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Description of the type-series of *Palaeocryptonyx donnezani* Depéret, 1892 (Aves: Phasianidae) with the selection of a lectotype

Description de la série-type de Palaeocryptonyx donnezani Depéret, 1892 (Aves : Phasianidae), avec sélection d'un lectotype

Marco Pavia[a,*], Ursula B. Göhlich[b], Cécile Mourer-Chauviré[c]

[a] *Dipartimento di Scienze della Terra, Museo di Geologia e Paleontologia, Università degli Studi di Torino, Via Valperga Caluso 35, 10125 Torino, Italy*
[b] *Natural History Museum Vienna, Department of Geology and Paleontology, Burgring 7, 1010 Vienna, Austria*
[c] *CNRS UMR 5276, Laboratoire de Géologie de Lyon, Université Claude-Bernard Lyon 1, 2, rue Dubois, 69622 Villeurbanne cedex, France*

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ABSTRACT

We have re-examined the original type-series of *Palaeocryptonyx donnezani* Depéret, 1892 housed in the Laboratoire de Géologie de Lyon, Université Claude-Bernard Lyon 1 (France), and have selected a lectotype and paralectotypes. *P. donnezani* is the type species of the extinct genus *Palaeocryptonyx*, known from six species from different European Neogene and Pleistocene fossil localities. The species have been compared with different medium-sized Phasianidae species on the basis of our own study and data from the literature. The systematic position of *P. donnezani* has been questioned, because it has been misplaced in the extant genera *Alectoris* and *Coturnix*, but our analysis confirms its validity and its attribution to a separate genus; hence we also confirm the validity of the genus *Palaeocryptonyx*.

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Mots clés :
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RÉSUMÉ

Nous avons réexaminé la série-type originale de *Palaeocryptonyx donnezani* Depéret, 1892, conservée au Laboratoire de Géologie de Lyon, Université Claude-Bernard Lyon 1, et nous avons sélectionné un lectotype et des paralectotypes. *P. donnezani* est l'espèce-type du genre *Palaeocryptonyx* représenté par six espèces connues dans différentes localités du Néogène et du Pléistocène d'Europe. Cette espèce a été comparée à différentes espèces de Phasianidae de taille moyenne, en se basant sur leurs caractères ostéologiques et sur les données de la littérature. La position systématique de cette espèce avait été remise en question et elle avait été attribuée de façon inexacte aux genres actuels *Alectoris* et *Coturnix*, mais notre analyse confirme sa validité et son attribution à un genre distinct. Nous confirmons donc la validité du genre *Palaeocryptonyx*.

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* Corresponding author.
E-mail addresses: marco.pavia@unito.it (M. Pavia), ursula.goehlich@nhm-wien.ac.at (U.B. Göhlich), cecile.mourer@univ-lyon1.fr C. Mourer-Chauviré).

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1. Introduction

The Galliformes are a group of birds frequently found in Neogene and Pleistocene fossil localities of Europe, although they are usually scarce in localities with endemic associations. Because of the large number of recognized taxa in the Tertiary, most of them based on scarce material (Göhlich and Mourer-Chauviré, 2005; Mlíkovský, 2002a, 2002b), the systematics of fossil Galliformes from Eurasia poses one of the most complicated problems facing paleornithology, although some recent papers have improved the knowledge of Neogene Phasianidae (Cheneval, 2000; Göhlich, 2002; Göhlich and Mourer-Chauviré, 2005; Göhlich and Pavia, 2008; Sánchez-Marco, 2009). Because Mlíkovský's (2002) over-simplifications are not widely accepted either for Galliformes (Göhlich and Mourer-Chauviré, 2005; Göhlich and Pavia, 2008; Sánchez-Marco, 2009; Zelenkov and Kurochkin, 2009) or for other groups (Mourer-Chauviré, 2004), a comprehensive re-examination of the European Neogene and Pleistocene Galliformes is still needed.

The genus *Palaeocryptonyx* with its type species *Palaeocryptonyx donnezani* was described from the Pliocene of Roussillon (France) (Depéret, 1892). The fossils were found, together with a rich assemblage of other vertebrates, in a 200 m thick succession of silt and yellowish clayey sands of fluvio-terrestrial origin. These sediments were exposed in various outcrops in the Roussillon region, but the most important locality, and also the type-locality of *P. donnezani*, is the fortress of Serrat-d'en-Vaquer, a small suburb of Perpignan (Pyrénées-orientales, France). The whole succession shows the compact silt with alternation of sandy levels in which the fossil remains were found, together with some terrestrial and freshwater molluscs and leaves of terrestrial plants. The vertebrates are very diverse and include amphibians, reptiles, birds, and mammals, both micro and macro (Depéret, 1897). Hugueney and Mein (1966) provided an up-to-date list of the Rodentia found in the Pliocene of Roussillon. Mein and Aymar (1984) reported new discoveries of mammals in the Villeneuve de la Raho and in the Fort of Serrat-d'en-Vaquer localities, the latter being excavating the levels yet studied by Depéret. The fluvio-terrestrial sediments of the Perpignan area are Early Pliocene in age and, specifically, Serrat-d'en-Vaquer is the type-locality of the MN 15 Zone based on the biochronological framework given by the mammals (Mein, 1990).

In the original description of *P. donnezani*, Depéret (1892) indicated the presence of several bones, the exact number not being specified, and postponed their detailed description to a later publication. Later he described the various skeletal elements in detail, but without any quantification; in particular, the material included: coracoid, scapula, humerus, ulna, carpometacarpus, femur, tibiotarsus and tarsometatarsus, some being illustrated (Depéret, 1897, pl 13, figs 2–10).

After visiting the Serrat-d'en-Vaquer fossil collection housed in the Laboratoire de Géologie de Lyon (France), we found that all the material is still preserved in the original glass tubes with the original labels hand-written by Depéret. This material also comprises twenty-four bones originally labelled as *P. donnezani*, representing the skeletal elements listed before. So we can assume that all the *P. donnezani* material preserved in the collection with Depéret's labels constitutes the original material studied by Depéret in 1892 and 1897, and thus, they represent the type-series of *P. donnezani*.

P. donnezani was later identified from various fossil localities in western and central Europe, ranging in age from Early Pliocene to Early Pleistocene (Bedetti, 2003; Depéret, 1892, 1897; Mlíkovský, 1996, 1998, 2002b; Sánchez-Marco, 2009). There are also three records of *Palaeocryptonyx* sp. from the Late Pliocene of Montoussé 5, France (Clot et al., 1976), Ca Na Reia, Spain (Alcover, 1989) and Soave, Italy (Mourer-Chauviré, 1980), the last later referred to *P. donnezani* (Bedetti, 2003).

P. donnezani was also reported from the Late Miocene of Vösendorf, Austria (Thenius, 1954), outside the chronological distribution range of the species. The description and illustration provided by Thenius (1954) are not adequate to evaluate the taxonomic attribution of this specimen, even at generic level. For this reason, we will not further consider this record in our analysis. Mlíkovský (1997) already suggested that this bone probably belongs to the genus *Palaeortyx*.

Mlíkovský (2002a: pp. 158–159) transferred the species *P. donnezani* to the genus *Alectoris*, still considering it a valid species. This new combination was criticized by Mourer-Chauviré (2004) and recently rejected by Sánchez-Marco (2009), both suggesting that *Palaeocryptonyx* should be considered a valid genus. The same author (Mlíkovský, 2002b: p. 60) referred *P. donnezani* to the genus *Coturnix*, without any comment or justification, in contrast with his opinion expressed before (Mlíkovský, 2002a).

The aim of this article is to confirm the validity of the species *P. donnezani* with the improved definition and description of the type-series and with the selection of lectotype and paralectotypes.

The material here described is stored in the Laboratoire de Géologie de Lyon, Université Claude-Bernard Lyon 1, France (FSL). The fossil bones were compared with recent bird skeletons stored at FLS, in the Museo Civico di Storia Naturale di Carmagnola, Torino, Italy (MCCI) and in the Dipartimento di Scienze della Terra of the Torino University, Italy (Marco Pavia Ornithological Collection, MPOC). The osteological terminology follows Baumel and Witmer (1993) and Ballmann (1969).

2. Systematic palaeontology

Order Galliformes Temminck, 1820
Family Phasianidae Vigors, 1825
Genus *Palaeocryptonyx* Depéret, 1892
Type species: *Palaeocryptonyx donnezani* Depéret, 1892.
Emended diagnosis: Small- to medium-sized Phasianidae. Humerus: proximal end wider than distal one; fossa pneumotricipitalis in two parts with small, shallow and pneumatic dorsal fossa and large ventral fossa; the ventral fossa pneumotricipitalis with lamella and substantia spongiosa; insertion of musculus extensor metacarpi radialis on processus supracondylaris dorsalis rounded; condylus ventralis rounded and well developed distally;

processus flexorius slender with caudal crest. Coracoid: not pneumatized; labrum internum sharp-edged in its caudal part; foramen pneumaticum absent. Ulna: trochlea carpalis orientated obliquely to the shaft, condylus ventralis ulnae distinctly larger than the pointed condylus dorsalis ulnae; incisura tendinosa not clearly expressed. Carpometacarpus: processus intermetacarpalis strongly tooth-like; facies articularis digitalis minor clearly more protruding distally than the convex part of the facies articularis digitalis major, the latter overtops only slightly the flat part of the facies articularis digitalis minor. Femur: foramen pneumaticum absent. Tibiotarsus: shaft and distal end slender.

Remarks: In addition to *P. donnezani*, the genus *Palaeocryptonyx* comprises five other species, four of which have been described from the Miocene of France and Hungary, and the other from the Pliocene of Spain. *Palaeocryptonyx edwardsi* (Depéret, 1887), larger than *P. donnezani*, *P. depereti* (Ennouchi 1930), slightly smaller than *P. donnezani*, and *P. grivensis* Ennouchi, 1930, similar in size with *P. donnezani* but slightly stouter, have been described from the Middle Miocene (MN 7+8) of La-Grive-Saint-Alban (Isère, France). The first two species were originally described as *Palaeortyx* and later placed into *Palaeocryptonyx* by Ballmann (1969) and Göhlich and Mourer-Chauviré (2005) respectively. *Palaeocryptonyx hungaricus* Jánossy, 1991, described from the Late Miocene (MN 13) of Polgardi, Hungary, is also slightly smaller than *P. donnezani*. Mlíkovský (2002a: p. 170) considered its generic position uncertain, as the ratio of the length of humerus and tarsometatarsus is different from the other *Palaeocryptonyx* species. Considering that the tarsometatarsus of *P. donnezani* is unknown, as the only tarsometatarsus found in the type-series is not referable to this species (see below), this argument is no longer valid. The holotype humerus (Jánossy, 1991, fig. 2, 6) shows the morphological characteristics of the genus *Palaeocryptonyx*, thus, also following the opinion of Kessler (2009), we consider *P. hungaricus* as a valid species of this genus. Finally, from the Late Pliocene of Elefante (Atapuerca, Spain) Sánchez-Marco (2009) described *Palaeocryptonyx novaki*, smaller than *P. donnezani*, with some morphological differences in the long bones.

Palaeocryptonyx donnezani Depéret, 1892

Fig. 1 A–N, Fig. 2 B; Table 1.

Synonymy

Palaeocryptonyx donnezani Depéret, 1892, p. 691 (Original description)

pars *Palaeocryptonyx Donnezani* Depéret, 1892. Depéret, 1897, pp. 131–134, pl. 13, figs. 2–10 (non pl. 13, figs 3–3a, 4–4a, 7–7a and 10–10a).

pars *Turdus* aff. *cyaneus* (SIC *Turdus cyanus* = *Monticola solitarius*) Linnaeus, 1766 in Depéret, 1897, pp. 137–138, pl. 13, figs. 23–23a.

Palaeocryptonyx donnezani Depéret, 1890 (SIC). Lambrecht, 1933, p. 438.

?*Palaeocryptonyx donnezani* Depéret, 1892. Thenius, 1954, pp. 49–50;

Palaeocryptonyx donnezani Depéret, 1892. Brodkorb, 1964, pp. 316–317;

Palaeocryptonyx donnezani Depéret, 1892. Mlíkovský, 1996, p. 188;

Palaeocryptonyx donnezani Depéret, 1892. Bocheński, 1997, p. 309;

Palaeocryptonyx donnezani Depéret, 1892. Mlíkovský, 1998, p. 136;

Palaeocryptonyx donnezani Depéret, 1892. Tyrberg, 1998, p. 522;

pars *Alectoris donnezani* (Depéret, 1892). Mlíkovský, 2002a, pp. 159–161 (new combination).

Coturnix donnezani (Depéret, 1892). Mlíkovský, 2002b, p. 60 (new combination).

Palaeocryptonyx donnezani Depéret, 1892. Bedetti, 2003, pp. 78–79, pl. 3, figs. n, q.

Palaeocryptonyx donnezani Depéret, 1892. Sánchez-Marco, 2009, p. 1150, fig. 2a–2c.

Lectotype: Left humerus, complete (FSL 92891-1) (Figs. 1 A–B, 2 B), from Serrat-d'en-Vaquer (Perpignan, Pyrénées-orientales, France), selected here.

Paralectotypes: Right coracoid, complete (FSL 92890) (Fig. 1M–N); right coracoid, almost complete (FSL 92894-1); left coracoid, omal part and shaft (FSL 92894-2); left coracoid, omal part (FSL 92894-3); right coracoid, omal part and shaft (FSL 92894-4); left coracoid, omal part (FSL 92894-5 + 6); right humerus, proximal part (FSL 92892-1); left humerus, distal part (FSL 92892-2); right humerus, distal part (FSL 92892-3); right ulna, distal part (FSL 92891-2) (Fig. 1I–J); left ulna, distal part (FSL 92892-5); right femur, complete, proximal and distal parts separated (FSL 92889-1 + 2) (Fig. 1C–F); left femur, proximal part (FSL 92893); left tibiotarsus, distal part (FSL 92889-3); left tibiotarsus, distal part (FSL 92892-6) (Fig. 1K–L); left tibiotarsus, distal part (FSL 92892-8). All bones from Serrat-d'en-Vaquer (Perpignan, Pyrénées-orientales, France), selected here.

Remarks on the type-series: As stated above, the syntypes comprised twenty-four more or less complete bones. Later, the proximal left carpometacarpus (FSL 92891-5, illustrated by Depéret, 1897, pl. 13, figs. 10–10a) was detected as belonging to a Columbidae and the scapula (illustrated by Depéret, 1897, pl. 13, figs. 7–7a, FSL no number) was determined to be an amphibian ilium (Mourer-Chauviré *in* Mlíkovský, 2002a). In the original plate (Depéret, 1897, pl. 13, figs. 5–5a), the right femur FSL 92889 is figured complete, but is now broken into two parts (FSL 92889-1 + 2). The syntypes also comprise some bones of Phasianidae that are too big to belong to *P. donnezani* and that show morphological differences from the lectotype or paralectotypes. In particular, a distal right humerus (FSL 92892-4) is bigger (Wd 8.1 mm) and shows, compared to *P. donnezani*, a more regularly rounded condylus dorsalis, a tuberculum supracondylare ventrale cranially less prominent, and a shallow fossa musculi brachialis without the ridge along the dorsal side. A proximal and a distal left tibiotarsus (FSL 92891-4, FSL 92892-7 illustrated by Depéret, 1897, pl. 13, figs. 3–3a and 4–4a respectively) are too large to be referred to *P. donnezani*. The distal left tibiotarsus (FSL 92892-7) is bigger (Wd 6.3 mm, Dd 6.4 mm) and shows, compared to the paralectotypes, a proximo-distally shorter

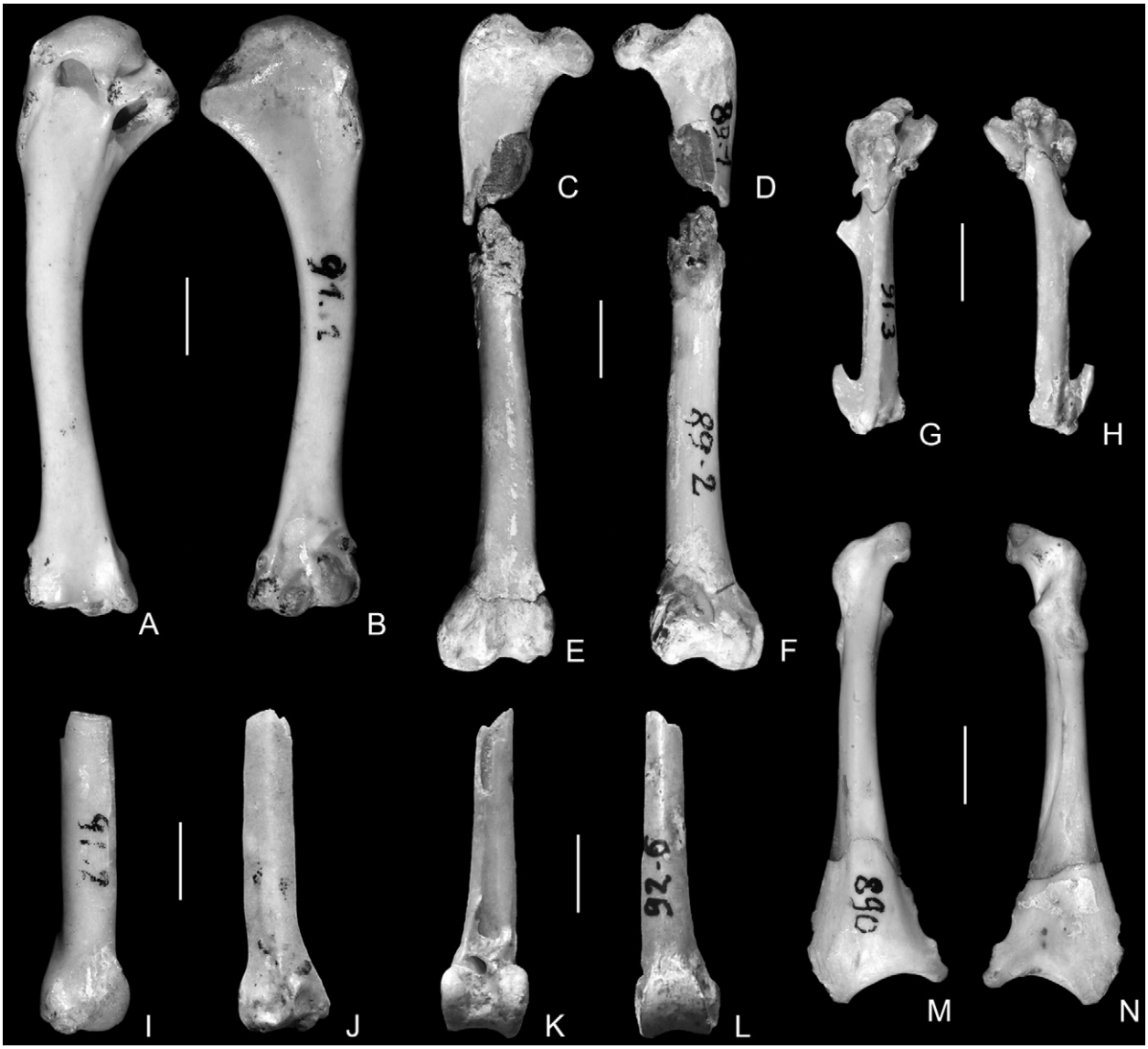

Fig. 1. *Palaeocryptonyx donnezani*, Serrat-d'en-Vaquer, Perpignan, Pyrénées-orientales, France (Early Pliocene, Ruscinian, MN 15). **A–B**: left humerus, lectotype (FSL 92891-1) in caudal (**A**) and cranial (**B**) views. **C–F**: right femur, paralectotype (FSL 92889-1+2) in cranial (**C–E**) and caudal (**D–F**) views. **G–H**: left carpometacarpus (FSL 92891-3) in ventral (**G**) and dorsal (**H**) views. **I–J**: right ulna, paralectotype (FSL 92891-2) in ventral (**I**) and dorsal (**J**) views. **K–L**: left tibiotarsus, paralectotype (FSL 92892-6) in cranial (**K**) and caudal (**L**) views. **M–N**: right coracoid, paralectotype (FSL 92890) in ventral (**M**) and dorsal (**N**) views. The scale bars represent 5 mm.

Fig. 1. *Palaeocryptonyx donnezani*, Serrat-d'en-Vaquer, Perpignan, Pyrénées-orientales, France. (Pliocène inférieur, Ruscinien, MN 15). **A–B** : humérus gauche, lectotype (FSL 92891-1), face caudale (**A**) et face crâniale (**B**). **C–F** : fémur droit, paralectotype (FSL 92889-1+2), face crâniale (**C–E**) et face caudale (**D–F**). **G–H** : carpométacarpe gauche (FSL 92891-3), face ventrale (**G**) et face dorsale (**H**). **I–J** : ulna droite, paralectotype (FSL 92891-2), face ventrale (**I**) et face dorsale (**J**). **K–L** : tibiotarse gauche, paralectotype (FSL 92892-6), face crâniale (**K**) et face caudale (**L**). **M–N** : coracoïde droit, paralectotype (FSL 92890) face ventrale (**M**) et face dorsale (**N**). Les traits d'échelle représentent 5 mm.

pons supratendineus and a wider and rounded ridge on the medial side of the sulcus extensorius. An almost complete right tarsometatarsus (FSL 92888, illustrated by Depéret, 1897, pl. 13, figs. 2–2a) is the only tarsometatarsus found in the type-series, but in comparison to the recent Palaearctic species *Ammoperdix griseogularis*, the humerus of which is very similar in size to that of *P. donnezani*, the tarsometatarsus is certainly too large to belong to the same species as the lectotype humerus (GL estimated 34.0 mm, Wp 7.1 mm, Dp estimated 5.5 mm, Ws 3.4 mm). In addition, the fossae parahypotarsales are too deep in comparison with the other species of *Palaeocryptonyx* and are more typical of *Palaeortyx*. Therefore, these four bones belong to an undetermined Phasianidae and must be excluded from the syntypes.

Type-locality and Horizon: Serrat-d'en-Vaquer (Perpignan, Pyrénées-orientales, France); 42° 40′ N, 2° 52′ E. Early Pliocene, Ruscinian, MN 15.

Fig. 2. A, *Alectoris rufa*, recent, left humerus (MCCI 2801/1), caudal view. **B**. *Palaeocryptonyx donnezani* from Serrat-d'en-Vaquer, Perpignan, Pyrénées-orientales, France (Early Pliocene, Ruscinian, MN 15), left humerus, lectotype (FSL 92891-1), caudal view. **C**. *Coturnix coturnix*, recent, left humerus (MPOC 335), caudal view. The scale bars represent 10 mm.

Fig. 2. A, *Alectoris rufa*, récent, humérus gauche (MCCI 2801/1), face caudale. **B**. *Palaeocryptonyx donnezani* from Serrat-d'en-Vaquer, Perpignan, Pyrénées-orientales, France (Early Pliocene, Ruscinian, MN 15), humérus gauche, lectotype (FSL 92891-1), face caudale. **C**. *Coturnix coturnix*, recent, humérus gauche (MPOC 335), face caudale. Les traits d'échelle représentent 10 mm.

Referred material: Left carpometacarpus, complete (FSL 92891-3) (Fig. 1G–H), previously identified as *Turdus* aff. *cyaneus* and illustrated by Depéret (1897, pl. 13, figs. 23–23a). In the original illustration of Depéret the bone is broken, with only the distal half preserved. Subsequently, the proximal and distal parts were glued together.

Stratigraphical distribution: *P. donnezani* is reported from the Early Pliocene, Ruscinian, MN 15 to the Early Pleistocene, late Villafranchian/Biharian, MNQ 20-21 (Mein, 1990, Bertini et al., 2010).

Measurements: See Table 1.

Description and comparison: The morphological characteristics of *Palaeocryptonyx* in comparison with the fossil genus *Palaeortyx* are given by Depéret (1897) and Göhlich and Mourer-Chauviré (2005). Depéret (op. cit) also compared the fossils from Roussillon with the recent *Rollulus rouloul* and different genera of the family Odontophoridae, such as *Odontophorus* and the former genus *Ortyx* now separated into five genera (Del Hoyo et al., 1994). Differences between *P. donnezani* and the genus *Perdix* are given by Bedetti (2003), based on the Italian fossil material. More recently the analyses of Zelenkov (2009) and Zelenkov and Kurochkin (2009) list morphological differences of *Palaeocryptonyx* from other Neogene and extant Phasianidae genera.

All the species of the genus *Alectoris*, in which Mlíkovský (2002a) incorporated *P. donnezani*, are larger and show morphological differences in all the bones of the emended type-series of *P. donnezani*. Unlike *Alectoris*, in particular *A. graeca* and *A. rufa* (Fig. 2A) used here for comparison, the humerus of *Palaeocryptonyx* is more pneumatized and its dorsal fossa pneumotricipitalis is deeper; its intumescentia humeri is less prominent; its crista deltopectoralis is less developed; its tuberculum

Table 1
Measurements (in mm) of *Palaeocryptonyx donnezani* from Serrat-d'en-Vaquer (Perpignan, Pyrénées-orientales, France). Measurements of bones that are slightly worn or damaged are indicated with an asterisk (*). **GL**: greatest length; **Lm**: medial length; **Wp**: proximal width; **Dp**: proximal depth; **Ws**: smallest width of shaft; **Wd**: distal width; **Dd**: distal depth. Coracoid: **Lp**: proximal length from distal margin of facies articularis humeralis to proximal end; **Wpa**: width of processus acrocoracoideus; **Wdf**: width of distal facies. Ulna: **Wtr**: width of distal trochlea (condylus dorsalis ulnaris); **Dtr**: depth of distal trochlea; **Dmax**: maximal diagonal of distal trochlea. Carpometacarpus: **Lc**: cranial length from trochlea carpalis to cranial distal end; **LS**: length of spatium intermetacarpalis; **Dmc**: depth (craniocaudally) of os metacarpale majus; **Wmc**: width (dorsoventrally) of os metacarpale majus.

Tableau 1
Dimensions (en mm) de *Palaeocryptonyx donnezani* du Serrat-d'en-Vaquer, Perpignan, Pyrénées-orientales, France (Pliocène inférieur, Ruscinien, MN 15). Les dimensions des os légèrement incomplets sont indiquées par un astérisque (*). **GL** : longueur maximale ; **Lm** : longueur médiale ; **Wp** : largeur proximale ; **Dp** : diamètre proximal ; **Ws** : largeur minimale de la diaphyse ; **Wd** : largeur distale ; **Dd** : diamètre distal. Coracoïde : **Lp** : longueur proximale : depuis le bord distal de la facies articularis humeralis jusqu'à l'extrémité proximale ; **Wpa** : largeur du processus acrocoracoideus ; **Wdf** : largeur de la surface articulaire distale. Ulna : **Wtr** : largeur de la trochlée distale (condylus dorsalis ulnaris) ; **Dtr** : diamètre de la trochlée distale ; **Dmax** : diagonale maximale de la trochlée distale. Carpométacarpe : **Lc** : longueur crâniale : de la trochlea carpalis à l'extrémité distale crâniale ; **LS** : longueur du spatium intermetacarpalis ; **Dmc** : diamètre crânio-caudal de l'os metacarpale majus ; **Wmc** : largeur dorsoventrale de l'os metacarpale majus.

Coracoid	GL	Lm	Wpa	Lp	Ws	Wd	Wdf
FSL 92890	29.8	28.4	3.7	6.1	1.8	8.5*	7.7
FSL 92894-1	30.2*	27.6*	3.2	5.7	1.9	–	7.0*
FSL 92894-2	–	–	3.2	5.5	1.9	–	–
FSL 92894-3	–	–	3.4	5.7	1.9	–	–
FSL 92894-4	–	–	–	–	2.0	–	–
FSL 92894-5+6	–	–	–	–	1.9	–	–

Humerus	GL	Wp	Ws	Wd
FSL 92891-1 Lectotype	38.3	10.2	3.4	7.5
FSL 92892-1	–	10.0	–	–
FSL 92892-2	–	–	3.4	7.1
FSL 92892-3	–	–	–	7.4

Ulna	Wtr	Dtr	Dmax
FSL 92891-2	4.6	5.0	5.4
FSL 92892-5	4.0	4.2	4.8

Carpometacarpus	GL	Lc	Dp	Dd	LS	Dmc	WMc
FSL 92891-3	21.6	21.0	5.8	4.1	13.0	1.9	2.1

Femur	Wp	Dp	Ws	Wd	Dd
FSL 92889-1+2	7.8	4.5*	3.2	6.6	5.7
FSL 92893	7.3	4.6	3.0	–	–

Tibiotarsus	Ws	Wd	Dd
FSL 92889-3	–	5.3	–
FSL 92892-6	2.7	5.5	5.4
FSL 92892-8	2.6	5.3	5.5

supracondylare ventrale is less developed, and the epicondylus dorsalis is thin in *Palaeocryptonyx* but rounded in *Alectoris*. The coracoid of *Palaeocryptonyx* shows a less pointed processus procoracoideus; its facies articularis humeralis is laterally less developed; its angulus medialis is less pointed; its facies articularis sternalis is thinner and not as ventrally developed. In *Palaeocryptonyx*, the tuberculum carpale of the ulna is much more protruding and pointed, the condylus dorsalis ulnae is less protruding and also step-jointed with the shaft. The carpometacarpus here referred to *P. donnezani* shows a more developed processus intermetacarpalis, the trochlea carpalis is less protruding and the facies articularis digitalis minor is more distally developed. In the femur of *Palaeocryptonyx*, the caudal outline of the facies articularis antitrochanterica is less developed and the impressiones obturatoriae are less obvious. In *Palaeocryptonyx*, the tuberculum condyli lateralis of the tibiotarsus is more developed.

All the long bones of *P. donnezani* are clearly larger than those of all species of the genus *Coturnix*, in which Mlíkovský (2002b) incorporated *P. donnezani*, with the wing bones proportionally stouter, reflecting the poor long-distance flight capability of *Palaeocryptonyx*. In particular, the humerus of *Coturnix coturnix* (Fig. 2C) shows only the ventral fossa pneumotricipitalis weakly pneumatized and a wider incisura capitis; in addition, the caput humeri and the processus supracondylaris dorsalis are more pointed in *Coturnix* in respect to *Palaeocryptonyx*. In the coracoid of *Coturnix*, the processus acrocoracoideus is more pointed and the processus procoracoideus is less developed. The carpometacarpus of *Coturnix* shows the proximal part proportionately smaller than in *Palaeocyptonyx* and other Phasianidae genera, such as *Alectoris* and *Perdix*, with the processus intermetacarpalis only weakly developed and the facies articularis digitalis minor at the same level of the f. art. digitalis major and not distally developed as in *Palaeocryptonyx*. In the femur of *Coturnix* the fossa trochanteris is deeper than in *Palaeocryptonyx* and the facies articularis antitrochanterica is smaller.

The direct comparison of the lectotype humerus of *P. donnezani* with the humeri of *Alectoris* and *Coturnix* (Fig. 2) highlights the differences in structure and morphology between these species.

3. Conclusions

The present investigation emends and defines the type-series of *P. donnezani* with the selection of lectotype and paralectotypes. Some elements of the original syntype series have been removed because they belong to other taxa. This analysis confirms the validity of *P. donnezani* as it shows clear morphological differences from all the other Phasianidae of similar size. The detailed study of the morphology of *P. donnezani*, type species of the genus, based on our own osteological analyses and data from literature, led us to the conclusion that it is distinguishable from other Phasianidae up to the generic level on the basis of several distinct characteristics. Hence, we consider *Palaeocryptonyx* a valid genus, although a complete revision of the genus is beyond the scope of this paper.

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