Abstract. Five species of the genus Helops s. str. Fabricius, 1775 are known from Turkey: Helops caeruleus stevenii Krynicki, 1834 (Georgia near the border of Turkey, can be found in Rize Province, Turkey), Helops rossii Germar, 1817 (Istanbul and Bursa provinces), Helops glabriventris Reitter, 1885 (Izmir and Isparta provinces; Taurus Mts.: Mugla, Antalya, Konya, Mersin provinces), Helops cyanipes Allard, 1877 (Amanos and Central Taurus Mts.: Mersin, Kahramanmaras, Gaziantep and Hatay provinces), Helops punctatissimus sp. n. (Bitlis Province). A new synonymy is established: Helops Fabricius, 1775 = Mesohelops Reitter, 1922, syn. n. Bionomics, morphology of male genitalia and key to the Turkish species are given.

Резюме. Из Турции известно 5 видов рода Helops s. str. Fabricius, 1775: Helops caeruleus stevenii Krynicki, 1834 (Грузия, возле турецкой границы, может быть найден в провинции Ризе Турции), Helops rossii Germar, 1817 (провинции Стамбул и Бурса), Helops glabriventris Reitter, 1885 (провинции Измир и Б.tablespace; горы Тавр: провинции Мугла, Анталья, Конья и Мерсин), Helops cyanipes Allard, 1877 (Аманос и Центральный Тавр: провинции Мерсин, Караханмараш, Газиантеп и Хатай), Helops punctatissimus sp. n. (провинция Витис). Установлена новая синонимия: Helops Fabricius, 1775 = Mesohelops Reitter, 1922, syn. n. Приведены экология, морфология гениталий самца и определительная таблица для турецких видов.

Helops s. str. Fabricius, 1775 is a small genus (the type genus of the tribe Helopini) with 6 species and 4 subspecies distributed in the Mediterranean region, Central Europe, Crimea, the Caucasus and Northern Iran [Nabozhenko, Löbl, 2008]. Helops caeruleus (Linnaeus, 1758) was conserved as the type species of the genus [Nabozhenko et al., 2008]. The greatest diversity of Helops is observed in Anatolia (4 species). Two subspecies of Helops caeruleus are known from the Caucasus and Northern Iran. Two species are distributed in Europe and 2 endemic subspecies in the Maghreb. American species of the genus Helops must be transferred to the other genera of the tribe Helopini after an accurate revision; the genus Helops is a polyphyletic group with the inclusion of the New World species [Nabozhenko et al., 2016b].

The genus Helops is very broadly defined until the 20th century. It included almost all known Helopini without subgeneric division [Küster, 1850, 1851] or with multiple subgenera and sections [Laporte, 1840; Seidlitz, 1896]. Allard [1876, 1877] included to the genus species of Helops and Probaticus Seidlitz, 1896 sensu Reitter [1922]. The last revision was made by Reitter [1922] who reduced the genus to 7 species and 1 subspecies and synonymized the genus Anteros Laporte, 1840 with Helops. The Reitter’s system of Palearctic Helops was supported by other entomologists and it is used to the present time. Reitter [1922] also described the subgenus Mesohelops Reitter, 1922 with two species: Helops cyanipes Allard, 1877 and H. valdani Guérin-Méneville, 1859. Later Grimm [1991] added Helops thoracicus Grimm, 1991 to the subgenus. Helops valdani belongs to the genus Probaticus Seidlitz, 1896 (the subgenus Pelorinus Vauloger de Beaupré, 1900) [Nabozhenko, Löbl, 2008]. Differential characters used by Reitter for Mesohelops are doubtful for a subgeneric level: punctuation of elytra, lesser size of elevated protrusion on mentum, colour of cuticle. First two characters are suitable only for interspecies diagnostics, and colour of Helops (Mesohelops) cyanipes is very variable from black to blue. All characters of two species of the subgenus Mesohelops are identical to the nominotypical subgenus. As a result, the following synonymy is established: Helops Fabricius, 1775 = Mesohelops Reitter, 1922, syn. n.

The Middle East species of the genus *Helops* are poorly studied. In addition to the above-mentioned works only some faunistic records were published by Koch [1935] and Finkel at al. [2002] for Israel and by Kaszab [1968], Ferrer and Soldati [1999] for Turkey.

Bionomics of species of the genus *Helops* is well studied only for *H. caeruleus* and *H. rossi* Germar, 1817 (see bibliography in Gebien [1943], Hellrigl et al. [2012] etc.). All species of *Helops* s. str. are lichenophagous beetles and feed on epiphytic foliose and fruticose lichens. Beetles are active at night. Species of *Helops* hide in the daytime in mouldering wood, under the flaking bark of large old trees or stumps, while many other Helopini hide in the daytime in soil under trees. Larvae and pupae also develop in mouldering wood [Byzova, Gilyarov, 1956]. Within Palearctic Helopini only larvae of some species of *Deretius* Gahan, 1900 [Purchart, Nabozhenko, 2012] and *Allardius* Rugusa, 1898 [Bellavista, Sparacio, 2012] develop in mouldering trees, while the most of other species of the tribe have soil-dwelling larvae [Nabozhenko at al., 2016a]. In Turkey two species, *Helops caeruleus* and *H. rossii*, are distributed in low mountain and plain oak forests, and the species *H. cyanipes* and *H. glabriventris* inhabit coniferous forests. *Helops cyanipes* occurs on old mouldering Pinus nigra and Cedrus libani; *H. glabriventris* can be found on Abies cilicica, rarely on old Juniperus excelsa. Maghreb species *Helops insignis* Lucas, 1846 inhabits Cedrus atlantica and Abies maroccana.

Below we describe a new species of the genus *Helops* s. str. from South Eastern Anatolia which was found in woodland of old Juniperus excelsa.

### Material and methods

This study is based on the examination of adult beetles from the following institutions and private collections:

- **ZIN – Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia, Mark Volkovitsch);**
- **HNHM – Hungarian Natural History Museum (Budapest, Hungary, Ottó Merkl);**
- **ZDEU – Zoological Department of Ege University (Bornova-Izmir, Turkey, Bekir Keskin);**
- **CN – private collection of Maxim Nabozhenko (Rostov-on-Don, Russia);**
- **AL – private collection of Andrzej Lasoń (Bialystok, Poland);**
- **VT – private collection of Vladimir Tichý (Třeboň, Czech Republic).**

Bibliography for each species is completed only for regional faunistic works.

Photographs of *Helops caeruleus stevenii* were made by K.V. Makarov (Moscow State University of Education, Moscow, Russia) and taken from the site www.zin.ru Animalia:Coleoptera. Other photographs were made by D.G. Kasatkin (Rostov Branch of All-Russian Center for Plant Quarantine, Rostov-on-Don, Russia).

### Results

**Subfamily Tenebrioninae**

**Tribe Helopini**

**Subtribe Helopina**

*Genus Helops* s. str. Fabricius, 1775

Type species *Helops caeruleus* (Linnaeus, 1875).

**General morphology of adults.** Body large (length 14–27 mm), slender, weakly or moderately convex, completely or partly with blue, purple or green-blue shade (Color plate 1: 1–6; Color plate 2: 7–9). Eyes large, strongly transverse. Punctuation of head often dense and very coarse. Mentum with strongly protruded elevation at middle. Antennae long, reaching elytral third or quarter. Male antennomere 11 larger than 10th one, female antennomere 11 smaller or subequal to 10th one. Pronotum cordiform, margins with thickened bead, disc with coarse and dense punctuation. Prothoracic hypomera with coarse large punctures, with punctures and wrinkles or with only coarse short irregular wrinkles. Elytra with protruded humoral angles, distinct striae. Epipleura not reaching thickened (not flattened) apex. Flightless, wings strongly reduced, very small, without costal and rarely radial veins. Mesoxal cavities closed externally by mesepimera and metaventrite, trochantin presented. Abdominal ventrites with coarse and dense punctuation, without hair brush; ventricle 5 beaded apically, without long and strongly suberected setae near apex. Legs slender. Pro- and mesotibiae of male with very dense line of erected brush. Male protarsomes 1–3 weakly widened.

Male genitalia and terminalia (Figs 19–23, 24–28, 29–33, 34–38, 39–43). Aedeagus long; apical piece lanceolate, without longitudinal impression dorsally, covered with short spines only at widest apical part. Ventral alae of apical piece merged and completely conceal penis. Basal piece near 2 times longer than apical piece. Penis with two narrow baculi merged and broadened at basal third and with pair sclerotized part at middle. Apical lobes of gastric spicula large, pubescent apically; rods of gastric spicula straight, not merged apically and with long, often involute processes near base of lobes. Inner sternite VIII densely pubescent with long strong setae marginally; lobes with dense fine punctuation and structures for rigidity of construction: pair sclerite at middle and additional sclerotized parts at middle, coming from lateral sides to middle.

Female genital tubes. Spermatheca long, strongly branched, main duct with 3 additional long branched ducts and 2–3 short not branched ducts; basal duct short. Accessory gland long, with one-way valve, which has very short branch externally.

**Note.** Male genitalia of *Helops* poorly differ because species of the genus *Helops* are allopatric (at least in the Middle East).
Figs 1–6. Helops spp., habitus.  
1 – *H. caeruleus* stevenii, male; 2 – the same, female; 3 – *H. rossii*, male; 4 – the same, female; 5 – *H. glabriventris* glabriventris, male; 6 – the same, female.

Рис. 1–6. Helops spp., габитус.  
1 – *H. caeruleus* stevenii, самец; 2 – то же, самка; 3 – *H. rossii*, самец; 4 – то же, самка; 5 – *H. glabriventris* glabriventris, самец; 6 – то же, самка.
Figs 7–18. Helops spp., habitus, details of structure.

Рис. 7–18. Helops spp., габитус, детали строения.
Helops caeruleus stevenii Krynicki, 1834


Material. Georgia, Batumi, 1 ♂, 1 ♀ (ZIN).

Notes. The nominotypical subspecies was listed for Anatolia by Nabozhenko and Löbl [2008]. Reitter [1922] recorded H. caeruleus stevenii for “Kleinasien”. Later Abdurakhmanov and Nabozhenko [2011] corrected that H. caeruleus stevenii is distributed in North Eastern Anatolia. We have not any material from Turkey, but the subspecies is known from Batum in Georgia [Radde, 1899; ZIN collection], near the border of Turkey and can be found in Rize Province.

Helops rossii Germar, 1817

Kaszab, 1968: 460; Ferrer, Soldati, 1999: 64.

Material. 3 ♂, Turkey, Bursa Prov., Cumalıkızık, 23–25.05.2008, on Quercus cerris (leg. I.V. Shokhin) (CN); 1 ♀ (CN), 5 ♂, 6 ♀ (ZDEU, in ethanol), Turkey, Istanbul Prov., Alem Dağ, near Ömerli, 150–170 m, 41°05′13.6″ N / 29°22′10.0″ E, 10.04.2014, on Quercus robur (leg. M.V. and S.V. Nabozhenko, B. Keskin).
Notes. Ferrer and Soldati [1999] listed this species for Yarpuz (Antalya Province). We collected only numerous Helops glabriventris in this place. This record must be supported by additional material.

Distribution. Southern Europe from France to European part of Turkey, North Western Anatolia.

Helops glabriventris glabriventris Reitter, 1885 (Color plate 1: 5, 6; Color plate 2: 16; Figs 29–33)

Material. 3♂, 1♀, Turkey, Izmir Prov., Balıkesir District, 38°22.108′ N / 27°1.934′ E, 150 m, 2.03.1996 (leg. B. Keskin) (ZDEU); 1♂, 1♀, Turkey, Muğla Prov., Fethiye District, 1.07.1997 (leg. D. Keith) (ZDEU); 1♂, 1♀, Turkey, Antalya Prov., Akşekı, Irmazan Pass, 27.05.2001 (leg. Snížek) (VT); 1♂, Turkey, Mersin Prov., N Erdemli, 28.05.2001 (coll. P. Bialooki) (VT); 1♀, Turkey, Mersin Prov., Orta Toroslar, 700 m, 8 km N Erdemli, 2.04.2004 (N. Rahmé, L. Nádai, K. Székely) (HNHM); 1♂, 2♀, Turkey, Muğla Prov., Babadağ Mts., Fethiye District, above Ovacık, 1300 m, on Cedrus libani, 13–15.04.2008 (leg. M.V. Nabozhenko, B. Keskin) (CN); 2♂, 2♀, Turkey, Isparta Prov., Davraz Dağı, 37°48′744″ N / 30°46′912″ E, 1586 m, 11.05.2009 (leg. M.V. and S.V. Nabozhenko, B. Keskin); 11♂, 7♀ (CN), 4♂ (ZDEU), Turkey, Antalya Prov., Akşekı District, Yarpuz Pass, 37°10′246″ N / 31°55′324″ E, 1821 m, 15.05.2009, on Abies cilicica and Juniperus excelsa (leg. M.V. and S.V. Nabozhenko, B. Keskin); 5♂, 3♀ (CN), 4♂ (ZDEU), Turkey, Konya Prov., Kartal Dağı, Hadim District, külplük, 36°59′981″ N / 32°43′102″ E, 1688 m, 16.05.2009 (leg. M.V. and S.V. Nabozhenko, B. Keskin);
4♂, Turkey, Antalya Prov., Akseki District, 11.07.2011 (leg. A. Üzüm, R. Kundrata) (ZDEU); 1♀, Turkey, İzmir Prov., Buca District, Kaynaklar, 38°21.808′ N / 27°18.503′ E, 150 m, 30.04.2015 (leg. B. Keskin) (ZDEU).

**Distribution.** Greece (Euboea) [Kühnelt, 1965], Turkey (Western Taurus Mountains from Mugla to Göksun River, one population is known from Mersin Province (Erdemli); İzmir Province).

*Helops cyanipes* Allard, 1877

(Color plate 2: 7, 8, 12, 17; Figs 34–38)


= *carinimentum* Reitter, 1885: 383.

**Material.** 1♂, Turkey, Mersin Prov., Namrun (Çamlıyayla), 18.07.1984 (leg. C. Can) (ZDEU); 2♂, 1♀, Turkey, Mersin Prov., Tarsus, E of Çamlıyayla, 30.05.2001 (leg. Snizhek) (VT); 1♂, Turkey, Hatay Prov., Topaktaş, 36°49′N / 36°20′E, 1170 m, 21–22.07.2006 (leg. R. Król) (AL); 1♂, Turkey, Mersin Prov., above Arslanköy, 1800 m, 16.04.2007, on Abies cilicica (leg. M.V. Nabozhenko) (CN); 1♂, 1♀, Turkey, Mersin Prov., Güzelolük, 1400 m, 16–18.05.2008 (leg. L.V. Shokhin) (CN); 2♂, 1♀, Turkey, Mersin Prov., above Arslanköy, 1800 m, 18.05.2009, on Abies cilicica (leg. M.V. and S.V. Nabozhenko, B. Keskin) (ZDEU); 1♂ (CN), 3♂, 1♀ (ZDEU), Turkey, Mersin Prov., Çamlıyayla, 37°10′30″N / 34°31′23″E, 1900 m, 18.05.2009 (leg. M.V. and S.V. Nabozhenko, B. Keskin); 1♂, 1♀, Turkey, Hatay Prov., W Antakya, S Amanos Dağları, 36°18′36.6″N /...
Helops punctatissimus sp. n.  

**Material.** Holotype, ♀ (will be deposited in ZIN): Turkey, Bitlis Prov., E Tatvan, 38°28’18.06”N / 42°19’13.54”E, 23.04.2009 (leg. M.V. and S.V. Nabozhenko).  

**Description.** Male. Body black, moderately shiny, head and protibiae with very weak bluish shade. Head widest at eye level. Eyes large, strongly transverse. Head width 1.54 times width of interocular space. Outer margins of genae regularly rounded. Lateral margin of head with very weak and short situation between genae and frontoclypeus. Head with continuous depression between frons and frontoclypeus. Frons weakly convex.
Punctation of head dorsally very coarse and dense (puncture diameter 3–4 times as long as interpuncture distance), punctures not merged; vertex with dense merged punctation. Antennomeres long, with 3 apical antennomeres extending beyond base of pronotum, antennomeres 2–8 with blue shine, antennomeres 1 and 9–11 black.

Pronotum weakly transverse (1.14 times wide as long), cordiform, widest before middle, 1.6 times wider than head. Lateral margins weakly rounded, emarginated in basal quarter. Anterior margin weakly broadly emarginated, base straight. Anterior angles weakly obtuse, posterior ones right. Disc of pronotum regularly convex, without impressions, all margins with simple, not thickened bead (excluding middle of anterior and basal margins, where bead more widened). Punctation of disc the same as on head, sparser at middle and merged on side, punctures round. Outer margins of prothoracic hypomera not flattened; hypomera with coarse, very dense not merged punctures, without wrinkles. Prosternal process smooth, without punctation, beaded, with short cone apically.

Figs 39–43. Helops punctatissimus sp. n., male genitalia and terminalia.
39 – aedeagus, ventral view; 40 – median piece (penis); 41 – aedeagus, lateral view; 42 – male inner sternite VIII, ventrally; 43 – gastral spicula.
Рис. 39–43. Helops punctatissimus sp. n., гениталии и терминалии самца.
Elytra elongate (1.6 times as long as wide), 1.2 times wider and 2.24 times longer than pronotum, 1.96 times wider than head.

Elytral interstriae flat, with dense punctuation (puncture diameter subequal to distance between punctures) of small deep punctures and sparse, not depressed transverse wrinkles. Sterial punctures round, deep, not connecting. Epipleura not impressed, with very coarse irregular wrinkles.

Meso- and metaventrite, mesepimeron, meso- and metepisterna with very dense and coarse merged punctuation. Abdominal ventrites with very dense punctuation, from coarse on 1st ventrite to fine on 5th ventrite, without wrinkles. Ventrite 5 completely beaded.

Pro- and mesotibiae curved, weakly club-shaped, with very dense brush of long black hairs on ventral side. Protarsi transverse, longitudinally impressed along middle of inner side. Tarsi with dense brush of black hairs on ventral side. Protarsi transverse, mesotarsi longitudinal.

Body length 15 mm, width 5.7 mm.

**Etymology**. The name is translated from Latin as “densely punctated”.

**Differential diagnosis**. This new species is similar to *Helops caeruleus*, from which it differs in the structure of elytral striae (in *Helops caeruleus* striae punctures are connected to continuous grooves, in *H. punctatissimus* striae punctures consist of not connected round punctures), less elevated protrusion on mentum, which weakly visible at lateral view, denser and coarser punctuation and black colour of the body.

**Key to species of the genus Helops of Turkey**

1(2). Prothoracic hypomera with coarse irregular wrinkles. Elytra with strongly depressed coarse and dense transverse wrinkles, rarely without depressed wrinkles (population from Kartal Dağ, Konya). Frons strongly convex, transverse depression between frons and frontocepys divided into two lateral impressions by frons .................................................. *H. glabriventris*

2(1). Prothoracis hypomera with coarse, sometimes merged punctures. Elytra without wrinkles or with weakly depressed wrinkles. Frons weakly convex, transverse depression between frons and frontocepys continuous.

3(7). Head with long recumbent reddish or white hairs.

5(6). Elytral interstriae flat. Scutellum with short recumbent setae. Pronotum with acute posterior angles ................................................................. *H. caeruleus stevenii*

6(5). Elytral interstriae convex. Scutellum not setated. Pronotum with obtuse or right posterior angles ............................................................... *H. rossii*

7(3). Head only with very short fine setae.

8(9). Protrusion of mentum strongly elevated and distinctly visible at lateral view. Punctuation of elytral interstriae fine and sparse, punctures at apical half 3–4 times shorter than strial punctures. Punctuation of femora and tibiae moderately coarse, not dense, punctuation diameter equal or less than interpuncture distance .......................................................... *H. cyanipes*

9(8). Protrusion of mentum strongly elevated and distinctly visible at lateral view. Punctuation of elytral interstriae coarser and denser, punctures at apical half subequal to strial punctures. Punctuation of femora and tibiae very dense and coarse, punctuation diameter 2–3 times as long as interpuncture distance .................. *H. punctatissimus* sp. n.

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Taxonomic review of the genus Helops Fabricius, 1775 (Coleoptera: Tenebrionidae) of Turkey


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