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New records of Agromyzidae (Diptera) from the Afrotropical Region, with a checklist

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Abstract: New faunistic data on the distribution of 50 species of the family Agromyzidae from the Afrotropical Region are given. *Chromatomyia syngenesiae* Hardy, 1849 and *Phytomyza ranunculi* (Schrank, 1803) are firstly recorded for the Afrotropics and 47 species are firstly recorded for the following countries: Angola, Cameroon, Cape Verde Islands, Central African Republic, Ethiopia, Kenya, Madagascar, Malawi, Namibia, Nigeria, Sierra Leone, Somalia, Tanzania, Uganda, Zambia, Zimbabwe. For each country the number of known species are put together in a table. An updated Afrotropical checklist is added. The most peculiar genitalia of the redetected *Ophiomyia dhofarensis* are discussed in connection with other species, among them: *Ophiomyia yunnanensis* **comb. nov.** [= *Ophiomyia dumosa* **syn. nov.**]. *Ophiomyia nigrimaculata* **comb. nov.** is treated taxomically, too. The type-species of the *Pseudonapomyza acanthacearum*-group is re-defined. *Ranunculus* was firstly confirmed as host plant genus of *Phytomyza subeximia* which develops between its seeds, a rare substrate in the genus. *Napomyza strana* **stat. rev.** was redetected in an altitude of 3353 m a.s.l. An eclector collecting method is described which lets estimate the natural proportional abundance of Agromyzidae compared with all other Diptera in the groundlevel vegetation of a country.

Key words: Diptera, Agromyzidae, Afrotropical Region, new records, new synonym, new combinations, new host plants, new definitions, faunistics, distribution, abundance, checklist, collecting methods.

Introduction

Species of the Agromyzidae are of special scientific interest as they belong to an ideal insect family for coevolutionary studies in view of their close association with their hosts plants and their phylogenetic relationships which become apparent from studies on their complicate and specific male genitalia. The Agromyzidae belong to one of the most species-rich families of acalyptrate Diptera, with more than 3000 described species worldwide. Actually 324 valid species of the family are known in the Afrotropical Region.

Our knowledge of Afrotropical Agromyzidae has in the past firstly been based on brief articles by Thomson (1869), Lamb (1912), Bezzi & Lamb (1926), de Meijere (1940), Séguy (1951), Paulian (1953) and Hering (1957). The basic information on the Agromyzidae from the Afrotropical Region is the publication of Spencer (1959a) – „A synopsis of the Ethiopian Agromyzidae (Diptera)“ – and further articles published subsequently (Spencer, 1959b, 1960, 1961a,b,c,d, 1963a,b, 1964, 1965). These works have been used by Cogan (1980), who records 230 species in the Afrotropical Region. Since that time, however, further articles were published, with records and descriptions of new species of the Afrotropics: Černý (2011), Černý & Zlobin (2008), Deeming (2006), Deeming & Mann (1999), Greathead (1969, 1971), van Harten (1988), Lonsdale (2013), Papp (2003), Spencer (1977, 1985, 1990, 1991), Süss et al. (2008), von Tschirnhaus et al. (2000) and Zlobin (1993, 2001, 2003a,b, 2007).

The economic important species of the Agromyzidae throughout the world including the Afrotropical Region are treated by Spencer (1973) and Dempewolf (2004).

In the course of the examination of further specimens a number of new records for several Afrotropical countries were found. The results of these studies are presented herewith.

The fauna of Afrotopical Agromyzid is relatively poor (324 species) in comparison with others world regions (Palaearctic about 1200 species, Neartic about 740, Neotropics about 480, Oriental about 390, Australia/Oceania about 270). The present study forms a further

supplement to the faunistic knowledge of the distribution of agromyzid flies in the Afrotropical Region. Hitherto unpublished records of 25 species are listed.

Material and methods

Erratic Afrotropical agromyzid collections of P. Baňař, A. Freidberg, L. Friedman, J. Halada, S. Kleynberg, F. Kaplan, Š. Kubík, M. Petrtýl, R. Topek, I. Susman and I. Yaron were handed to the first author and were identified by him (abbreviated as „MČ det."). Only those with the abbreviation „MvT det." were determined by the second author and belong to his collection. All identifications are confirmed by genitalia preparations if males were available. The material is deposited in the following collections:
CMBP - private collection Miroslav Barták, Praha, Czech Republic;
CMCH - private collection Miloš Černý, Halenkovice, Czech Republic;
MvT - private collection Michael von Tschirnhaus, Bielefeld, Germany, prearranged later to go in the ZSMG – Zoologische Staatssammlung München, Germany;
MZMB - Moravské zemské museum Brno, Czech Republic;
TAUI - Tel Aviv University, Israel.

Genera and species are arranged alphabetically in the two subfamilies Agromyzinae and Phytomyzinae. Only such findings are recorded here which are new for at least one Afrotropical country. Exceptions are taxa for which taxonomic notes are necessary.

Taxonomy

Winkler et al. (2009) synonymized three long time established genera of Agromyzidae including economically highly important pest species with an immense applied world literature: *Napomyza* Westwood, 1840, *Chromatomyia* Hardy, 1849 and *Ptochomyza* Hering, 1941 all became junior synonyms of *Phytomyza* Fallén, 1810 though they were explicitly retained as monophyla (*Phytomyza agromyzina* group for *Chromatomyia*) and valid subgenera. Taxa of the genus-group are not present in nature and depend on personal opinions. A phylogenetic analysis should result in a dichotomous tree in which each bifurcation is based on verifiable apomorphous characters, e.g. those of morphology, genetics, behaviour. The more complicate the characters, the better. To them belong all parts of male and female genitalia and the many adaptions for plant mining/boring of the three larval stages, e.g. sense organs, facial mask, cephalopharyngeal skeleton, creeping walls, spiracula, as well the adaptions of the puparium for secure pupation and diapause. As such detailed morphological analysis is not added to the authors molecular results we - and most experts of Agromyzidae, too - neglect the new synonymies (and Winkler's ten new species names for the resulting ten secondary homonyms) and continue with the former system.

Survey of species

SUBFAMILY AGROMYZINAE

Agromyza abyssinica Spencer, 1964

Material examined. CENTRAL AFRICAN REPUBLIC: 70 km NNE Bangui, 04°57′N 18°46′E, 430 m a.s.l., 1 ♂, 8.iv.2010, J. Halada leg., MČ. det. (CMBP).
Distribution. Ethiopia. New for the fauna of the Central African Republic.

Agromyza somereni Spencer, 1959

Material examined. CENTRAL AFRICAN REPUBLIC: 70 km NNE Bangui, 04°57′N 18°46′E, 430 m a.s.l., 1 ♂, 8.iv.2010, J. Halada leg., MČ det. (CMBP).
Distribution. Kenya. New for the fauna of the Central African Republic.

Japanagromyza parvula Spencer, 1961

Material examined. SOMALIA: Middle Shabeelle, district Jowhar, surrounding of Morajiiddo, 63 km NW Mogadischu, 2°38′N 45°13′E, 1 ♂, 16.vii.1988, P. Ohm leg., MvT det.
Distribution. Burundi, Kenya, Nigeria, Oman, South Africa, Tanzania, Uganda. New for the fauna of Somalia.

Melanagromyza albisquama (Malloch, 1927)

Material examined. MADAGASCAR: Andasibé (= Perinet), rainforest near forest center, 18°55′S 48°25′E, 1 ♂ 1 ♀, 29.ii.-4.iii.1984, leg. et det. MvT; Ankarafantsika N.P., 100 m a.s.l., 1 ♂, 22.-24.iv.2011, sweeping close to main entrace, P. Baňař leg., MČ det. (MZMB).
Distribution. Cape Verde Is., São Tomé and Principe, Malawi, Mauritius, Uganda, Fiji, India, Philippines, Srí Lanka, Sumbawa, Thaiwan, Thailand, Vietnam; Australia. New for the fauna of Madagascar.

Melanagromyza ballardi Spencer, 1965

Material examined. NIGERIA: 26 km SEE Abuja, 09°06′N 07°45′E, 400 m a.s.l., 1 ♂, 14.v.2011, J. Halada leg., MČ det. (CMBP).
Distribution. South Africa. New for the fauna of Nigeria.

Melanagromyza bonavistae Greathead, 1971

Material examined. MALAWI: North Vipya Mts., Rt., M1, 10 km S Chikangawa, 1500 m a.s.l., 1 ♂, 21.-22.ix.1998, F. Kaplan & A. Freidberg leg., MČ det. (TAUI).
Distribution. Kenya, Tanzania, Uganda. New for the fauna of Malawi.

Melanagromyza candidipennis (Lamb, 1912)

Material examined. UGANDA: Kasese district, saltwater crater Lake Katwe, NW Katwe, 0°08′07″S 29°52′17″E, 888 m a.s.l., 1 ♂, 25.iii.2012, saltwater swamp with *Juncus*, *Scirpus*, *Hydrocotyle*, *Sium*, MvT leg. et det.
Distribution. Gambia, Kenya, Madagascar, Nigeria, Seychelles, South Africa, Tanzania, Yemen. New to the fauna of Uganda.

Melanagromyza obtusa (Malloch, 1914)

Material examined. CAPE VERDE ISLANDS: Santiago Island, Boa Entrada, 10°07′35″N 23°40′16″W, 450 m a.s.l., 1 ♂ 2 ♀♀, 28.viii.1982, 1 puparium obtained from *Cajanus cajan*, Fabaceae, ex coll. A. van Harten.
This pest species is included here after genitalia preparation because the two records of van Harten (1988) from Cape Verde Is. and of Khamala & Okeyo-Owour (1980) from Kenya could have been based on one of the two further African pod borer species, *M. vignalis* Spencer, 1959 or *M. bonavistae* Greathead, 1971.
Distribution. Bangladesh, China, India, Indonesia, Japan, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand, Vietnam, USA, Dominican Republic, Guadeloupe, Haiti, Puerto Rico, Oceania, Papua New Guinea, Australia. Confirmed for the Afrotropics: Cape Verde Islands.

Melanagromyza ochrasquamata Spencer, 1961

Material examined. KENYA: Kakamega Forest, 0°14′S 34°52′E, 1300 m a.s.l., 2 ♂♂ 2 ♀♀, 26.viii.2003, S. Kleynberg leg. (CMCH, TAUI); 8 km NE Kericho, 2000 m a.s.l., 0°34′S 36°21′E, 1 ♀, 26.viii.2003, S. Kleynberg leg., all MČ det. (TAUI).
Distribution. Mozambique. New for the fauna of Kenya.

Melanagromyza provecta (de Meijere, 1910)

Material examined. MADAGASCAR: Montagne d´Ambre N.P., 4 ♂♂, 26.-30.x.2010, surr. camp, sweeping, P. Baňař leg., MČ det. (CMCH, MZMB).
Distribution. Democratic Republic of the Congo, Kenya, Mozambique, South Africa, Tanzania, Uganda, Zimbabwe; Turkey, Flores Island, Taiwan, Krakatau, Lombok, Sumbawa. New for the fauna of Madagascar.

Melanagromyza pseudometallica Spencer, 1966

Material examined. CENTRAL AFRICAN REPUBLIC: 15 km N Sibut, 6°06′N 19°08′E, 530 m a.s.l., 1 ♂, 11.v.2009, J. Halada leg., MČ det. (CMBP).
Distribution. Yemen; New Guinea (Bismarck Arch.), Myanmar. New for the fauna of the Central African Republic.

Melanagromyza pubescens Hendel, 1923

Material examined. CAMEROON: Rt. N 11, Bafut 20 km N Bamenda, 1 ♂, 17.-24.xi.1987, F. Kaplan leg., MČ det. (TAUI).

Sasakawa (1996) found out that this taxon is the older synonym of *M. luthulii* Spencer, 1964. The peculiar male genitalia (similar to *M. provecta* and *M. ruandae*, both see below) have been re-investigated by us: Material of German and Spanish *M. pubescens* have a distinct longer and wider ejaculator, as long as the whole belonging phallus including the phallophorus, while in Afrotropical „*luthulii*" it is shorter. As well the male cerci are longer and wider in European material (but not extending to the lower edge of the epandrium) than in the Afrotropics. Differences of the phallus cannot be substantiated. In the light of the large distance between both populations we accept this variability and the published synonymy.
Distribution. South Africa. New for the fauna of Cameroon.

Melanagromyza pubescentis Spencer, 1959

Material examined. ETHIOPIA: Debaso, Ahmar Mts., 9°07.8′N 40°59.1′E, 2200 m a.s.l., 1 ♂, 12.xi.2007, A. Freidberg leg. (TAUI). TANZANIA: W. Usambara, Lushoto, 1 ♂, 18.viii.2003, S. Kleynberg leg., all MČ det. (TAUI).
Distribution. Burundi, Democratic Republic of the Congo, Kenya, Zimbabwe. New for the fauna of Ethiopia and Tanzania.

Melanagromyza ruandae Spencer, 1959

Material examined. KENYA: Kericho, 0°20′S 35°20′E, 1 ♂, 25.viii.2003, S. Kleynberg leg., MČ det. (TAUI).
Distribution. Burundi, Ethiopia, Ghana, Rwanda. New for the fauna of Kenya.

Melanagromyza scottsburghensis Spencer, 1965

Material examined. SOMALIA: Lower Juba, district Almadov, surrounding of Caga Libaax, 0°15′N 42°00′E, 24 m a.s.l., 1 ♂, 4.viii.1988, 90 km NW Kismaayo at coast, shrub vegetation with *Salvadora* trees *(Salvadoraceae)*, P. Ohm leg., MvT det.; UGANDA: Masaka district, lake Nabugabo and village Nabugabo, 16.2 km ESE Masaka, 0°21′07″S 31°52′41″E, 1160 m a.s.l., 1 ♂, 29.iii.2012. MvT leg. et det.
Distribution. Oman, South Africa. New for the fauna of Somalia and Uganda

Ophiomyia beckeri (Hendel, 1923)

Material examined. KENYA: Athi River, 1°27′S 36°58′E, 1 ♂, 7.viii.2003, S. Kleynberg leg., 1 ♂, 7.viii.2003, L. Friedman leg., all MČ det. (CMCH, TAUI).
Distribution. Oman, South Africa, Tanzania, Yemen, Zimbabwe; Egypt, Morocco, Tunisia, Europe, Canary Islands, Madeira Isl., Israel, Saudi Arabia, Turkey; India. New for the fauna of Kenya.

Ophiomyia centrosematis (de Meijere, 1940)

Material examined. CAPE VERDE ISLANDS: Without exact collecting dates, code 1566, 1 ♂ 1 ♀, A. van Harten leg., MvT det. ZAMBIA: Kaoma env., 14°47′20″S 24°50′21″E, 1 ♂, 13.-15.ix.2006, dry meadow, sweeping, Š. Kubík leg., MČ det. (CMBP).
Distribution. Kenya, Oman, Tanzania, Uganda, Yemen; Saudi Arabia, Japan (Ryukyus), India, Taiwan, Malaysia (Peninsula), Thailand, Indonesia (Java), Australia. New for the fauna of Cape Verde Islands and the Zambia.

Ophiomyia dhofarensis Deeming, 2006

Material examined. CAPE VERDE ISLANDS: São Jorge, 5 ♂♂ 3 ♀♀, 10.x.1983, caught on a Fabaceae shrub, probably *Cassia obtusa*, which may be the host plant, A. van Harten leg.
This tiny black fly, wings of 7 specimens measure 0.96-1.25 mm, possesses a unique highly specialized asymmetric phallus with a flat disk-like distiphallus turned left and rotated oblique outwards and backwards (compared with the direction of the thin phallophorus), covered with big denticles on the upper side; between distiphallus and the uncommon elongate phallophorus is a small separate dark sclerite adjacent to the distiphallus, figured by Deeming as an integrated punctured „field", but really situated below the plane of the distiphallus disk. This uncommon structure is the vestigial basiphallus. Ejaculatory apodeme normal with a dark thickened tip on each lateral side of the pileus ejaculatorius. The epandrium bears a black denticle on its lower hind end, but not figured in the original description, otherwise Deeming's description agrees well in all details. A male paratype was compared for the identification. Similar strange genitalia possess *Ophiomyia conspicua* (Spencer, 1961) [syn. *Melanagromyza joycei* Sasakawa, 1963 with well figured phallus], and *Ophiomyia yunnanensis* (Chen & Wang, 2003) **comb. nov.** [*Ophiomyia dumosa* Sasakawa, 2004 **syn. nov.**]. The distiphalli of *Japanagromyza setigera* (Malloch, 1914) [figure in Sasakawa & Pong, 1990), but different in Hennig (1941:

175, 228)], *J. dolobrata* Lonsdale, 2013 and *J. crinicolis* Lonsdale, 2013 are as well equipped with robust black denticles.
Distribution. Oman. New for the fauna of the Cape Verde Islands.

Ophiomyia insolita (Spencer, 1959)

Material examined. NAMIBIA: Brandberg, 21°09′ until 21°15′S 14°28′ until 14°35′E, 700 m until 2470 m a.s.l., ♂♂ ♀♀ in numbers, not yet counted, leg. A.H. Kirk-Spriggs, E. Macrais, R. Butlin, J. Altring, S. Van Noort, S. Cramptonham.
This species from the „Brandberg Biodiversity Pilot Study, Namibia" was listed with a transfer from *Melanagromyza* to the genus *Ophiomyia* (von Tschirnhaus et al., 2000) without detailed data; elaboration is not yet finished. This peculiar species with the posterior crossvein basally of the anterior one looks like a *Pseudonapomyza*.
Distribution. Cabe Verde Islands. New for the fauna of Namibia.

Ophiomyia kilembensis Spencer, 1985

Material examined. CAMEROON: NW Province – Big Babanki, Mendong Buo, 2200 m a.s.l., 6°5′26″N 10°18′09″E, 1 ♂, 8.xii.2007, 1 ♂, 23.xii.2007, R. Tropek leg., 1 ♂, 30.xi.2008, 1 ♂, 1.xii.2008, 1 ♂, 11.xii.2008, all Janda & Spitzer leg., all MČ det. (CMBP, CMCH).
Distribution. Uganda. New for the fauna of Cameroon.

Ophiomyia lantanae (Froggatt, 1919)

Material examined. ETHIOPIA: Bungoma, 1 ♂, 12.-13.i.1996, I. Yaron & A Freidberg leg. (TAUI); Erer River, 20 km E Harar, 9°14.5′N 42°14.8′E, 1330 m a.s.l., 2 ♂♂, 11.xi.2007, Rt.4, L. Friedman leg., all MČ det. (CMCH, TAUI). TANZANIA: Zanzibar north, Env. Nungwi, 5°43′S 39°18′E, 1 ♂, 17.-26.i.2013, J. Halada leg., MČ det. (CMBP).
Distribution. Kenya, Madagascar, South Africa; India, Malaya, Philippines, Singapore, Vietnam, Sri Lanka, Taiwan, Tahiti, Papua New Guinea; USA: Florida, Mexico, Brazil, Costa Rica, Panama, Hawaii. New for the fauna of Ethiopia and Tanzania.

Ophiomyia nigrimaculata (Spencer, 1959) comb. nov.

Material examined. SIERRA LEONE: Sussex, beach of Atlantic Ocean lagoon, 8°20′54″N 13°13′54″W, 1♀, 27.i.2012, V. Rossi leg., MvT det.
On the basis of further 19 ♂♂ 22 ♀♀ hitherto separated out of 733 collected Agromyzidae by MvT from 11.-30.iii.2012 in Uganda it became apparent after the male genitalia (asymmetric basiphallus without U- or ring-like formed sclerite before the distiphallus) that this peculiar species with blackish wing pattern has to be shifted to the genus *Ophiomyia* Braschnikov. The new combination is formally established herewith. Male genitalia are not figured to date. The listing of the collecting data of the mentioned Uganda series is not scope of this article.
Distribution. Democratic Republic of the Congo, Nigeria, Uganda. New for the fauna of Sierra Leone.

Ophiomyia ocimivora Spencer, 1985

Material examined. ETHIOPIA: Ahmar Mts., Zigita 150 km W Harar, 9°16.4′N 41°08.5′E, 2320 m a.s.l., 4 ♂♂, 9.-12.ix.2007, Rt.4, A. Freidberg leg., MČ det. (TAUI, CMCH).
Distribution. Kenya, Oman. New for the fauna of Ethiopia.

Ophiomyia phaseoli (Tryon, 1895)

Material examined. CAPE VERDE ISLANDS: Santiago Island, Nossa Senhora da Luz, 15°08′N 23°12′W, 1 ♀, 1.ix.1982, „from *Phaseolus lunatus*", A. van Harten leg., MvT det. with comparison of material from Australia.
Distribution. Burundi, Democratic Republic of the Congo, Ethiopia, Kenya, Madagascar, Malawi, Mali, Mauritius, Nigeria, Oman, Réunion, Rwanda, Senegal, South Africa, Sudan, Tanzania, Uganda, Zambia, Zimbabwe; Australia; generally throughout Old World tropics (Anonym, 1974). New for the fauna of the Cape Verde Islands.

Tropicomyia vigneae (Séguy, 1951)

Material examined. NIGERIA: 26 km SEE Abuja, 9°06′N 7°45′E, 400 m a.s.l., 1 ♂, 14.v.2011, J. Halada leg., MČ det. (CMBP).
Distribution. Cape Verde Is., Ethiopia, Madagascar, Senegal, South Africa, Sudan. New for the fauna of Nigeria.

SUBFAMILY PHYTOMYZINAE

Calycomyza gigantissima (Spencer, 1959)

Material examined. KENYA: 15 km SW Kericho, 1 ♂, 16.xi.1986, A. Freidberg leg., MČ det. (TAUI).
Distribution. Democratic Republic of the Congo, South Africa. New for the fauna of Kenya.

Cerodontha (*Cerodontha*) *africana* Spencer, 1985

Material examined. ETHIOPIA: Welo Lalibela, 12°01′N 39°03′E, 2485 m a.s.l., 2 ♂♂, 8.x.2005, A. Freidberg leg., MČ det. (TAUI, CMCH). TANZANIA: Marangu, SE base of Mt. Kilimanjaro, 3°14′31″S 37°31′02″E, 1900 m a.s.l., 4 ♂♂ 2 ♀♀, 22.ii.1971, MvT leg. et det.
Distribution. Bahrein, Kenya, Nigeria, South Africa, Yemen. New for the fauna of Ethiopia and Tanzania.

Cerodontha (*Cerodontha*) *heringiella* Spencer, 1961

Material examined. TANZANIA: Marangu, base of Mt. Kilimanjaro, 3°15′43″S 37°31′02″E, 1645 m a.s.l., 1 ♂ 1 ♀, 22.ii.1971; 3°14′28″S 37°31′02″E, 1900 m, 6 ♂♂ 3 ♀♀, 4.iii.1971, all MvT leg. et det.
Distribution. Ethiopia, Kenya, South Africa, Yemen. New for the fauna Tanzania.

Cerodontha (*Dizygomyza*) *kenyana* Zlobin, 2001

Material examined. ETHIOPIA: Bale Abada, 12 km E River, 12°01′N 39°03′E, 1 ♂, 30.i.2000, Rt. A109, A. Freidberg & I. Yarom leg., MČ det. (TAUI).
Distribution. Kenya. New for the fauna of Ethiopia.

Cerodontha (*Icteromyza*) *stuckenbergiella* Spencer, 1977

Material examined. TANZANIA: Gonja Mountains, 2 ♂♂, 31.vii.1996, I. Brake leg., MvT det.
Distribution. South Africa. New for the fauna of Tanzania.

Cerodontha (*Poemyza*) *kakamegae* Spencer, 1985

Material examined. TANZANIA: E. Usambara, Amani, 800-1500 m a.s.l., 1 ♂, 13.vii.2003, S. Kleynberg leg., MČ det. (TAUI).
Distribution. Kenya, Madagascar. New for the fauna of Tanzania.

Cerodontha (*Poemyza*) *orbitona* (Spencer, 1960)

Material examined. MADAGASCAR: Ranomafana N. P., Vohiparara env., 21°14′26″S 47°23′40″E, 1130 m a.s.l., 1 ♂, 18.xi.2010, river bank, sweeping, P. Baňař leg., MČ det. (MZMB).
Distribution. Gambia, Ghana, Nigeria, Kenya, South Africa, Uganda. New for the fauna of Madagascar.

Chromatomyia horticola (Goureau, 1851)

Material examined. MALAWI: North Nyika National Park, 10 km S Chelinda, 2000 m a.s.l., 2 ♂♂, 24.ix.1998, F. Kaplan & A. Freidberg leg., MČ det. (TAUI).
Distribution. Cameroon, Cape Verde Is., Central African Republic, Democratic Republic of the Congo, Ethiopia, Gabon, Gambia, Kenya, Madagascar, Rwanda, Senegal, South Africa, State of Eritrea, Uganda, Yemen, Zimbabwe; widespread Europe, Palaearctic and Oriental Region (Anonym 1987a). New for the fauna of Malawi.

Chromatomyia seneciovora (Spencer, 1959)

Material examined. KENYA: Uplands, 1 ♂, 15.xi.1986, I. Susman leg., MČ det. (TAUI).
Distribution. Cameroon, Ethiopia, Tanzania, Uganda. New for the fauna of Kenya.

Chromatomyia syngenesiae Hardy, 1849

Material examined. KENYA: Lake Naivasha, Sea Hotel on Crescent Island, 1 ♀, 22.iii.1970, reared from leafmines on *Lactuca* sp., MvT leg. et det. Females can be identified using von Tschirnhaus (1969).
Distribution. Cosmopolitic (Anonym, 1987b). New for the Afrotropics and Kenya.

Liriomyza brassicae (Riley, 1884)

Material examined. NAMIBIA: Nauchas, Rt. D1275, 23°39S 16°18E, 1 ♂, 18.ix.2003, 1750 m a.s.l., A. Freidberg leg., MČ det. (TAUI).
Distribution. Cape Verde Islands, Ethiopia, Kenya, Mozambique, Senegal, South Africa, Yemen, Zimbabwe. New for the fauna of Namibia.

Liriomyza manni Spencer, 1985

Material examined. TANZANIA: W. Usambara, Lushoto, 1 ♂, 18.viii.2003, S. Kleynberg leg., MČ det. (TAUI).
Distribution. Kenya. New for the fauna of Tanzania.

Liriomyza trifolii (Burgess in Comstock, 1880)

Material examined. ANGOLA: Coemba, 12°09.302′S 18°05.701′E, 1 ♂, 23.x.2008, 1339 m a.s.l., garden, YPWT, M. Petrtýl leg., MČ det. (CMBP).
Distribution. Department of Mayotte, Ethiopia, Guinea, Kenya, Réunion, Madagascar, Mauritius, Nigeria, Oman, Republic of Benin, Republic of Côte d'Ivoire, Senegal, South Africa, Sudan, Tanzania, Yemen, Zambia, Zimbabwe; Egypt, Tunisia; Europe; Cyprus, Turkey, Israel, Japan, Korean Republic; India, Philippines, Samoa, Taiwan; Canada, United States, Mexico, Costa Rica, Cuba, Guadeloupe, Guam, Hawaiian Isl. New for the fauna of Angola.

Napomyza strana Spencer, 1960 stat. rev.

Material examined. TANZANIA. Mt. Kilimandjaro, Marangu trail below the saddle, above tree line, 3°08′52″S 37°28′24″E , 3353 m a.s.l., 1 ♂, 2.iii.1971, MvT leg. et det.
Though this species was described from 2500 m a.s.l. on Mount Meru, Tanzania it must be included here because of three reasons. Primarily it was captured in the highest elevation where an agromyzid was collected by MvT in the Afrotropics, secondly it is the second specimen known and thirdly must it be placed back in the genus *Napomyza* Westwood s. str. because of its typical phallus with a distiphallus of the type of the *Napomyza lateralis* Fallén-group bearing a ring-like sclerotized tip. Zlobin (1994: 308) transfered the taxon from *Napomyza* to the *Phytomyza ranunculella* Spencer-group, neglecting the presence of the second crossvein and without knowledge of the male genitalia, which indeed include the species in *Napomyza* sensu stricto.
Distribution. Tanzania.

Phytobia flavosquamata (Spencer, 1959)

Material examined. MALAWI: South Zomba Plateau, Mountain Road, 1200 m a.s.l., 1 ♂, 5.x.1998, F. Kaplan & A. Freidberg leg., MČ det. (TAUI).
Distribution. Nigeria, South Africa. New for the fauna of Malawi.

Phytoliriomyza arctica (Lundbeck, 1901)

Material examined. TANZANIA. Kilimandjaro SE, walking trail below Mandara hut, *Erica arborea* zone, 3°13′11″S 37°31′07″E, 2140 m a.s.l., 1 ♀, 27.ii.1971; 3°13′37″S 37°31′03″E, 2060 m a.s.l., 1 ♂, 4.iii.1971, MvT leg. et det.
Distribution. Cosmopolitean. Afrotropics: Madagascar, Yemen. New for the fauna of Tanzania.

Phytomyza ranunculi (Schrank, 1803)

Material examined. TANZANIA: Kilimandjaro SE, walking trail near Mandara hut, 3°11′12″S 30°30′50″E, 2650 m a.s.l., 1 ♀, of the variety *flava* Fallén, 1823, 3.iii.1971, swept on *Ranunculus* sp. together with the next species.
On the high African vulcanoes this species - abundant in the northern temperate zone - probably is a Tertiary relict.
Distribution. Palaearctic, Nearctic and Oriental Region. New for the Afrotropics and Tanzania.

Phytomyza subeximia (Spencer, 1985)

Material examined. TANZANIA: Kilimandjaro SE, walking trail Marangu route, Mandara hut, 3°13′11″S 37°31′07″E, 2140 m a.s.l., 95 ♂♂ 84 ♀♀, 27.ii.1971, 112 ♂♂ 73 ♀♀, 3.iii.1971, all leg. et det. MvT.
All swept on *Ranunculus* sp. and many larvae collected and subsequently reared from between seeds of this host plant. First confirmed host record. Pedicellus of all specimens black. Another syntopic related undescribed

species of the group of which all species develop in stems or flowers of Ranunculaceae was also present, as well *Napomyza strana* (see above).
Distribution. Kenya. New for the fauna of Tanzania.

Pseudonapomyza asiatica Spencer, 1961

Material examined. TANZANIA: Zanzibar north, Env. Nungwi, 5°43′S 39°18′E, 1 ♂, 17.-26.i.2013, J. Halada leg., MČ det. (CMBP).
Distribution. Cape Verde Islands, Ethiopia, Kenya, Oman, South Africa; Israel, Saudi Arabia, China; India, Srí Lanka, Taiwan, Thailand, Philippines, Singapure; United States; Hawaii, Guadeloupe, Costa Rica, Venezuela. New for the fauna of Tanzania.

Pseudonapomyza asystasiae Spencer, 1965

Material examined. UGANDA: Kamwenge district, Fort Portal, Mbara Road, 0°24′31″N 30°24′25″E, 1210 m a.s.l., 2 ♂♂ 1 ♀, 16.iii.2012, MvT leg. et det.
This finding results in an important detection: When Spencer (1965: 266) published the genitalia figures of *Ps. asystasiae* and *Ps. acanthacearum* (Spencer, 1959a) a lapsus occured in as far as his figures 62 & 63 are wrongly attributed to *asystasiae* though they belong to *acanthacearum* and reverse, his figures 60 & 61 don't belong to *acanthacearum* but to *asystasiae*. MvT removed the genitalia of the ♂ holotype of *acanthacearum* (Cameroon, leg. H. Buhr; lent from the Naturkundemuseum Berlin) from euparal embedding and stated that they are identical with Spencer's figures 62 & 63. Fig. 62 is not figured from the exact "ventral view" (view on the horizontal position) but from „oblique apical ventral view". Thus, the two "ears" are too widely spaced and the basiphallus is not figured well. Fig. 61 is figured from an „oblique apical ventral" view, too. As it cannot be clarified if this interchange was produced by wrong manipulation during the genitalization procedure or by a printer's error, we assume the last possibility. The name and meaning of the group persists but with changed genitalia figures attributed to the eponymous taxon. Much has been published about the *acanthacearum*-group of the genus *Pseudonapomyza*, the species of which develop in Acanthaceae (and Bignoniaceae – to be published in the Manual of Afrotropical Diptera), contrary to the *Ps. atra*-group, bound exclusively to Poaceae. Many species of both groups are still undescribed in the Afrotropics. After thorough study MvT came to the conclusion that they should not be splitted in two different genera. In one undescribed species from Uganda the costa extends to vein M_1, puzzling and singular among all world species. By the way, some few *Pseudonapomyza* spp. possess a distinct posterolateral bristle on the fore-tibia, an interesting plesiomorphous character.
Distribution. Gambia, Kenya, Sierra Leone, South Africa. New for the fauna of Uganda.

Pseudonapomyza confusa Zlobin, 1993

Material examined. MADAGASCAR: Ranomafana N. P., Vohiparara env., 21°14′26″S 47°23′40″E, 1130 m a.s.l., 1 ♂, 18.xi.2010, river bank, sweeping, P. Baňař leg., MČ det. (MZMB).
Distribution. Cape Verde Islands. New for the fauna of Madagascar.

Pseudonapomyza embuensis Spencer, 1985

Material examined. ZIMBABWE: 60 km NNW Bulawayo, 19°41′S 28°21′E, 1200 m a.s.l., 4 ♂♂, 18.-19.xii.2011, J. Halada leg., MČ det. (CMBP, CMCH).
Distribution. Kenya, Yemen. New for the fauna of Zimbabwe.

Pseudonapomyza hispanica Spencer, 1973

Material examined. NIGERIA: 26 km SEE Abuja, 9°06′N 7°45′E, 400 m a.s.l., 2 ♂♂, 14.v.2011, J. Halada leg., MČ det. (CMBP, CMCH). TANZANIA: Marangu, SE base of Mt. Kilimanjaro, 3°15′27″S 37°30′55″E, 1706 m a.s.l., 1 ♂, 22.ii.1971, MvT leg. et det.
Distribution. Gambia, Kenya, Sierra Leone, Yemen, Zambia; Europe; Cyprus, Israel, Turkey. New for the fauna of Nigeria and Tanzania.

Pseudonapomyza justiciae Spencer, 1990

Material examined. NIGERIA: 26 km SEE Abuja, 9°06′N 7°45′E, 400 m a.s.l., 2 ♂♂, 14.v.2011, J. Halada leg., M. Černý det. (CMBP, CMCH).
Distribution. Kenya. New for the fauna of Nigeria.

Pseudonapomyza spinosa Spencer, 1973

Material examined. CAPE VERDE ISLANDS: Island Ribeira Grande, Santo Antão, Cova and inner edge of crater, 17°04′N 25°08′W, 1177 m.a.s.l., 1 ♂ 3 ♀♀, 19.i.1985; Island Santo Antão, road below mountain Porto Novo, 16°58′N 25°12′W, 800 m a.s.l., 2 ♂♂, 23.i.1985, P. Ohm leg.; codes 1566 & 2016 of unknown collector, without details, 1 ♂ & 4 ♂♂ 2 ♀♀; all MvT det.

Distribution. Kenya, Lesotho, Mauritius, Nigeria, Oman, South Africa, Tanzania, Yemen; Egypt; Canary Islands, Greece, Portugal, Spain; Cyprus, Israel, Saudi Arabia, Turkey; American Samoa, Fiji, India, Kiribati, Nepal, New Caledonia, Thailand; Australia. New for the fauna of the Cape Verde Islands.

Discussion

This article presents additions to the fauna of the family Agromyzidae for the Afrotropical Region. A total of 324 species of Agromyzidae have been recorded from Afrotropical Region up to the present. These numbers, however, still cannot be considered final because further collecting trips will undoubtedly bring new additions to the local fauna of individual states, as well as to the fauna of the entire Afrotropical Region.

The MvT collection includes about 10,000 Agromyzidae specimens from 23 Afrotropical states containing all world taxa except the following nine: *Aulagromyza*, subgenera *Xenophytomyza* and *Phytagromyza* of *Cerodontha*, *Gymnophytomyza*, *Haplopeodes*, *Indonapomyza*, *Nemorimyza*, *Selachops* and *Xeniomyza*. More than 100 spp. are already specified and recognized as undescribed by MvT and especially many further new ones in the genera *Ophiomyia*, *Melanagromyza* and an undescribed genus await discovery. Their identification cannot be done before the types of species described in the early publications of K.A. Spencer - but without figured genitalia - are revised. Hitherto altogether 322 valid leafminer flies were authenticly documented from the Afrotropics, this article not included. In order to update the Afrotropical catalogue (Cogan, 1980) we list here all valid taxa including those two recorded here for the first time for the Region (Table 1). Table 2 demonstrates the number of those species in each genus known from each Afrotropical country, achipelago or island. This is not thought to compare the leafminer diversity of the countries but to show regions with lack of dipterological collecting. As already demonstrated for a Peruvian rainforest (von Tschirnhaus, 1981) especially interesting would be to collect with special luring methods using electrolytes in primary rainforests to through light on the diversity of Afrotropical *Phytobia* Lioy species. One week walking of MvT with some pygmees through the wilderness of such a forest in the Central African Republic forshadowed its diversity: a high percentage of trees of which pieces of bark were cutted and removed contained the longitudinal feeding tracks („pith flecks“ in cross sections) of *Phytobia* larvae inside the cambium zone. More undescribed species than already described from tropical Africa were already collected including two from dry areas of Somalia and the Cape Verde Islands. With the forthcoming „Manual of Afrotropical Diptera“ young dipterists may find a starting point for a focus on Afrotropical Agromyzidae, their host plants and their coevolution. To know in advance how abundant Afrotropical agromyzids are the following two examples are of interest: If emtying all caught insects from sweeping groundlevel vegetation into an eclector (Figs. 1–3) and preserving them after emergence in ethanol, Agromyzidae from the predominantly dry landscapes in Togo sum up to only 0.418 % of 55 considered and counted Diptera families (based on 65,853 Diptera and 275 agromyzid specimens from 73 samples taken during a period of 25 days) and to 0.781% of 61 considered and counted Diptera families (based on 78,620 and 614 specimens, correspondingly from 39 samples taken during a period of 20 days) from predominantly humid landscapes in Uganda [Chironomidae, Ceratopogonidae and Cecidomyiidae not considered]. The eclector method with an inside black box with light funnel and emerging container – different from person-dependent selective collecting by aspirator – demonstrates how few Agromyzidae are present and are

captured in the Afrotropics despite of concentrated collecting with the focus [of MvT] on optimal biotopes for Agromyzidae and Chloropidae.

Our additions to the enlarged knowledge of the distribution of certain species may promote further zoogeographical and taxonomical studies.

Tab 1: Checklist of valid Afrotropical Agromyzidae, with inclusion of new records (July 31, 2014)

AGROMYZYDAE
Subfamily Agromyzinae
Genus *Agromyza* Fallén, 1810

– *abutilonis* Spencer, 1959
– *abyssinica* Spencer, 1964
– *catherinae* Spencer, 1959
– *confusa* Spencer, 1961
– *eyeni* Spencer, 1959
– *graminacea* Spencer, 1985
– *infusca* Spencer, 1959
– *luteifrons* Strobl, 1906
– *malvaceivora* Seguy, 1951
– *munduleae* (Seguy, 1951)
– *myosotidis* Kaltenbach, 1864
– *ocularis* Spencer, 1961
– *oliviae* Spencer, 1959
– *pallidifrons* Spencer, 1959
– *panici* de Meijere, 1934
– *penniseti* Spencer, 1959
– *pennisetivora* Spencer, 1961
– *somereni* Spencer, 1959
– *sulfuriceps* Strobl, 1898
– *susannae* Spencer, 1959
– *ugandae* Spencer, 1985
– *uniseta* Spencer, 1959
– *verdensis* Spencer, 1959

Genus *Hexomyza* Enderlein, 1936

– *gymnosporivora* (Spencer, 1963)

Genus *Japanagromyza* Sasakawa, 1958

– *meridiana* Spencer, 1961
– *crinicolis* Lonsdale, 2013
– *dolobrata* Lonsdale, 2013
– *laureata* Lonsdale, 2013
– *nesiota* Lonsdale, 2013
– *nigrihalterata* (Spencer, 1959)
– *parvula* Spencer, 1961

Genus *Kleinschmidtimyia* Spencer 1985

– *arabica* Deeming, 2006

Genus *Melanagromyza* Hendel, 1920

– *acaciae* Spencer, 1963
– *albisquama* (Malloch, 1927)
– *annae* Spencer, 1964
– *aprilis* Spencer, 1959
– *argentea* Spencer, 1959
– *aurea* Spencer, 1959
– *ballardi* Spencer, 1965
– *barbata* Spencer, 1960
– *bonavistae* Greathead, 1971
– *bulbifrons* Spencer, 1959
– *caeruleana* Spencer, 1959
– *candidipennis* (Lamb, 1912)
– *chalcosoma* Spencer, 1959
– *compositana* Spencer, 1959
– *cotyledonus* Spencer, 1960
– *crassocephali* Spencer, 1985
– *crotalariae* Hering, 1957
– *crotalariana* Spencer, 1961
– *curiosa* Spencer, 1959
– *curvibucca* Spencer, 1959
– *cussoniae* Spencer, 1964
– *cyrtorchidis* Spencer, 1985
– *dakarensis* Spencer, 1959
– *damnata* Spencer, 1961
– *devia* Spencer, 1961
– *difficilis* Spencer, 1959
– *drakensbergi* Spencer, 1965
– *elgonensis* Spencer, 1965
– *elongata* Spencer, 1959
– *freidbergi* Černý, 2011
– *frigida* Spencer, 1961
– *frontata* Spencer, 1960
– *funebris* (Lamb, 1912)
– *fuscalis* Spencer, 1961
– *galactoptera* Bezzi, 1926
– *genata* Spencer, 1959
– *generosa* Spencer, 1961
– *gerberae* Spencer, 1960
– *gerberivora* Spencer, 1960
– *ghanensis* Spencer, 1965
– *gracilis* Spencer, 1959
– *gynurae* Spencer, 1959

– *heatoni* Spencer, 1990
– *indubita* Spencer, 1961
– *inulivora* Spencer, 1961
– *kenyensis* Spencer, 1959
– *lindneri* Spencer, 1961
– *livida* Spencer, 1985
– *longibucca* Spencer, 1959
– *lustralis* Spencer, 1959
– *madagascarensis* Černý, 2011
– *metallica* (Thomson, 1869)
– *montana* Spencer, 1965
– *mugungae* Spencer, 1959
– *nairobensis* Spencer, 1959
– *natalensis* Spencer, 1959
– *neutralis* Spencer, 1961
– *nicolaudis* Spencer, 1959
– *nudifolii* Spencer, 1965
– *obscura* Spencer, 1977
– *obtusa* (Malloch, 1914)
– *ocellata* Spencer, 1961
– *ochrasquamata* Spencer, 1961
– *ornatissima* Spencer, 1961
– *parvisetula* Spencer, 1959
– *pauliani* Černý, 2011
– *perinetensis* Spencer, 1959
– *principensis* Spencer, 1977
– *provecta* (de Meijere, 1910)
– *pseudometallica* Spencer, 1966
– *pubescens* Hendel, 1923
– *pubescentis* Spencer, 1959
– *purpurea* Spencer, 1959
– *purpureana* Spencer, 1959
– *ruandae* Spencer, 1959
– *rutshurensis* Spencer, 1959
– *scottburghensis* Spencer, 1965
– *seneciocaulis* Spencer, 1960
– *setulana* Spencer, 1959
– *setulifera* Spencer, 1959
– *sojae* (Zehntner, 1900)
– *solanidis* Spencer, 1959
– *spenceriana* Zlobin, 2001
– *spungaberensis* Spencer, 1959
– *stuckenbergi* Spencer, 1959
– *suborbitalis* Spencer, 1959
– *tamsi* Spencer, 1977
– *thunbergiae* Spencer, 1960
– *verdata* Spencer, 1961
– *vignalis* Spencer, 1959
– *viridissima* Spencer, 1959
– *volubilis* Spencer, 1965
– *wulfi* Spencer, 1959
– *zomandoae* Spencer, 1961

Genus Ophiomyia Braschnikov, 1897

– *aberrans* (Spencer, 1959)
– *acutalis* Spencer, 1959
– *albivenis* Spencer, 1959
– *andasibensis* Černý, 2011
– *anomala* Spencer, 1961
– *atralis* (Spencer, 1961)
– *beckeri* (Hendel, 1923)
– *blepharidis* (Spencer, 1960)
– *camarae* Spencer, 1963
– *centrosematis* (de Meijere, 1940)
– *colei* Spencer, 1965
– *crotalariella* Spencer, 1990
– *decembris* (Spencer, 1959)
– *dhofarensis* Deeming, 2006
– *helichrysi* Spencer, 1960
– *insolita* (Spencer, 1959)
– *kenyae* Spencer, 1985
– *kilembensis* Spencer, 1985
– *kilimanii* Spencer, 1985
– *labiatalis* Spencer, 1959
– *lantanae* (Froggatt, 1919)
– *lucidata* Spencer, 1961
– *lunatica* Spencer, 1961
– *maura* (Meigen, 1838)
– *mesonotata* Spencer, 1961
– *nigerrima* Spencer, 1959
– *nigrimaculata* (Spencer, 1959)
– *ocimi* Spencer, 1965
– *ocimivora* Spencer, 1985
– *perversa* Spencer, 1965
– *phaseoli* (Tryon, 1895)
– *pretoriensis* Spencer, 1960
– *productella* Spencer, 1960
– *pulicaria* (Meigen, 1830)
– *rhodesiensis* Spencer, 1959
– *solanivora* Spencer, 1961
– *spencerella* (Greathead, 1969)
– *spuriosa* Spencer, 1960
– *strigalis* Spencer, 1963
– *verdalis* Spencer, 1959
– *vignivora* Spencer, 1973
– *visenda* Spencer, 1965

Genus _Penetagromyza_ Spencer, 1959

– *aloephaga* Spencer, 1990
– *aloes* Spencer, 1959
– *similans* (Spencer, 1961)

Genus _Tropicomyia_ Spencer, 1973

– *capeneri* (Hering, 1957)
– *cassinis* (Hering, 1957)
– *ceratiosicyi* (Hering, 1957)
– *clutiae* (Spencer, 1963)
– *crotalariae* (Hering, 1957)
– *crotonella* (Spencer, 1964)
– *cyrtanthi* (Spencer, 1960)
– *dicksoni* (Hering, 1957)
– *eulophiae* Spencer, 1990
– *flacourtiae* (Séguy, 1951)

– *gloriosae* Spencer, 1990
– *gymnosporiae* (Hering, 1957)
– *haemanthi* (Spencer, 1963)
– *kalanchoes* Spencer, 1985
– *laburnifoliae* (Spencer, 1964)
– *nigriclava* (Bezzi, 1926)
– *philocroton* (Hering, 1957)
– *theae* (Green, 1896)
– *thunbergivora* (Spencer, 1963)
– *vigneae* (Séguy, 1951)

Subfamily Phytomyzinae

Genus *Amauromyza*, Hendel 1931

Subgenus *Amauromyza*, Hendel 1931

– *triseta* (Spencer, 1959)

Genus *Calycomyza*, Hendel 1931

– *eupatorivora* Spencer, 1973
– *gigantissima* (Spencer, 1959)
– *humeralis* (von Roser, 1840)
– *lantanae* (Frick, 1956)
– *malagasica* Černý, 2011
– *solidaginis* (Kaltenbach, 1869)

Genus *Cerodontha*, Rondani, 1861

Subgenus *Butomomyza* Nowakowski, 1967

– *caricophaga* (Spencer, 1963)
– *caricivora* (Groschke, 1954)
– *kivuensis* (Spencer, 1959)
– *pubicata* (Spencer, 1959)

Subgenus *Cerodontha* Rondani, 1861

– *aberdarensis* Spencer, 1985
– *abyssinica* Spencer, 1961
– *africana* Spencer, 1985
– *denticornis* (Panzer, 1806)
– *elevata* Spencer, 1985
– *heringiella* Spencer, 1961
– *tsimbazazensis* Černý, 2011

Subgenus *Dizygomyza* Hendel, 1920

– *kenyana* Zlobin, 2001

Subgenus *Icteromyza* Hendel, 1931

– *geniculata* (Fallen, 1823)
– *piliseta* (Becker, 1903)
– *stuckenbergiella* Spencer, 1977

Subgenus *Poemyza* Hendel, 1931

– *aristella* (Spencer, 1961)
– *guineana* Zlobin, 1993
– *kakamegae* Spencer, 1985
– *magnificans* (Spencer, 1959)
– *orbitona* (Spencer, 1960)
– *setariae* (Spencer, 1959)

Genus *Chromatomyia* Hardy, 1849

– *anonera* (Séguy, 1951)
– *elgonensis* Spencer, 1985
– *horticola* Goureau, 1851
– *nigrissima* Spencer, 1985
– *seneciophila* Spencer, 1985
– *seneciovora* (Spencer, 1959)
– *subnigra* Spencer, 1985
– *syngenesiae* Hardy, 1849

Genus *Haplopeodes* Steyskal, 1980

– *diminuella* (Spencer, 1961)

Genus *Liriomyza* Mik, 1894

– *atrescens* Spencer, 1961
– *balcanica* Strobl, 1900
– *brassicae* (Riley, 1884)
– *congesta* Becker, 1903
– *emiliae* Séguy, 1951
– *flavalis* Spencer, 1959
– *helichrysivora* Spencer, 1965
– *huidobrensis* (Blanchard, 1926)
– *manni* Spencer, 1985
– *melantherae* Spencer, 1959
– *mikaniopsidis* Spencer, 1961
– *mirifica* Spencer, 1963
– *mosselensis* Spencer, 1965
– *nana* Spencer, 1965
– *novissima* Spencer, 1960
– *ranomafanensis* Černý, 2011
– *sativae* Blanchard, 1938
– *trifolii* (Burgess in Comstock,1880)
– *volatilis* Spencer, 1965

Genus *Napomyza* Westwood, 1840

– *strana* Spencer, 1960
– *vivida* Spencer, 1965

Genus *Phytobia* Lioy, 1864

– *africana* Zlobin, 2007
– *brincki* Spencer, 1965
– *flavosquamata* (Spencer, 1959)
– *nigeriensis* Spencer, 1977
– *ruandensis* (Spencer, 1959)
– *shizukoae* Spencer, 1959
– *variegata* Zlobin, 2007

Genus *Phytoliriomyza* Hendel, 1931

– *arctica* (Lundbeck, 1901)
– *enormis* (Spencer, 1963)
– *immoderata* Spencer, 1963
– *intermedia* Spencer, 1985
– *jacarandae* Steyskal & Spencer, 1978
– *mikii* (Strobl, 1898)
– *perpusilla* (Meigen, 1830)

Genus *Phytomyza* Fallén, 1810

– *africana* Spencer, 1959
– *caffra* Macquart, 1846
– *clematidella* Spencer, 1959
– *clematisi* Spencer, 1964
– *drakensbergensis* (Spencer, 1963)
– *eximia* Spencer, 1964
– *knowltoniae* Hering, 1957
– *multifidi* Spencer, 1985
– *munroi* (Spencer, 1960)
– *natalensis* Spencer, 1964
– *orobanchia* Kaltenbach, 1864
– *philoclematidis* Hering, 1957
– *plantaginis* Robineau-Desvoidy, 1851
– *ranunculi* (Schrank, 1803)
– *ranunculina* Spencer, 1963
– *renovata* Spencer, 1960
– *rufipes* Meigen, 1830
– *subeximia* (Spencer, 1985)
– *tenella* Meigen, 1830
– *varii* Spencer, 1964
– *vitalbae* Kaltenbach, 1872
– *vitalbella* Hering, 1957

Genus *Pseudoliriomyza* Spencer 1966

– *cordiae* (Spencer, 1959)

Genus *Pseudonapomyza* Hendel, 1920

– *acanthacearum* Spencer, 1965
– *afrospicata* Zlobin, 2003
– *alternantherae* (Séguy, 1951)
– *asiatica* Spencer, 1961
– *asystasiae* Spencer, 1965
– *atra* (Meigen, 1830)
– *confusa* Zlobin, 1993
– *diminua* (Spencer, 1961)
– *embuensis* Spencer, 1985
– *embui* Spencer, 1985
– *gambica* Zlobin, 2003
– *gilletti* Spencer, 1985
– *grandiosa* (Spencer, 1961)
– *hispanica* Spencer, 1973
– *hohmanni* Spencer, 1965
– *hypoestis* Hering, 1957
– *hypoestivora* (Séguy, 1951)
– *insularis* Zlobin 1993
– *justiciae* Spencer, 1990
– *lucentis* Spencer, 1959
– *matopi* Spencer, 1965
– *media* (Spencer, 1961)
– *memorata* Spencer, 1977
– *mongoliensis* Spencer, 1973
– *nigralis* Spencer, 1961
– *ovalis* Spencer, 2003
– *perspicua* Spencer, 1963
– *ruiruensis* Spencer, 1985
– *salubris* Spencer, 1977
– *similis* Spencer, 1985
– *spicata* (Malloch, 1914)
– *spinosa* Spencer, 1973
– *subspinosa* Spencer, 1985
– *urundensis* (Spencer, 1959)
– *vernoniae* (Séguy, 1951)
– *zambiana* Černý in Černý & Zlobin 2008
– *zeae* Spencer, 1973

Genus *Ptochomyza* Hering, 1942

– *asparagivora* Spencer, 1964

Tab 2: Distribution of published identified species within each genus of Agromyzidae

	Agromyzidae	Agromyzinae								Phytomyzinae												Subfamily Agromyzinae	Subfamily Phytomyzinae	Total Agromyzidae
		Agromyza	*Hexomyza*	*Japanagromyza*	*Kleinschmidtimyia*	*Melanagromyza*	*Ophiomyia*	*Penetagromyza*	*Tropicomyia*	*Amauromyza*	*Calycomyza*	*Cerodontha*	*Chromatomyia*	*Haplopeodes*	*Liriomyza*	*Napomyza*	*Phytobia*	*Phytoliriomyza*	*Phytomyza*	*Pseudoliriomyza*	*Pseudonapomyza*	*Ptochomyza*			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
1	Angola														1								0	1	**1**
2	Bahrein					1						1											1	1	**2**
3	Benin														1								0	1	**1**
4	Botswana																				2		0	2	**2**
5	Burundi			1		2	1														1		4	1	**5**
6	Cameroon	1				1	2		1		1	2	2		2						2		5	9	**14**
7	Cape Verde Islands	1				9	5		1			1	1		1			1	1		6		16	11	**27**
8	Central African Republic	2				1							1										3	1	**4**
9	Comores														1								0	1	**1**
10	Congo	2		2		15	4				1	3	1								1		23	6	**29**
11	Côte d'Ivoire														1								0	1	**1**
12	Ethiopia	3				7	7		7		2	4	3		5				5		4	1	24	24	**48**
13	Gabon												1										0	1	**1**
14	Gambia					1						1	1								5		1	7	**8**
15	Ghana					2						1									1		2	2	**4**
16	Guinea						1					1			1								1	2	**3**
17	Kenya	3	1	2		20	12		5		1	8	7		5			1	5		12	1	43	40	**83**
18	Lesotho	1													1	1		1	1		1		1	5	**6**
19	Madagascar	4				22	5		3		2	3	2		3			2			10		34	22	**56**
20	Malawi	1				5	1						1				1						7	2	**9**
21	Mali					1	1																2	0	**2**
22	Mauritius					2	1		1						2						1		4	3	**7**
23	Mayotte														1								0	1	**1**
24	Mozambique	1				7					1				1								8	2	**10**
25	Namibia						1								1						1		1	2	**3**
26	Niger	1																					1	0	**1**
27	Nigeria	1		1		3	3		2			2			2		2				3		10	9	**19**
28	Oman			1	1	3	7					1			3			1			8		12	13	**25**
29	Réunion						1								2								1	2	**3**
30	Rodriguez					2			1														3	0	**3**
31	Rwanda			1		3	2						1				1						6	2	**8**
32	São Tomé and Principe					5																	5	0	**5**
33	Senegal	1				1	1		2				1		2						1		5	4	**9**
34	Seychelles			1		3						1			1								4	2	**6**
35	Sierra Leone					1	1		1			1					2				4		3	7	**10**
36	Somalia			1		1																	2	0	**2**
37	South Africa	7	1	2		33	19	3	13	1	3	9	1	1	10		3	3	11		9		78	51	**129**
38	State of Eritrea												1										0	1	**1**
39	Sudan						1		1						2						1		2	3	**5**
40	Swaziland						1																1	0	**1**
41	Tanzania	2		1		13	5		1			5	1		2	1		1	3	1	7		22	21	**43**
42	Uganda	3		4		9	6		1			1	2		1						1		23	5	**28**
43	Yemen	4			1	4	3				1	6	1		5			3	2		8		12	26	**38**
44	Zambia	1					2								1						4		3	5	**8**
45	Zimbabwe	2				6	3					2	1		3						4		11	10	**21**
	Afrotropical Region	**23**	**1**	**7**	**1**	**95**	**41**	**3**	**20**	**1**	**6**	**21**	**8**	**1**	**19**	**2**	**7**	**7**	**22**	**1**	**37**	**1**	**191**	**133**	**324**

Figs 1-3: Wooden eclector for obtaining all insects during sweep net fieldwork. The net content is emtied through the opening above, the funnel should be orientated towards the sun or lightest area of the sky. Construction by MvT.

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