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FURTHER REPORTS OF *STEPHANORHINUS KIRCHBERGENSIS* (JÄGER, 1839) (MAMMALIA, RHINOCEROTIDAE) FROM EURASIA, ADDENDA 5

ULTERIORI SEGNALAZIONI DI *STEPHANORHINUS KIRCHBERGENSIS* (JÄGER, 1839) (MAMMALIA, RHINOCEROTIDAE) IN EURASIA, ADDENDA 5

Riassunto breve - A integrazione di quanto già precedentemente pubblicato (BILLIA 2011a, 2011b, 2014; BILLIA & ZERVANOVÁ 2015, 2017, agevolmente reperibili sul sito www.rhinosourcecenter.com), viene proposto un ulteriore aggiornamento relativo a segnalazioni di ritrovamenti di *Stephanorhinus kirchbergensis* (JÄGER, 1839) sul territorio eurasiatico. Con questa occasione, si propone una mappa aggiornata indicante l'ubicazione approssimativa dei venti siti a *S. kirchbergensis* sul territorio italiano. **Parole chiave:** Rhinocerotidae, *Stephanorhinus kirchbergensis*, Pleistocene, Europa, Asia.

Abstract - An updated report concerning some other *Stephanorhinus kirchbergensis* (JÄGER, 1839) discoveries on Eurasian territory is proposed here as an integration of other previous papers (BILLIA 2011a, 2011b, 2014; BILLIA & ZERVANOVÁ 2015, 2017). The four texts listed above are easily available on the site: www.rhinosourcecenter.com. An updated map showing the approximate geographical location of the *S. kirchbergensis* twenty Italian sites (three Roman unknown suburbs included) is also proposed.

Key words: Rhinocerotidae, *Stephanorhinus kirchbergensis*, Pleistocene, Europe, Asia.

Introduction

This work follows a first one listing the occurrence of *Stephanorhinus kirchbergensis* (JÄGER, 1839) in Eurasia (BILLIA 2011a) and four following updatings (BILLIA 2011b, 2014; BILLIA & ZERVANOVÁ 2015, 2017). It regards an updated integration containing some other data on discoveries of the Pleistocene rhinoceros *S. kirchbergensis* in Eurasia based on further investigation (2017-2022).

The reports come from the following eight countries: The Netherlands, Spain, Italy, The Czech Republic, Poland, The Russian Federation (European area and Asian area), China, and Japan. As to the *S. kirchbergensis* remains, Spain and Japan are cited for the first time in literature.

The paragraph numbers used here in the text correspond to the same used in BILLIA (2011a).

Europe

The Netherlands (BILLIA 2011a: § 1.4, pp. 20-22)

Three remains of *S. kirchbergensis* together with some other ascribed to *Elephas antiquus* FALCONER &

CAUTLEY, 1847 were collected from the Eurogeul (North Sea, off the coast of the Zuid-Holland province) between April and October 2011. The *S. kirchbergensis* remnants consist of a metacarpal III (CM-DM 140-1) (MOL et al. 2012: fig 2, p. 21; fig 3, p. 22) (Fig. 1), a calcaneum (CM-DM 144) (cit: fig 4, p. 23; fig 6, p. 24) (Fig. 2), and a second upper molar fragment (n.n.) (cit: fig. 7, p. 24).



Fig. 1 - *S. kirchbergensis* third metacarpal from Eurogeulgebied Noordzee, Holland (MOL et al. 2012: fig 3, p. 22).
- Terzo Metacarpale di *S. kirchbergensis*, Eurogeulgebied Noordzee, Holland (MOL et al. 2012: fig 3, p. 22).

Both the metacarpal and the calcaneum appear to be of truly remarkable dimensions. Although fragmented, the second molar is perfectly capable of highlighting its most salient features which are irrefutably those of *S. kirchbergensis*.

The authors attempted to provide a dating to both the specimens using ^{14}C but without success (“Indeed,



Fig. 2 - *S. kirchbergensis* right calcaneum from Eurogeulgebied Noordzee, Holland (MOL et al. 2012: fig 6, p. 24).
- Calcaneum dx di *S. kirchbergensis*, Eurogeulgebied Noordzee, Holland (MOL et al. 2012: fig 6, p. 24).

collagen could not be extracted from this material in the ^{14}C laboratory in Groningen using the applicable recipe [LONGIN 1971]. This means that the sample cannot be absolutely dated by the ^{14}C method”, MOL et al. 2012: p. 22).

Spain

DAURA et al. (2005: 58-60) refer to a *S. kirchbergensis* find at the Cova del Gegant (Sitges, Barcelona, Spain). No other information are available. Very cautiously (!), this could be the first find of this species on the Iberian Peninsula.

Italy (BILLIA 2011a: § 1.7, p. 23)

The exceptionally well-preserved *S. kirchbergensis* skull from Spinadesco (Cremona, N Italy) (PERSICO et al. 2015, p. 57) was already reported in previous addenda by BILLIA & ZERVANOVÁ (2016). Later the dimples contents (peaty material) of the teeth of the skull from Spinadesco were investigated in order to try to formulate hypotheses about the diet adopted by that individual, its habitat, the possible season of its death. Pollen analyses carried out on the sample of plant debris (total weight of about 3.4 g) were performed by Elena M. Burkanova, palinologist of the Laboratory of Mesozoic & Cenozoic Continental Ecosystems, Siberian Palaeontological

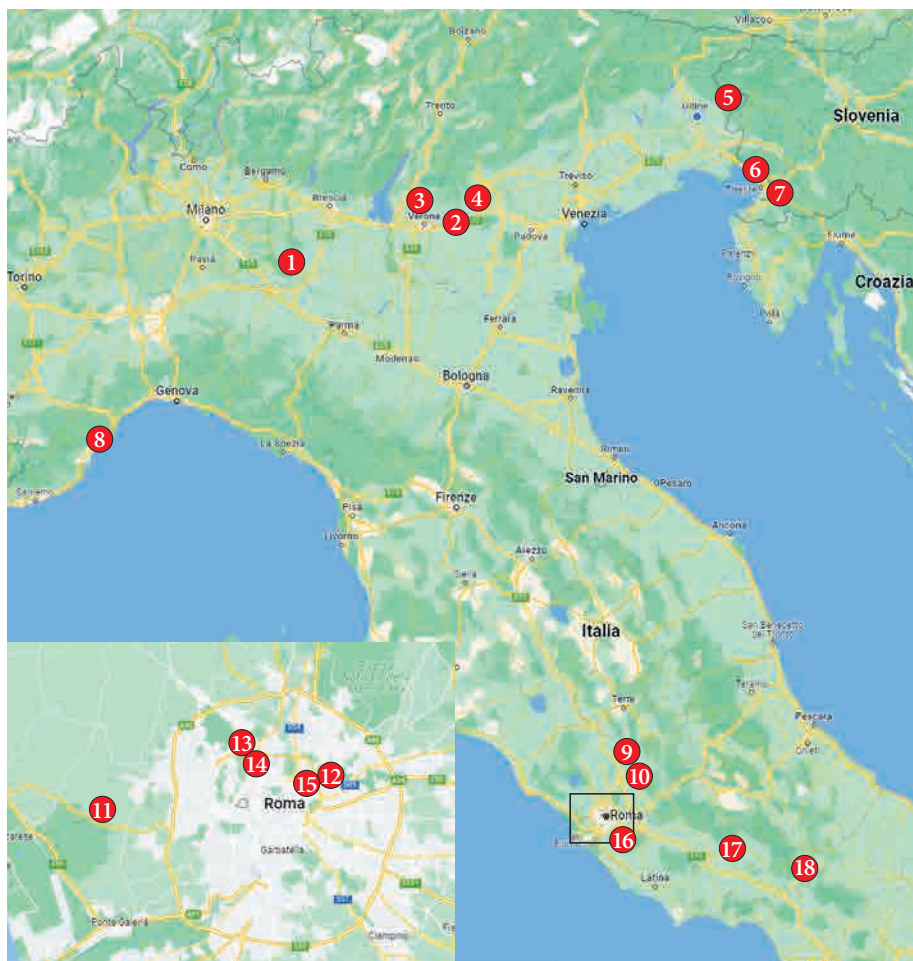


Fig. 3 - An updated map (2022) showing the approximate geographical location of the *Stephanorhinus kirchbergensis* twenty Italian sites (three Roman unknown suburbs included). See the text for details.

- Mappa aggiornata (2022) indicante l'ubicazione dei venti siti a *Stephanorhinus kirchbergensis* sul territorio italiano, inclusi i tre suburbi romani rimasti ignoti. I numeri fanno riferimento a quanto indicato nel testo.

Scientific Center of the Tomsk State University (The Russian Federation). The results in detail are reported in BURKANOVA et al. (2020).

Rhinoceros remains from Melpignano - San Sidero were previously classified as *S. kirchbergensis* by different authors (MIRIGLIANO 1941; CARDINI 1962; BOLOGNA et al. 1994; MUCI 1998; BARBERA et al. 2006). Later, a great amount of the specimens from Cava Nuzzo and Cava Bianco at Melpignano were revised by PETRONIO & PANDOLFI (2008) and PANDOLFI & PETRONIO (2011) who re-assigned them to *S. hemitoechus* FALCONER since those remains show several diagnostic features peculiar of this species.

The authors seize this opportunity for proposing here a map (Fig. 3) showing approximately the geographical location of the whole of *S. kirchbergensis* sites (twenty, three Roman unknown suburbs included) on Italian territory up to today's date which are as follows:

- 1- Spinadesco (Cremona, Lombardia, N Italy) (PERSICO et al. 2015; BURKANOVA et al. 2020)
- 2- Monte Zoppega (= Grotta di San Lorenzo di Soave, Soave, Verona, Veneto, NE Italy) (SCORTEGAGNA 1844; MOLON 1875; FABIANI 1919)
- 3- La Fornace di Sant'Ambrogio di Valpolicella (Verona, Veneto, NE Italy); (BILLIA & PETRONIO 2009)
- 4- Cava Calcàra at Monte di Malo (Vicenza, Veneto, NE Italy) (BILLIA 2011; BILLIA & ZERVANOVÁ 2015, 2016)
- 5- Cava Italcementi (Vernasso, Cividale del Friuli, Udine, Friuli, NE Italy) (PELLARINI 1999; BILLIA & PETRONIO 2009; BILLIA & ZERVANOVÁ 2016)
- 6- Aurisina (Carso Triestino, Trieste, Venezia Giulia, NE Italy); (LEONARDI 1945-47)
- 7- Caverna degli Orsi (San Dorligo della Valle/Dolina, Trieste, Venezia Giulia, NE Italy); (BERTO & RUBINATO 2010)
- 8- Grotta Valdemino (Borgio Verezzi, Savona, Liguria, NW Italy); (SALA 1992)
- 9- Farfa river at Ponte sul Farfa (Roma, Lazio); (BILLIA & PETRONIO 2009)
- 10- Cretone lacustrine basin near Rome (Val Tiberina, Lazio); two outcrops: Fosso Casa Cotta and Marzolino (MARRA et al. 2016)
- 11- Castel di Guido (via Aurelia, Roma, Lazio); (BILLIA & PETRONIO 2009)
- 12- Roma, Aniene river at Monte Sacro (Lazio); (BILLIA & PETRONIO 2009)
- 13- Roma, Tor di Quinto (Lazio); (BILLIA & PETRONIO 2009)
- 14- Roma, Tiber at Ponte Molle (or Ponte Mollo, now called Ponte Milvio, Lazio); (LEONARDI 1947; BILLIA & PETRONIO 2009)
- 15- Roma, Sedia del Diavolo (Lazio); (BILLIA & PETRONIO 2009)
- 16- Roma, three unknown suburbs (Lazio); (BILLIA & PETRONIO 2009)

17- Cava Bernardo & Vincenzo Di Pede (Madonna di Valle Radice, Sora, Frosinone, Lazio); (BILLIA & PETRONIO 2009)

18- Guado San Nicola (left bank of the Volturno river, near Monteroduni, Upper Volturno Valley, Isernia, Molise, Central Italy) (PERETTO et al. 2016).

As to the 7, 8, and 10 (Marzolino site only) sites, the attribution of the remains by the authors is to be intended as *S. cf kirchbergensis*.

The Czech Republic (BILLIA 2011a: § 1.11, p. 24)

According to MUSIL (2018: 6), *S. kirchbergensis* remnants come from layers 11a, 11b, 11c, 11d of the Kůlna Cave (northern part of the Moravian Karst, about 35 km north of Brno) (OPRAVIL 1970) together with remains of *Coelodonta antiquitatis* BLUMENBACH, 1807, *Capra ibex* LINNAEUS, 1758, *Rupicapra rupicapra* LINNAEUS, 1758, *Alces alces* LINNAEUS, 1758, *Cervus elaphus* LINNAEUS, 1758, *Capreolus capreolus* LINNAEUS, 1758, *Saiga tatarica* (LINNAEUS, 1766), *Mammuthus primigenius* (BLUMENBACH, 1799), *Equus taubachensis* FREUDENBERG, 1911, *Canis lupus* LINNAEUS, 1758, *Ursus taubachensis* RODE, 1931, *Castor fiber* LINNAEUS, 1758, *Panthera spelaea* GOLDFUSS 1810, *Crocota crocota spelaea* GOLDFUSS, 1823, *Elephas* sp., Bovidae indet., *Ursus* sp., indeterminate rhino (MUSIL 1970).

Possibly, other *S. kirchbergensis* remains come from layers 9, 9a, 9b (ESR 70-55 ka BP, Micoquian, Eemian interglacial according to VALOCH (1988); 71.3 ka BP according to MUSIL (2018). Accompanying fauna: *Coelodonta antiquitatis*, *Equus* (*Asinus*) *hydruntinus* (recte *Equus hydruntinus* REGALIA, 1907), *Alces alces*, *Cervus elaphus*, *Rangifer tarandus* (LINNAEUS, 1758), *Mammuthus primigenius*, *Canis lupus*, *Crocota crocota spelaea*, *Panthera spelaea*, *Ursus ex gr. spelaeus*, *Ursus taubachensis*, *Lepus* sp., Bovidae indet., *Equus* sp. (MUSIL 1970).

Kůlna Cave is noted for its Palaeolithic and Mesolithic material as well as *Homo neanderthalensis* KING, 1864 skeletal remains dated about 50 ka BP.

Poland (BILLIA 2011a: § 1.13, pp. 24-25)

A well-preserved, nearly complete skeleton of *S. kirchbergensis* was recovered – in April 2016 during works along the S3 Polish national road – from an Eemian Interglacial site near Gorzów Wielkopolski (Landsberg an der Warthe, voiv. Lubusz, near the German border, N-W Poland; STEFANIAK et al. 2021). The skeleton was preserved in a succession that had accumulated in a small, shallow kettle palaeolake formed during the Scandinavian ice sheet retreat. The Gorzów deposits belong to at least two limnic cycles: an older one, dating to the Eemian Interglacial (MIS 5e) and an overlying one of Mid-Weichselian (MIS 3) age. The rhinoceros remains were preserved in a gyttja layer of the former unit. The *S. kirchbergensis* skeleton includes the cranium with full



Fig. 4 - *S. kirchbergensis* skull (F-4160) from the Chondon river (Yakutya [Sakha Republic], Russian Federation; KIRILLOVA et al. 2017: fig 2, p. 3); (A) view from above, (B) bottom view.

- Cranio di *S. kirchbergensis* (F-4160), fiume Čondon (Yakutya [Repubblica Saha], Federazione Russa; KIRILLOVA et al. 2017: fig 2, p. 3); (A) vista dorsale, (B) vista ventrale.

dentition and almost 120 postcranial bones. The lumbar and caudal part of the spinal column, as well as the left hind limb and a few minor bones were not preserved. All the bones are exceptionally well-preserved, but the rhinoceros skull suffered diagenetic crushing and damage caused by the roadwork.

Besides the *S. kirchbergensis* skeletal remains the site also yielded an isolated left metacarpal bone of fallow deer, *Dama dama* (LINNAEUS, 1758) (KOTOWSKI et al. 2017; SOBCZYK et al. 2020). Later, palaeobotanical analysis very similar to those performed on the contents of the dental dimples of *S. kirchbergensis* from Spinadesco were conducted on the contents found in the dimples of the teeth of *S. kirchbergensis* from Gorzów Wielkopolski as well as on the contents recovered from the dimples of the teeth of the famous *C. antiquitatis* from Starunia (STEFANIAK et al. 2021).

The Russian Federation (European area) (BILLIA 2011a: § 1.17, p. 26)

A *S. cf. kirchbergensis* third upper molar comes from the Verkhnyaya cave (Atysh waterfall, Belaya river basin, Beloretsky district, native reserve territory of the Bashkortostan Republic) (DANUKALOVA et al. 2008). The authors refer the fauna “c” (in which *S. cf. kirchbergensis* is included) to MIS 7-5e.

Fragments of teeth assigned to *S. kirchbergensis* were found in both the Barsuchii Dol and Idrisovskaya caves

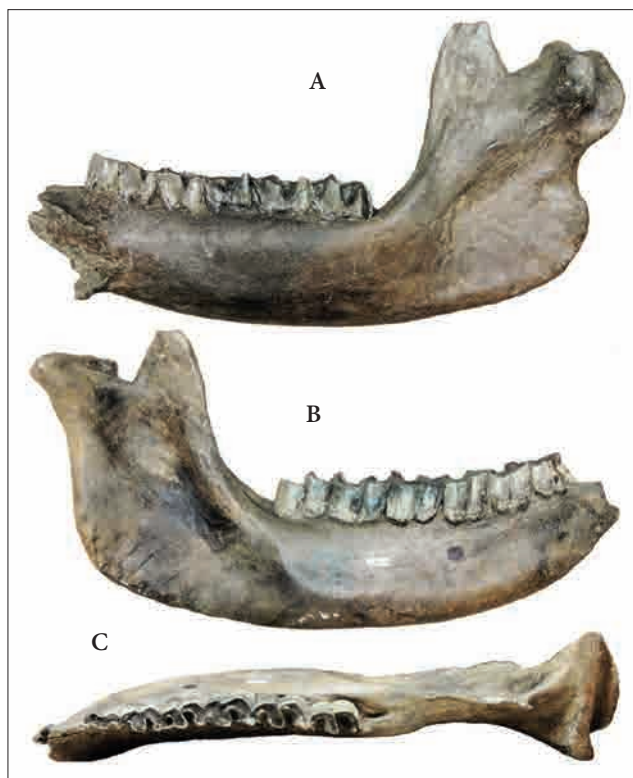


Fig. 5 - *S. kirchbergensis* lower jaw (F-887) from the Chumysh river (Pobeda village, Altay Territory, Russian Federation; KIRILLOVA et al. 2021: fig. 2, p. 561).

- Mascellare inferiore di *S. kirchbergensis* (F-887), fiume Čumyš (villaggio di Pobeda, Territorio dell'Altay, Federazione Russa; KIRILLOVA et al. 2021: fig. 2, p. 561).

(Southern Ural) (KUZMIN et al. 2017) (on the basis of the brief text description the two caves should be located on the border between the Chelyabinsk region and the Republic of Bashkortostan). It is conceivable that the caves could be a shelter against the cold for the rhinoceros. The presumed age for the Barsuchii Dol cave is Eemian interglacial MIS 5e (ca. 130-115 ka BP) (OTVOS 2015) while for Idrisovskaya cave MIS 5e is suggested only.

Asia

The Russian Federation (Asian area) (BILLIA 2011a: § 2.2, p. 26)

A very well-preserved *S. kirchbergensis* skull (the “ChR-Chondon rhinoceros” F-4160, just as in the Russian original text) – preserving the entire maxillary arch intact – coming from the Chondon river (a tributary of the Laptev Sea flowing into N Yakutia) was described by KIRILLOVA et al. (2016, 2017) (KIRILLOVA et al. 2017: fig. 2, p. 3; Fig. 4, already reported in BILLIA & ZERVANOVÁ 2017). As it almost always happens in these cases, the mandible has unfortunately been lost.

A well-preserved lower jaw of *S. kirchbergensis* (the “AltR-Altai rhinoceros” F-887, just as in the Russian original text) (KIRILLOVA et al. 2021: fig 2, p. 561; Fig.

5) was found on the coastline of the Chumysh river (a right tributary of the Ob') near the Pobeda village (Tselinny district, Altay Territory [Altaysky kray]) in 2005. The incisal part and the diastema are absent. Its roundness is noticeable. The internal canal of the bone contained soil (yellow medium-grained sand with a silty component) from which spores and pollen were isolated. Both samples (F-4160 skull and F-887 hemimandible) are kept in the National Alliance Shidlovsky "Ice Age" collections (pr. Mira, 102-Korpus 1, Moscow) (KIRILLOVA et al. 2021).

According to SHPANSKY & BOESKOROV (2018: fig 6, p. 457) a lower jaw of *S. kirchbergensis* was collected from the Mus Khaya locality on the Yana river (Yakutia, NE Siberia). This jaw was previously designated as a paratype of *Coelodonta jacuticus* Rusanov. This last find of *S. kirchbergensis* in northern Yakutia 'ld represent the northernmost occurrence of this species. In the same article the relationship among *Coelodonta jacuticus* RUSANOV, 1968, *C. antiquitatis pristinus*, RUSANOV, 1968 and *C. antiquitatis humilis* RUSANOV, 1968 are also taken into consideration concluding that "*C. jacuticus*, *C. a. pristinus*, and *C. a. humilis* are invalid taxa which should be regarded as junior synonyms of *C. antiquitatis*".

S. kirchbergensis teeth (together with *C. antiquitatis* remains) come from both the Tetyukhinskaya (44°35' N - 135°36' E) and Sukhaya (43°09' N - 131°28' E) caves in southern Primorye [Primorskiy kraj] (southern Coast territory, in front of Japan). Radiocarbon dating and accompanying fauna suggest a MIS range 5÷2. Till to date, these two finds attest the *S. kirchbergensis* Late Pleistocene extreme eastern boundary (KOSINTSEV et al. 2020).

A complex of 39 skeletal (cranial and postcranial) remains yielded from thirteen western as well as eastern Siberian localities were recently recognised as belonging to *S. kirchbergensis* (LOBACHEV et al. 2021). In the LOBACHEV et al. paper - tab. 1, p. 4 - both the 13 localities and the single specimens are listed in detail. In this context, the list is limited to 13 localities:

- 1- Chumysh River between the villages of Martynovo and Kytmanovo (Altay Territory [Altaysky kray]);
- 2- Surroundings of Biysk (Altay Territory [Altaysky kray]);
- 3- Chulym River east of Asino (Tomsk region);
- 4- Ob' River, mouth of the Kindal oxbow (Tomsk region);
- 5- Ob' River at Krasny Yar (Tomsk region);
- 6- Surroundings of Berdsk (Novosibirsk region);
- 7- Ob' River at Krasny Yar, 17 km north of Novosibirsk (Novosibirsk region);
- 8- Ob' River near the Bibiha village (Novosibirsk region);
- 9- Ob' River at Taradanovo (Novosibirsk region);
- 10- Irtysh River near the Krasnoyarsk and Utuskun villages (Ust-Ishymsk district, Omsk region);

11- Irtysh River in Omsk (Omsk region);

12-Kachulka village (Karatuzsk district, Krasnoyarsk Territory [Krasnoyarsky kray]);

13- Irkutsk region (unknown locality).

Here too – as in many other cases already known – much of the material collected along watercourses is devoid of stratigraphic data. For their investigation, the authors resorted to the mesowear method (FORTELIUS & SOLOUNIAS 2000) in order to reconstruct the dietary preferences of *S. kirchbergensis* and *Coelodonta antiquitatis* in that part of the Siberian area.

In the "discussion" of their paper, the authors come to interesting conclusions (LOBACHEV et al. 2021: pp. 38-39) about the possible diet, the ecology and the chronological age of *S. kirchbergensis* in that area. On the basis of this study (and the previous ones concerning the distribution of *S. kirchbergensis* in Eurasia) it would seem that *S. kirchbergensis* is rather more distributed in the Siberian area than previous thought.

In SHPANSKY (2016) three of the above mentioned localities (along the Ob' near Kindal [Tomsk oblast'], along the Chulym river, east of Asino [Tomsk oblast'], and the site at the confluence of the Amyl and Kazir rivers near Kachul'ka [Krasnoyarsk oblast']) were also mentioned.

Therefore, at the moment, there are three localities in Yakutia that had given back remains attributed to *S. kirchbergensis*: the two just mentioned located in the far north of Yakutia (Chondon river [KIRILLOVA et al. 2017] and Mus Khaya (Yana river) [SHPANSKY & BOESKOROV 2018]) to which the area of the Vilyui river (mouth of the Tyalychima river) in west-central Yakutia must be added (DUBROVO 1957).

China (BILLIA 2011a: § 2.7, pp. 28-29)

According to TONG et al. (2019, fig 5, p. 627), *S. kirchbergensis* remains were found in the Bailongdong (or Bailong Cave, Yunxi County, NW part of Hubei province) (Fig. 6), a cave site which yielded ancient humans.

The *S. kirchbergensis* remains consist of: a M² (IVPP V 26161.1), a M² (IVPP V 26161.2), a DP¹ (IVPP V 26161.3), a dp₁ (YXM-004), a Mc III (YXM-005), a right talus (IVPP V 26161.4). Among eight human teeth, a couple of stone and bone artifacts as well as 32 other mammal fossil species unearthed during the past four decades such as: *Bos (Bibos) gaurus grangeri* COLBERT & HOOIJER, 1953, *Pseudoris nayaur* (HODGSON, 1833) (the "Himalayan blue sheep", the only member of the *Pseudoris* genus), *Sus lydekkeri* ZDANSKY, 1928, and diversified deers (*Elaphodus cephalophus* MILNE-EDWARDS, 1872, *Muntiacus* cf. *Muntiacus reevesi* OGILBY, 1839, *Muntiacus muntjak* ZIMMERMANN, 1780, *Cervus grayi* ZDANSKY, 1925 [= *Cervus (Sika) grayi* (ZDANSKY, 1925)], *Rusa unicolor* KERR, 1792). In addition to these already listed species, the following taxa are also included: *Miniopterus schreibersii* Kuhl 1817, *Leopoldamys edwardsi*



Fig. 6 - *S. kirchbergensis* M2 (IVPP V 26161.2) from Bailongdong (Yunxi, Hubei, PRC; TONG et al. 2019: fig 5, p. 627).
- M2 di *S. kirchbergensis* (IVPP V 26161.2), Bailongdong (Yunxi, Hubei, RPC; TONG et al. 2019: fig 5, p. 627).



Fig. 7 - *S. kirchbergensis* M3 (XZSF.6) from Zhangshan (Suqian, Jiangsu prov., PRC; Chen et al. 2020: fig. 2, p. 323).
- M3 di *S. kirchbergensis* (XZSF.6), Zhangshan (Suqian, Jiangsu prov., RPC; Chen et al. 2020: fig. 2, p. 323)

Thomas 1882, *Rhizomys sinensis* J.E. GRAY, 1831 (the “Chinese bamboo rat”), *Hystrix subcristata* SWINEHOE, 1870 (the “Chinese porcupine”), *Canis mosbachensis variabilis* PEI, 1934, *Cuon javanicus antiquus* MATTHEW & GRANGER, 1925 (? or COLBERT & HOOIJER, 1953) (the “Sumatran wild dog”), *Nyctereutes sinensis* PEI, 1934, *Ursus thibetanus* CUVIER 1823, *Ailuropoda baconi* (WOODWARD 1915), *Arctonyx collaris rostratus* MATTHEW & GRANGER, 1923 (the “SE Asian pig-nosed badger”), *Pachycrocuta sinensis* (Owen, 1870), *Catopuma temminckii* (VIGORS & HORSFIELD, 1827) (the “Asian golden cat”), *Neofelis nebulosa* (GRIFFITH, 1821) (the “clouded leopard”), *Panthera tigris* LINNAEUS, 1758, *Panthera pardus* (LINNAEUS, 1758), *Stegodon orientalis* OWEN, 1870, *Dicerorhinus sumatrensis* (FISCHER v. WALDHEIM, 1814), *Megatapirus augustus* MATTHEW & GRANGER, 1923, *Capricornis sumatraensis kanjereus* COLBERT & HOOIJER, 1953, *Homotherium* sp., *Rhinolophus* sp., *Ochotona* sp., and *Bubalus* sp. Monkeys are lacking and porcupines are few: it is unusual for its geographical and chronological positions. Moreover, the general composition agrees well with that of the *Ailuropoda-Stegodon* fauna.

Such taxa of Bailongdong fauna as *A. baconi*, *P. sinensis*, *A. c. rostratus*, *P. tigris* and *M. augustus* nearly reached the maximum peak in dimensions of their kinds respectively. Based on the faunal composition and evolutionary levels, the age of Bailongdong fauna should correspond to the Middle Pleistocene which is very close to the Yanjinggou fauna and the fauna of the Nanjing Man site (TONG et al. 2019). The fossil remains on the whole are preserved in the collections of the Cultural Relics Station of Yunxi County and the

Institute of Vertebrate Palaeontology & Palaeoanthropology, Chinese Academy of Sciences.

At Zhangshan (lower Huaihe River Region, SW of Suqian, Jiangsu province, E China; 33°48'12" N - 117°51'50" E) (CHEN XI et al. 2020) - a site casually discovered in 1950's during the Xinyihe River construction project - some *S. kirchbergensis* remains together with other fossil remnants of *Alligator* cf. *sinensis* FAUVEL, 1879, *Palaeoloxodon huaihoensis* QI, 1999, *Equus hemionus* PALLAS, 1774, *Sus lydekkeri* ZDANSKY, 1928, *Sinomegaceros ordosianus* (YOUNG, 1932), *Cervus* (*Sika*) *grayi* (ZDANSKY, 1925), and *Bison priscus* BOJANUS, 1827 were recently unearthed (CHEN XI et al. 2020, fig 2, p. 323; Fig. 7). Proposed age for this faunal complex: early late Pleistocene.

Middle Pleistocene rhinocerotid dental remains coming from the upper strata of the Jinyuan Cave (Luotuo Hill, Dalian, Liaoning Province, NE China) have been ascribed to *Stephanorhinus* cf. *kirchbergensis*. The remains “mainly consist of maxillary and mandible with dentition of juvenile and aged individuals” (SUN BOYANG et al. 2022).

Japan

Back in the past, remains of a fossil rhinoceros (NMNS-PV9600) were recovered in the lower part of the Isa Formation (Middle Pleistocene) (Isa area, Mine City, Yamaguchi Prefecture, W Japan). At that time, those remains were assigned to *Dicerorhinus nipponicus* SHIKAMA et al. 1967. Presently, according to HANDA & PANDOLFI (2016) they must be ascribed to *S. kirchbergensis* considering that they are showing anatomical features very similar to those of *S. kirchbergensis*.

Furthermore, the rhinoceros from the Isa Formation presents characteristics very close to *S. kirchbergensis* from Choukoutien. The authors suggest that *S. kirchbergensis* could have reached the Japanese archipelago during the Middle Pleistocene (before or around 0.43 Ma).

Considerations

On the whole, these latest new data show a good increase in the number of sites that gave back remains of *S. kirchbergensis*. Furthermore, Spain and Japan are mentioned in the literature for the first time.

As in the case of the four previous “Addenda”, this work does not claim to be exhaustive and must in any case be considered as a collection of bibliographic data that enriches the volume of knowledge previously acquired about *S. kirchbergensis*.

Therefore, comments and other considerations are beyond the scope of this paper which is purely informative.

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