A key to genera and species of the tribe Hylesinini Erichson, 1836
(Coleoptera: Curculionidae: Scolytinae)
from Russia and adjacent countries

Tribe Hylesinini Erichson, 1836
unites 14 genera of Scolytinae:

The present paper puts on review of tribe Hylesinini of Russia, with a key provided to six genera.

Material and methods

The material studied are kept in the collections of the Naturhistorisches Museum, Vienna, Austria (NHMW), the Hungarian National Museum, Budapest, Hungary (HNMB), the Zoological Institute of Russian Academy of Science, St.-Petersburg, Russia (ZISP), the Zoological Museum of Moscow State University, Mos- cow, Russia (ZMMU).

Results

Tribe Hylesinini Erichson, 1836
Total length 1.5–16 mm, body 1.6–2.2 times as long as wide.
Head sexually dimorphic or not (frons convex in both sexes); eye entire to weakly sinuate anteriorly; antennal funi-
cle 6- or 7-segmented, club conical, subconical or moderately flattened; pronotal surface with asperities or tubercles in anterolateral area (except Hylastinus and Longulus); scutellum visible, small; elytral bases armed by a single row of crenulations (except Dactylipalpus and Phloeoborus). Man-
dibles are prominent, triangular; each with an apical tooth, without subapical and median teeth. Maxillae have typical

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form for the tribe. The form of the disco, stipes, palpifer, galea, subgalea and lacinia is constant within the tribe. Maxillary palpi 3-jointed, the first joint is equal to or longer than the second, and equal to or shorter than the two other segments together. Lacinial teeth are long; first, second and third teeth in apical portion of lacinia are narrow and short, teeth 4–16 are lanceolate and longer, basal teeth 17–19 are narrow and long (Fig. 7). Labial form is conserved within the tribe. The mentum is wide, and as long as wide. Labial palpi as long as mentum. Ligula short, with abundant long setae (Fig. 6).

Thoracic sclerites: Metascutellar area is separated from postnotum by a distinct suture, and a long sutural groove; metaendosternite V-shaped, with long furcal arms, lateral arms well developed; stalk middle length, with developed lateral flaps expanded and rounded off at top (Fig. 8).

Legs: Procoxae are contiguous to narrowly separated; third tarsal segment bilobed.

Proventriculus is changed in form and size in different genera, from cylindrical in Hylesinus and Phloeoborus to conoid in Alniphagus. Anterior plate strongly sclerotized on
Genus *Alniphus* Swaine, 1918

Type species *Hylesinus aspericollis* LeConte, 1876. = *Hylastinus* Spessivtsev, 1919.

Length 2.1–4.2 mm, 1.9–2.1 times as long as wide. Color reddish brown to dark brown.

Head sexual dimorphic, frons of male flat, median area on lower two-thirds weakly impressed, frons of female convex with transverse impression just above epistoma, and short median carina; vestiture of sparse, fine, short hairs. Eye elongate, shallowly emarginate. Antennal scape elongate, funicle 7-segmented, club moderately flattened, marked by three sutures in North American species [Wood, 1982, 1986] or of conical form with two sutures in *Alniphus costatus* (Blandford, 1894). Besides, club of *A. costatus* with six rings of erect setae (Fig. 12). Pronotum wider than long, 0.75–0.80 times as long as wide, anterolateral area armed by asperities; vestiture of hair-like setae. Elytra cylindrical, 1.40–1.60 times as long as wide, basal margins armed by crenulations; striae feebly impressed, interstriae wider than striae, each armed by a uniseriate row of coarse crenulations; declivity convex, steep, alternate interstriae 1, 3, 5, 7 and 9 weakly elevated; vestiture hairlike. Abdomen horizontal. Aedeagus elongate, 3.35–3.40 times as long as wide, apophyses as long as median lobe (for *A. costatus*), aedeagus as in *Hylesinus*, but with longer frontal process of basal internal sac, lateral processes of internal sac reduced (Figs 20–21) Spicule longer than aedeagus, sickle-shaped.

Legs: anterior coxae widely separated; protibia armed in apical part of lateral margin by five closely set socketed denticles; outer apical angle only moderately abrupt.

Genus *Alniphus* is restricted to the Holarctic. It includes three species, but only one species is known from the Palaearctic region, including Russia.  


= *Hylastes abii* Niisima, 1909.

= *Alniphus abii var. imitator* Sokanovsky, 1958.

**DISTRIBUTION.** Russian Far-East (Southern parts of Khabarovsk Terr., Primorsk Terr.), Sakhalin, Southern Kurils (Iturup Isl. and Kunashir Isl.), Japan (Hokkaido, Honshu), North Korea [Chu, 1964, Mandelshtam et al, 2007], South Korea, China, Taiwan [Knižek, 2011].

**HOSTS.** *Alnus* spp. Schedl [1958] suggested that *Hylesinus tristis* Blandford, 1894 is a junior synonym of *Hylesinus costatus* Blandford, 1894. Due to this erroneous opinion Wood and Bright [1992] included in the list of host trees for *H. costatus* several tree species which it does not infest, namely *Fraxinus mandshurica* and *F. sieboldiana* (Oleaceae), which are normal hosts of *H. tristis*. Krivolotuskaya [1996] repeated this mistake. Wood and Bright [1992] also list as a host plant *Cradrastis shikokiana* (Leguminosae), but this seems unlikely for both *A. costatus* and *H. tristis* [Mandelshtam et al., 2007].

**BIOLOGY.** *A. costatus* adults overwinter in tunnels in the bark of living or felled trees. They emerge in the summer and attack weakened trees from mid-July to end of August. The first part of the egg gallery is transverse for 15–20 mm, then abruptly changes direction to run longitudinally for 30–50 mm. Eggs are laid singly in niches on both sides of the gallery. Larval mines are straight. There is one generation each year.

Genus *Hylastinus* Bedel, 1888

Type species *Ips obscurus* Marsham, 1802.

Length 2.0–2.8 mm, 2.1–2.2 times as long as wide. Color dark-brown.
Head without sexual dimorphism, frons of male and female convex, with transverse impression in epistomal area; surface coarsely reticulate; vestiture hair-like, short; Eye entire, elongate; antennal funicle 7-segmented, with three such tubercles, sutures 1 and 2 and sepalate. Pronotum wide, 0.9–0.95 times as long as wide; surface without asperities and small tubercles in anterolateral areas, coarsely, deeply punctured; pronotal vestiture consists of elongate, abundant hair-like setae. Scutellum small, slightly depressed. Elytra 1.4–1.45 times as long as wide; bases of elytra declivity above interstriae 2, 4, 5; vestiture hair-like. Prothoracic intercoxal piece wide, prothorax in front of coxa with acute ridge extending from coxa to anterior margin of prothorax. Abdomen horizontal.

Male genitalia. We had no opportunity to study the aedeagus of the type species H. obscursus. The description provided is for H. funckhauzeri Reitter, 1894. Aedeagus elongate, 2.13 times as long as wide, apophyses 1.55 times as long as median lobe; base of internal sac is considerably above upper rim of median lobe; lateral processes of internal sac base are hypertrophied in length, frontal processes of internal sac base do not form a ring (Figs 22–23) Spicule of similar length to aedeagus, sickle-shaped.

The genus Hylastinus is distributed in Europe; H. obscursus has been introduced into North America and South America. In Russia there are two species.

**KEY TO HYLASTINUS SPECIES OF RUSSIA**

1. Elytral vestiture of abundant fine, adjacent, hair-like setae; interstriae with abundant short hairs and row of sparse longer hair-like setae; 2.0–2.5 mm.......................... obscurus (Marsham).
   — Elytra without fine, adjacent hairs; each interstria with three rows of long hair-like setae; 2.0–2.8 mm ............... tiliae Semenov

1. *Hylastinus obscurus* (Marsham, 1802)

   = *Hylesinus crenatus* Duftschmid, 1825.
   = *Scolytus crenatus* Olivier, 1795.
   = *Hylurgus fuscescens* Stephens, 1830.
   = *Hylastinus pilosus* Eggers, 1944.
   = *Dermestes trifoli* P. W. J. Müller, 1803.

**DISTRIBUTION.** Russia (Crimea, South Dagestan); Latvia, Eastern and Western Europe, North Africa. 


**BIOLOGY.** Adults and larvae of *H. obscurus* overwinter in roots in the ground. They emerge in the spring and attack unthrifty plants from mid-May to late June. Egg gallery of the biramous type. Eggs in niches along both margins of egg gallery. The larvae mine at random through the root tissues. Pupae and young beetles appear in August or September. There is one generation each year.

2. *Hylastinus tiliae* Semenov, 1902

**DISTRIBUTION.** Russia (Dagestan, North Ossetia); Abkhazia, Georgia. 

HOST. *Tilia cordata*, *T. platyphyllas*.

**BIOLOGY.** Adults and larvae of *H. tiliae* overwinter in tunnels in the bark of felled trees. The beetles emerge in the spring and fly to the trunks or limbs of felled or dying trees from mid-May to June. There is one generation each year.

**Genus *Hylesinus* Fabricius 1801**

**Type species.** *Bostrichus crenatus* Fabricius, 1787. 

= *Leperinus* Reitter, 1913.

= *Adiophalpus* Wickham, 1916.

Length 1.8–6.6 mm, 1.8–2.0 times as long as wide. Color of body reddish brown to dark brown.

Head sexually dimorphic, frons of male flat to weakly convex, frons of female convex, vestiture strongly differs in species from abundant to very sparse. Eye oval, anterior margin weakly sinuate. 

Antenna with scape clavate, of equal length to funicle; funicle 7-segmented; setae of funicle segments erect, sparse; club subconical with 3 clear transverse sutures, covered by short setae. Length of funicular setae and form of club are important morphological features for distinguishing species (Figs 13–17).

**Pronotum** with variable sculpture and vestiture that are of importance in separating species. Pronotum wider than long, 0.60–0.75 times as long as wide in different species of the genus; weakly narrowed and constricted anteriorly; basal margin weakly bisinuate; surface of anterolateral areas in most species armed by several crenulations; disc with deep rounded or irregular punctures. Pronotal vestiture variable: in different species it can be scale-like, hair-like or very short hair-like. Features of elytral sculpture and pubescence divide the genus into two groups: 1) elytra with weakly impressed elytral striae and vestiture of abundant ground scales forming patterns of light and dark brown color; 2) elytra with deeply impressed elytral striae and vestiture of sparse hair-like or scale-like dark setae or scales, some species with elytral vestiture of microscopic hairs only.

Abdomen obliquely ascending from the posterior edge of the first sternite to fifth sternite at an angle of 30–40 °. Sternites are covered with hairs or almost glabrous.

Legs: Procoxae narrowly separated, mesocoxae and metacoxae widely separated by length of one coxa. Prothorax broad, on outer lateral edge with six or seven small closely set socketed teeth on distal third. Mesotibia and metatibia with 7–9 small, socketed teeth on lateral and distal parts.

Aedeagus elongate, 2.3–2.7 times as long as wide, apophyses as long as median lobe; base of internal sac located below upper rim of median lobe; frontal and lateral processes of internal sac base are developed, form and length of frontal and lateral processes are species-specific (Figs 24–33) Spicule slightly longer then aedeagus, sickle-shaped.

The genus is morphologically similar to *Ficicis* Lea 1910, but the latter can be distinguished by the more gradual elytral declivity with shorter erect setae on elytral interstriae, and eye less than 3.0 times as long as wide [Wood, 1986].

Most species of the genus *Hylesinus* are distributed in the Holarctic realm; in the Palaearctic, they occur from the northern limits of the range of *Fraxinus* to India and northern Africa [Knížek, 2011, Petrov, 2011]. Genus includes 37 recent species, of which at least 12 are known from the Palaearctic. All Palaearctic species breed in the inner bark and sapwood of Oleaceae trees, are mostly restricted to the genera *Fraxinus* and *Olea*, but exceptionally can attack branch-es of *Fagus*, *Quercus*, *Tilia* and *Syringa*.

**KEY TO HYLASTINUS SPECIES OF RUSSIA**

1. Scales on elytral surface bicoloured, very dense, concealing striae, and forming a rather irregular pattern on surface of pronotum and elytra .......................................................... 2
   — Scales less dense, not concealing striae on disk of elytra; scales on pronotum and elytra dark and almost unicoloured, not forming an irregular pattern.................... 7

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**HYLASTINUS SPECIES OF RUSSIA**

1. *Hylastinus obscurus* (Marsham, 1802)

2. *Hylastinus tiliae* Semenov, 1902
2. Paler scales form distinct oblique fasciae, contrasting with dark scales, and symmetrical on either side of elytral suture ................................................................. 3
   — Paler scales not forming distinct oblique symmetrical fasciae on either side of elytral suture ......................................................... 4
3. Elytral scales acutely pointed at apex; pale scales form a wide band from postero-lateral part of elytra to scutellum, with a further pale area on elytral declivity; interstriae with rows of small tubercles; base of pronotum with long, pale hairs; 2.5–5.5 mm ................. H. tupolowi Stark
   — Elytral scales rounded, blunt at apex; pale scales form a hardly noticeable narrow band in apical half of elytra, the band interrupted at first interstria in center of elytral disk; base of pronotum with short silvery hairs and narrow scales; 2.3–2.5 mm H. cingulatus Blandford
4. First, third and ninth interstriae on declivity raised, second interstriae deepened; 3.0–3.4 mm ................................................................. .......................... H. eos Spessivtsev
   — Second interstriae not deepened, third and ninth interstriae not raised on declivity ................................................................. 5
5. Each elytral interstria with scales of two types: abundant, short, rounded scales and rare longer; recumbent, hairy scales. Lateral margins of elytra with poorly visible recumbent hairy scales. Majority of scales of pale colour; 2.5–3.3 mm ........................................ H. wachtli Reitter
   — Each elytral interstria with scales of two types: abundant short rounded scales and rare long, erect hairy scales. Lateral margins of elytra with clearly visible erect, hairy scales................................................................. 6
6. Club of subtriangular, male antennal funiculus with long setae on segments 4–7, these setae extending as far as second suture of club (Fig. 17); interstriae on elytral disk with small pointed tubercles; median lobe of male genitalia falcate (in lateral view) (Figs 32–33); 2.9–3.3 mm ........................................ H. verae Petrov
   — Club of more elongate, spindle-like form; male antennal funiculus with shorter setae on segments 4–7, these setae extending only up to first suture of club (Fig. 16); interstriae on elytral disk of majority of specimens without small pointed tubercles; median lobe of male genitalia (Figs 30–31) elongate and weakly curved (in lateral view); 3.0–3.4 mm ................. H. varius (Fabricius)
7. Anterolateral part of pronotum without tubercles and pointed teeth (or with very minute tubercles) ............ 8
   — Anterolateral part of pronotum with distinct tubercles and pointed teeth ................................................................. 11
8. Posterior margin at apex of elytral declivity thickened and protruding backwards; surface of pronotum and elytra without scales, and with only minute hairs on interstriae 1 of elytra; 4.5–6.0 mm ................................................................. H. botscharnikovi Stark
   — Apex of elytral declivity with simple margin, not thickened, not explanate and not protruding backwards; surface of pronotum and elytra with scales and hairs ...... 9
9. Surface of elytral interstriae with straight longitudinal rows of minute hairs (old beetles sometimes without hairs so that elytral surface appears glabrous); 3.6–6.0 mm ........................................ H. crenatus (Fabricius)
   — Elytral surface (especially declivity) covered with hairs and scales ................................................................. 10
10. Interstriae with numerous transverse, strongly raised asperities; interstriae on apical part of elytra with reddish-brown, brown or black scales, and rare short hairs; interstriae 2, 4, 8 on elytral declivity are impressed; 4.5–5.0 mm ........................................ H. chodlovskiyi Berger
   — Interstriae with large rounded tubercles, smaller in apical part of elytra; interstriae on elytral declivity with elongate hairy scales; interstriae 2, 4, 8 on elytral declivity not impressed; 4.7–6.0 mm H. nobilis Blandford
11. Interstriae densely covered with semirecumbent, narrow, brown dark scales; interstriae 1 densely covered with longer, erect, hair-like scales, forming a noticeable velvety strip from scutellum to apical margin of elytra; 2.4–3.5 mm ........................................ H. toranio (D’Antheine)
   — Interstriae densely covered with short, dark brown, round-ed scales; interstriae 1 without longer, erect, hair-like scales ................................................................. 12
12. Interstriae in posterior half of elytra covered with short dark scales; interstriae 1 with short dark scales throughout from scutellum to apex, but not masking interstrial tubercles; body oblong-oval, 1.8 times as long as wide; 3.8–4.1 mm ........................................ H. tristis Blandford
   — Interstriae 1 covered with short pale scales throughout from the base of elytra to apex, concealing tubercles; hairs or hairlike scales cover surface of other interstriae on their apical part ........................................................................................................... 13
13. Length more than 3.8 mm, body broadly-oval, 1.7 times as long as wide; interstriae 1 covered with short pale scales throughout from the base of elytra to apex; other interstriae are covered with hairs or hairlike scales on most of elytra; male with interstriae 1 raised from base to posterior part of elytra; 4.0–4.8 mm ......... H. laticollis Blandford
   — Length less than 2.5 mm, body oblong-oval, 1.85 times as long as wide; interstriae 1 slightly raised from base to posterior part of elytra; 1.8–2.1 mm .............. H. mandscharicus Eggers

1. Hylesinus botscharnikovi Stark, 1931

Fig. 13.
DISTRIBUTION. Russia (South Dagestan); Azerbaijan, Iran, Turkmenistan [Petrov, 2011].
HOST. Fraxinus excelsior.
BIOLOGY. Adults and larvae of the H. botscharnikovi overwinter in tunnels in the bark of twigs of living trees. They emerge in the spring and attack weakened trees from mid-April to late May (in South Dagestan). There is one generation for year and half or two years.

2. Hylesinus chodlovskovsyz Berger, 1916

DISTRIBUTION. Russia (South Primorsk Terr.); China (Heilongjiang); N. Korea.
HOST. Fraxinus mandshurica.
BIOLOGY. Not investigated.

3. Hylesinus cingulatus Blandford, 1894

DISTRIBUTION. Russia (Far-East, Southern parts of Khabarovsk Terr., South Primorsk Terr.); China, North and South Korea; Japan
HOST. Fraxinus mandshurica japonica, F. lanuginosa serrata.
BIOLOGY. Adults and larvae of H. cingulatus overwinter in tunnels in the bark of twigs of living trees. Beetles attack stressed and weakened trees from the end of May to June. Larvae develop for 20–30 days. Young beetles leave the parental galleries from the end of July to mid-August [Kurenzov, 1941]. There is one generation each year.

4. Hylesinus crenatus (Fabricius, 1787)

Figs 1, 9, 14, 24–25.
= Anthribus crenatus Gravenhorst, 1807.
= Anthribus prutenksy Sokanovskiy, 1959.
Figs 5–11. Details of bark beetles of the tribe Hylesinini: 5 — *Longulus elatus*; 6–8, 10 — *Hylesinus varius*; 9 — *H. crenatus*; 11 — *Hylastinus funkhauseri*; 5 — elytral declivity; 6 — labium; 7 — maxilla; 8 — metepisternum; 9–11 — proventriculus.

Рис. 5–11. Детали строения жуков короедов трибы Hylesinini: 5 — *Longulus elatus*; 6–8, 10 — *Hylesinus varius*; 9 — *H. crenatus*; 11 — *Hylastinus funkhauseri*; 5 — скат надкрылий; 6 — нижняя губа; 7 — нижняя челюсть; 8 — эпистернум заднегруди; 9–11 — провернтрикулус.
DISTRIBUTION. Russia (broadleaved forests north to St.-Petersburg southern forest-steppe areas, North Caucasus, Crimea); Europe; Asia (Turkey); North Africa (Algeria, Morocco).

HOST. Fraxinus excelsior, F. pennsylvania, F. angustifolia, rarely on F. americana, Juglans sp., Syringa sp., Quercus sp., Tilia sp.

BIOLOGY. Adults and larvae of H. crenatus overwinter in tunnels in the bark of stems of living or felled trees. The beetles attack trees from mid-May to the middle of August. Egg gallery transverse. Eggs are laid individually in niches on both sides of the gallery. The larval galleries are perpendicular to the egg gallery, engraving phloem and wood. Pupation takes place in pupal cells in the bark. A generation takes one year and a half or two years.

5. Hylesinus eos Spessivtsev, 1919
DISTRIBUTION. in Russia (Far-East: South Primorsk Terr.); China (Heilongjiang), North Korea, Japan.
HOST. Fraxinus mandshurica.
BIOLOGY. Adults and larvae of H. eos overwinter in tunnels in the bark of twigs of living trees. adults attack stressed and weakened trees from the end of May to mid-June. Larvae develop for 20–25 days. Young beetles leave the parental galleries from mid-July to mid-August [Kurenkov, 1941]. There is one generation each year.

6. Hylesinus laticolis Blandford, 1894
= Hylesinus pravdini Stark, 1936 syn.n.
= Hylesinus strigatus Eggers, 1933.
DISTRIBUTION. Russia (Far-East: Southern parts of Khabarovsk Terr., Primorsk Terr.); China (Heilongjiang); Japan.
HOST. Fraxinus mandshurica.
BIOLOGY. Adults and larvae of H. eos overwinter in tunnels in the bark of twigs of dying trees. There is one generation each year.

7. Hylesinus mandshurica Eggers, 1922
DISTRIBUTION. North China: “Manchuria”.
HOST. Fraxinus sp.
BIOLOGY. Not investigated.
NOTES. The diagnosis was based on two specimens originating from Manchuria (China). There have been no new records of this species in China or in adjacent states since its description. The record of the species in the USSR [Wood, Bright, 1992] is erroneous. It is possible that H. mandshurica is only a rare aberration of H. laticolis.

8. Hylesinus nobilis Blandford, 1894
= Hylesinus shabilovskii Kurenzov, 1941.
DISTRIBUTION. Russia (Far-East: South Primorsk Terr.); China (Heilongjiang), Japan.
HOST. Fraxinus mandshurica.
BIOLOGY. Not investigated.

9. Hylesinus toranio (Danthoine, 1788)
= Hylesinus antipodes Schell, 1952.
= Hylesinus bicolour Brulle, 1832.
= Hylesinus esau Greder, 1866.

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= Bostrichus oleiperda Fabricius, 1792.
= Ips scaber Marsham, 1802.
= Hylesinus saturalis, Redtenbacher, 1842.
= Hylesinus saturalis W. Redtenbacher, 1842.
HOST. Fraxinus excelsior, Olea europaea, rare on F. pennsylvania, Fagus sp.
DISTRIBUTION. in southern forest-steppe areas of Russia, North Caucasus, Crimea; Europe, North Africa, Asia (Turkey).

BIOLOGY. Adults and larvae of H. toranio overwinter in tunnels in the bark of felled trees. There is one generation each year (possibly two generations in Southern regions of Russia, Caucasus).

10. Hylesinus tristis Blandford, 1894
= Hylesinus labarskii Stark, 1936 syn.n.
DISTRIBUTION. Russia (Far-East: South Primorsk Terr.); South Korea, Japan.
HOST. Fraxinus mandshurica.
BIOLOGY. Adults and larvae of H. varius overwinter in tunnels in the bark of living or felled trees. The beetles attack trees at the end of May and up to the middle of July. Egg galleries are transverse. Eggs are laid individually in niches on both sides of the gallery. The larval galleries are longitudinal, following the grain of the wood and deeply engraving it. There is one generation each year.

TAXONOMIC NOTES. The species has strongly variable body proportions, especially the ratio of length to width. Studies of H. labarskii type material (ZISP) has confirmed its identity in structure of the head, pronotum, elytra and male genitalia with H. tristis. The length of body and distribution of vestiture on elytral disc in these beetles are within the range of variation of H. tristis (Figs 26–27).

11. Hylesinus tupolevi Stark, 1936
Figs 2, 6–8, 10, 30–31.
= Hylesinus tristis Eggers, 1942.
= Hylesinus tupolevi denticulosus Sokanovskii, 1956.
DISTRIBUTION. Kyrgyzstan, Tadjikistan, China (Yunnan).
HOST. Fraxinus sogdiana.
BIOLOGY. Adults and larvae of H. tupolevi overwinter in tunnels in the bark of living or felled trees. The beetles attack trees from mid-May to the middle of June. Egg galleries are biramous and transverse. The larval galleries are longitudinal-, following the grain of the wood and deeply engraving it. Larvae develop for 20–30 days. There is one generation each year.

12. Hylesinus varius (Fabricius, 1775)
Figs 2, 6–8, 10, 30–31.
= Ips griseus Marsham, 1802.
= Hylesinus fraxini Panzer 1799.
= Ips haemorrhoidalis Marsham 1802.
= Hylesinus henscheli Knotek, 1892.
= Bostrichus melanopcephalus Fabricius 1792.
= Hylesinus minutus Fabricius, 1777.
= Hylesinus picopennis Stephens 1830.
= Antribus pubescens Fabricius, 1798.
= Ips rufescens Marsham, 1802.
DISTRIBUTION. Russia (European part, Crimea, Caucasus), widely distributed in Europe, occurs up to the northern limits of Fraxinus range; Asia (Turkey); North Africa (Algeria, Morocco, Tunis).
HOST. Fraxinus excelsior, F. pennsylvania, F. angustifolia, rarely on F. americana, Juglans sp., Syringa sp., Quercus sp., Tilia sp.

= Bostrichus oleiperda Fabricius, 1792.
= Ips scaber Marsham, 1802.
= Hylesinus saturalis, Redtenbacher, 1842.
= Hylesinus saturalis W. Redtenbacher, 1842.
HOST. Fraxinus excelsior, Olea europaea, rare on F. pennsylvania, Fagus sp.
DISTRIBUTION. in southern forest-steppe areas of Russia, North Caucasus, Crimea; Europe, North Africa, Asia (Turkey).

BIOLOGY. Adults and larvae of H. toranio overwinter in tunnels in the bark of felled trees. There is one generation each year (possibly two generations in Southern regions of Russia, Caucasus).

10. Hylesinus tristis Blandford, 1894
= Hylesinus labarskii Stark, 1936 syn.n.
DISTRIBUTION. Russia (Far-East: South Primorsk Terr.); South Korea, Japan.
HOST. Fraxinus mandshurica.
BIOLOGY. Adults and larvae of H. varius overwinter in tunnels in the bark of living or felled trees. The beetles attack trees at the end of May and up to the middle of July. Egg galleries are transverse. Eggs are laid individually in niches on both sides of the gallery. The larval galleries are longitudinal, following the grain of the wood and deeply engraving it. There is one generation each year.

TAXONOMIC NOTES. The species has strongly variable body proportions, especially the ratio of length to width. Studies of H. labarskii type material (ZISP) has confirmed its identity in structure of the head, pronotum, elytra and male genitalia with H. tristis. The length of body and distribution of vestiture on elytral disc in these beetles are within the range of variation of H. tristis (Figs 26–27).

11. Hylesinus tupolevi Stark, 1936
Fig. 15.
= Hylesinus tupolevi Eggers, 1942.
= Hylesinus tupolevi denticulosus Sokanovskii, 1956.
DISTRIBUTION. Kyrgyzstan, Tadjikistan, China (Yunnan).
HOST. Fraxinus sogdiana.
BIOLOGY. Adults and larvae of H. tupolevi overwinter in tunnels in the bark of living or felled trees. The beetles attack trees from mid-May to the middle of June. Egg galleries are biramous and transverse. The larval galleries are longitudinal-, following the grain of the wood and deeply engraving it. Larvae develop for 20–30 days. There is one generation each year.

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= Hylesinus henscheli Knotek, 1892.
= Bostrichus melanopcephalus Fabricius 1792.
= Hylesinus minutus Fabricius, 1777.
= Hylesinus picopennis Stephens 1830.
= Antribus pubescens Fabricius, 1798.
= Ips rufescens Marsham, 1802.
DISTRIBUTION. Russia (European part, Crimea, Caucasus), widely distributed in Europe, occurs up to the northern limits of Fraxinus range; Asia (Turkey); North Africa (Algeria, Morocco, Tunis).
HOST. Fraxinus excelsior, F. pennsylvania, F. angustifolia, rarely on F. americana, Juglans sp., Syringa sp., Quercus sp., Tilia sp.

= Bostrichus oleiperda Fabricius, 1792.
= Ips scaber Marsham, 1802.
= Hylesinus saturalis, Redtenbacher, 1842.
= Hylesinus saturalis W. Redtenbacher, 1842.
HOST. Fraxinus excelsior, Olea europaea, rare on F. pennsylvania, Fagus sp.
DISTRIBUTION. in southern forest-steppe areas of Russia, North Caucasus, Crimea; Europe, North Africa, Asia (Turkey).

BIOLOGY. Adults and larvae of H. toranio overwinter in tunnels in the bark of felled trees. There is one generation each year (possibly two generations in Southern regions of Russia, Caucasus).
BIOLOGY. Adults and larvae of *H. varius* overwinter in tunnels in the bark of stems of living or felled trees. The beetles attack trees in late April (or early May) to the middle of July. Egg galleries are biramous and transverse. The larval galleries are longitudinal, following the grain of the wood and deeply engraving it. Larvae develop for 20–35 days. There is one generation each year.

13. *Hylesinus verae* Petrov, 2002  
DISTRIBUTION. Turkmenistan (Kopetdag Mts.), Iran.  
HOST. *Fraxinus syriaca*.  
BIOLOGY. Adults and larvae overwinter in tunnels in the bark of stems of living or felled trees. *H. verae* attacks stressed and weakened trees from April to mid-May.

Larvae develop for 20–30 days. Young beetles leave the parental galleries from mid-July to August. There is one generation each year.

14. *Hylesinus wachtli* Reitter, 1887  
= *Hylesinus orni* Fuchs, 1906 syn.n.  
DISTRIBUTION. Central and South Europe.  
HOST. *Fraxinus excelsior*, *F. ornus*.  
BIOLOGY. Adults and larvae overwinter in tunnels in the bark of stems of living or felled trees. The beetles attack trees from end of May and up to middle of July. Egg galleries are biramous and transverse. The larval galleries are longitudinal, following the grain of the wood and deeply engraving it. There is one generation each year.
TAXONOMIC NOTES: Balachowsky [1949] treated the species as *Hylesinus orni wachti* Reitter 1887. Schedl [1958] suggested that *Hylesinus orni* Fuchs, 1906 was a junior synonym of *H. varius*, on the base of comparison of scales color variations and similar habitus of the species. Wood and Bright [1992] recognize three independent species *Hylesinus varius*, *H. orni*, *H. wachti*. Pfeffer [1995] treated these species as *Leperisinus orni orni*, *L. orni wachti* and *L. fraxini*. Diagnosis of taxa was based on the prevalence of dark brown, pink and pale scales. Stark [1952] pointed out the considerable inaccuracy of such a diagnosis. The color of the scales can change in one individual depending on its age. Knížek [2011] preserved three names *Hylesinus wachti* Reitter 1887, *H. wachti* Fuchs, 1906 and *H. varius* (Fabricius, 1775). Knížek separates the taxa on two characters: the presence or absence of longer interstrial setae on the elytral sides, and the colour of the scales on the pronotum and elytral disk [M. Knížek, personal communication]. In order to stabilize nomenclature, we studied the form and features of the antenna, proventriculus and male genitalia of these taxa. Long series of beetles from Austria, the Czech Republic, and France (Aix-en-Provence, Parc Jourdan) were investigated. Despite variations in colour, all beetles had similar habitus, and identical structure of the antennae, proventriculi and male genitalia. The presence of erect and recumbent long scales on elytral interstria remained constant in long series of beetles (375 specimens). Syntypes of *H. wachti* (HNMB) have recumbent long scales on elytral interstriae. Therefore, *Hylesinus orni* Fuchs, 1906 is a junior synonym of *H. wachti* Reitter 1887.

**Genus Kissophagus** Chauspi, 1869

Type species *Hylesinus hederae* Schmitt, 1843 (= *Hylesinus vicinus* Comoli, 1837).

Length 2.0–2.4 mm, 1.9–2.1 times as long as wide. Color brown to reddish brown.

Head with poorly expressed sexual dimorphism, frons of male weakly convex, with fine, long median line; female frons convex with short median line; vestiture of sparse fine short hairs. Eye elongate, shallowly emarginate. Antennal scape elongate, funicle 6-segmented, club moderately flattened, conical, marked by two sutures (Fig. 18). Pronotum as long as wide, anterolateral area armed by small asperities; vestiture of pale hairlike recumbentsetae. Elytra 1.50–1.56 times as long as wide, basal margins armed by crenulations, sides almost straight and parallel on basal two-thirds to declivital base, broadly rounded behind; striae feebly impressed, interstriae wider than striae; declivity convex, interstriae 1 and 3 weakly elevated on elytral declivity; interstriae increasing in height from declivital base to junction with interstriae 9; junction raised above apical interstriae 2; interstriae 9 with row of pointed teeth; each declivital interstria with numerous small scalelike setae and a row of longer hairlike setae. Abdomen horizontal. Prothorax has an elevated costal ridge extending from the procoxa to the anterior margin. Prothorax is of typical hyliesline form, the lateral margin armed with a series of socketed teeth. Aedeagus similar to *Hylesinus*, except for circular frontal process of basal internal sac. Aedeagus elongate, 2.0 times as long as wide, apophyses as long as median lobe; base of internal sac located below the base of median lobe; frontal processes of base of internal sac are joined to form a ring (Fig. 36). Spicule nearly longer than aedeagus, sickle-shaped.

1. **Longulus elatus** (Niissima, 1913)

--- Pronotum longer, 1.0–1.1 times as long as wide; setal orientation on pronotum differs in different parts; in central area of disc setal apices are directed toward center of pronotum, in posterior part setae are transversely oriented; frons with clearly indicated median longitudinal carina; 2.0–2.4 mm ................. **K. novaki** (Reitter)

--- Pronotum longer, 1.0–1.1 times as long as wide; setal orientation on pronotum differs in different parts; in central area of disc setal apices are directed toward center of pronotum, in posterior part setae are transversely oriented; frons with clearly indicated median longitudinal carina; 2.0–2.4 mm ................. **K. vicinus** (Comoli)

**HOST.** *Alnus* spp., *Ulmus* spp.

**DISTRIBUTION.** Russia: (Southern Kurils; Kunashir Isl.); Japan.

**K. novaki** (Reitter, 1894)

--- Pronotum shorter, 0.75 times as long as wide; pronotum vestiture of hairlike scales set similarly in all parts of disk, apices of setae directed toward center of disk; frons with weakly indicated median line; 2.0–2.4 mm ................. **K. novaki** (Reitter)

--- Pronotum longer, 1.0–1.1 times as long as wide; setal orientation on pronotum differs in different parts; in central area of disc setal apices are directed toward center of pronotum, in posterior part setae are transversely oriented; frons with clearly indicated median longitudinal carina; 2.0–2.4 mm ................. **K. vicinus** (Comoli)
BIOLOGY. Adults overwinter in tunnels in the bark of dying or seriously weakened trees. Beetles attack trees at the end of June and up to the end of July. There is one generation each year.

Genus *Pteleobius* Bedel, 1888
Type species *Bostrichus vittatus* Fabricius, 1792.
Length 1.8–2.6 mm, 1.9–2.1 times as long as wide. Color brown to reddish brown.

Head not sexually dimorphic, frons convex; vestiture of sparse fine short pale hairs. Eye elongate, entire. Antennal scape elongate, funicle 7-segmented, club moderately flattened, subconical, marked by two sutures (Fig. 19).

Pronotum as long as wide, anterolateral area and disc armed by small asperities; vestiture of short scale-like erect setae. Elytra 1.45–1.50 times as long as wide, basal margins armed by small crenulations, sides almost straight and parallel on basal two-thirds to declivital base, broadly rounded behind; striae feebly impressed, interstriae 1.5 times wider than striae; declivity convex, interstriae 3 increasing in height from declivital base to junction with interstriae 9; each interstriae with abundant bicolored ground scales and a row of longer hairlike scales. Abdomen horizontal. Aedeagus elongate, 3.35–3.40 times as long as wide, apophyses 0.50–0.52 times as long as median lobe, lateral margins of subtriangular form (in lateral view) (Figs 37 and 38).

**KEY TO *Pteleobius* SPECIES OF RUSSIA**

1. Interstriae 2 strongly narrowed in posterior half of elytra, disappearing on declivity, clearly shorter, than interstriae 1 and 3; elytral ground vestiture of larger scales set in three irregular rows on interstriae; 1.8–2.2 mm

*P. kraatzii* Eichhoff

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A key to genera and species of the tribe Hylesinini from Russia

Length of interstriae 2 equal to interstriae 1 and 3, interstriae 2 of normal width in posterior half of elytra and continuous up to declivital apex; elytral ground vestiture of smaller scales set in five irregular rows on interstriae; 1.8–2.2 mm

1. Pteleobius kraatzii Eichhoff, 1864
   = Hylesinus putoni Eichhoff, 1868.
   DISTRIBUTION. Russia (Southern regions of European part: Astrakhan, Belgorod, Volgograd, Voronezh Provinces, North Caucasus, Crimea); Caucasus, Europe, Asia (Turkey, Turkmenistan)
   BIOLOGY. Adults and larvae of H. kraatzii overwinter in tunnels in the bark of dying and felled trees. Egg galleries are biramous and transverse. The larval galleries are longitudinal in the bark and deeply engraving it. There is one generation each year.

2. Pteleobius vittatus (Fabricius, 1792)
   = Ips coudatus Marsham, 1802.
   = Ips furcatus Marsham, 1802.
   = Ips sericeus Marsham, 1802.
   DISTRIBUTION. Russia: forest-steppe areas, North Caucasus, Crimea); Europe, Asia (Turkey, Turkmenistan).
   BIOLOGY. Adults and larvae of H. vittatus overwinter in tunnels in the bark of dying trees. The larvae feed away from the gallery, following the bark and deeply engraving it. Larvae develop for 20–25 days. There is one generation each year.

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