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First record of *Choragus sheppardi* Kirby, 1818 (Coleoptera, Anthribidae) in Volyn Region

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Abstract. *Choragus cheppardi* inhabits western Palearctic. In Ukraine, this species was found only in the southern and eastern parts (Crimea in 1980 and 2003, Kharkiv region in 1998, Donetsk, Lugansk regions in 2000). Lives in nemoral and mixed forests on deciduous trees (*Fagus sylvatica*, *Hedera helix*, *Malus domestica*, *Crataegus monogyna*, *Ulmus glabra*, *Sorbus aucuparia*, *Quercus* spp., *Alnus glutinosa*, *Salix* spp.). Larvae start their development in summer in the pycnidia of the *Diatrype stigma* (crust fungi, Diatrypaceae). Adults occur in IV–VIII (IX by our original data). Emerged adults overwintering and start new generation in spring, mostly in April.

The collection of material was carried out by counting animals on six test plots from 05.07.2022 to 09.25.2022. Three Barber traps were placed in each trial area. The traps were located at a distance of 50 m from each other.

New find of *Ch. cheppardi* was registered in the Kivertsi National Park "Tsumanska Pushcha". 1 male was collected in a birch forest mixed with alder.

Current find of this species confirm previously published data on its occurrence in the in nemoral and mixed forests. It can be expected that *Ch. cheppardi* can be found in other places of Ukraine.

Key words: *Choragus cheppardi*, birch and alder forests, Kivertsi National Park «Tsumanska Pushcha».

Перша знахідка *Choragus sheppardi* Kirby, 1818 (Coleoptera, Anthribidae) у Волинській обл.

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Резюме. *Choragus cheppardi* мешкає в західній частині Палеарктики. В Україні цей вид траплявся лише в південній та східній частинах (Крим у 1980 та 2003 рр., Харківська обл. у 1998 р., Донецька, Луганська обл. у 2000 р.). Мешкає в неморальних та змішаних лісах на листяних деревах (*Fagus sylvatica*, *Hedera helix*, *Malus domestica*, *Crataegus monogyna*, *Ulmus glabra*, *Sorbus aucuparia*, *Quercus* spp., *Alnus glutinosa*, *Salix* spp.). Личинки починають свій розвиток влітку в стромах *Diatrype stigma* (Diatrypaceae). Імаго трапляється у IV–VIII (за нашими вихідними даними – IX). З'явилися дорослі особини зимують і починають нове покоління навесні, переважно в квітні.

Збір матеріалу проводився шляхом обліків тварин на шести пробних площах з 07.05.2022 до 25.09.2022 року. На кожній пробній площі розташовувались три пастки Барбера. Пастки знаходились на відстані 50 м одна від одної.

Нова знахідка *Ch. cheppardi* зареєстрована в Ківерцівському національному парку «Цуманська пуща». У березовому лісі з домішками вільхи зібрано 1 самця.

Сучасна знахідка цього виду підтверджує раніше опубліковані дані про його наявність у листяних та мішаних лісах. Можна очікувати, що *Ch. cheppardi* може бути знайдений і в інших місцях України.

Ключові слова: *Choragus cheppardi*, березові та вільхові ліси, Ківерцівський національний природний парк «Цуманська пуща».

INTRODUCTION

The genus *Choragus* is represented by 62 species including 23 Palaearctic, 5 of them established in Europe and 2 (*Ch. cheppardi* Kirby, 1818 and *Ch. horni* Wolfrum, 1930) were recorded from Ukraine [1–5].

Ch. cheppardi inhabits western Palearctic (Fig. 1) excluding North and registered in Austria, Azerbaijan,

Belarus, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, England, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iran, Ireland, Italy, Luxembourg, The Netherlands, Norway, Poland, Romania, north and centrum of European Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine [1–41].

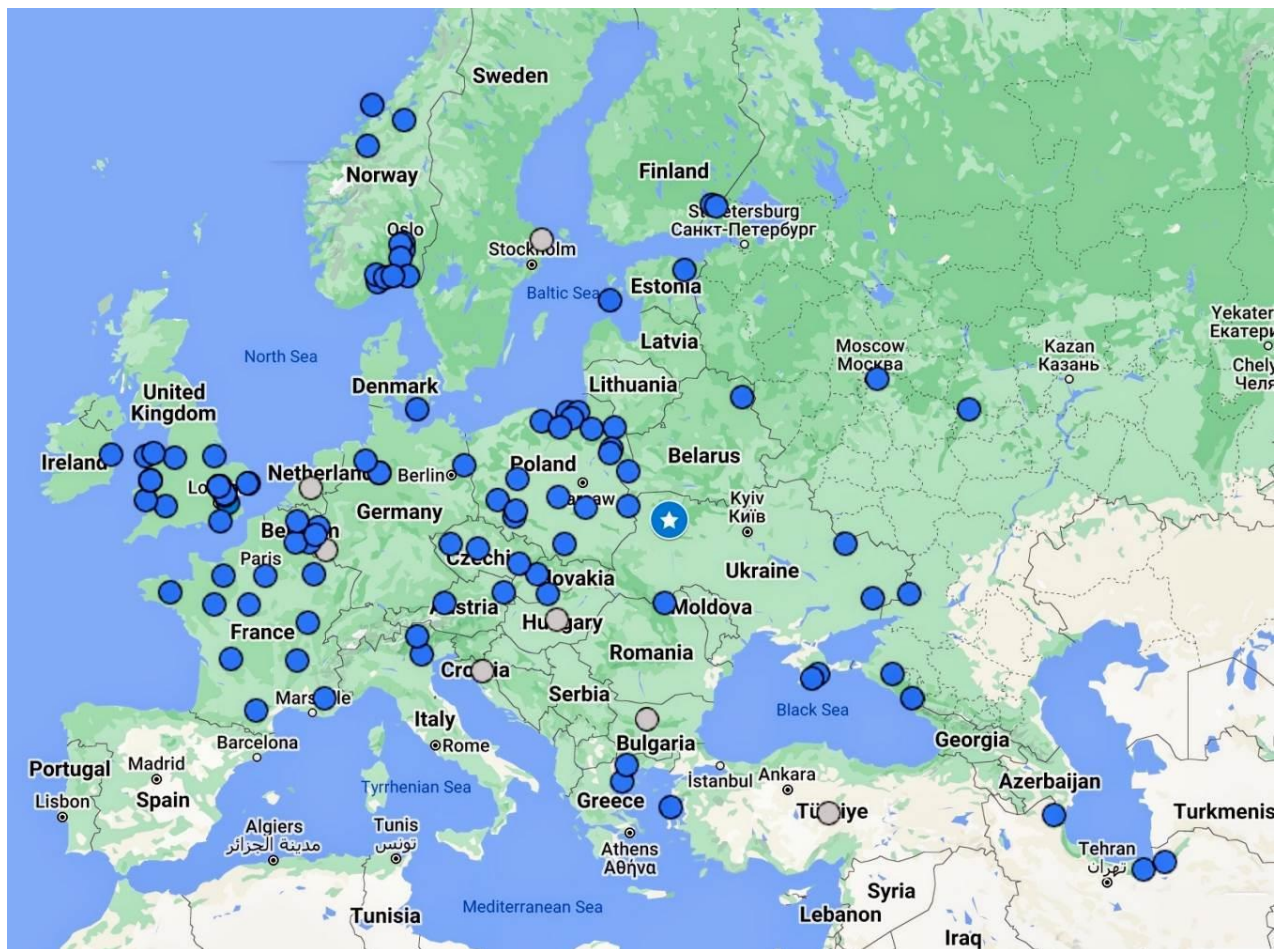


Fig. 1. Distribution of *Ch. cheppardi*: blue dot – previously known record, starred dot – new record, gray dot – uncertain data

In Ukraine, this species was found only in the southern and eastern parts (Crimea in 1980 and 2003, Kharkiv region in 1998, Donetsk, Lugansk regions in 2000) [3, 14] (Fig. 2).

Lives in nemoral and mixed forests on deciduous trees (*Fagus sylvatica*, *Hedera helix*, *Malus domestica*, *Crataegus monogyna*, *Ulmus glabra*, *Sorbus aucuparia*, *Quercus spp.*, *Alnus glutinosa*, *Salix spp.*, *Syringa sp.*) [39]. In Ukraine found on *Fagus*, *Populus tremula*, *Pyrus*, *Salix*. Larvae start their development in summer in the pycnidia of the *Diatrype stigma* (crust fungi, Diatrypaceae) and probably other Sordariomycetes (Ascomycota) fungi, so host plant identity seems to be

not the determining factor. Then it may continue to develop in the infected wood where overwintered larva pupates. Adults occur in IV–VIII (IX by our original data). Emerged adults overwintering and start new generation in spring, mostly in April and may be found mostly at night on branches and trunks of trees, net-swept or captured by shaking off old dense branches of *Hedera helix*. The beetles active flying and are recorded using special (flight-intercepting) traps [3, 7, 10, 11, 13, 39, 42, 43].

The beetle *Lissodema denticolle* (Coleoptera, Salpingidae) and Bethyliidae wasp (Hymenoptera) were reported as predators of *Ch. cheppardi* [7].

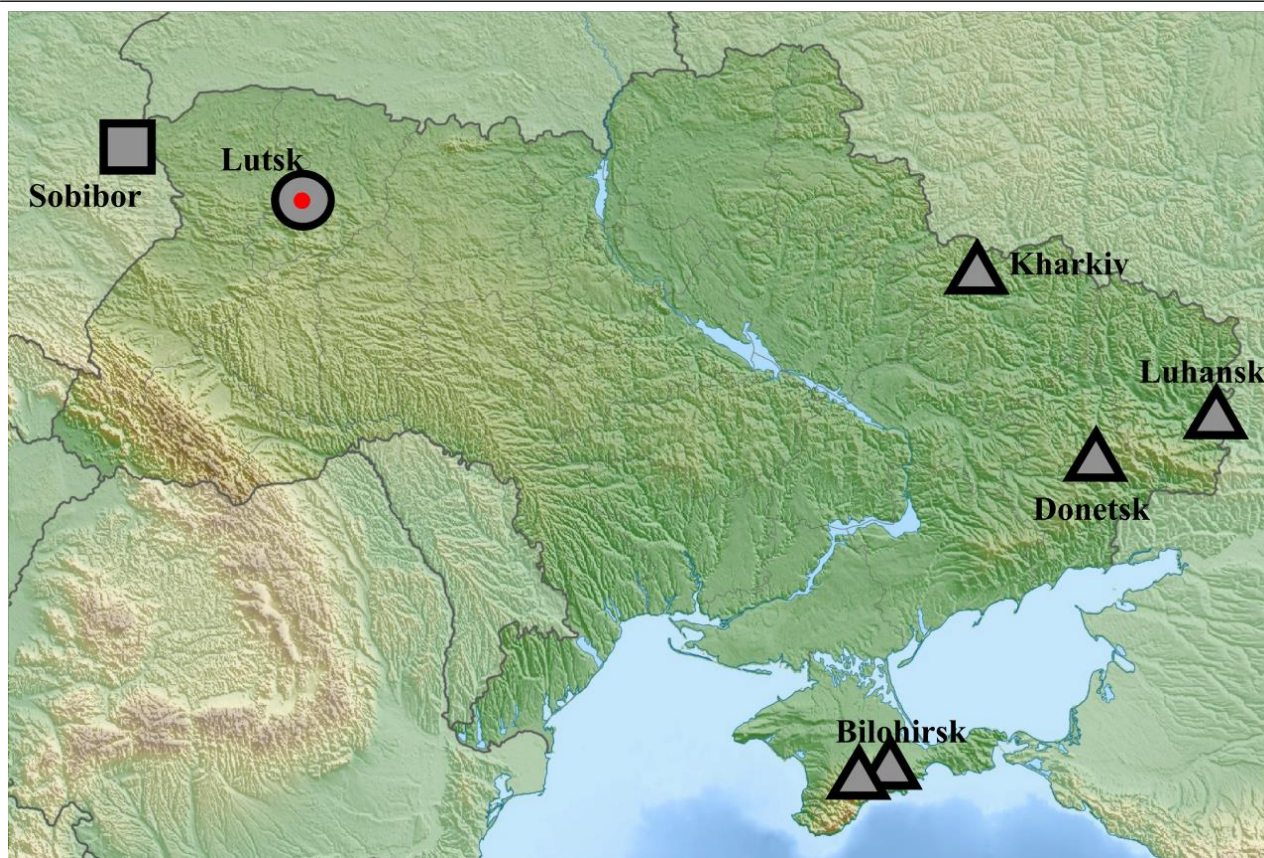


Fig. 2. Findings of *Ch. sheppardi* in Ukraine, circle with red dot marks new record, square – the nearest location in Poland

MATERIALS AND METHODS

The material sampling was carried out by animal surveys on trial areas (TA) from 05/07/2022 to

09/25/2022. Three Barber traps were placed in each trial area. Barber's trap is a 0.5 liter plastic container placed flush with ground level [44]. The traps were located at a distance of 50 m from each other (Fig. 3).



Fig. 3. Soil trap TA-13 in which the species was captured

Trap G-13 was located in a birch forest, its coordinates are: 50.91076833 N, 25.88611666 E (Fig. 4).

Taxonomy follows Alonso-Zarazaga et al. [4]. Photographs of the specimen were taken using Leica

Z16 APO stereo-microscope equipped with a Leica DFC 450 camera and processed with LAS v. 3.8 software. Image editing was done with GIMP v. 2.8.4 (<https://download.gimp.org/gimp/v2.8>) and Inkscape v.

0.48.4 r9939 (<https://inkscape.org/release/inkscape-0.48.4>).

Mapping was performed using a modified relief map of Ukraine (<https://www.mapsland.com/europe/>

[ukraine/large-relief-map-of-ukraine](https://www.google.com.ua/maps)), Google Maps (<https://www.google.com.ua/maps>) and GBIF (<https://www.gbif.org/>). The general distribution mapping data were obtained from [1–41].



Fig. 4. View of biotope where trap were installed TA-13

RESULTS

First find of *Ch. sheppardi* was registered in western Ukraine in the Kivertsi National Park «Tsumanska Pushcha». 1 ♂ (Fig. 5, 6) was collected in a birch forest, 25.09.2022 (Trush T. V.).

DISCUSSION

Current find of this species in western regions of Ukraine was expected due to its presence in adjoining countries, Poland, Romania, Slovakia [2, 4, 16, 17, 22, 23, 26, 28, 32, 34, 36, 40, 41]. Besides that, host fungus *Diatrype stigma* is distributed wide in Ukraine and in northwestern Polissia too [45]. The GBIF's map of host fungus distribution [46] resembles this of *Ch. sheppardi* in some details (Fig.5). The main problem with observing of this species is hidden way of life and size of beetles as well as superficial similarity to other representatives of *Choragus* and even to mycetophilous beetles, f. e. from family Ciidae. The species may be precisely determined only using detailed microscopic

observing and mainly by genitalia structures (Fig. 6, A–C). It can be assumed that *Ch. cheppardi* so as *Ch. horni* both may be found in Volyn and other western and central regions of Ukraine.

CONCLUSION

Choragus cheppadi was registered for the first time in the western regions of Ukraine. He lives in a birch forest mixed with alder.

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Fig. 5. Habitus of *Ch. cheppadi* ♂.



Fig. 6. Male genitalia of *Choragus cheppadi*:
A – aedeagus, dorsal view; B – the same, apex; C – tegmen

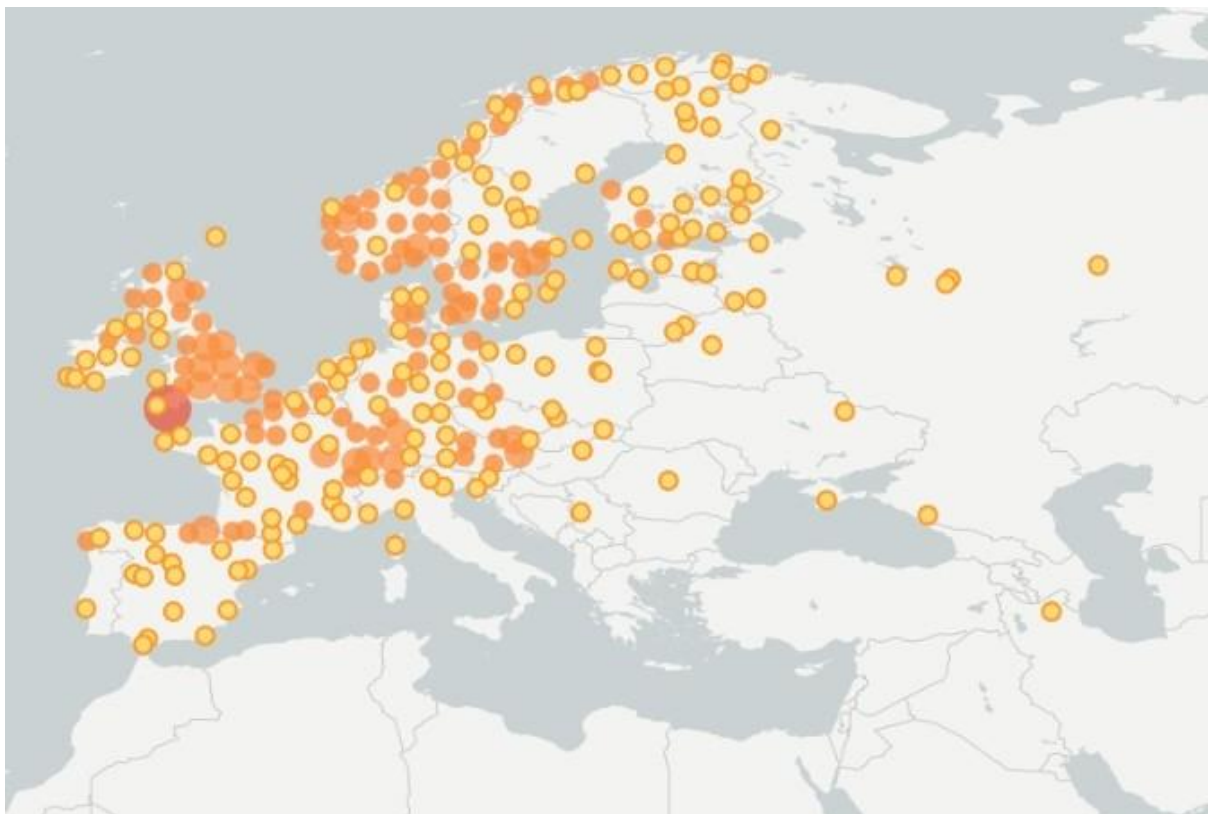


Fig. 7. General distribution of host fungus *Diatrype stigma* (Hoffm.)
Fr. by data in Global Biodiversity Information Facility (GBIF)

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