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## A NEW SPECIES OF MITES OF THE GENUS *ANYSTIPALPUS* (MESOSTIGMATA, ASCIDAE) FROM THE EASTERN UKRAINE

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**A New Species of Mites of the Genus *Anystipalpus* (Mesostigmata, Ascidae) from the Eastern Ukraine.** Trach V. A. — *Anystipalpus stepposus* Trach, sp. n. from Lugansk Region associated with carabid beetles is described. The new species is similar to *A. livshitsi* (Eidelberg, 1989), differing by the arrangement of short and thickened setae on the podonotal shield, presence of large presternal shields, shape and sclerotization of the sternal shield, shape of some setae on legs and venter of idiosoma, details of structure of the chelicerae.

Key words: Ascidae, *Anystipalpus stepposus*, new species, Ukraine, Carabidae.

**Новый вид клещей рода *Anystipalpus* (Mesostigmata, Ascidae) из Восточной Украины.** Трач В. А. — С жуков-жужелиц из Луганской области описан новый вид клещей семейства Ascidae (Mesostigmata), *Anystipalpus stepposus* Trach, sp. n. Новый вид наиболее близок к *A. livshitsi* (Eidelberg, 1989), отличается от него расположением коротких и утолщенных щетинок на подонотальном щите, наличием крупных престеральных щитков, формой и склеротизацией стерального щита, формой некоторых щетинок на ногах и вентральной части идиосомы, деталями строения хелицер.

Ключевые слова: Ascidae, *Anystipalpus stepposus*, новый вид, Украина, Carabidae.

### Introduction

The genus *Anystipalpus* Berlese, 1911 is known only from adult females phoretic on ground beetles and labidurid earwigs in Eurasia. Genus includes 4 species: *A. pericola* Berlese, 1911 (= *A. nataliae* (Eidelberg, 1990)) known from Italy, Ukraine (Crimea) and Iran; *A. livshitsi* (Eidelberg, 1989) (= *A. ukrainicus* (Sklyar, 1994)) known from Ukraine (Crimea, Donetsk and Poltava Regions), Moldova, Kazakhstan and Iran; *A. kazemii* Lindquist et Moraza, 2009 and *A. labiduricola* Lindquist et Moraza, 2009 known only from Iran (Eidelberg, 1989, 1990; Sklyar, 1994; Lindquist, Moraza, 2009). During examination of carabid beetles collected in 2010 in Lugansk Region of Ukraine, a new species of mites of the genus *Anystipalpus* was found.

### Material and methods

Ground beetles were collected in July 2010 in the «Streltsovskaya steppe» branch of Lugansk Nature Reserve (vicinity of Krinichnoe village, Melovskoj district, Lugansk province). The beetles were sampled using an ultraviolet lamp, Barber traps and transferred into vials containing 70% ethyl alcohol. Collected mites were mounted on slides in Hoyer medium. Mites were studied with aid of light microscope Mikmed-1 Lomo with binocular head AU-12, ocular micrometer AM9-2 and drawing tube RA-7U 4,2. Setal and porelike structures nomenclature follows that of Lindquist and Evans (1965) slightly modified by Lindquist and Moraza (2009). Measurements are given in micrometers (mkm) for the holotype and paratypes (in parentheses, minimum to maximum).

The holotype and two paratypes are deposited in the collections of the Museum of Zoology, I. I. Mechnikov Odessa National University, other paratypes in the collections of Department of Zoology I. I. Mechnikov Odessa National University, host beetles in the collection of Schmalhausen Institute of Zoology NAS of Ukraine (Kyiv, Ukraine) and author's collection.

*Anystipalpus stepposus* Trach, sp. n. (fig. 1, 1–15; 2, 1–4)

Material. Holotype: ♀, slide N 24–08–2010/01, Ukraine, Lugansk Prov., Melovskoj Distr., vic. of Krinichnoe (49°18'N 40°05'E), under elytra of *Ophonus sabulicola* (Panzer, 1796) (Coleoptera, Carabidae), 24–30.08.2010. Paratypes: 2 ♀, same data and on slide with holotype; 3 ♀, same data, under elytra of *Ophonus azureus* (Fabricius, 1775); 2 ♀, same data, under elytra of *Harpalus calceatus* (Duftschmid, 1812); ♀, same data, under elytra of *Ophonus diffinis* Dejean, 1829 (coll. V. A. Trach).

Description. Female. Dorsum (fig. 1, 1). Idiosoma oval, light, length of idiosoma 437 (409–456), width 302 (270–307). Dorsal shields reticulated over entire surfaces, reticula more elongate between setae *J5* and *Z5*, shields not covering entire surface of dorsum, surrounding soft integument smoothly striate. Podonotal shield 231 (218–244) long, greatest width 210 (206–223), with 21 pairs of smooth setae (*j1–j6*, *z1–z6*, *s1–s6*, *r2* and two extra pairs in *s3–s6* area) of which eight pairs (*j2–j5*, *z2–z4*, *s4*) short, thickened, spinelike, with bluntly rounded tips (fig. 1, 11), 12–13 (11–13) long. Setae *j1* and *z1* located ventrally, *j1* spinelike, short (fig. 1, 9) 7 (5–7), *z1* short (fig. 1, 10) 9 (7–11). Other setae on the podonotal shield long, simple (fig. 1, 12) 17–21 (15–21). Opisthonotal shield 185 (176–197) long, greatest width 223 (206–227), with 15 pairs of setae (*J1–J5*, *Z1–Z5*, *S1–S5*), 18–21 (17–21) long. Most of setae smooth, simple, some setae in posterior part of the shield slightly barbed (fig. 1, 13). Lateral soft cuticle with about 14 pairs of simple setae 14–17 (13–17), some setae slightly barbed. Number of secretory gland pores and non-secretory lyrifissures on podonotal and opisthonotal shields typical for genus.

Venter (fig. 1, 2). Tritosternum with elongated base, 19 (19–21) long, 13 (12–14) wide, pilose laciniae free nearly to their bases, length of tritosternum 90 (84–95). Presternal shields large, 39 (36–40) long, 18 (15–19) wide, bearing setae *st1*. Sternal shield surface evenly sclerotized, 67 (59–69) long from anterior presternal margin to irregularly concave posterior margin, greatest width 134 (126–139), 75 (70–76) at narrowest width between coxae II. Endopodal extensions between coxae I and II, II and III united with sternal shield. Sternal shield with two pair setae (*st2*, *st3*), poroids lacking. Setae *st4* inserted on soft cuticle. Endopodal strips weakly developed between coxae III and IV. Epigynal shield smooth, 103 (95–107) long from anterior margin of rounded hyaline rim to evenly rounded posterior margin, 53 (48–59) at widest level between setae *st5* and 18 (17–21) at narrowest width between legs IV. Postgenital platelets lacking. Opisthosomatic venter with one pair of oval metapodal platelets, 27 (21–27) long, 8 (6–9) wide. Anal shield faintly reticulate-lineate, 90 (80–98) long, 69 (67–72) wide, with two paranal and one postanal setae 23–27 (21–27) long, cribrum well-developed. Soft cuticle with ten pairs of opisthogastric setae *JV1–JV5*, *ZV1–ZV5* and two–five pairs of submarginal *UR* and marginal *R* setae. Setae *st1–st5*, *JV1–JV3*, *ZV1–ZV2* narrow, flagellate (fig. 1, 14), 23–38 (21–40) long. Setae *JV4–JV5*, *ZV3–ZV5*, *UR* and *R* simple, 15–19 (15–19) long, some setae slightly barbed. Peritrematal–exopodal shield with some lines radiating from stigma to broadened posteromedian margin. Peritremes long, extends anteriorly to level of seta *z1*. Peritrematal plates uniting with podonotal shield anteriorly at level between setae *s2* and *s3*. Spermathecal structures indiscernible.

Gnathosoma. Tectum convex, with anterior margin finely denticulate (fig. 1, 3). Movable digit of chelicerae bidentate (fig. 1, 4). Fixed digit of chelicerae with three small teeth, one subapical tooth and pilus dentilis (fig. 1, 5–6). Length of fixed digit 92 (88–97). Subcapitulum slender, elongate (fig. 1, 7), length from capitular base to apex of corniculi 105 (101–109), greatest width (at base) 80 (74–84). Length of setae *pc* 18 (16–23), *hp2* – 15 (13–15), *hp3* – 13 (12–14), *hp1* – 13 (11–13), distance between *pc* and *hp2* – 25 (25–27), between *hp2* and *hp3* – 19 (19–21), between *hp3* and *hp1* – 15 (13–18). Deutosternum with seven transverse rows of denticles. Rows one to five with a single median denticle (rarely with two denticles); rows six and seven with two–four denticles. Corniculi normal in form, longer than internal malae. Palpus

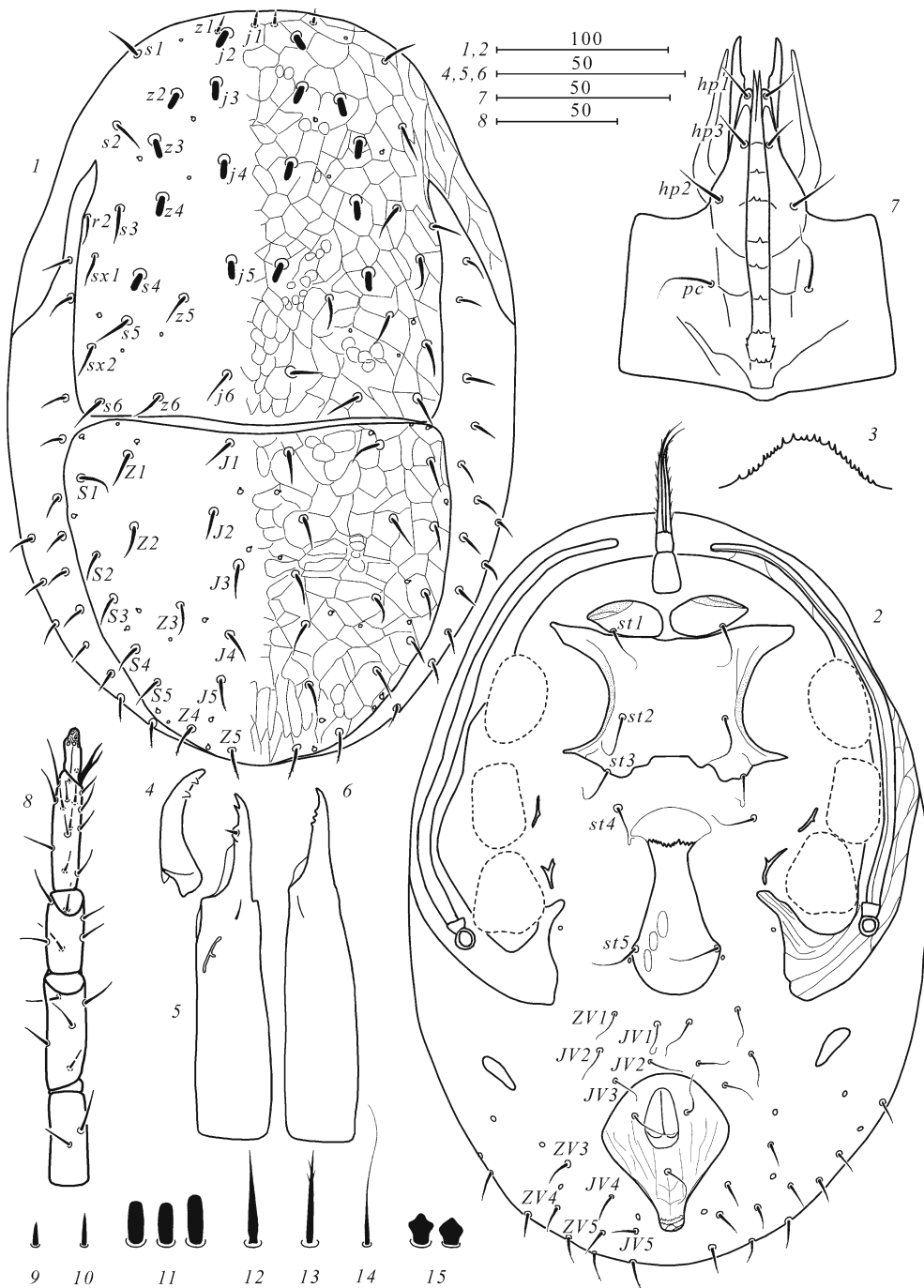


Fig. 1. *Anystipalpus stepposus*, ♀: 1 — idiosoma, dorsal view; 2 — idiosoma, ventral view; 3 — tectum; 4 — movable digit of chelicerae, lateral view; 5 — fixed digit of chelicerae, lateral view; 6 — fixed digit of chelicerae, medial view; 7 — gnathosoma; 8 — palpus; 9 — seta *j1*; 10 — seta *z1*; 11 — thickened setae on the podonotal shield; 12 — simple seta on the podonotal shield; 13 — barbed seta on the opisthonotal shield; 14 — flagellate seta on venter of idiosoma; 15 — modified setae on coxae I–II.

Рис. 1. *Anystipalpus stepposus*, ♀: 1 — идиосома, дорсально; 2 — идиосома, вентрально; 3 — тектум; 4 — подвижный палец хелицеры, латерально; 5 — неподвижный палец хелицеры, латерально; 6 — неподвижный палец хелицеры, медиально; 7 — гнатосома; 8 — пальпа; 9 — щетинка *j1*; 10 — щетинка *z1*; 11 — утолщенные щетинки подоноотального щита; 12 — простая щетинка подоноотального щита; 13 — зазубренная щетинка опистоноотального щита; 14 — бичевидная щетинка вентральной части идиосома; 15 — модифицированные щетинки тазиков I–II.

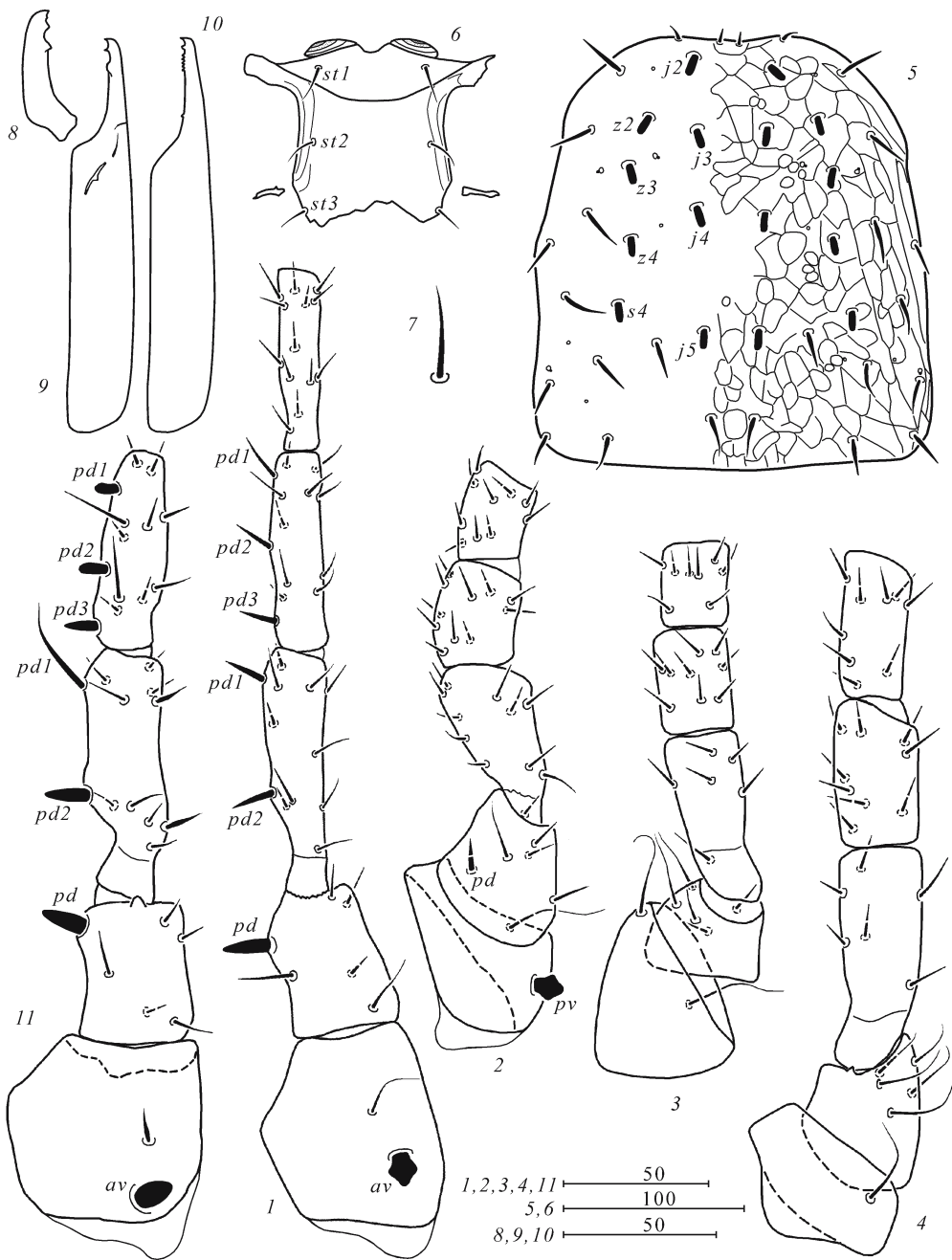


Fig. 2. *Anystipalpus stepposus* (1-4) and *A. livshitsi* (5-11), ♀: 1-4 — legs I-IV, except tarsi, respectively; 5 — podonotal shield; 6 — sternal shield; 7 — seta on venter of idiosoma; 8 — movable digit of chelicerae, lateral view; 9 — fixed digit of chelicerae, lateral view; 10 — fixed digit of chelicerae, medial view, 11 — leg I, excepting tibia and tarsus.

Fig. 2. *Anystipalpus stepposus* (1-4) и *A. livshitsi* (5-11), ♀: 1-4 — ноги I-IV, за исключением лапок, соответственно; 5 — подоноальный щит; 6 — стеральный щит; 7 — щетинка вентральной части идиосомы; 8 — подвижный палец хелицеры, латерально; 9 — неподвижный палец хелицеры, латерально; 10 — неподвижный палец хелицеры, медиально, 11 — нога I, за исключением голени и лапки.

slender, elongate (fig. 1, 8), 189 (179-185) long, about half as long as leg I. Palptibia about 2-2,5 times as long as palptarsus. Chaetotaxy of palps: 2-5-6-14-14. Palptarsal apotele slender, 2-tined.

Legs (fig. 2, 1–4). Length of legs (excluding pretarsi): I — 395 (391–400), II — 270 (260–288), III — 274 (251–279), IV — 344 (335–363). Legs I about 0,9 as long of the idiosoma. Leg chaetotaxy (from coxa to tibia) normal for the genus: I — 2–6–12–13–13, II — 2–5–11–11–10, III — 2–5–6–9–8, IV — 1–5–6–9–9. Leg I lacking pretarsus and claws. Length of femur I 85 (76–86), genu I — 66 (59–65), tibia I — 64 (59–67), tarsus I — 72 (67–76). Most leg setae simple, smooth. Basal seta *av* of coxa I and posterior seta *pv* of coxa II modified, thick, narrowed basally and apically (fig. 1, 15). Other setae on coxae I–IV and some setae on trochanters I–IV flagellate. Seta *pd* of trochanter I stout, blunted, spinelike. Setae *pd1*, *pd2* on femur I, *pd1*–*pd3* on genu I and *pd* on trochanter II spinelike.

Differential diagnosis. *A. stepposus* sp. n. is similar to *A. livshitsi* (Eidelberg, 1989) and *A. kazemii* Lindquist et Moraza, 2009 by the presence of short and thickened setae on podonotal shield. *A. stepposus* sp. n. closely related to *A. livshitsi* by the shape of these setae, shape of the epigynal shield, presence of modified setae on trochanter, femur and genu of leg I. The new species differs from *A. livshitsi* (studied more than 500 specimens of *A. livshitsi* from different habitats of steppe and forest-steppe zones of Ukraine) by the arrangement of setae on the podonotal shield (in *A. stepposus* sp. n. *j3* situated distinctly anterior to setae *z2*, *j5* situated distinctly anterior to setae *s4* (fig. 1, 1); in *A. livshitsi* *j3* situated distinctly posterior to setae *z2*, *j5* situated distinctly posterior to setae *s4* (fig. 2, 5), by presence of presternal shields and shape of the sternal shield (in *A. stepposus* sp. n. presternal shields well developed, large, sternal shield surface evenly sclerotized, endopodal extensions between coxae II and III united with sternal shield (fig. 1, 2); in *A. livshitsi* presternal area only with pair of narrow platelets adhered to sternal shield, anterior part of sternal shield weakly sclerotized, endopodal extensions between II and III separated (fig. 2, 6)), by shape of setae on venter of idiosoma (in *A. stepposus* sp. n. some of these setae flagellate (fig. 1, 14); in *A. livshitsi* all these setae simple (fig. 2, 7)), by details of structure of the chelicerae (fig. 1, 4–6; fig. 2, 8–10, respectively), by shape of some setae on coxae I and II, femur I, genu I (fig. 1, 1–2; fig. 2, 1, respectively) and some other characters.

Etymology. The species name refers to the habitat and type locality, «Streltsovskaya steppe» (a branch of Lugansk Nature Reserve).

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