

28 March 2025

ANGAROSPHEX

Angarosphex Rasnitsyn, 1975:110. Type species: *Angarosphex myrmicopterus* Rasnitsyn, 1975, by original designation and monotypy.

Palaeapis Hong, 1984b:37. Type species: *Palaeapis beiboziensis* Hong, 1988, by monotypy. Synonymized with *Archisphex* by Rasnitsyn, Jarzembowski, and Ross, 1998:366, and with *Angarosphex* by Q. Zhang, Rasnitsyn, and H. Zhang, 2018.

Metaeosphex J.F. Zhang, 1985:33. Type species: *Mataeosphex venulosus* J.F. Zhang, 1985, by monotypy. Synonymized with *Archisphex* by Rasnitsyn, Jarzembowski, and Ross, 1998:366, and with *Angarosphex* by Q. Zhang, Rasnitsyn, and H. Zhang, 2018:415.

Shandongodes J.F. Zhang, 1985:34. Type species: *Shandongodes lithodes*, by original designation (模式种). Synonymized with *Angarosphex* by Rasnitsyn, Jarzembowski, and Ross, 1998:368

Calobaissodes J.F. Zhang, 1992:486 and 489. Type species: *Calobaissodes strigosus* J.F. Zhang, 1992, by original designation and monotypy. Synonymized with *Angarosphex* by Q. Zhang, Rasnitsyn, and H. Zhang, 2018:415.

Key to *Angarosphex*: Rasnitsyn, Jarzembowski, and Ross, 1998:369.

1. *alethes* B. Rosa and Melo

Angarosphex alethes B. Rosa and Melom 2023:12, ♂. Holotype: ♂, Myanmar: Kachin State: Hukawng Valley near Tanai (Department of Zoology, Universidade Federal do Paraná, Brazil). Age: Mid-Cretaceous: Cenomanian.

2. *beiboziensis* (Hong)

Palaeapis beiboziensis Hong, 1984b:38. Holotype: China: Shandong Province: Laiyang District: Beipozi (Tianjin Natural History Museum, Tianjin, China). Age: Lower Cretaceous (as Upper Jurassic), Laiyang Formation. – **As *Archisphex beiboziensis***: Rasnitsyn, Jarzembowski, and Ross, 1998:365 (new combination, in key to *Archisphex*). – **As *Angarosphex beiboziensis***: Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (new combination, in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

3. *bleachi* Rasnitsyn and Jarzembowski

Angarosphex bleachi Rasnitsyn and Jarzembowski in Rasnitsyn, Jarzembowski, and Ross, 1998:370. Holotype: forewing, England: Surrey: Capel: Clockhouse Brickworks Clay (Booth Museum of Natural History, Brighton, England). Age: Lower Cretaceous: lower Weald Clay. – Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

4. *consensus* Rasnitsyn and Jarzembowski

Angarosphex consensus Rasnitsyn and Jarzembowski in Rasnitsyn, Jarzembowski, and Ross, 1998:370. Holotype: forewing, England: Surrey: Capel: Clockhouse Brickworks (Booth Museum of Natural History, Brighton, England). Age: Lower Cretaceous: lower Weald Clay. – Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

5. *goldringi* Jarzembowski

Angarosphex n. sp.: Jarzembowski, 1987:331 (description of forewing).

Angarosphex goldringi Jarzembowski, 1991:105. Holotype: forewing, England: The Weald: Aucklaye Brickworks (Booth Museum of Natural History, Brighton, England). Age: Lower Cretaceous: upper Weald Clay. – Rasnitsyn, Jarzembowski, and Ross, 1998:370 (study of additional specimen); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

6. *lithodes* (J.F. Zhang)

Shandongodes lithodes J.F. Zhang, 1985:34, sex not indicated. Holotype: China: Shandong Province: Laiyang District: Tuanwang (Shandong Provincial Museum, Shandong, China). Age: Lower Cretaceous (as Upper Jurassic), Laiyang Formation. – **As *Angarosphex lithodes***: Rasnitsyn, Jarzembowski, and Ross, 1998:369 (new combination, in key to *Angarosphex*); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

7. *lithographicus* Rasnitsyn and Ansoerge

Angarosphex lithographicus Rasnitsyn and Ansoerge, 2000:339, ♂. Holotype: Spain: Lérida Province: La Cabrúia fossil site in Montsec Range (Institut für Geologische Wissenschaften, Ernst-Moritz-Arndt Universität, Greifswald, Germany). Age: Lower Cretaceous. – Rasnitsyn and Martínez-Delclòs, 2000:83 (listed, diagnostic characters), 88 (listed); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

8. *magnus* (Darling)

Cretosphex magnus Darling, 1990:143. Holotype: Brazil: Ceará State: Nova Olinda (AMNH). Age: Lower Cretaceous, Santana Formation. – **As *Angarosphex magnus***: Rasnitsyn, Jarzembowski, and Ross, 1998:369 (new combination, in key to *Angarosphex*); Grimaldi and Engel, 2005:453 (color photograph of specimen not included in original description); Ohl and Engel, 2007:2007 (color photograph of habitus); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

9. *myrmicopterus* Rasnitsyn

Angarosphex myrmicopterus Rasnitsyn, 1975:111, sex unknown. Holotype: Russia: Buryat Republic: upper Vitim River area (PIN). Age: Lower Cretaceous. – Rasnitsyn, Jarzembowski, and Ross, 1998:369 (in key to *Angarosphex*); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae); B. Rosa and Melo, 2023:12 (redescription).

10. *niger* Rasnitsyn

Angarosphex niger Rasnitsyn, 1990:201. Holotype: Russia: Chita Oblast': right shore of Turga River 1.5 km downstream from Byrka Valley mouth (PIN). Age: Lower Cretaceous, Turga Formation. – Rasnitsyn, Jarzembowski, and Ross, 1998:369 (in key to *Angarosphex*); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

11. *pallidus* Rasnitsyn

Angarosphex pallidus Rasnitsyn, 1986:163. Holotype: Mongolia: Gobi Altai Aymag: Hurvan-Ereniy-Nuru (PIN). Age: Lower Cretaceous. – Rasnitsyn, Jarzembowski, and Ross, 1998:369 (in key to *Angarosphex*); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

12. *parvus* (Darling)

Cretosphex parvus Darling, 1990:140. Holotype: Brazil: Ceará State: Nova Olinda (AMNH). Age: Lower Cretaceous, Santana Formation. Age: Lower Cretaceous. – **As *Angarosphex parvus***: Rasnitsyn, Jarzembowski, and Ross, 1998:369 (new combination, in key to *Angarosphex*); Ohl and Engel, 2007:692 (color photographs of habitus and wings); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

13. *penyalveri* Rasnitsyn and Martínez-Delclòs

Angarosphex penyalveri Rasnitsyn and Martínez-Delclòs, 2000:83. Holotype: Spain: Lérida Province: Pedrera de Rúbies fossil site in Montsec Range (Institut d'Estudis Ilerdencs, Lérida, Spain). Age: Lower Cretaceous. – Rasnitsyn and Martínez-Delclòs, 2000:88 (listed); Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

14. *saxosus* Q. Zhang, Rasnitsyn, and H. Zhang

Angarosphex saxosus Q. Zhang, Rasnitsyn, and H. Zhang, 2018:415. Holotype: China: Liaoning Province: village of Huangbanjigou (Nanjing Institute of Geology and Paleontology, Chinese Academy of Sciences). Age: Lower Cretaceous. – Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

15. *strigosus* (J.F. Zhang)

Calobaissodes strigosus J.F. Zhang, 1992:486. Holotype: China: Shandong: Laiyang District: Nanligeshuang (Shandong Provincial Museum, Shandong, China). Age: Lower Cretaceous. – **As *Angarosphex strigosus***: Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (new combination); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

16. *venulosus* (J.F. Zhang)

Mataeosphex venulosus J.F. Zhang, 1985:33. Holotype: China: Shandong: Laiyang District: Tuanwang (Shandong Provincial Museum, Shandong, China). Age: Lower Cretaceous. – **As *Archisphex venulosus***: Rasnitsyn, Jarzembowski, and Ross, 1998:365 (new combination, in key to *Archisphex*). – **As *Angarosphex venulosus***: Q. Zhang, Rasnitsyn, and H. Zhang, 2018:417 (new combination, in list of *Angarosphex*); Y. Zheng, Chen, H. Zhang, and Rasnitsyn, 2021:2 (in list of Angarosphecidae).

sp.

Ohl and Engel, 2007:692 (color photograph).