

Species of the subgenus *Psacasta* s. str. (Heteroptera: Scutelleridae)

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The subgenus includes *P. exanthematica exanthematica* (Scopoli, 1763) (= *herculeana* Horváth, 1891, syn. rest.; *pallida* Reuter, 1902; *simillima* Horváth, 1917, syn. n.), *P. e. conspersa* Germar, 1839, stat. n. (= *albopunctata* Krynicky, 1871; *minor* Puton, 1881; *argillacea* Horváth, 1889; *affinis* Reuter, 1900; *antennata* Halászfy, 1954, synn. n.), *P. e. cerinthe* (Fabricius, 1787) (= *horvathi* Royer, 1923; *antoinei* Vidal, 1949, synn. n.), *P. cypria* Puton, 1881, and *P. granulata* A. Costa, 1847, sp. dist. (= *conspersa* sensu Puton, 1881; *marmottani* Puton, 1887; *transcaspica* Jakovlev, 1889, synn. n.).

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The taxonomy of the nominotypical subgenus of *Psacasta* Germar, 1839 is in extreme confusion. Numerous names given to species and varieties of this subgenus were variously synonymized and resurrected, upgraded and downgraded. Seidenstücker (1975) was the first who examined the male genitalia of *Psacasta* s. str. He found that only three species of this subgenus occur in Turkey: *P. marmottani*, *P. exanthematica* and *P. cypria*. Our examination of an extensive material from the whole range of the subgenus has shown that no other species can be distinguished, but *P. marmottani* should receive another valid name and *P. exanthematica* should be subdivided into three subspecies.

The paper is based on examination of specimens from Zoological Institute in St.Petersburg (ZIN), Museo civico di storia naturale in Genova, Muséum National d'Histoire Naturelle in Paris (A. Puton's collection), Národní Museum in Prague (L. Hoberlandt's collection) and personal collections of A. Carapezza and R. Linna- vuori.

Key to species of the subgenus *Psacasta*

- 1(4) Antennal segment 3 about one-fourth to one-third as long as segment 2. Pale median stripe on head, if present, with at least a few punctures. Lateral lobes of aedeagal conjunctiva with two or more irregular rows of small teeth (Figs 1, 2) 2
- 2(3) Body length usually no more than 10.6 mm in males and 11.6 mm in females. Lateral lobes of aedeagal conjunctiva with two or three irregular rows of teeth (Fig. 2) **P. exanthematica** (Scopoli)

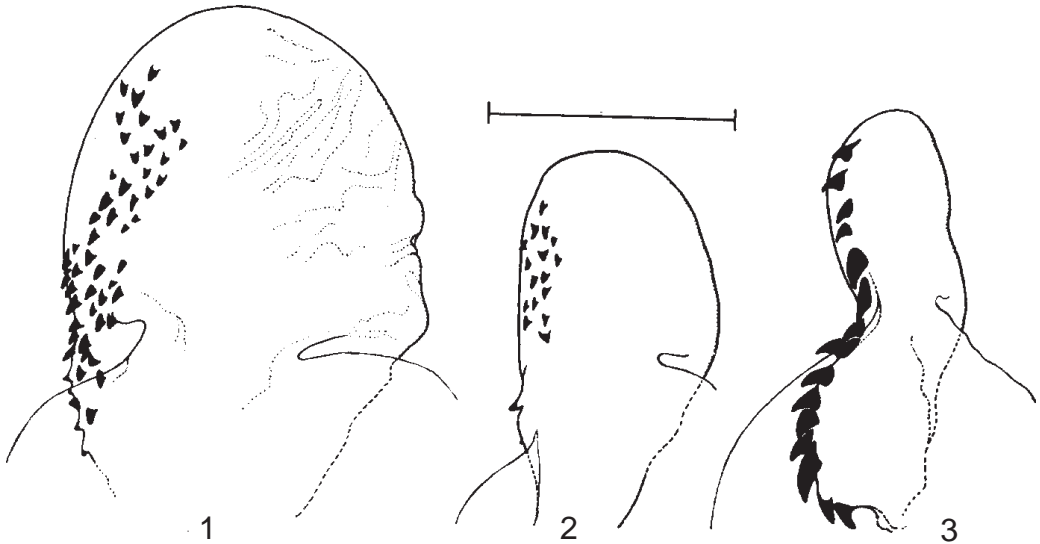
- 3(2) Body length 11.9-12.5 mm in males and 12.3-13.6 mm in females. Lateral lobes of aedeagal conjunctiva larger, with several irregular rows of teeth forming a toothed field (Fig. 1) **P. cypria** Puton
- 4(1) Antennal segment 3 half as long as segment 2. Head with a callose impunctate yellow stripe from middle of clypeus to hind margin; this stripe is frequently continued on anterior part of pronotum. Lateral lobes of aedeagal conjunctiva with one row of large teeth (Fig. 3) **P. granulata** (A. Costa)

Psacasta exanthematica exanthematica (Scopoli, 1763)

- Cimex exanthematicus* Scopoli, 1763: 121. Syntype(s): Italy ("circa Tergestum" [= near Trieste]); lost.
- Cimex pedemontanus* Fabricius, 1781: 342 (syn. Herrich-Schaeffer, 1853: 3). Syntypes: Italy ("agro pedemontano" [= Piemont]); Zoological Museum, University of Copenhagen.
- Cimex allioni* Gmelin, 1790: 2132. Unnecessary new name for *pedemontanus* Fabricius, 1781.
- Psacasta exanthematica* var. *herculeana* Horváth, 1891: 76 (upgraded to species by Stichel, 1960: 470), **syn. rest.** Syntypes: ♂, ♀, Armenia, Syria and France (Fréjus); Hungarian Natural History Museum, Budapest.
- Psacasta pallida* Reuter, 1902: 141, **syn. n.** Syntype(s): ♂, Turkey (Akbés [= Ekbaz]); probably in Muséum National d'Histoire Naturelle, Paris.
- Psacasta simillima* Horváth, 1917b: 368, **syn. n.** Syntypes: ♂, ♀, Spain (Cuenca); Hungarian Natural History Museum, Budapest.
- Psacasta herculeana* f. *versicolor* Stichel, 1960: 469, 470.

Type specimens examined. None.

Other material examined. **Spain:** 1 ♀, Madrid, El Pardo; 1 ♂, Montarco; **France:** 1 ♂, Montpellier; **Italy:** 1 ♂, Alto Adige, Val Venosta; 1 ♀, Lombardia, Pavia; 1 ♂,



Figs 1-3. *Psacasta*, sclerotized lateral lobe of conjunctiva (after Seidenstücker, 1975): 1, *P. cypria*; 2, *P. exanthematica*; 3, *P. granulata*. Scale line: 0.25 mm.

Livorno; 1 ♀, Roma; 1 ♀, Abruzzo, Popoli; 2 ♂, Puglia, Gargano; 1 ♂, 1 ♀, Puglia, Accadia; 1 ♂, Basilicata, Venosa Loreto; 2 ♀, Basilicata, Viggianello; 1 ♀, Basilicata, Pietrapertosa; 1 ♀, Sardinia, Oristano; **Yugoslavia**: 1 ♂, 1 ♀, Deliblato; 1 ♀, Topèider nr Belgrade; **Greece**: 8 ♀, no other labels; 2 ♀, Euboea I.; 1 ♀, Metsovon; 1 ♂, Metamorfofi; 2 ♀, Patras; 2 ♂, 7 ♀, T Lefka Is.; 2 ♀, Ioanina, Monodendri; 1 ♂, Achaia, Klitoria; **Ukraine**: 4 ♂, 16 ♀, southern coast of the Crimea; **Turkey**: 2 ♀, Artvin Prov.; 2 ♀, Erzurum, Ispir; **Syria**: 1 ♀, Suweida; **Israel**: 1 ♂, Nazareth; **Jordan**: 1 ♀, Balqa gov., Salt; **Azerbaijan, Nakhichevan Rep.**: 2 ♀, Tirkesh and Tyllyak; **Armenia**: 4 ♂, 7 ♀, Kafan and Megri Distr.; **Iraq**: 2 ♂, 2 ♀, Mosul Distr.; **Iran**: 3 ♂, 2 ♀, Azarbaijjan and Kurdistan.

Diagnosis. Body length: ♂ 9.8-10.9 mm, ♀ 10.0-11.9 mm (the occurrence of small specimens of both sexes, 8.4-8.6 mm long, is not exceptional in Central Italy and Greece). General colour of dorsum usually uniformly dark brown or reddish brown, sometimes with slightly paler median stripe at apex of scutellum; yellowish callose speckles numerous, uniformly distributed and distinct. However, a few specimens examined are paler and with less distinct speckles. Antennal segments 1 and 2 usually black or dark brown, at least partially, but sometimes entirely red.

Distribution. The subspecies is distributed mainly in the Mediterranean, but reaching Germany, Czech Republic and Poland in the north (no material from these 3 countries was examined). In SW Mediterranean, it is substituted by *P. e. cerinthe*, which is the only form occurring in NW Africa.

Comments. Presence of large and small specimens in *P. exanthematica* was long noted. Hor-

váth (1891) gave the name var. *herculeana* to large specimens (body length 10-11.5 mm) with black antennal segments 1 and 2. These characters fit the nominotypical subspecies. The identity of *P. pallida* described from (a single?) pale male with blackish brown antennal segments 1 and 2 and body length 9.75 mm is slightly problematic, but as Puton (1892) recorded *P. e.* var. *herculeana* from the same locality, *P. pallida* should belong to *P. e. exanthematica*. Noteworthy, almost all *Psacasta* identified as *P. pallida* in museums and private collections proved to belong to *P. e. conspersa*. *P. simillima* was described on large specimens (10.5-10.75 mm) from Central Spain; according to the original description, it should have antennal segment 3 half as long as segment 2. An examination of the syntypes by D. Redei proved that this statement is incorrect and that the ratio segments 2 : 3 is about 2.88 in females and 2.75 in the single male, which proves its conspecificity with *P. exanthematica*.

Psacasta exanthematica conspersa

Germar, 1839, stat. n.

Psacasta conspersa Germar, 1839: 71. Syntype(s): Russia (Sarepta [= Krasnoarmeysk nr Volgograd]); Zoological Museum of the University, Leipzig (probably lost).

Scutellera albopunctata Krynicki in Ivanov & Chernay, 1871: 74, **syn. n.** Syntype(s): Ukraine (Khar'kov); Khar'kov University.

Psacasta exanthematica f. *minor* Puton, 1881a: 11, **syn. n.** Syntypes: numerous specimens from Ukraine

Table. Body length of *P. e. conspersa* and *P. e. exanthematica*.

Subspecies and locality	Males		Females	
	n	lim (m)	n	lim (m)
<i>P. e. conspersa</i>				
Kerch	30	7.8-9.0 (8.3)	63	7.9-9.5 (9.0)
Other localities in Crimea	6	8.8-9.3 (9.0)	10	8.8-9.9 (9.4)
NW Caucasus	1	9.3	5	9.0-9.7* (9.3)
Novyi Beryuzyak, Dagestan	14	7.7-9.4 (8.6)	10	8.7-9.4 (9.1)
Benara, Georgia	10	8.4-9.4 (8.8)	1	9.5
Armenia and Nakhichevan Rep.	5	8.1-9.1** (8.4)	9	8.6-9.4 (9.0)
<i>P. e. exanthematica</i>				
Southern Crimea	4	9.5-9.8 (9.6)	16	9.7-10.6 (10.2)
Megri, Armenia	5	9.4-10.4 (10.0)	7	10.0-11.2 (10.6)
Kafan and Megri Distr. of Armenia	4	9.8-10.6 (10.1)	7	10.7-11.6 (11.1)
Tyllyak and Tirkesh, Nakhichevan Rep.	–	–	2	10.0-10.2 (10.1)
Artvin Distr., Turkey	–	–	2	10.3-11.0 (10.7)

Notes. To obtain body lengths in mm, all figures should be multiplied by a factor 1.03 (instrument error). * 10.5 in female from Ashe, Krasnodar Terr. ** 9.6 in male from Echmiadzin.

and/or south of European Russia (“Russie meridionale”) and 1 specimen from France (Yonne), the latter is probably a small specimen of *P. e. exanthematica*; Muséum National d’Histoire Naturelle, Paris.

Psacasta cerinthe var. *argillacea* Horváth, 1889: 173 (upgraded to species by Horváth, 1911: 574), **syn. n.** Syntypes: ♂, ♀, Turkmenistan; Hungarian Natural History Museum, Budapest.

Psacasta affinis Reuter, 1900: 214, **syn. n.** Syntype(s): Russia (Sarepta [= Krasnoarmeysk nr Volgograd]); Zoological Museum, Helsinki.

Psacasta exanthematica var. *antennata* Halászfy, 1954: 411, 413, 417, **syn. n.** Holotype: ♀, Hungary (Magyaróvár); Hungarian Natural History Museum, Budapest.

Type specimens examined. None.

Other material examined. **Ukraine:** many specimens from its southern part, except the southern coast of the Crimea; **Russia:** many specimens from the south of the European part (to Kursk, Voronezh, Ulyanovsk and Orenburg in the north) and W. Siberia (foothills of Altai); **Georgia, Armenia, Azerbaijan:** many specimens; **Turkey:** 3 ♂, Anatolia, Dikman-Dagh; 3 ♀, Anatolia, Baraj; 1 ♂, 1 ♀, Anatolia, Mogan Gölü; 1 ♂, Anatolia, Yukaricanli; 1 ♀, Kars; 1 ♀, Kazikoporan; 1 ♂, Medjingert; **Kazakhstan:** many specimens from western, central and southern part; **Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan:** many specimens from foothills and mountains; **Iran:** many specimens (Tadjrish near Teheran; Gorgan; Shahkuh; Golshan); **Afghanistan:** 1 ♀, Badakschan, Barak.

Diagnosis. Body length: ♂ 7.9-9.7 mm, ♀ 8.2-10.2 mm (exceptionally, slightly more). General colour of dorsum usually paler than in the nominotypical subspecies, dirty yellow with obscure pattern; in such specimens, yellowish callose speckles are mainly concentrated on sides and less distinct than in the nominotypical subspecies. However, some specimens, for instance all

specimens from the NW Caucasus, do not differ in the coloration of dorsum from the nominotypical subspecies. Antennal segments 1 and 2 usually red or yellowish red, but specimens with these segments brown or black occur as well, especially in the Caucasus.

Distribution. The steppe zone from Hungary to Altai and also the foothills and mountains of Transcaucasia, Turkey, Iran, former Soviet Central Asia, and Afghanistan.

Comments. The identity and status of *P. conspersa* (considered by us a subspecies of *P. exanthematica*) was among the main sources of confusion in the genus. Puton (1881a) misidentified this species, erroneously ascribed to it the main distinguishing character of *P. granulata* (antennal segment 3 half as long as 2), and this resulted in the description of *P. affinis* from the type locality of *P. conspersa* and the statement (Kiritshenko, 1951) that records of *P. conspersa* from Russia are erroneous. Eleven specimens from Sarepta, the type locality of *P. conspersa*, and many specimens from the adjacent areas are represented in the ZIN collection. All of them are conspecific and fit well the original description, which indicates the body length 9 mm and red coloration of the 3 basal antennal segments. *S. albopunctata*, *P. affinis* and *P. argillacea* were synonymized with *P. exanthematica* by Reuter (1885), Putshkov (1961), and Kerzhner (1964), respectively. Judging by the examined specimens from their type localities, they refer to ssp. *conspersa* rather than to the nominotypical subspe-

cies. We did not examine specimens from Hungary, but the body size given for var. *antennata* (8-9 mm) is within the limits of variability of *P. e. conspersa*.

Comparison of this form with the typical *P. exanthematica* did not reveal any distinctions in the male genitalia, except that in smaller specimens also the genitalia are smaller. External characters are more or less overlapping (see the Table for measurements) and the two forms do not co-occur, though the range of *P. e. exanthematica* in the Near East is probably disjunct and of complicate configuration. This is the reason why we consider them to be subspecies.

Psacasta exanthematica cerinthe (Fabricius, 1787)

Cimex cerinthe Fabricius, 1787: 280 (downgraded by Stichel, 1960: 467). Syntypes: "Africa"; Zoological Museum, University of Copenhagen.

Tetyra pagana Fabricius, 1803: 140 (junior secondary homonym of *Cimex paganus* Fabricius, 1775; syn. Schiø dtc, 1842: 301). Syntypes: Morocco (Tanger); Zoological Museum, University of Copenhagen.

Tetyra gentilis Fabricius, 1803: Index, p. 20. New name for *pagana* Fabricius, 1803.

Psacasta anthriboides Germar, 1839: 70 (syn. Mulsant & Rey, 1865: 36). For *Tetyra cerinthe* sensu Wolff, 1811: 170. Syntype(s): "Africa"; lost.

Psacasta nigra Germar, 1839: 141 (syn. Schiø dtc, 1842: 301). Syntype(s): Morocco (Tanger); Zoological Museum, University of Copenhagen.

Tetyra hispana Rambur, 1839: 99 (syn. Baerensprung, 1860: 1). Syntypes (see Dolling, 1978: 123): ♂, ♀, Spain (Malaga); Natural History Museum, London.

Psacasta horvathi Royer, 1923: 38, **syn. n.** Syntypes: ♂, ♀, Spain (Murcia); Muséum National d'Histoire Naturelle, Paris.

Psacasta exanthematica var. *antoinei* Vidal, 1949: 75 (upgraded to subspecies by Stichel, 1960: 467), **syn. n.** Syntypes: ♂, ♀, Algeria (Maison-Carrée; Oran) and Morocco (Zénate and without exact locality); lost?

Type specimens examined. Syntypes of *P. horvathi*.

Other material examined. **Portugal:** 1 ♀, Faro reg., Vilamoura; 2 ♀, Algarve prov., Monchique; **Spain:** 1 ♀, San Roque; 1 ♀, Malaga, Torremolinos; **Italy:** 1 ♂, Sardinia, Cagliari, Monte Urpinu; 1 ♂, Sardinia, Alghero, Mamuntanas; 1 ♂, Sardinia, Cagliari, Assemini; 1 ♂, 1 ♀, Sardinia, Castelsardo; 1 ♂, Basilicata, Calvello; 1 ♀, Calabria, Orsomarso; 1 ♀, Calabria, Maratea; 1 ♀, Sicily, Petralia Sottana; 1 ♂, Sicily, Pettineo; 1 ♂, Sicily, Patti; 1 ♂, Sicily, Cassaro; **Morocco:** 1 ♂, 2 ♀, Wadi de Kenitra; 3 ♂, Marrakech; 2 ♂, 1 ♀, Port Lyautey; 1 ♂, Meknes; 2 ♂, 4 ♀, no exact locality; **Algeria:** 1 ♂, 1 ♀, Milianah; 1 ♂, 2 ♀, no exact locality.

Diagnosis. Body length varies, according to published data, from 8 to 11 mm (in our specimens, ♂ 8.5-10.5, ♀ 9.6-11.2 mm). Both dorsal and ventral sides of body black; callose tubercles in hind corners of sternites yellow. In North African and Sicilian specimens, dorsum without callose pale speckles or with a few, but in specimens from Portugal and southern Spain, and to a lesser extent from Sardinia and southern Italy,

callose speckles are numerous and sternites with a pale callosity also in fore corners, like in the nominotypical subspecies. Antennal segments 1 and 2 black. Male genitalia as in the nominotypical subspecies.

Distribution. Morocco, Algeria, Tunisia, Portugal, Spain, Sicily; transitional zone to *P. e. exanthematica* in N. Spain, S. France (including Corsica), Sardinia and Calabria.

Comments. We agree with Stichel (1960) that this is merely a subspecies of *P. exanthematica*. This is the only form represented in NW Africa and Sicily, but both black and non-black specimens are collected in Spain, Sardinia and Calabria, and black specimens are occasionally recorded even in France. In the development of pale speckles on dorsum, the specimens from Spain, Sardinia and southern Italy form transition to *P. e. exanthematica*. The name *P. anthriboides* was proposed under the wrong assumption that *cerinthe* Fabricius is a species of *Trigonosoma* (= *Ventocoris*). Wolff's figure and description are not perfect, but they fit *P. e. cerinthe* better than any other African scutellerid. *P. horvathi*, according to the original description, is black, 10-11 mm long, with antennal segment 3 one-third as long as 2, and pale callosities on dorsum numerous; these characters and the type locality (S. Spain) agree with *P. e. cerinthe*. For var. *antoinei*, Vidal (1949) was in doubt whether it should be placed in *P. exanthematica* or in *P. cerinthe*. The specimens were smaller (8-8.8 mm) than typical specimens of *P. cerinthe* examined by Vidal (9.5-11 mm, according to Vidal, but 9-10.5 mm according to Stichel) and some of them blackish brown rather than black, but pale callosities on dorsum were a few or absent, as typical of North African specimens of *P. e. cerinthe*.

Psacasta cypria Puton, 1881

Psacasta cypria Puton, 1881b: 119. Syntype(s): ♀, Cyprus; Naturhistorisches Museum, Wien.

Type specimens examined. None.

Other material examined. **Turkey:** 1 ♀, Zeitoun [= Zeytin] (coll. Puton; Muséum National d'Histoire Naturelle, Paris); 1 ♀, Adiyaman, Nemrut.

Diagnosis. Body length ♂ 11.9-12.5 mm, ♀ 12.3-13.6 mm. Body massive and robust; central raising of scutellum absent. Dorsal surface yellowish brown without trace of callose pale speckles, covered with thick black punctures leaving almost no free space. Antennae and legs black.

Distribution. Cyprus, SE Turkey and Iraq.

Psacasta granulata (A. Costa, 1847), sp. dist.

Tetyra granulata A. Costa, 1847: 36. Syntypes: Italy (south and Sicily); probably in Zoological Institute, University of Naples.

Psacasta conspersa (non Germar, 1839): Puton, 1881a: 12. Misidentification.

Psacasta marmottani Puton in Puton & Lethierry, 1887: 298, **syn. n.** Syntypes: Algeria (Oran and Messerghin); Muséum National d'Histoire Naturelle, Paris.

Psacasta transcaspica Jakovlev, 1889d: 311 (syn. Horváth, 1911c: 574, with *marmottani*). Holotype: ♀, Turkmenistan (Ashkhabad); Zoological Institute, St.Petersburg.

Type specimens examined. Holotype of *P. transcaspica*.

Other material examined. **Spain:** 2 ♂, Valladolid, Tordesillas; **France:** 1 ♂, 1 ♀, Montigny sur Loing; **Italy:** 1 ♂, 1 ♀, Sicily, Palermo; 1 ♂, Messina, Dinnamare; **Morocco:** 1 ♂, Port Lyautey; 1 ♂, Taroudant; 1 ♀, Marrakech; **Algeria:** 1 ♀, Orleansville; **Tunisia:** 1 ♀, Le Kef; 1 ♂, Gammart; **Egypt:** 1 ♀, Kirdassah; 1 ♂, Abukin; 1 ♂, 1 ♀, Cairo, Abu Rauash; **Israel:** 1 ♀, Hebron; 2 ♀, Jericho; **Jordan:** 1 ♂, Madaba; **Syria:** 1 ♂, 1 ♀, Tartus; **Turkey:** 1 ♀, Adana; **Turkmenistan:** 1 ♂ (genitalia dissected), Imam-baba.

Diagnosis. Body length: in specimens from the continuous belt extending from Canary Islands through North Africa, Middle East and Turkmenistan ♂ 8.0-9.3, ♀ 8.3-9.4 mm; specimens from southern France and Spain are smaller, 6.3-6.8 mm in both sexes, and provided with a reduced number of teeth in the lateral lobes of conjunctiva; topotypical specimens from Sicily are intermediate as far as concerns both body length (♂ 8.0-8.4, ♀ 7.8) and number of teeth in the lateral lobes of conjunctiva. This species resembles in coloration pale specimens of *P. e. conspersa*. General colour of dorsum generally dirty yellow, but sometimes brownish or reddish, with obscure pattern; yellowish callose speckles not numerous; antennal segments 1 and 2 red. Sides of pronotum with callose impunctate yellow stripe. For other characters, see the key.

Distribution. Italy (south and Sicily), France (south), Spain, Portugal, Canary Islands, Algeria, Morocco, Tunisia, Egypt, Israel, Jordan, Syria, Turkey, and Turkmenistan.

Comments. Puton (1881a) misidentified as *P. conspersa* specimens from SW Europe resembling *P. conspersa* in the size and coloration, but clearly differing in the ratio of antennal segments (segment 3 half as long as segment 2) and structure of aedeagus. The earliest available name for this species is *T. granulata* erroneously placed by Puton in synonymy with *T. conspersa*. Subsequently, *P. granulata* was described as *P. marmottani* from Algeria, and the latter name was used in the literature. *P. transcaspica* from Turkmenistan was correctly placed in synonymy with *P. marmottani*, but Kerzhner (1964) erroneously placed both names in synonymy under *P. exanthematica*. Seidenstücker (1975) restored *P. marmottani* as a good species. The name *P. granulata* has not been used as a valid name after 1881, but *P. marmottani* was only rarely used in the last 50 years and not deserving conservation under Art. 23.9.1 of the Code.

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