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SOME PHYTOSEIID MITES FROM KENYA, WITH DESCRIPTION OF THREE NEW SPECIES

by Gilberto J. de MORAES* & James A. McMURTRY**

TAXONOMY PHYTOSEIIDAE AFRICA
SUMMARY: Five phytoseiid species are reported from Kenya. Three of them are new to Science: *Amblyseius duplicesetus*, *Euseius neofustis* and *Typhlodromus bergi*.

TAXONOMIE PHYTOSEIIDAE AFRIQUE
RESUME: Cinq espèces d’acariens phytoseiides sont présentes au Kenya. Trois d’entre elles sont nouvelles pour la Science: *Amblyseius duplicesetus*, *Euseius neofustis* et *Typhlodromus bergi*.

INTRODUCTION

Surveys of predaceous phytoseiid mites have been conducted in several African countries as part of a multi-institutional program for the biological control of the cassava green mites, *Mononychellus* spp. The present work was based on specimens collected in Kenya by Mr. H. VAN DEN BERG, during a temporary work at the Commonwealth Institute of Biological Control. To date, 14 phytoseiid species have been reported from Kenya (MOUTIA, 1958; SWIRSKI & RAGUSA, 1978).

All measurements are given in micrometers. The setal nomenclature follows that of ROWELL et al. (1978). Depositories of types are abbreviated: CPATSA/EMBRAPA (Centro de Pesquisa Agropecuaria do Tropico Semi-Arido, 56300 - Petrolina, PE, Brazil) and USNM (United States National Museum, Washington, DC, USA).

Genus *Amblyseius* Berlese

*Amblyseius* BERLESE, 1914 : 143.

*Amblyseius duplicesetus* Moraes & McMurtry, n. sp.

DIAGNOSIS. — This species belongs to the *largoensis* species group as defined by McMURTRY & MORAES (1984). However, the cervix of the spermasthca is shorter than in other species of the group. It is also distinctive in having a long postero-distodorsal seta associated with the antero-distodorsal macroseta of Sge I to IV and Sti III and IV.

FEMALE. — (Figs. 1-5) (2 specimens measured).
Dorsum. — Dorsal shield smooth with 7 pairs of visible pores, 360 long and 240 wide at widest level of prostum. Setae j1 42 (41-43), j3 47 (43-51), j4 8

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Fig. 1-5: *Amblyseius duplicesetus* n. sp., female; 1 — dorsal shield; 2 — ventral surface; 3 — chelicera; 4 — spermatheca; 5 — genu, tibia and basitarsus of leg IV.

(7-10), j5 8 (7-10), j6 8 (7-10), j2 11 (10-12), j5 11 (10-12), z2 12, z4 11 (10-12), z5 8 (7-10), z1 12, z4 98 (96-100), Z5 323 (310-336), s4 106 (103-109), S2 12, S4 12, S5 11, r3 12, R1 10. All setae smooth.

Peritremes. — Extending forward to level of j1.

Venter. — Posterior margin of sternal shield not discernible. Distances between sternal setae ST1-ST3 62, ST2-ST2 67 and genital setae G-G 70 (65-75). Ventrianal shield vase-shaped, with a strong constriction posterior to JV2 setae, 115 (113-117) long, 54 (53-55) wide at level of ZV2 and 66 (65-67) wide at level of anus.

Chelicera. — Movable digit 31 long, with 3 teeth directed backwardly. Fixed digit 29 long, with ca. 13 teeth.

Spermatheca. — Cervix flared, 12 long. Atrium globate, with lateral insertion of major duct.

Legs. — Setaceous macrosetae with the following lengths: Sge I 50 (48-52), Sge II 38, Sge III 47 (43-51), Sti III 37 (34-41), Sge IV 157 (156-158), Sti IV 116 (112-120), St IV 68 (67-69). Chaetotaxy of Ge II 2, 2-2/0, 1; Ge III 1, 2/1, 2/0, 1.

**Male.** — Unknown.

**Locality and type material.** — Holotype female and one paratype (CPATSA/EMBRAPA) from *Mangifera indica*, Msabaha area, 13-IX-1985 (H. VAN DEN BERG).

Genus *Euseius* Wainstein

*Amblyseius* (*Amblyseius*) section *Euseius* WAINSTEIN, 1962: 15.

Euseius africanus (Evans)

Typhlodromus africanus Evans, 1954 : 524.

SPECIMENS EXAMINED. — On coffee leaves, Lya­
mungu, Tanzania, 1953 (R. G. Tapley), Female
Paratypes; on Triumfetta rhomboidea, Msabaha,

REMARKS. — The specimens collected in Kenya
are very similar to paratypes of E. africanus
from Tanzania, except for the somewhat shorter z2, z4
and S2-S5 (Table 1). So far, this species has been
reported only from Tanzania and Kenya.

<table>
<thead>
<tr>
<th>Character</th>
<th>Tanzania (n = 5) (Paratypes)</th>
<th>Kenya (n = 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dorsal shield length</td>
<td>—</td>
<td>334 (319-338)</td>
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<tr>
<td>Dorsal shield width</td>
<td>—</td>
<td>230 (228-235)</td>
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<tr>
<td>j1</td>
<td>33 (30-38)</td>
<td>34 (29-36)</td>
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<tr>
<td>j3</td>
<td>42 (39-48)</td>
<td>41</td>
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<tr>
<td>j4</td>
<td>8 (6-10)</td>
<td>7</td>
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<tr>
<td>j5</td>
<td>14 (12-15)</td>
<td>14 (12-14)</td>
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<tr>
<td>j6</td>
<td>7 (6-7)</td>
<td>7</td>
</tr>
<tr>
<td>j2</td>
<td>8 (7-10)</td>
<td>8 (7-10)</td>
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<tr>
<td>j5</td>
<td>2 (2-3)</td>
<td>5</td>
</tr>
<tr>
<td>j5</td>
<td>14 (12-15)</td>
<td>14 (12-14)</td>
</tr>
<tr>
<td>j4</td>
<td>7 (6-7)</td>
<td>7</td>
</tr>
<tr>
<td>j1</td>
<td>8 (7-9)</td>
<td>7</td>
</tr>
<tr>
<td>Z4</td>
<td>9 (8-9)</td>
<td>7</td>
</tr>
<tr>
<td>Z5</td>
<td>65 (60-71)</td>
<td>63 (62-65)</td>
</tr>
<tr>
<td>j6</td>
<td>58 (53-65)</td>
<td>57 (53-60)</td>
</tr>
<tr>
<td>Z2</td>
<td>12 (12-14)</td>
<td>9 (7-10)</td>
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<tr>
<td>j4</td>
<td>16 (12-17)</td>
<td>16 (14-17)</td>
</tr>
<tr>
<td>j5</td>
<td>6 (5-7)</td>
<td>5 (4-5)</td>
</tr>
<tr>
<td>j5</td>
<td>13 (12-17)</td>
<td>13 (12-17)</td>
</tr>
<tr>
<td>Z1</td>
<td>28 (26-31)</td>
<td>28 (26-31)</td>
</tr>
<tr>
<td>Sge I</td>
<td>31 (29-34)</td>
<td>31</td>
</tr>
<tr>
<td>Sge II</td>
<td>31 (30-32)</td>
<td>32 (31-34)</td>
</tr>
<tr>
<td>Sge III</td>
<td>34 (31-36)</td>
<td>34 (31-36)</td>
</tr>
<tr>
<td>Sge IV</td>
<td>44 (40-50)</td>
<td>44 (40-50)</td>
</tr>
<tr>
<td>Sgi IV</td>
<td>40 (38-42)</td>
<td>36</td>
</tr>
<tr>
<td>Sj IV</td>
<td>62 (59-64)</td>
<td>60 (58-62)</td>
</tr>
<tr>
<td>ST1-ST3</td>
<td>65 (62-76)</td>
<td>62 (60-65)</td>
</tr>
<tr>
<td>ST2-ST6</td>
<td>70 (66-72)</td>
<td>69 (67-70)</td>
</tr>
<tr>
<td>S-G</td>
<td>71 (67-74)</td>
<td>68 (67-70)</td>
</tr>
<tr>
<td>Ventrianal shield : length</td>
<td>110 (95-116)</td>
<td>103 (101-108)</td>
</tr>
<tr>
<td>width ant. half</td>
<td>52 (48-54)</td>
<td>54 (50-58)</td>
</tr>
<tr>
<td>width post. half</td>
<td>73 (70-76)</td>
<td>68 (65-72)</td>
</tr>
<tr>
<td>Length cervix</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

n = number of females measured.
except for the somewhat shorter Sge I and Sge IV (Table 2). This species is now known from Zaire, Nigeria and Kenya.

**Euseius neofustis** Moraes & McMurtry, n. sp.

**Diagnosis.** — This species closely resembles *Euseius justis* but differs by having most of the dorsal shield setae over 50% longer. Also, in all specimens of *E. neofustis* observed R1 is on the dorsal shield, whereas 95 out of 100 specimens of *E. fustis* observed had R1 on the membrane.

**Female.** — (Figs. 6-9) (4 specimens measured).

Dorsum. — Dorsal shield reticulated, with 11 pairs of visible pores, 342 (341-343) long and 220 (216-221) wide at widest level of proscutum. Setae j1 29 (29-31), j3 25 (24-26), j4 18 (17-19), j5 20 (17-22), j6 25 (24-26), j2 25 (24-29), j5 12, z2 22 (22-24), z4 23 (22-24), z5 19, Z1 21 (19-24), Z4 24, Z5 53 (48-55), s4 31 (29-34), S2 24, S4 23 (22-24), S5 22 (22-24), r3 17 (17-19), R1 17 (17-19). Setae R1 on dorsal shield. All setae smooth, except for Z5 which are barbed.

Peritreme. — Extending forward to level between z2 and z4.

Venter. — Distances between ST1-ST3 63 (60-65), ST2-ST2 71 (70-72) and G-G 79 (74-82). Ventrianal shield with 3 pairs of preanal setae more or less in line; length of shield 96; width 49 (46-50) at widest level of anterior half and 66 (62-70) at anus level.

Chelicera. — Movable and fixed digits 26 and 24 long, respectively.

Spermatheca. — Cervix tubular, 55 (50-60) long. Atrium barely noticeable.

Legs. — Macrosetae knobbed at tips. Sge I 22, Sge II 21 (19-22), Sge III 29 (26-31), Sge IV 50 (48-55), Sti IV 27 (24-29), St IV 35 (31-38). Chaetotaxy of Ge II 2, 2-2/0, 1; Ge III 1, 2/1, 2/0, 1.

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**Fig. 6-11:** *Euseius neofustis* n. sp., 6-9: female; 6 — dorsal shield; 7 — ventral surface; 8 — spermatheca; 9 — genu, tibia and basitarsus of leg IV; 10-11: male; 10 — dorsal shield; 11 — ventrianal shield.
MALE. — (Figs. 10-11) (2 specimens measured).

Dorsum. — Dorsal shield reticulated, with 8 pairs of visible pores, 248 (245-252) long and 168 wide at widest level of prosternum. Setae J1 20 (19-22), J3 20 (19-22), J4 14, J5 14, J6 18 (17-19), J2 19, J5 8 (7-10), z2 18 (17-19), z4 18 (17-19), z5 16 (14-17), Z1 18 (17-19), Z4 19, Z5 42 (41-43), s4 24, s2 18 (17-19), S4 19, S5 18 (17-19), r3 16 (14-17), R1 14 (12-17). All setae smooth, except for Z5 which are barbed.

Peritreme. — Extending to level between z4 and s4.

Venter. — Ventrianal shield creased on the anterior half, 104 (101-108) long and 139 (134-144) wide at widest level.

Legs. — Macrosetae knob-tipped, with the following lengths: Sge I 19, Sge II 20 (19-22), Sge III 26 (24-29), Sge IV 42 (41-43), Sti IV 29, St IV 34 (31-36).

LOCALITY AND TYPE MATERIAL. — Holotype female, allotype male, 2 paratype females and 1 paratype male (CPATSA/EMBRAPA), from cassava, Kilifi, 12-IX-1985 (H. van den Berg); 1 paratype female (USNM), from cassava (Manihot esculenta Crantz), Msabaha, 10-IX-1985 (H. van den Berg).

Genus Typhlodromus Scheuten

Typhlodromus Scheuten, 1857 : 111.

Typhlodromus bergi Moraes & McMurtry, n. sp.

DIAGNOSIS. — This species differs from Typhlodromus praeacutus van der Merwe, 1968 by being much smaller and having proportionally longer dorsal shield setae. It differs from Typhlodromus

Fig. 12-16: Typhlodromus bergi n. sp., 12-14: female; 12 — dorsal shield; 13 — ventral surface; 14 — Spermatheca; 15-16: male; 15 — dorsal shield; 16 — ventrianal shield.
bambusae Ehara, 1964 and Typhlodromus foraminosus (Schuster, 1966) by the shape of the ventrianal shield. The sternal shield of T. bergi is also different from that of T. bambusae. T. bergi also resembles Typhlodromus balanites El-Badry, 1967 but differs by having shorter S5 and j-J setae.

FEMALE. — (Figs. 12-14) (3 specimens measured).

Dorsum. — Dorsal shield smooth, with 5 pairs of visible pores, 267 (262-274) long and 122 (120-122) wide at widest level of proscutum. Setae j1 15 (14-17), j3 30 (29-30), j4 30 (29-30), j5 41 (38-44), j6 54 (53-54), J2 56 (53-58), J5 9 (7-10), z2 22 (22-24), z3 32 (29-34), z4 34 (31-36), z5 30 (29-30), Z4 49 (46-50), Z5 46 (43-48), s4 44 (41-46), s6 46 (43-48), S2 54 (50-58), S4 40 (36-43), S5 34 (31-36), r3 37 (34-38), R1 37 (34-38). All setae smooth except for z4 and z5 which are serrated.

Peritreme. — Extending to j1.

Venter. — Sternal shield with 3 pairs of setae; posterior margin not visible. Distances between ST1-ST3 50 (48-55), ST2-ST2 50 (48-53), G-G 43. Ventrianal shield 94 (89-98) long, 72 (67-74) wide at level of anterior half and 64 (62-65) wide at anus level; with 4 pairs of preanal setae and 1 pair of large pores.

Chelicera. — Movable digit 22 long, apparently with 2 teeth. Fixed digit 25 (22-29) long, apparently with 4 teeth.


Legs. — Macrosetae present only on t IV, sharp-tipped, 46 (43-48) long. Chaetotaxy of Ge II 2, 2-2/0, 1; Ge III 1, 2-2/1, 1.

MALE. — (Figs. 15-16) (1 specimen measured).

Dorsum. — Dorsal shield smooth, with 8 pairs of visible pores, 216 long and 108 wide at widest level of proscutum. Setae j1 14, j3 26, j4 26, j5 34, j6 38, J2 41, j5 10, z2 19, z3 to z5 29, Z4, Z5, s4 and s6 36, S2 41, S4 29, S5 26, r3 31, R1 29. All setae smooth except for Z4 and Z5 which are serrated.

Peritreme. — Extending to j3.

Venter. — Ventrianal shield cleared from the anterior margin to the level of the most posterior pair of pores; with 5 pairs of pores and 4 pairs of preanal setae.

Legs. — Macrosetae present only on t IV, sharp-tipped, 41 long.

LOCALITY AND TYPE MATERIAL. — Holotype female, allotype male and 2 female paratypes (CPAT-SA/EMBRAPA), from Digitaria argirotricha, Margarini, 11-IX-1985 (H. VAN DEN BERG). ACKNOWLEDGMENTS

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