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First records of *Philonthus wuesthoffi* Bernhauer, 1939 (Coleoptera: Staphylinidae: Staphylininae) in Italy with notes on its distribution in Europe

Riassunto: Primi ritrovamenti di *Philonthus wuesthoffi* Bernhauer, 1939 (Coleoptera: Staphylinidae: Staphylininae) in Italia con note sulla sua distribuzione in Europa.

Philonthus wuesthoffi Bernhauer, 1939 è stato rinvenuto per la prima volta in Italia nel 2017 e 2019. Gli esemplari sono stati catturati in Friuli e sui monti Lessini (Verona). Sembra che *Philonthus wuesthoffi* abbia invaso l'Europa dall'Asia Orientale ed è ora divenuto una specie ampiamente diffusa in Europa. *Philonthus ohizumi* Dvorak, 1958 viene qui sinonimizzato con *P. wuesthoffi*.

Abstract: *Philonthus wuesthoffi* Bernhauer, 1939 was recorded in Italy in 2017 and 2019 for the first time. The specimens were found in Friuli, North-West of Udine, in an area cultivated with *Medicago*, by pitfall traps and in the Lessini Mountains north of Verona at the edge of a waterhole on a dead toad. *Philonthus wuesthoffi* seems to have invaded Europe from East Asia and has become a widespread species in Europe. *Philonthus ohizumi* Dvořák, 1958 is synonymized with *P. wuesthoffi*.

Key words: Italy, Friuli, Lessini Mountains, Alps, rove beetle, adventive species, *Philonthus wuesthoffi*, *Philonthus ohizumi*.

Philonthus wuesthoffi Bernhauer, 1939 (Fig. 1) was originally described from the seashore of Yokkaichi, Japan and is known from further locations in Japan (Hokkaido, Honshu, Shikoku, Kyushu, Oki, Sado, Yakushima), China (Heilongjiang, Jilin, Liaoning, Xinjiang), South Korea, North Korea, Nepal, Kyrgyzstan, Iran, and Russia (Far East: Ussuri river, Sakhalin, Kuril Islands, Manchuria) (Bernhauer 1939, Shibata *et al.* 2006, Tabadkani *et al.* 2012, Ahn *et al.* 2017, Schillhammer, personal communication). Bernhauer (1939) noticed that *P. wuesthoffi* is very similar to *Philonthus longicornis* Stephens, 1832 but can be easily distinguished by its slender and parallel aedeagus and paramere (Figs. 2 and 3). However, *P. wuesthoffi* is a member of the *Philonthus varians* group. Several species described from mainland Asia have already been synonymized (Schillhammer 1999). One additional species, *P. ohizumi* Dvořák, 1958, is added to the synonymy list in this paper based on H. Schillhammer (personal communication).

Philonthus wuesthoffi Bernhauer, 1939
Philonthus ohizumi Dvořák, 1958 syn. nov.
Philonthus duplicatus Tikhomirova, 1973

Philonthus fagelianus Tikhomirova, 1973
Philonthus tuberculatus Coiffait, 1974

Probably during the 1960s until the 1980s, *P. wuesthoffi* invaded European Russia and Ukraine from East Asia (Orlova-Bienkowskaja 2017; Fig. 4). The first records are located in Southern Russia in the Volgograd (1989: Khachikov 1997), Rostov (1990: Khachikov 1997), Kharkov (1997: Gontarenko 2005), and Krasnodar regions (1998: Khachikov 2003), and in Ukraine in the Odessa region (1996: Gontarenko & Petrenko 2001). Subsequent records from Russia are located in the Vladimir (2008: Semenov 2009), Chuvashia (2011: Semenov 2015), Smolensk (2013: Semionenkov *et al.* 2015), and Uljanovsk regions (2016: Kovalev 2019, personal communication). In Romania, the species is known from the northern (2003), central (1997), and southern parts (2003: Stan 2012). In Slovakia, *P. wuesthoffi* was found in 2009 on a dead fish near the Danube River and in 2013 and 2014 10 km further to the west in horse dung (Benedikt *et al.* 2015). The first records from Central Europe were published as *P. ohizumi* from the eastern part of the Czech Republic in 2009 and 2010 and were

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sifted from compost mixed with straw and dung (Vávra *et al.* 2012). The latest findings are from 2011 and located in northern Serbia (rape field near Subotica) and Croatia (Sasinovec) where the individuals were caught with pitfall traps (Schillhammer, personal communication).

Recently, the second author has received a specimen of *P. wuesthoffi* for the first time from Italy from Lorenzo Marini (University of Padova) with the following capture data: ITALIA - Friuli Venezia Giulia - Moruzzo (UD) - 46°7'20.33"N 13°6'14.26"E - 198 m a.s.l. - 21.VI.2017 - pitfall trap - cultivated area with *Medicago* - leg. F. Lami. The site is located in the Friuli plain in northeast Italy. The area is dominated by crops (*i.e.* mostly cereals and vineyards) interspersed with various semi-natural landscape elements (*i.e.* forests, hedgerows, and meadows). A temperate climate, a mean annual precipitation of

1300 mm, and a mean annual temperature of 13°C characterize the region (Nardi *et al.* 2019).

The first author found one male of *P. wuesthoffi* during the 34th International Meeting on Systematics and Biology of Staphylinidae in Verona (leg./det./coll. H. Hoffmann, vid. H. Schillhammer). The specimen was found on 01.06.2019 in the Lessini Mountains (1.725 m a.s.l.) near Malga San Giorgio at the edge of a water hole under a dead toad (*Bufo bufo*).

Overall, it seems that *P. wuesthoffi* invaded Europe from East Asia and became a widespread species throughout Eastern Europe from European Russia, Ukraine, Moldova, Romania, Slovakia, and the Czech Republic and already occurs in parts of southern Europe like Croatia, Serbia, and Italy (Fig. 5). It must be assumed that *P. wuesthoffi* already has a wider distribution in additional European countries and will expand its distribution in the near future (Tab. 1).



Fig. 1. Dorsal habitus of *Philonthus wuesthoffi* (photo: Andrea Tagliapietra).



Fig. 2. Aedeagus in ventral view of *Philonthus wuesthoffi* (photo: Andrea Tagliapietra).



Fig. 3. Aedeagus in lateral view of *Philonthus wuesthoffi* (photo: Andrea Tagliapietra).



Fig. 4. European distribution map of *Philonthus wuesthoffi* with years of the records (circles: literature records, triangles: recent records in Italy).



Fig. 5. Collecting site of *Philonthus wuesthoffi* in the Lessini Mountains (1.725 m a.s.l.) at the edge of a waterhole under a dead toad on 01.06.2019 (picture: Hannes Hoffmann).

Table 1. European literature records of *Philonthus wuesthoffi* Bernhauer, 1939.

Country	Locality	Date	Citation
Croatia	Zagreb-Sasinovec, pitfall trap	30.06.2011	Schillhammer (personal communication)
Czech Republic	Moravia mer. or.: Hrubá Vrbka, compost mixed with straw and dung from animal stalls (published as <i>P. ohizumi</i>)	08.02.2009	Vávra <i>et al.</i> 2012
Czech Republic	Moravia mer. or.: Hrubá Vrbka, compost mixed with straw and dung from animal stalls (published as <i>P. ohizumi</i>)	03.04.2010	Vávra <i>et al.</i> 2012
Czech Republic	Moravia mer. or.: Hrubá Vrbka, compost mixed with straw and dung from animal stalls (published as <i>P. ohizumi</i>)	03.04.2010	Vávra <i>et al.</i> 2012
Italy	Friuli, Moruzzo (Udine), cultivated area with Medicago, pitfall trap, 198 m a.s.l.	21.06.2017	Nardi <i>et al.</i> 2019
Italy	Lessini Mountains, Malga San Giorgio, waterhole, under dead toad (<i>Bufo bufo</i>)	01.06.2019	coll. Hoffmann
Moldova	Bender (published as <i>P. fagelianus</i>)	1997	Gontarenko & Petrenko 2001
Romania	Poenile de sub Munte, small village Luhei, cow dung (published as <i>P. longicornis</i>)	16.06.2003	Stan 2012
Romania	Sand Chituc, Sinoe Lake-Black See channel, blacklight trap	17.08.2003	Stan 2012
Romania	Vrancea Mountains, Gresu env., 800 m a.s.l.	01.-04.07.1997	Schillhammer (personal communication)
Russia	Kalmykia, Sadowoje (published as <i>P. fagelianus</i>)	15.04.1989	Khachikov 1997
Russia	Rostov, Leskhoz (published as <i>P. fagelianus</i>)	20.06.1990	Khachikov 1997
Russia	Uljanovsk region, Starokulatkinsky distr., “Zolotaya Gora”, in dung	08.08.1990	Kovalev 2019 (personal communication)
Russia	Uljanovsk region, Pavlovsky distr., Shikovka village, in dung	17.06.1994	Kovalev 2019 (personal communication)
Russia	Krasnodar region	8.1998	Khachikov 2003
Russia	Vladimir region	26.04.2008	Semenov 2009
Russia	Chuvashia region	2011	Semenov 2015
Russia	Smolensk region, Roslavl district, on a carrion (bird)	15.06.2013	Semionenkov <i>et al.</i> 2015
Russia	Smolensk region, Monastyrstchina district	20.07.2013	Semionenkov <i>et al.</i> 2015
Serbia	Stari Zednik nearby Subotica, rape fields (organic farming), pitfall trap	26.05.2011	Schillhammer (personal communication)
Slovakia	Kravany nad Dunajom, dead fish nearby the Danube, 120 m a.s.l. (published as <i>P. ohizumi</i>)	17.07.2009	Benedikt <i>et al.</i> 2015
Slovakia	Virt, 2 km to the east, sandy pasture, horse dung, 120 m a.s.l. (published as <i>P. ohizumi</i>)	27.05.2013	Benedikt <i>et al.</i> 2015
Slovakia	Virt, 2 km to the east, sandy pasture, horse dung, 120 m a.s.l. (published as <i>P. ohizumi</i>)	20.09.2014	Benedikt <i>et al.</i> 2015
Ukraine	Odessa (published as <i>P. fagelianus</i>)	1996	Gontarenko & Petrenko 2001
Ukraine	Kharkov, okr. Krasnograd, garden	31.08.1997	Gontarenko 2005

Philonthus wuesthoffi, like other members of the *varians* group, can mainly be found in dung, carcasses and decaying plant material.

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