

## REPORT OF THE POST-MORTEM STUDY ON 2 CHICKS OF NORTHERN BALD IBIS (*Geronticus eremita*) IN PALYMRA REGION, SYRIA, 2009

G. Serra; A. Shehab; L. Peske; A. Kanani  
Miguel A. Quevedo DVM  
Veterinarian Zoobotánico Jerez, Spain  
[maquevedo@colvet.es](mailto:maquevedo@colvet.es)

### INTRODUCTION

During the 2009 breeding season in Palmyra region, 4 chicks were observed in two nest on May 14. They were most likely hatched on 10 – 11 May. 2 out of the 4 chicks were missing from each nest. One (chick 1, from nest n-1) disappeared with 9 days old approximately and the other (chick 2, from nest n-2) with less than 3 weeks old. In both cases the carcasses were not found, so no post-mortem analysis could be performed and the cause of death no determined. During that time the rangers observed: a non-breeding adult disturbing the chicks. Adults start leaving the chicks alone in the nest for almost half of the day, which means risk of predation. The other 2 chicks (one in each nest) were found death (before fledgling) on the ground below each nest. The carcasses were taken to Hama university for the post-mortem study.

### POST-MORTEM STUDY

#### CHICK 4. Sample 1 (Serra et al.)

It was observed in the nest on May 14, most likely hatched on 10 – 11 May. Found dead on June 15 on the ground below the nest (n-1).



Some prey items from stomach content of Chick 3.

First column from left, 3 *Buthacus tadmorensis*;

Second column from left, 2 *Trachiderma hispida*

The rest are all *Pimelia* spp.

Species detected:

*Pimelia* spp (Tenebrionidae, 90 ind.)

*Trachiderma hispida* (Tenebrionidae, 21 ind.)

*Buthacus tadmorensis* (1 ind.)

Solfugidae (1 ind.)

*Lacerta* spp (2 ind.)

*Polyphaga aegyptiaca* (Blattodea, Polyphagidae, 1 ind.)

**3 stones of few cm of diameter** (gastrolytes, foreign bodies)

Total number of individuals of Tenebrionidae found: 112.

MACROSCOPICALY (VISUAL)

Weight: 590 gr. (underweight). **Pectoral muscles ?**

Feathers: in good conditions, no stress marks (it does not seem to undergo shortage).

Blood in mouth and nose (nostril), (related to trauma, fell down from the nest).

Legs and skin intact (not harmed)

Right wing broken with bleeding and the other wing with articular luxation (related to trauma, fell down from the nest).

Musculature: hemorrhage of right thigh.

#### THORACIC INLET AREA:

Some blood inside chest

Blood inside lungs

Heart small and empty

#### ABDOMINAL ORGANS:

**Intestine nearly empty**

**Stomach full: preys and 3 stones of few cm of diameter (foreign bodies)**

Kidney normal, caudal portion hemorrhage

#### MICROSCOPIC FINDINGS

##### *Microscopic test*

Pulmonary tissue: hemorrhage in parenchyma, (Pulmonary hemorrhage, related to trauma). Lymphocyte aggregation and oedema.

Liver: atrophy (small cells?), congestion. Primary fibrosis around the bile duct.

Blood inside liver (Hepatic hemorrhage, related to trauma).

Heart: foci of lymphocyte aggregation between muscular and membrane (pericardium?). Albumin concentration in the tissues. Liquids around heart (Hydropericardium, related to hypoproteinemia).

#### TENTATIVE DIAGNOSIS.

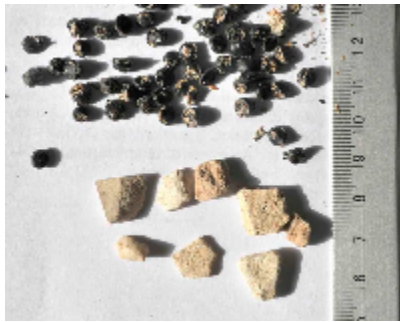
**Gastric impaction by foreign bodies** would be a tentative interpretation from the findings in the stomach (full of preys and 3 stones of few cm of diameter). These 3 stones can (1) irritate the stomach wall (mucous membrane) provoking disbalance, (2) mechanical obstruction (intestine nearly empty) and (3) both.

**CHICK 3. Sample 2 (Serra et al.)**

It was observed in the nest on May 14, most likely hatched on 10 – 11 May. Found freshly dead on May 29 on the ground below the nest (n-2).



Chick 3 found freshly dead under nest n-2 on 29 May 2009.



Stones found in the stomach of Chick 3, together with thoraxes of Tenebrionidae.

Chick 3

Species detected:

*Pimelia* spp (Tenebrionidae, many individuals, see below)

*Trachiderma hispida* (Tenebrionidae, many ind., see below)

*Adesmia* sp. (Tenebrionidae, 1 ind.)

*Buthacus tadmorensis* (3 ind.)

*Polyphaga aegyptiaca* (Blattodea, Polyphagidae, 1-2 ind.)

**8 stones of few cm of diameter** (gastrolytes, foreign bodies): these are most likely used to grind the cuticula of beetles -first time recorded.

Total of individuals Tenebrionidae: 112 ind. of which surely 32 ind. of *Pimelia* spp. and then 75 ind. of either *Pimelia* spp. or *Trachiderma hispida* + 1 *Adesmia* sp.

MACROSCOPICALY (*VISUAL*)

Weight: 815 gr. (good weight).

No broken parts

Hemorrhages in muscles

THORACIC INLET AREA:

No relevant ?

Respiratory normal

Everything normal

#### ABDOMINAL ORGANS:

Liver has got light colour, pale variegated colour with a yellow spectrum

Kidney normal

Spleen normal

Gastrointestinal: good

#### MICROSCOPIC FINDINGS

##### *Microscopic test*

Pulmonary tissue: traces of simple congestion of blood (related to trauma). Cellular exudate, , serological liquid on the parenchyma (oedema).

Liver: severe blood congestion, thickness in the vascular walls, inflammatory cellular exudate contains lymphocytes. Hemorrhages in parenchyma, grease clusters (fatty ?).

Heart: albumins settlements in the muscular tissues, inflamatory oozing (?)

Intestine: normal

#### TENTATIVE DIAGNOSIS.

**Gastric impaction by foreign bodies** (full of preys and 8 stones of few cm of diameter). These 8 stones can (1) irritating the stomach wall (mucous membrane) provoking disbalance, (2) mechanical obstruction (intestine nearly empty) and (3) both.

#### DISCUSSION

The lesions found (macro- and micro-) in the organs do not allow an accurate interpretation of the final cause of mortality. Further analysis needed. A microbiology analysis would have been advisable, specially to check *Clostridium sp.*

Gastric impaction by foreign bodies would be a tentative interpretation from the findings in the stomach (full of preys and 3 stones of few cm of diameter). These 3 stones can (1) irritating the stomach wall (mucous membrane) provoking disbalance (2) mechanical obstruction (intestine nearly empty) and (3) both.

Plumage: no stress marks on the feather indicated no shortage.

The underweight (590 gr). The stones in the stomach may have provoked slowly damage of the mucosa membrane (2- 4 days), lack of food ingestion (prey items accumulated) and death.

Bacterial disease (*Clostridium perfringens*), secondary to disbalance is another hypothesis as is frequent found in digestive disbalance.

The cause way these chicks ingested remains unknown. A hypothesis may be the high amount of beetles ingested, rich in phosphorus and poor in calcium. This nutritional disbalance can provoked the ingestion of foreign bodies to get calcium from the stones.

It seems that the cause of mortality may be due to multifactorial factors: ecological, climatological, prey availability. Drought can provoked less prey items and the type of prey found with more beetles (rich in phosphorus) and less lizards, snails (well balance, 2:1 in Ca/P).

## RECOMMENDATIONS IN THE FUTURE

Due to the value of this unique specie in Syria it is recommended to perform post-mortem studies in any dead bird (chick or adult) found.

A propose complete study would be:

- X-ray plaque of the carcasse
- Necropsy
- Pathology: keep and save (du- or tri-plicated) pieces of tissues of all organs in diluted formaline.
- Microbiology analysis
- Parasitology (ecto- and endo-parasites)
- Toxicology
- Virology if possible or suspected
- Save pieces of all organs and rest of carcasse frozen (-20°C)

Take picures of the all process

If further information required, please contact the IAGNBI veterinarians:

Miguel A. Quevedo: [maquevedo@colvet.es](mailto:maquevedo@colvet.es)

Andrew Cunningham: [a.cunningham@ioz.ac.uk](mailto:a.cunningham@ioz.ac.uk)