

## Aspects Regarding the Morphology of Trunk Skeleton from the Common Buzzard (Buteo Buteo)

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**Abstract.** Common buzzard is one of the most common birds found in the perimeter of airports in Romania, for his reason often can be involved in various incidents due to collision with the air frames. Identification of the bodies in such cases can be done quickly if we known the bone morphology, due to the fact that, often, the only elements that can be studied are the bones or bone fragments, eventually remains of feathers. The specimens used in this study were the cases found in cases Henri Coanda Airport – Bucharest. It was noticed the number of vertebrae of each region, the aspect of cranial and caudal terminal faces, morphology of spinal and transverse processes and how are joined beetwen them. There were made studies of the sutures beetwen synsacrum and the coxal bones. It was appreciated the sternum and ribs morphology and finally it was photographed the most representative aspects.

**Key words:** common buzzard, vertebrae, ribs, sternum.

### INTRODUCTION

Common buzzard is one of the most common birds found in the perimeter of airports in Romania, for his reason often can be involved in various incidents due to collision with the air frames.

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Considering that in literature there were only makings regarding the skull and limb bones (Orhan - 2006), the results help to complete the existing data and provide sufficient information to identify a bird of this species involved in an incident like those mentioned above.

One of the birds of prey frequently met in romanian fauna is great buzzard (Buteo buteo). There are two situations when the large number of these birds draw attention to supervise the population. In first case, in hunting grounds, these birds can affect small game species (rabbit, pheasants, young roe deer etc). In the second case, the presence of these birds in the area of airports can create great aerial communications problems. Whereas the literature

data are summarily or treat aspects bounded of the limb and skull bones (2,3,4,5,6,7,8,9,10,11), thoroughgoing study of morphological details regarding the osseous system in this species can be helpful when specialists are confronting to the situation of identifying the bird involved in an aerial incident, from simple remainders of bone fragments recovered as a result of this unwanted situation.

## MATERIALS AND METHODES

The study material was represented by 5 bodies came from adult birds (*Buteo buteo*) recovered between october 2010 – mars 2011 from the area of International Airport Henri Coanda – Bucharest. The cause of bith's death was constituted by the various incidents in which the birds were involved.

The bodies were manual cleaned from feathers and tissues and then were macerated. Were chosen osseous pieces whom integrity was not affected, were defeated and then cleaned with fresh water.

Measures were made to each bird, the morphological features were identified and described and were taken photos to significant aspects. The terminology was correlated to *Nomina Anatomica Avium* -2005.

## RESULTS AND DISCUSSIONS

### Backbone

First cervical vertebra – the atlas – has the shape of a ring (Fig.1). It is the smallest vertebra from the backbone. The vertebral body is small and presents on the dorsal side an articular surface for the dent process of axis, reaching the occipital bone. On the cranial surface of the body we observe a glenoidal cavity shaped like a half-moon, directed with the pointed ends towards the basis of neural arch. This cavity is intended to occipital condyle.

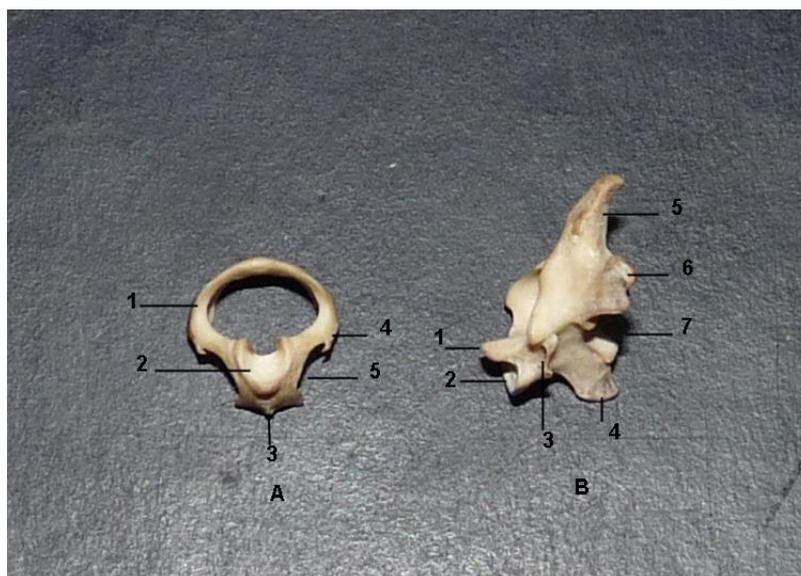


Fig. 1 Atlas (A) and axis (B) in *Buteo buteo* (original)

A -1-vertebral arch; 2-glenoidal cavity for occipital; 3- ventral process; 4- transvers process; 5- lateral vertebral notch.

The axis is a very developed vertebra, who overdraws the size of atlas and is alike other vertebra (Fig. 1). The neural arch has on its median line a well developed spinous process. Its size is approximately 3 mm high. The vertebral body has a ventral spine of 2 mm length. Between the vertebral body and the neural arch there is caudal vertebral notch which is wide in Buteo.

The other 10 cervical vertebrae has a greater volume towards the caudal side, thus the last cervical vertebrae get bigger then the first ones (Fig. 2,3). In Buteo the spinous process is developed at vertebrae III-IV, gets smaller then, and become well represented at vertebrae X-XII.

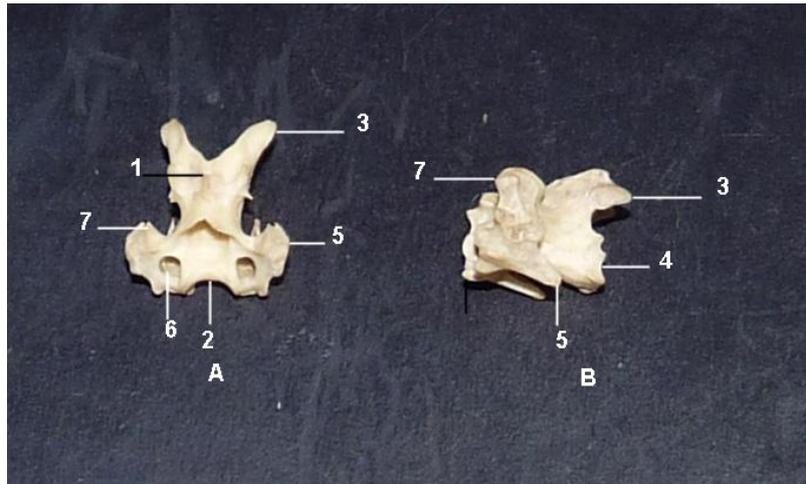


Fig. 2. The 6<sup>th</sup> cervical vertebra – dorsal aspect (A) and 8<sup>th</sup> cervical vertebra - lateral aspect (B) (original); 1- spinous process; 2- cranial terminal face; 3- caudal articular processes; 4- caudal terminal face; 5- transversal processes; 6- lateral vertebral foramen; 7- cranial articular processes .



Fig. 3 General aspect in lateral view of cervical vertebra III-XII in Buteo buteo (original)

#### Thoracal vertebrae

Is characterised by its massiveness and reciprocal soldering, in exception the first and the last two (Fig. 4). The spinous processes from the solded vertebrae are indepent. Because of the vertebrae soldering, the vertebral noch is transformed into a true intervertebral foramen. The ventral crest rises until the 5<sup>th</sup> vertebra, decreases its size at the 6<sup>th</sup> and disappears at the 7<sup>th</sup>.

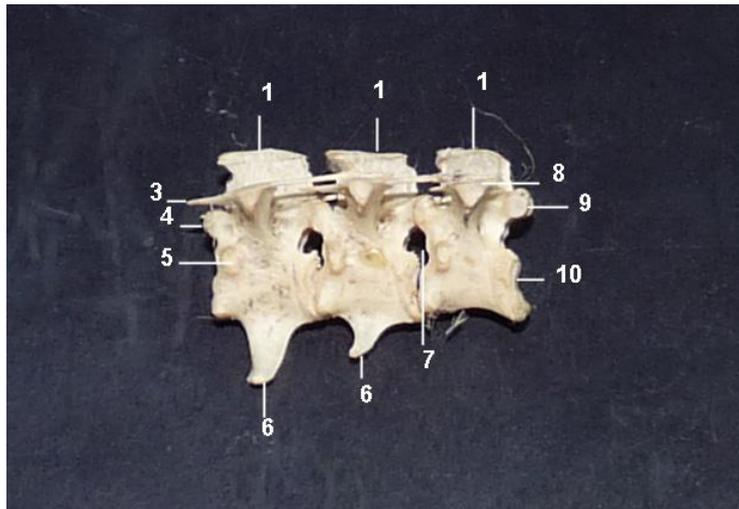


Fig. 4 Soldered thoracic vertebrae V-VII (lateral view) (original)

1- spinous process; 3 - osteocordons which soldered at the pointed ends of the transversal processes; 4- cranial articular process; 5- ventral root of transversal process with articular surfaces for the head of the rib; 6- ventral vertebral crest; 7- intervertebral foramen; 8- dorsal root of the transversal process with articular surfaces for the rib tuberosity; 9- caudal articular process; 10- caudal terminal surface.

#### Synsacrum

The lumbo-sacral region is formed by 14 vertebrae, their limit being slightly distinctive. The lumbo-sacral bone soldered to the last thoracic vertebra and to the last coccygeal vertebra (Fig. 5). The limit between the lumbar vertebrae and the sacral ones is the region of the body of vertebrae the most dilated transversally.

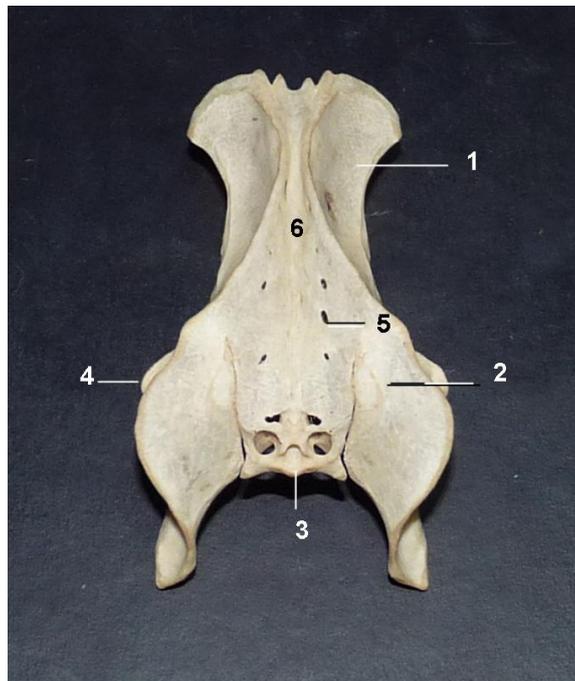


Fig. 5 Synsacrum and the two ilium bones (dorsal aspect) (original)

1- preacetabular part of ilium; 2- postacetabular part of ilium, 3- first caudal vertebra soldered to synsacrum; 4- antetrochanter; 5- interdiapophysal foramen; 6- median groove.

The vertebrae sold completely with the medial edge of ilium, so that we observe only a continous median groove on the dorsal side of lombosacral bone. We can observe also 5-6 pairs diapophisal foramina.

#### Ribs

There are 9 pairs of ribs, directed in cranio-caudal direction, more and more oblique and have ossified chondral cartilage.

#### Sternum

The sternum is the most developed bone from the entire bird skelleton, offering place for the pectoral muscular instertion, wich is extremly developed (Fig. 6). The stern has a quadrangle shape. On the external side of this bone we can observe the sternal crest, well represented with maximum hight of 2.5 cm in the cranial part.

The cranial edge of sternal body is convex and has a median prolongation, episternum, sagital orientated, without a episternal foramen. On both sides there are two concav articular surfaces for coracoidal bones. The caudal edge does not present abdominal processes, their place beeing taken by two elliptical foramen with the dimensions of 0.5-1 cm.

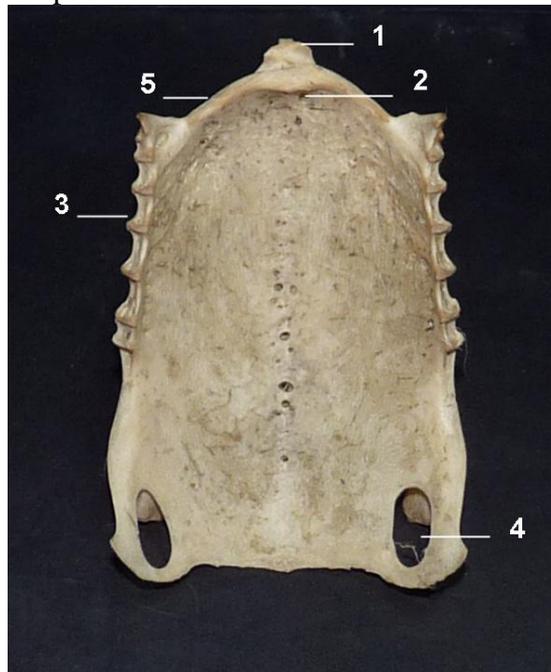


Fig. 6 Sternum in *Buteo buteo* (dorsal view) (original)  
1-episternum; 2- pneumatic foramen; 3- costal fovea; 4- sternal foramen

### CONCLUSIONS

- The backbone is constituted from:
  - 12 cervical vertebrae
  - 7 toracal vetrebrae
  - 14 lombosacral vertebrae
  - 7 caudal vetrebrae.
- The sutures between the toracal vertebra are more tight, the sinsacrum is very strongly consolidated with the two ilium bones.

- The sternal carena is high and the processes of the stern are extremely reduced, the bone having a quadrangle compact aspect. The caudal notches are transformed in two elliptical foramina.

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