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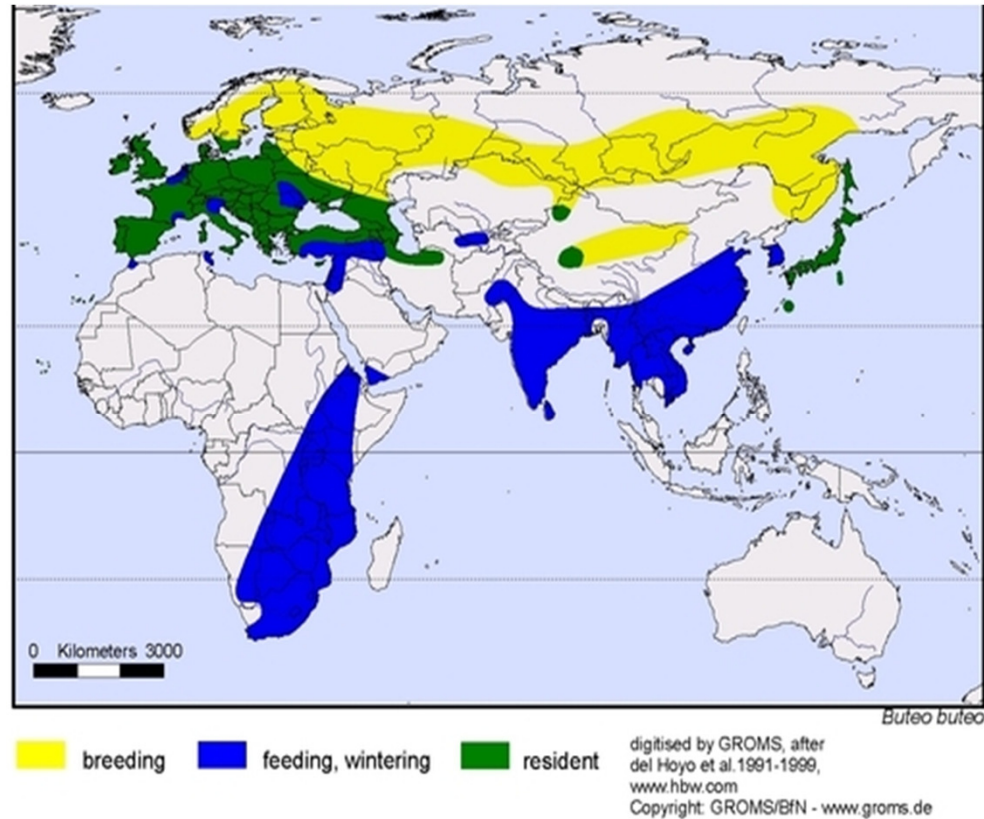
**The macroanatomy of the Brachial plexus and its  
nerves in the Common Buzzard (*Buteo buteo*)**

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# Introduction



- The Common buzzard (*Buteo buteo*) is a medium-to-large bird of prey whose range covers most of Europe and extends into Asia. Over much of its range, it is resident year-round, but birds from the colder parts of the northern hemisphere typically migrate south for the northern winter.



# The brachial plexus formation



**the merlin (Demirkan-Çevik A., 2014)**

The nerves of the wing and trunk arise from the brachial plexus. The brachial plexus is a network of nerves formed by the ventral roots of the last two cervical spinal nerves and the first two or three thoracic spinal nerves in the fowl. In domestic fowl these are typically nerves 13 to 16 and sometimes also 17 (Nickel et al. 1977; King and McLelland 1984; Dursun 2002).



# The purpose of study



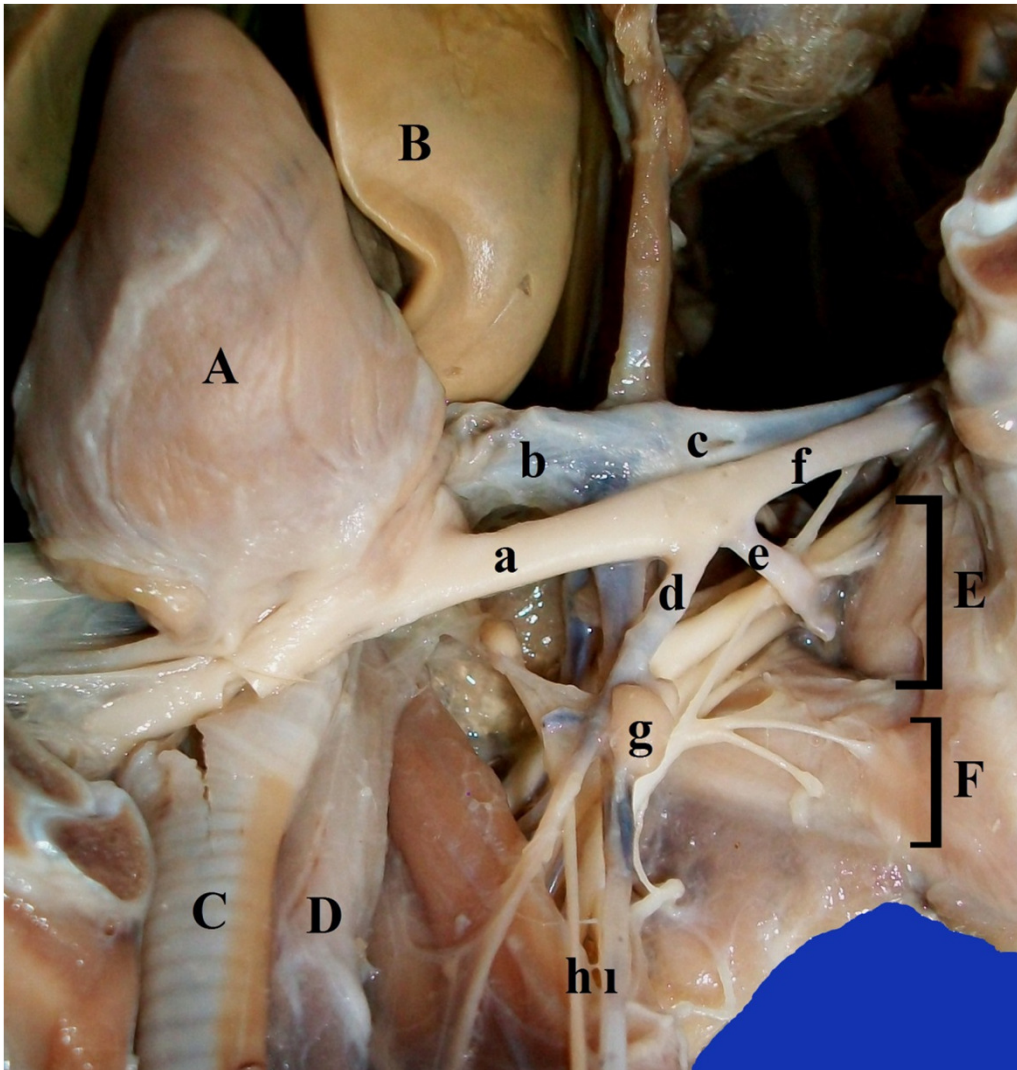
- Though numerous studies were found on anatomy of the brachial plexus for different types of poultries such as Great Horned Owl (Moore et al.1989), Red Tailed Hawk (Shell et al. 1993), Turkey (Moreira et al. 2005), Chicken (Cardoza et al. 2009), Mallard Ducks (Brenner et al. 2010) and Merlin (Cevik-Demirkan 2013) there was no study regarding with brachial plexus in the Common buzzard. For this reason, it was aimed to determine macroanatomy properties of the brachial plexus in the Common buzzard and to compare it with other avian characteristics.



## Materials and Methods

- Totally five adult the Common Buzzard (*Buteo buteo*), three of them were male and two were female, obtained from the Wildlife Rescue and Rehabilitation Center of Kafkas University were used in this study.
- First, abdominal and thoracal cavities of the animals were opened. The birds were immersed in 10% formaldehyde solution, where they remained 1 week for fixation. Finally, the brachial plexus and the nerve branches emerging from it were carefully dissected and photographed.

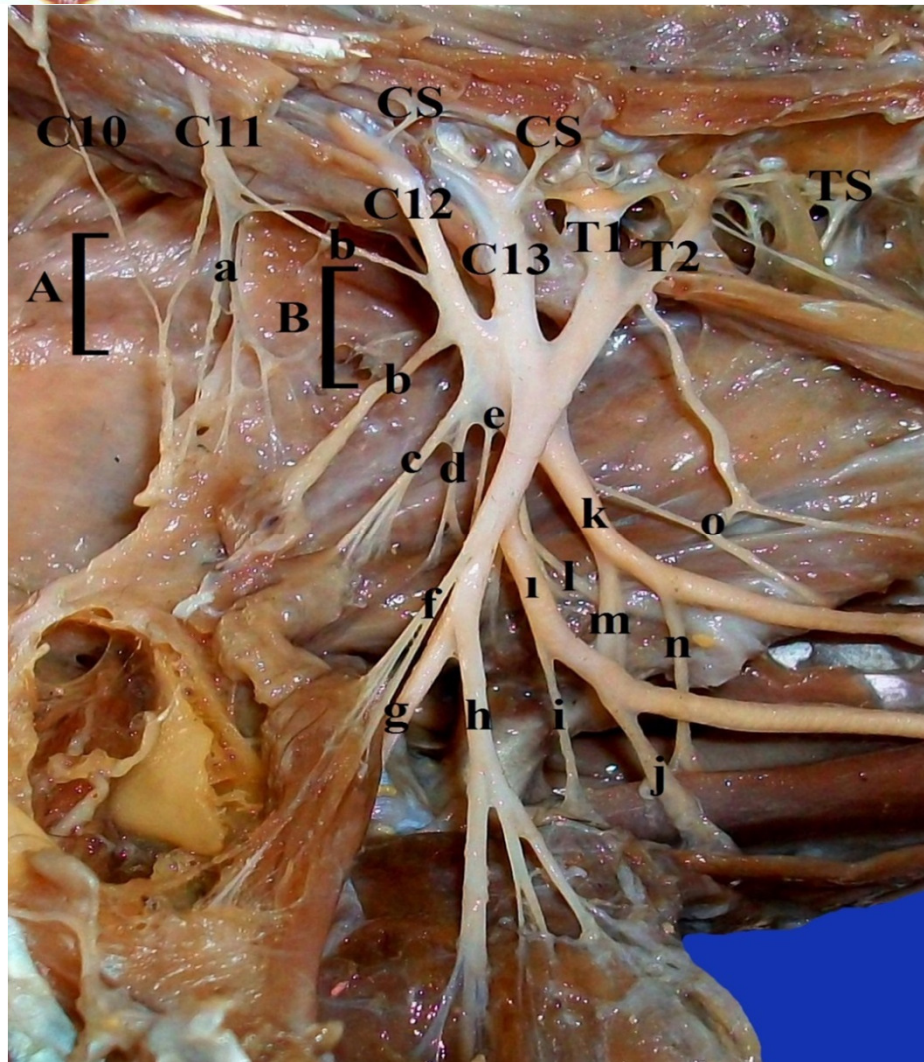
# Results



- It was determined that Common buzzard has two plexus named as the brachial plexus and the accessory brachial plexus. It was also observed that v. jugularis, a. carotis communis and n. vagus in the medial; and v. subclavia with a. subclavia placed in caudal of plexus medial in Common buzzard .

Fig . The brachial plexus and neighborhoods (ventral view) A) heart, B) lobus hepatis dexter, C) trachea, D) oesophagus, E) brachial plexus, F) accessory brachial plexus, a) a. brachiocephalica dexter, b) v. cava cranialis dexter, c) v. subclavia dexter, d) a. carotis communis dexter, e) a. axillaris, f) v. subclavia dexter, g) thyroid gland, h) n. vagus, i) v.jugularis dexter

# Results

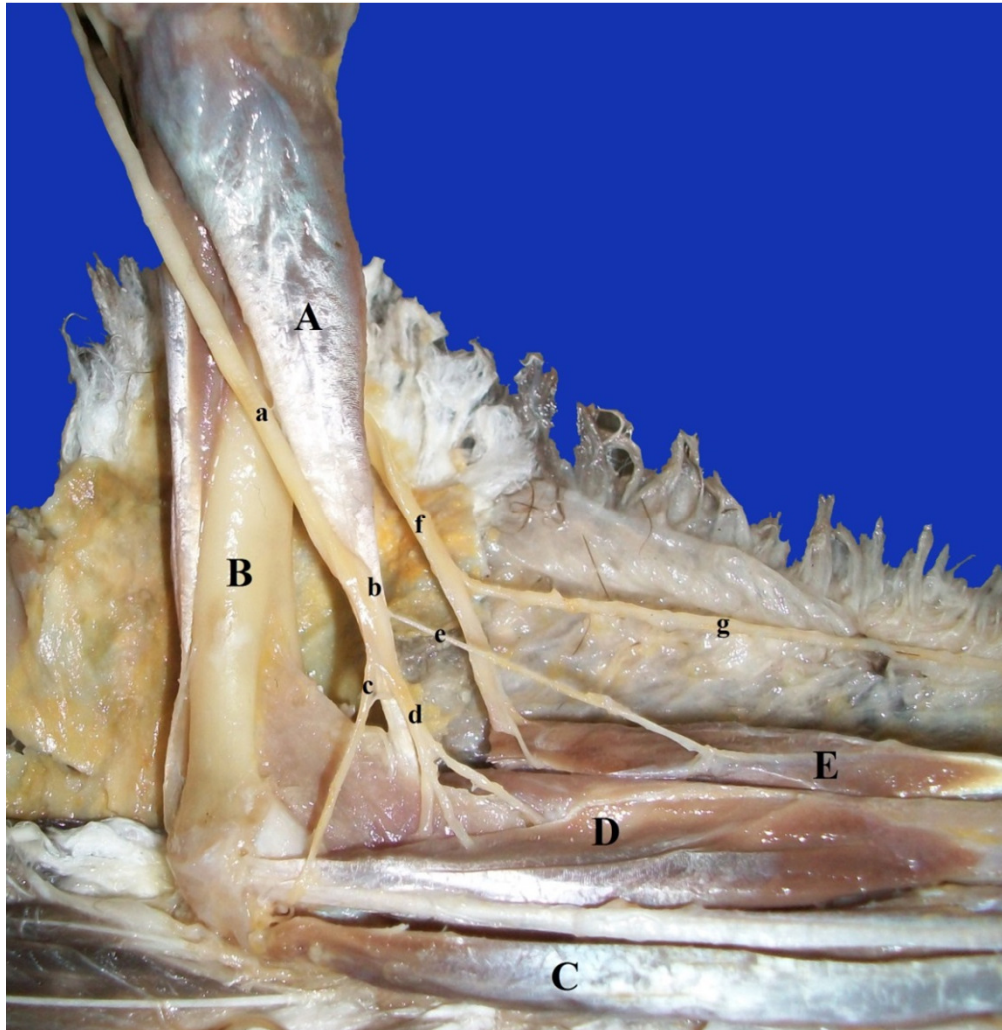


- In addition, it was detected that the accessory brachial plexus resided in cranial of the brachial plexus, and it was formed from the merge of ventral branches of cervical spinal nerves 10th and 11th.

Fig . The accessory brachial plexus and brachial plexus (ventral view) a) n. cutaneus omalis, b) n. m. sternocoracoideus, c) n. supracoracoideus, d) n. subcoracoscapularis, e) n. m. scapulohumeralis dorsalis, f) n. m. coracobrachialis caudalis, g) n. pectoralis cranialis, h) n. pectoralis caudalis, i) n. medianoulnaris, i) n. cutaneus ventralis brachialis, j) n. bicipitalis, k) n. radialis, l) n. m. latissimus dorsi, m) n. axillaris, n) n. m. tricipitis, o) n. anconealis



# Results



- The mean diameter of n. medianoulnaris arisen from the ventral branches of C13, T1 and T2 spinal nerves was 1.53 mm. It was then specified that n. medianoulnaris innervated m. biceps brachii and m. coracobrachialis.

Fig . The branches of n. medianoulnaris and n. radialis (ventral view) a) n. medianoulnaris, b) n. medianus, c) n. ulnaris, d) The deep ramus of n. medianus, e) The superficial ramus of n. medianus, f) n. radialis, g) the mutual root the n. propatagialis dorsalis and the n. cutaneous antebrachialis dorsalis, A) m. biceps brachii, B) humerus, C) m. flexor carpi ulnaris, D) m. pronator longus et brevis, E) m. extensor carpi radialis

# Results

- It was determined that n. medianoulnaris segregated into n. ulnaris, in 0.58 mm diameter, averagely after 7.6 cm from its origin in elbow joint and to n. medianus, in 0.67 mm diameter. It was fixed that n. ulnaris innervated m. flexor carpi ulnaris and m. flexor digitorum superficialis, while n. medianus innervated m. flexor carpi radialis, m. flexor digitorum superficialis and m. flexor digitorum profundus.

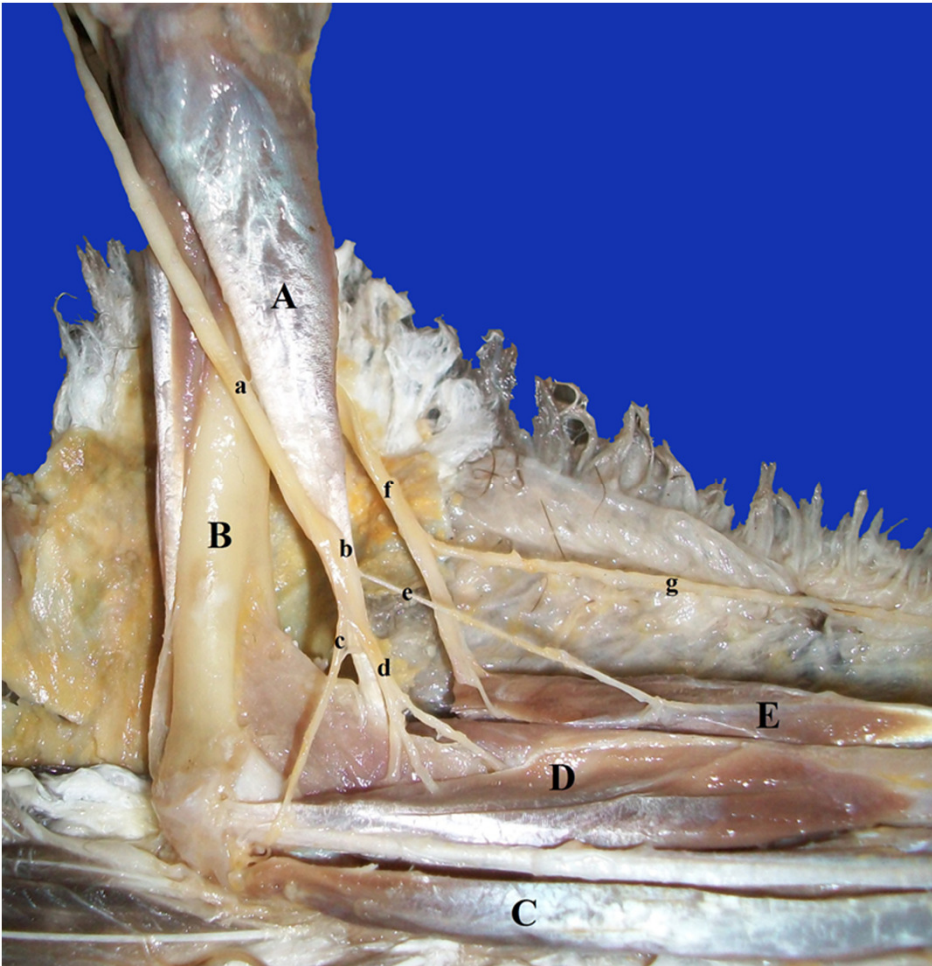


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# Results

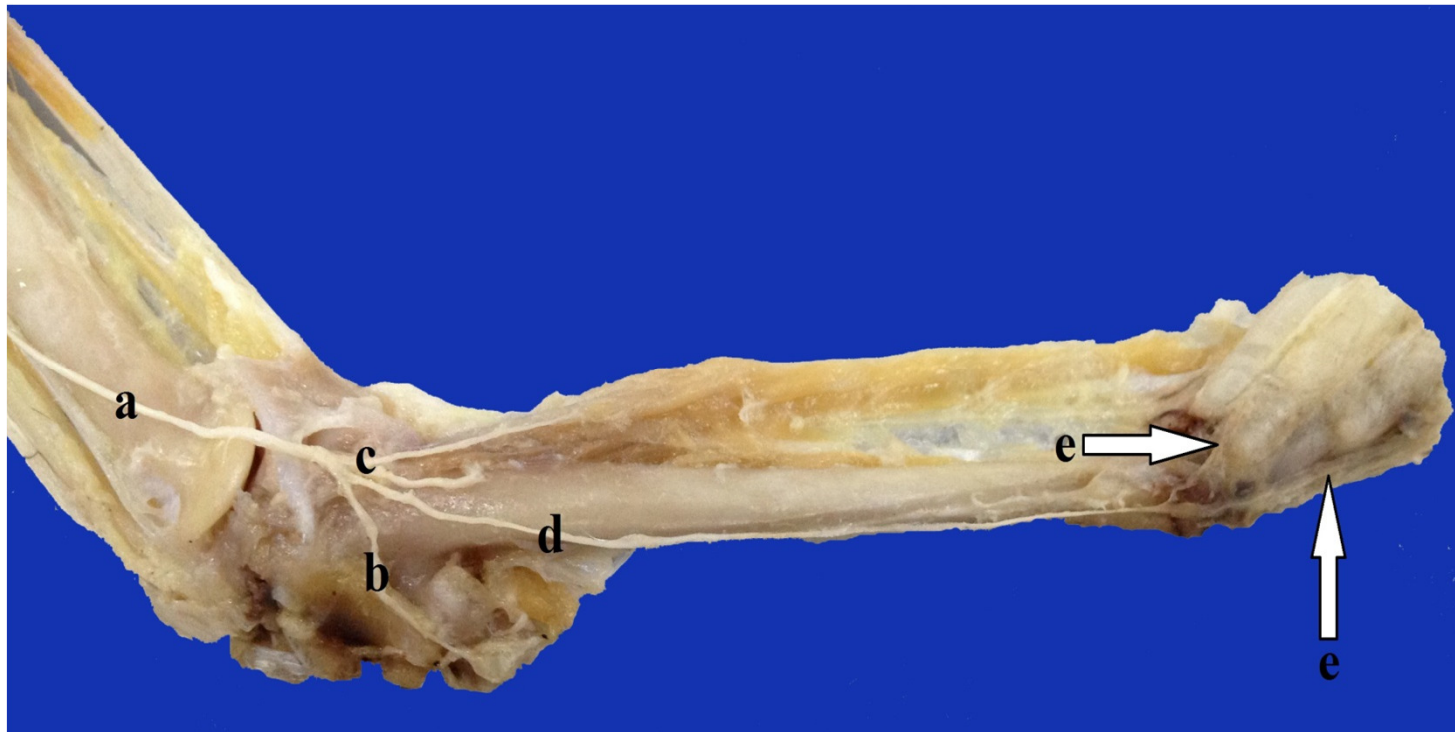


Fig. The last branches of n. radialis (dorsal view)

a) The deep ramus of n. radialis, b) r. alularis, c) rr. postpatagialis, d) nn. metacarpales dorsales, e) rr. digitales



## Discussion and Conclusion

In this study, it was determined that the brachial plexus of the Common buzzard consisted of totally five ventral branches of spinal nerves (11th - 15th). It was stated that the brachial plexus included five roots in Merlin (Cevik-Demirkan 2013), the Common swift and Swans (King and McLelland 1984), while it arose from four spinal nerves regarding the species of Cardinal, White Sparrow, Song sparrow (11th - 14th) (Swinebroad 1954), duck and goose (17th - 20th) (Fürbringer 1902). The brachial plexus consisted of three spinal nerves concerning the English sparrow (11th - 13th) and Northern ground hornbills (13th - 15th) although it comprised of the last cervical of medulla spinalis and the first thoracic segments in ostrich (Pospieszny et al. 2009).



# Discussion and Conclusion



- The accessory brachial plexus located in front of the brachial plexus in Merlin (Cevik-Demirkan 2013), yet this plexus was not available in ostrich (Pospieszny et al. 2009). This study reached the result that the accessory brachial plexus arose from the ventral branches of 10th and 11th cervical spinal nerves and placed in front of the brachial plexus.



# Discussion and Conclusion



- In conclusion, the macroanatomy of the brachial plexus and its branches in the Common buzzard were revealed. Moreover, the anatomical structure of the brachial plexus of the common buzzard was compared to other poultry species. It is thought that all these data would contribute to the electrodiagnostic evaluations in the Common buzzard and especially the surgical operations to be performed in wildlife protection centres related to the region.



Thank you for attention

