the high-pitched mews may be their defense against apparent threats, invasion or response to disturbance. The pitches of the mews were higher with the observer in sight and me observer waving hand.

The number of mews recorded with the observer out of sight, observer in sight with a waving of the hand suggests that there must be a neuro-endocrinal or nervous/humoral interplay or synergism which accounts for the exaggerated responses in terms of pitch and frequency. Additional stimuli seem to trigger off increased response or reaction from the birds as they attempt to ward off supposed intruders and alert others.

The observation of supremacy and territorial display by some of the studied buzzards In group and the corresponding exhibition of submission and subservience by supposedly weak and new entrants will enable keepers and breeders of common buzzards in captivity albeit temporally or permanently to closely monitor and separate these classes of birds to forestall the vice of cannibalism. This could additionally be helpful in the biased but informed selection of dominant birds for breeding as far as survival trait and instinct parameters arc concerned. Domineering birds are selected for breeding purposes because they are believed to be better survivors of natural selection pressure.

The student t-test comparing mew rate of common buzzards with observer in sight and observer out of sight shows that there was a significant different as t-value = -8.82 and p =0.000

The non-parametric methods (sign test) of comparing mew rates with observer waving hand and observer not waving hand shows that;

z-value=2.04 p=0.041

wilcoxon matched paired test

z-value=2.04 p=0.028

Both analysis show significant differences as waving of hand triggered off an exaggerated response as it indicates imminent danger attack or disturbance

V. Acknowledgement

I wish to put on record on appreciation to the Greek government, Phillip Dragoumis, Margaret Okoli and the Hellenic wild life hospital and rehabilitation center Aegina, Greece.

The manuscript has two tables and two figures which titles are –

Table I : Mew Rates of captive common buzzards

Table II : Summary of statistics of mew Rates by captive common buzzards

Figure I : Bar chart of mew Rates by captive common buzzards

Figure II : Box and whisker plot comparing mews by buzzards per minute with the observer in and out of sight

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