

Anecdotal report of intersexuality, regeneration and teratology in scorpions (Arachnida: Scorpiones)

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Introduction

This is an synoptic anecdote reporting and illustrating all the photographic records as well as concrete specimens I had come across during the past few years when browsing Chinese online chatgroups and platforms dedicated to scorpion captive breeding. This document arranges and describes briefly each anomaly. Most photos were posted in two of my online blogs (now deleted) on the Chinese website Bilibili; others shared by my friends. Many photos were circulated online in the hobby with unknown original source. Watermarks are kept when available. Only 1 observation (*A. turkiyensis*) belongs to the author.

INTERSEXUALITY

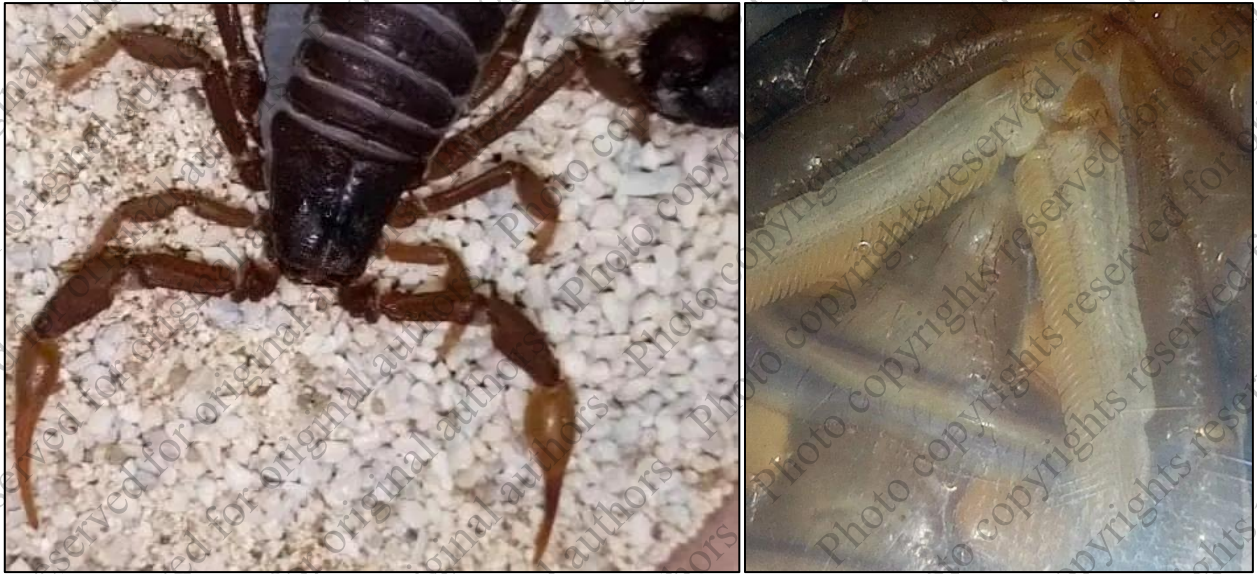
Androctonus australis (Linnaeus, 1758):

Gynandromorphism, displaying male characteristics on the left half (somewhat lean mesosoma; longer pectine with longer teeth) and female ones on the right half (somewhat bulky mesosoma; shorter pectine with shorter teeth).



***Parabuthus transvaalicus* Purcell, 1899:**

Gynandromorphism, displaying male characteristics on the left half (robust pedipalp chela; longer pectine with longer teeth) and female ones on the right half (slender pedipalp chela; shorter pectine with shorter teeth, and dilated basal lamellae).



REGENERATION

***Heterometrus spinifer* (Ehrenberg, 1828):**

[Tentative identification based on the pronounced basal lobe that rules out *H. longimanus* (Herbst, 1800)]

Regeneration of pedipalp chela fixed finger (= pedipalp tibia). Dentate ventral edge visible.



***Heterometrus* sp.:**

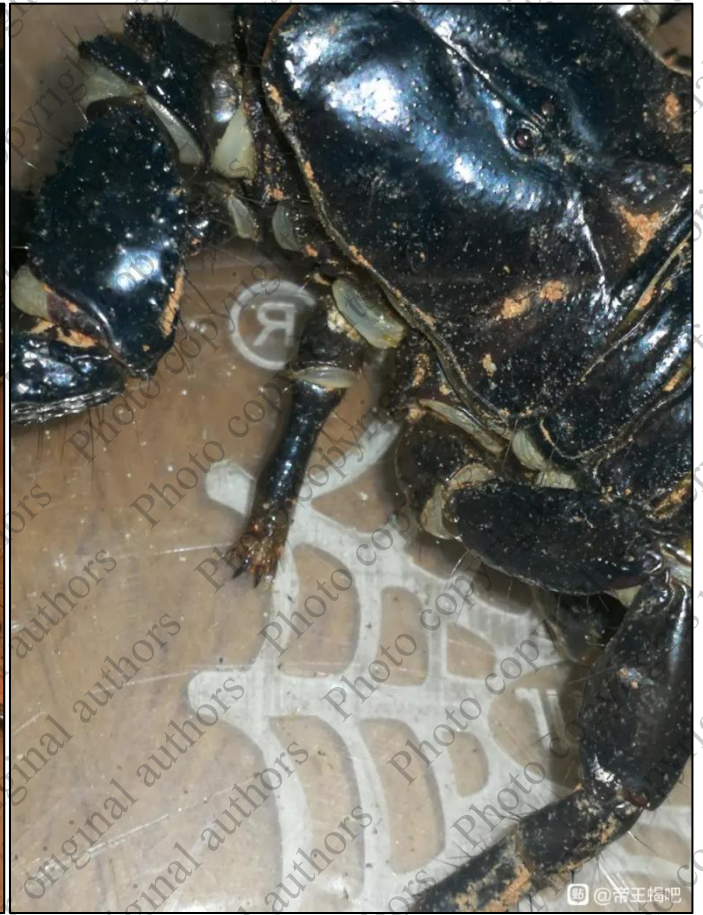
[cf. *longimanus* or *thorellii*; adult male, given the elongated pedipalps]

Regeneration of telotarsus at the junction between basitarsus and tibia of right leg III; i.e., loss of basitarsus.



***Pandinus imperator* (C. L. Koch, 1841):**

Regeneration of tarsal ungues at the broken section of left leg I femur.



***Androctonus australis* (Linnaeus, 1758):**

Regeneration of tarsal ungues on perhaps the junction between femur and patella of left leg IV.



TERATOLOGY

Olivierus martensii (Karsch, 1879):

Somatic duplication (metasoma) of five cases (very common in reality). All duplications took place at metasoma I.



Centruroides sculpturatus Ewing, 1928:

Somatic duplication (metasoma) of multiple cases.



Centruroides vittatus Say, 1821:

Somatic duplication (metasoma) took place at metasoma I.



Centruroides nitidus Thorell, 1876:

Somatic duplication (mainly metasoma) took place at posteriority of mesosoma VII.



Centruroides limbatus Pocock, 1898:

Somatic duplication (mainly metasoma) took place at mesosoma VII.



Metasomal torsion. One of the two cases I've ever seen.



Parabuthus schlechteri Purcell, 1899:

Somatic duplication (metasoma) took place at mesosoma II.



***Parabuthus transvaalicus* Purcell, 1899:**

Somatic duplications (mainly metasoma) took place at mesosoma VII ([left](#)) and metasoma I ([right](#)).



***Parabuthus maximus* Werner, 1913:**

Somatic duplication (mainly metasoma) took place at mesosoma VII.



***Parabuthus villosus* (Peters, 1862):**

Somatic duplication (metasoma) took place at mesosoma III.



***Leiurus haenggii* Lowe, Yağmur & Kovařík, 2014:**

Somatic duplication (metasoma) took place at mesosoma II while affecting metasoma I.



***Javanimetrus cyaneus* (C. L. Koch, 1836):**

Somatic duplications took place at mesosoma VI (left & middle; [@rio_ferdinanto](#)) and metasoma II (right; [@Norman Day](#)).



Somatic duplication (metasoma) took place at metasoma IV while affecting metasoma III.



***Heterometrus spinifer* (Ehrenberg, 1828):**

Somatic duplication (metasoma) took place at metasoma II while affecting metasoma I.



***Heterometrus laoticus* Couzijn, 1981:**

Telsonic duplication.



***Tityus magnimanus* Pocock, 1897:**

Somatic duplication (metasoma) took place at metasoma III while affecting metasoma II.



***Hottentotta flavidulus* Teruel & Rein, 2010:**

Metasomal (left) and prosomal duplication (1st juvenile).



双尾蝎能遗传吗? 如何繁殖双尾

蝎? 巴基斯坦黄鳄背蝎介绍第...

蝎猎: 2023-12-3

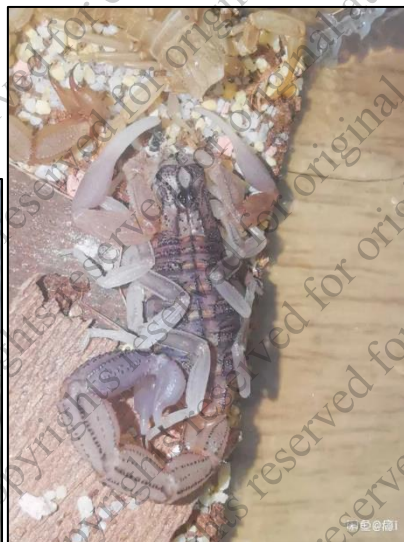
打破蝎圈传言。双尾蝎进4龄成

功! 巴基斯坦黄鳄背蝎介绍第...

蝎猎: 2023-11-24

***Hottentotta hottentotta* (Fabricius, 1787):**

Metasomal (left), telsonic (middle) and prosomal duplication (as well as pedipalps; right, 1st juvenile).



[Metasomal duplication took place at metasoma III while affecting metasoma II.](#) Unsure if they are the same individual.



Metasomal duplication took place at metasoma V while affecting metasoma IV.



Metasomal duplication took place at metasoma IV.



Hottentotta salei (Vachon, 1980):

Somatic duplication (metasoma) took place at metasoma II.



Heteroctenus junceus (Herbst, 1800):

Somatic duplication (mainly metasoma) took place at tergite VII.



***Parabuthus robustus* Kovařík, Lowe, Elmi & Štáhlavský, 2019:**

Aculear duplication.



***Lychas buchari* Kovařík, 1997 (?):**

Aculear thickening and telsonic thinning (©Mark Newton).



***Smeringurus mesaensis* (Stahnke, 1957):**

Tergal division on tergites II and IV, as indicated by the posterior margins.



***Androctonus turkiyensis* Yağmur, 2021:**

Tergal division on tergite IV (above), in comparison with the normal (below), under UV light. Also note the anterior notch on tergites II–III.



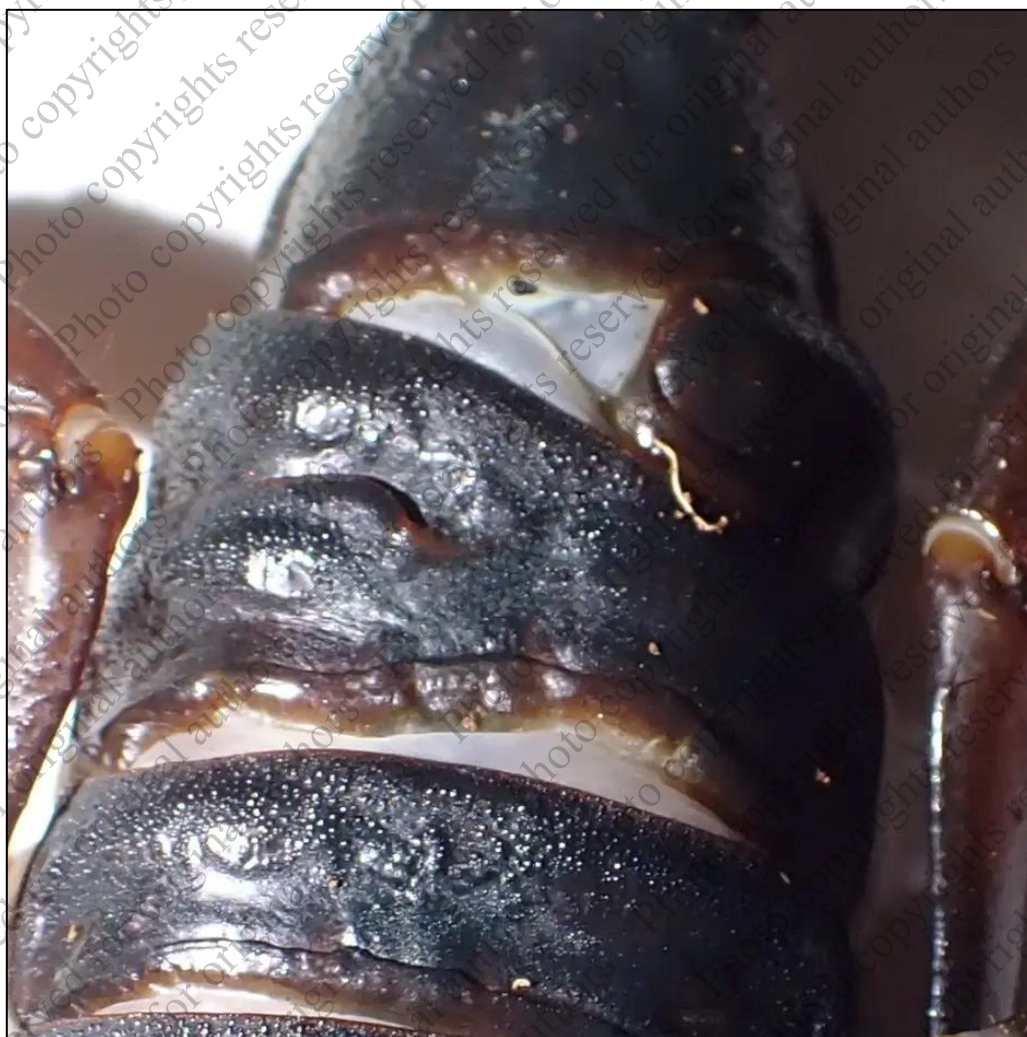
***Gigantometrus swammerdami* × *Chersonesometrus tristis* hybrid offspring:**

Tergal division. See fig. 10: <https://zenodo.org/records/12797192>



***Gigantometrus swammerdami* (Simon, 1872):**

Tergal rupture and fusion on tergites V – VII. Also note the abnormal tergite IV.

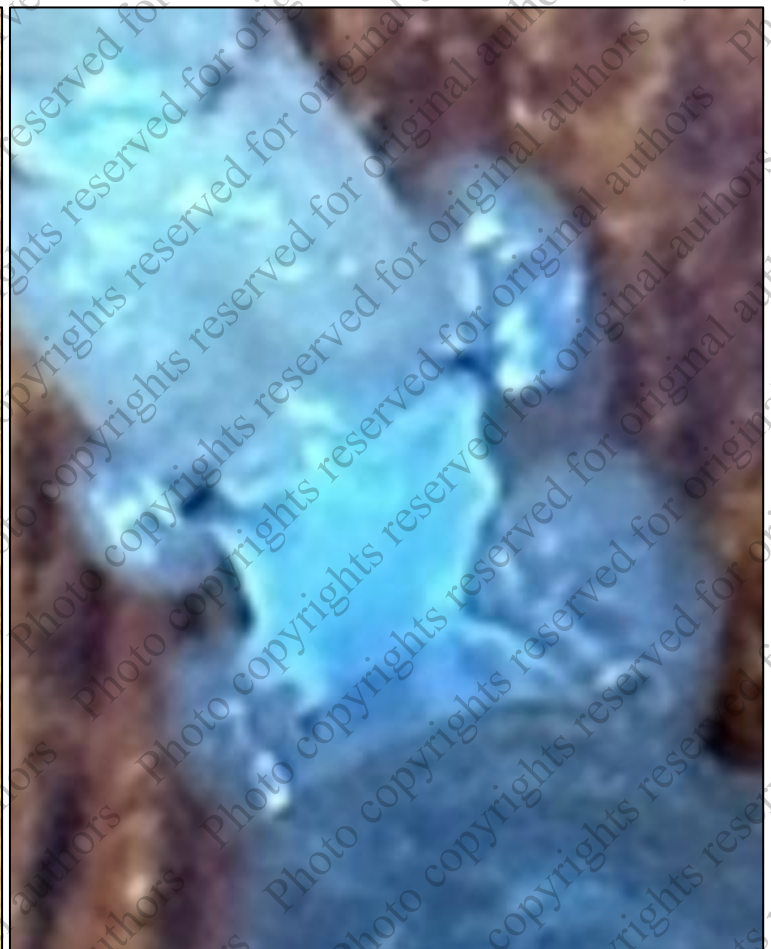


Metasomal fusion between segments I and II.



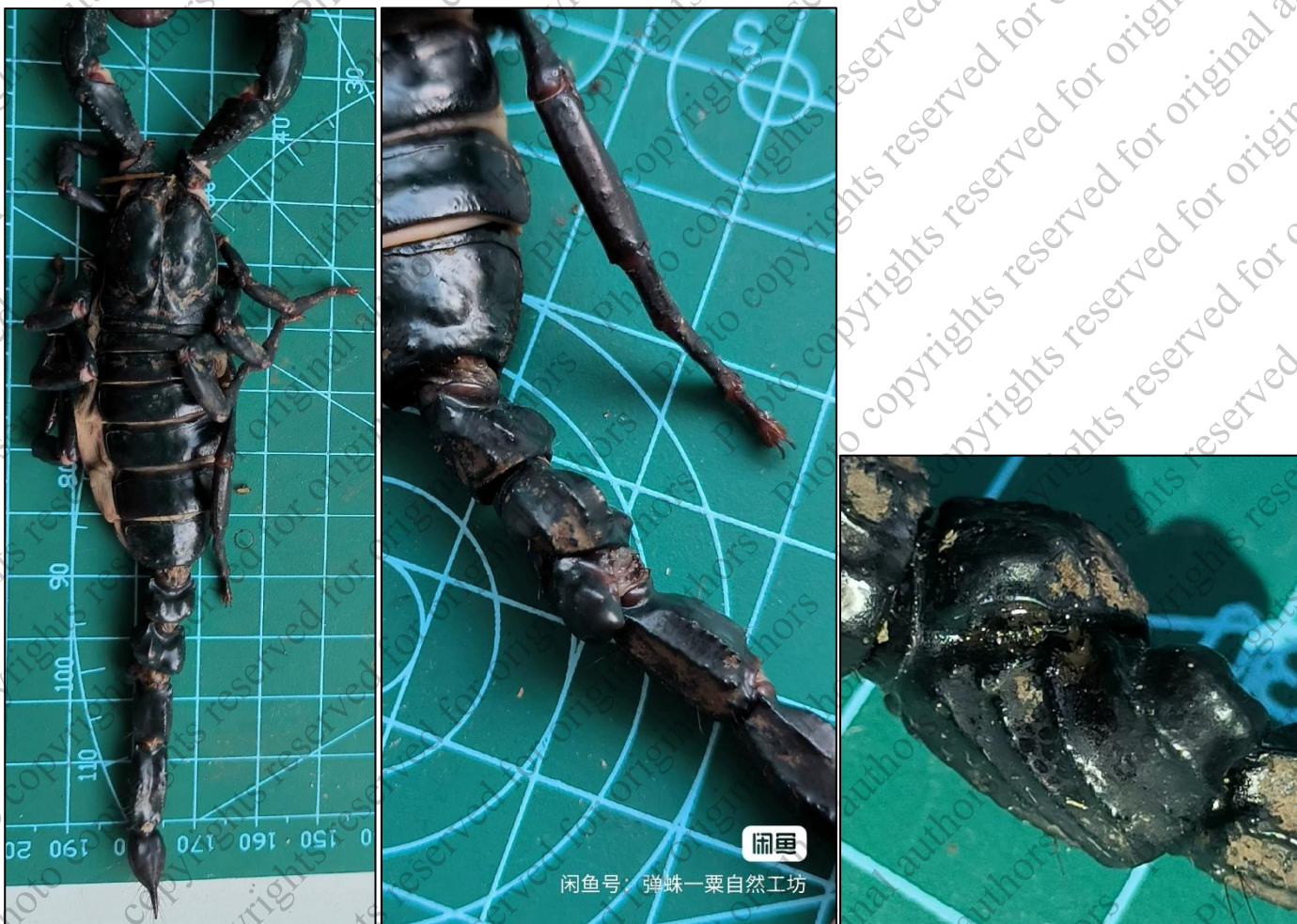
***Scorpions luridus* Qi, Zhu & Lourenço, 2005:**

Metasomal fusion and malformation between segments I and II.



***Heterometrus laoticus* Couzijn, 1981:**

Metasomal torsion and fusion at segment II.



***Hottentotta buchariensis* (Birula, 1987):**

Somatic duplication (prosoma) and pedipalp fusion (interpreted as two unseparated pedipalps).



Endnote

This document is only uploaded to Zenodo (<https://zenodo.org/>) with the DOI (10.5281/zenodo.12797304). The objective of this document is to provide a citable source for any relevant research in the future, since it's generally impossible to cite anecdotes shared among amateurs. Many cases illustrated here were either shared directly by the author as a casual photograph in the group chat or on other online platforms, or circulated by various enthusiasts thereby shrouding the original source in layers over the past few years. With the help of my friends, I listed part of the sources that are still traceable and yet accessible (**timestamp = 2024.7.30**). Sources for several records can be accessed by clicking on the photo or text. However, some of the following sources are nonetheless not the original ones, but only the ones from which we had encountered those observations. It would be helpful if any author happens to encounter this document and claim their copyright.

Sources that are still traceable:

<https://baike.baidu.com/pic/%E5%8F%8C%E5%B0%BE%E8%9D%8E/6452793>
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<https://arachnoboards.com/gallery/centruroides-gracilis-with-two-tails.18769/>
https://www.reddit.com/r/Damnthatinteresting/comments/otplxj/i_killed_this_scorpion_and_realized_it_had_two/

<https://www.instagram.com/p/C9ZKibSOmva/>

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<https://youtu.be/swtyfq8jH8s>

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