

Revision of Palaearctic species of the genus *Chersodromia* Walk. (Diptera, Empididae)

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I. Introduction

Chersodromia Walker, 1849 is a rather poorly known genus of the subfamily Tachydromiinae, tribe Drapetini, distributed throughout the Holarctic region including Central America (Panama) and the Hawaii. The other records from the Oriental and Indoaustralian regions (Taiwan, New Guinea, Australia and Western Caroline Is.) seem to be rather problematic and refer probably to *Austrodromia* Coll. and allied genera. *Chersodromia* has not been hitherto found in South America and South Africa and, according to Smith (1969), its ecological niche in South Africa appears to be filled by the species of the genus *Crossopalpus* Big. The genus has not yet been recorded from the Ethiopian region but an undescribed species is already known from the island of Aldabra in the Indian Ocean.

The adults are coastal species, they occur often in large numbers on sandy seashores not far from the water, running about on sand or resting under the dry seaweed

thrown up on the seashore. When disturbed they fly very rapidly for shorter distances, the brachypterous forms do not fly. The adults are found sometimes also on higher dunes or on low herbage on sandy dunes. Only a few species occur also on banks of lakes and streams inland; of the 16 known European species only *C. cursitans* Zett. penetrates along borders of fresh water far inland. Nothing is known on the immature stages.

The genus *Chersodromia* was only additionally listed by Walker in 1849 in his "Errata and Addenda" (Vol. 4, p. 1157) on the basis of his Group II of *Tachydromia* (Vol. 3, p. 507). This group included originally two species — *Chersodromia arenaria* (Hal.) and *Stilpon graminum* (Fall.). Walker in 1851 when fully characterizing this genus, included altogether five species but retained only one (*arenaria*) of the two original species; this become, also by later designation by Rondani in 1856 (as *Tachypeza brevipennis* Zett.), the type species of the genus.

The first species of the genus was described by Zetterstedt in 1819 as *Empis cursitans* from Scandinavia. Haliday described in 1833 *Tachypeza arenaria* from Great Britain and five years later Zetterstedt described the same species under the name of *Tachypeza brevipennis* also from Scandinavia. Walker described from Great Britain a further three species which formed, with the previous two, the five species of this genus in his Ins. Brit. Dipt. — in 1836 *Tachypeza hirta*, and in 1851 *Chersodromia incana* and *speculifera*. The genus has been studied very intensively in North Europe and the further two species of the total number of seven so far known North European species were described successively by Lundbeck in 1910 (*difficilis*) and Melander in 1928 (*beckeri*).

These 7 North European species were taken for a long time for the only representatives of *Chersodromia* distributed throughout Europe and all specimens of this genus collected in southern parts of Europe and in North Africa (except *amaura*) were determined by the dipterists as *hirta*, *cursitans*, *difficilis*, *speculifera* or *incana*. The attached identification labels given by Becker and especially by Engel were quite incomprehensible and showed that these authors were unable to recognize the specific distinctions in this genus. Now it is quite obvious that the faunas of northern and southern parts of Europe are quite separated and different, not even one species occurs both in North and South Europe. Several new species were described recently from South Europe including North Africa, 2 species by Collin (1950, 1966) and further 8 species by Chvála (1970).

Only one species was described already earlier from North Africa — *C. amaura* (in the new genus *Halsanalotes*) by Becker in 1902, and two further species from the Canary Islands — *C. gratiosa* by Becker in 1908, and *C. colliniana* by Frey in 1936. The third Canarian species — *C. ornatipes* Bigot, 1891, is a species of the genus *Platypalpus* (see Chvála, 1970).

Chersodromia brevicornis described by de Meijere in 1907 from Hilversum, Holland is another species of *Platypalpus*. De Meijere collected this species in large numbers on the bark of beech-trees, behaviour quite unlikely in the genus *Chersodromia*. I have found a single pair in the collection of the Deutsches Entomologisches Institut, Eberswalde, and another pair among the material of *Chersodromia* in the collection of the Museum für Naturkunde in Stuttgart, sent kindly by Prof. E. Lindner. Three specimens (1 ♂ and 2 ♀) were labelled "Amsterdam" and determined by de Meijere as "*Chersodromia brevicornis* d. Meij.". According to Dr. C. A. V. Jeekel (letter communication, Nov. 14, 1968) the type specimens of *C. brevicornis* de Meijere

from Hilversum are preserved in the collections of the Zoölogisch Museum der Universitet van Amsterdam, but unfortunately the type material has not been loaned me for study. The four specimens of Eberswalde and Stuttgart are in rather good condition (one male without head) and represent the species *Platypalpus nanus* Oldenb. This synonymy (see Chvála, 1970) has been made on the basis of the above mentioned four specimens.

For completeness and to check all the Palaearctic *Chersodromia* species, one species (*nubifera* Coq.) was described in 1899 from the Komandorskiye Islands (Commander Is.) in the Bering Sea, and one species (*kamtchatkiana* Chv.) in 1970 from Kamtchatka. The descriptions of another new species from Kamtchatka and one new species from South Europe are presented in this revision.

It should be also noted that the genera *Halsanalotes* Becker, 1902; *Coloboneura* Melander, 1902; and *Thinodromia* Melander, 1906; are generally accepted synonyms of the genus *Chersodromia* as proposed by Collin (1950).

The present revision of the Palaearctic species has been carried out mainly on a study of male terminalia, and based on a rich material from various museums and institutions in Europe, including the revision of the type specimens (except those described by Haliday and Walker from Great Britain, of species which were fully redescribed by Collin in 1961). Altogether 24 *Chersodromia* species are recently known from the Palaearctic region but not even this number seems to be definite, maybe the same number of new species await discovery. Perhaps only the West and North European fauna (covering the British Isles and Fennoscandia) is sufficiently known, but there is only scanty material from southern parts of Europe and almost nothing is known on the fauna of East Europe (Black Sea, Sea of Azov and Caspian Sea) including the coasts of North Africa and the whole Asia.

The last complete elaboration of this genus, in Lindner, *Die Fliegen der palaearktischen Region*, published by Engel in 1938–39, comprises altogether 12 species, of which only 8 are keyed.

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National Museum, Washington; and Dr. J. R. Vockeroth of the Entomological Research Institute, Ottawa (coll. ERI Ottawa). The abbreviations in brackets are those used throughout in the text and in the paragraph 'Material examined'.

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III. Systematic treatment

Diagnosis

The species of the genus *Chersodromia* Walker, 1849 belong to the Empidids subfamily Tachydromiinae forming together with other European genera *Drapetis* Meig., *Crossopalpus* Big. and *Stilpon* Loew, the tribe Drapetini. The genus *Chersodromia* Walk. is abundantly distinct from the other genera of this tribe having long first basal cell (both basal cells are equal in length) and well separated eyes below antennae by more or less broad face in both sexes; in other genera of the tribe Drapetini the eyes are practically meeting below antennae.

The *Chersodromia* species are generally small from less than 1 mm (*incana*-group) up to 4 mm (*hirta*-group) in length, blackish or blackish-brown coloured and often densely greyish dusted species.

Head is distinctly deeper than round with, even if microscopically, always pubescent eyes separated on frons and face in both sexes. Frons rather broad and widest above, face usually as broad below antennae as frons in front, widening out towards mouth; or very narrow (*incana*-group). Face confluent below with distinct jowls which are in all gradations from very deep (*hirta*-group) to only very narrow (*speculifera*- and *incana*-groups). 2 pairs of more or less developed ocellar bristles on frons, vertex with 2 pairs of vertical bristles, occasionally with only 1 pair, or all bristles on head much shortened to quite indistinct (*incana*-group). Occiput usually with small bristly hairs on postocular margin and especially on the upper part above neck. Antennae small, segment 1 the smallest, often not visible; segment 2 always distinct, usually as long as deep and with a circlet of short preapical bristly hairs; segment 3 of various shape from distinctly conical and apically pointed with arista terminal, to almost circular with a slender, small supra-apical projection from which arista arises; arista at least as long as antenna, more or less microscopically pubescent. Palpi flat, usually ovate or almost rounded, of moderate size to small, or very enlarged (*incana*-group), very bristled (*hirta*-group) or with fine pubescence and with more or less developed terminal bristly hair. Proboscis always strong and distinctly curved backwards, therefore not very well visible in the frontal view.

Thorax strongly developed, slightly elongated, humeral lobes very indistinct. Mesonotum usually distinctly bristled and covered with numerous small bristly hairs which are formed by biserial acrostichals, usually only indistinctly and narrowly separated from multiserial dorsocentrals; often 3–5 pairs of the latter longer and bristle-like in the inner row. Large thoracic bristles (if in full number) are as follows: 1 humeral, 1 posthumeral, 3–5 notopleural, 1 supra-alar, 1 postalar, and 1 pair of marginal scutellar with usually an additional small pair at side. Some species (*incana*-group) have all large bristles on thorax small or quite indistinct, replaced by only

small points. Prothorax usually with a small tiny down-turned hair above fore coxae and with another up-turned hair-like bristle on episternum. No distinct setae or hairs on metapleura. Thorax always entirely densely dusted except for more or less distinct polished patch on sternopleura, rarely sternopleura entirely dusted.

Legs with short fore coxae, all femora slightly stout but neither of them being distinctly stouter. Fore tibiae usually spindle-shaped dilated, other parts of legs slender, apical tarsal segments sometimes, especially on anterior two pairs, flattened and dilated. Legs with a variable number, size and arrangement, of more or less distinct bristles, but as a rule there are 2 small anterior preapical bristles to all femora, 2 ventral preapical bristles to all tibiae, in addition to distinct bristles at least on apical third to half on hind tibiae arranged in three rows (absent only rarely in the *incana*-group). Anterior four femora bear sometimes small anterior bristles (often more numerous in female sex) or, in the very bristled species (*hirta*-group), there are distinct strong anterodorsal and anteroventral bristles on hind femora. The males are usually differentiated by the presence of a distinct ventral comb of small black spine-like bristles to mid tibiae which is absent in female, but usually replaced by additional small anterior bristles. No special arrangements on mid legs in males like basal excavations, tubercles, or apical processes, spines or spurs.

Wings clear without any pattern (except two Nearctic species), sometimes slightly tinted or milk-white; usually broad and well developed, sometimes narrowed to very abbreviated. Subcostal vein long in comparison with other genera of *Drape-tini*, ending at or beyond middle of wing. Radial vein rather short but radio-cubital praefurca very long, limiting almost the whole upper border of first basal cell. Cubital and discal veins almost parallel or only slightly diverging, ending at tip of wing. First basal cell very long, as long as second basal cell, discal cell not separated. Anal cell, likewise anal vein, completely absent; however, there is a more or less distinct fold along posterior margin near base, imitating anal vein. Costa ending at tip of discal vein, usually finely bristled along the whole length and with a distinct bristle near base before humeral crossvein; posterior wing-margin clothed with fine fringes.

Abdomen composed of eight fully sclerotized and well developed segments, segment 8 only small and hidden. Hypopygium always well visible but of various size, twisted round 180° and rather complicated. Right lamella of epandrium (ventrally placed owing to twisting) always distinct and large, with one or several dorsal appendages of specific character. Left lamella (dorsally placed) is partly fused with very complicated hypandrium and penis, on the right with usually only slender apical processes. Cerci (on the right of the hypopygium) usually small, sometimes hardly visible; on the left there is occasionally a large distinct appendage near fusion of both epandrial lamellae, imitating left cercus. Abdomen in female telescopic, pointed, cerci rather short, slender or ovate.

Groups of species

All the thirty-four recently known *Chersodromia* species may be separated into four natural groups of species. This separation, proposed by the present author (Chvála, 1970: 385), is based on many external morphological features on the head, thorax and legs; the four distinct types of structure of male genitalia support very well this subdivision. The four groups are named after the common and generally

well known North European species, viz., *hirta*-group, *cursitans*-group, *speculifera*-group, and *incana*-group. It should be also noted that the *hirta*-group corresponds to the Melander's genus *Coloboneura*.

1. *hirta*-group. Large, 2.5—4.0 mm in length, blackish to dark brown coloured and conspicuously black bristled species. All bristles on head, thorax and legs very strong, 2 pairs of vertical bristles always present. Eyes rather small, but jowls below eyes very deep, about as deep as one-third of the eye-height. Antennae blackish, segment 1 the smallest but in comparison with species of other groups fairly well visible; segment 3 rather short and distinctly conical; arista slightly supra-apical or terminal, sometimes very long, more than twice as long as antenna, microscopically pubescent. Frons and face broad, frons narrowest in basal third, widening out above. Palpi rather large, ovate, very bristled. Sternopleura largely polished black, halteres pale or dark. Legs strong, blackish or brown, and very strongly bristled. Hind femora with distinct long anteroventral bristles, the same type of bristles sometimes also in anterodorsal row. Male hypopygium large and of rather complicated structure, densely covered with dark bristly hairs. Dorsal process to right lamella of epandrium large, broad, usually somewhat curved or apically bifurcated.

This group includes 4 Palearctic species (*hirta*, *pseudohirta*, *kamtchatkiana*, *nubifera*), the Nearctic *inuitata*, and probably also *nana* (I have not seen the latter).

2. *cursitans*-group. The species of this group are more closely related to the previous *hirta*-group than to the two following groups. Generally medium-sized, about 2 mm in length, blackish-brown or dark brown coloured and rather less bristly species, even though all large bristles on head and thorax strong and distinctly blackish-brown, only seldom brownish. 1 or 2 pairs of vertical bristles, both ocellar and vertical bristles long and distinct. Eyes smaller, oval in shape, jowls below eyes moderately deep, as deep as one-fifth to one-quarter of the eye-height. Antennae dark, segment 3 rather conical and apically pointed; arista long, about twice as long as antenna, slightly supra-apical, microscopically pubescent. Face and frons broad, frons usually narrowest in basal third, or less often evenly widening out above. Palpi not very large, finely bristled. Sternopleura largely polished, halteres mostly dark. Legs blackish-brown to brown, rather strong and mostly with distinct black preapical bristles; hind tibiae with large bristles usually on apical two-thirds, no bristles in row to hind femora except preapical ones. Male hypopygium rather large and distinctly bristly, dorsal process to right lamella large and broad, plain, often spoon- or foot-like.

This group includes 5 Palearctic (*cursitans*, *difficilis*, *hackmani*, *arenaria*, *gratiosa*) and 4 Nearctic species (*inchoata*, *parallela*, *insignita*, *megacetes*). The Central American species *longicornis*, although described by Curran as *Coloboneura*, belongs on the basis of the differential characters given by Arnaud in 1975 (see Addendum) very probably also to this group of species.

3. *speculifera*-group. Medium-sized to very small, generally from 2 to 1 mm in length, rather less bristly greyish species; the bristles on head and thorax rather long but thin, usually pale brownish to dark brown, only seldom blackish. Usually 2 pairs of distinct vertical bristles. Eyes rather large and somewhat circular, jowls below eyes very narrow, only exceptionally at most as deep as one-sixth of the eye-height. Antennae small, sometimes yellowish; segment 3 conical or circular with arista terminal to supra-apical, rather long, about twice as long as antenna and slightly pubescent. Frons broad, narrowest in front and evenly diverging towards vertex,

face always broad, as broad below antennae as frons in front. Palpi rather small with only a single tiny terminal bristle. Sternopleura largely polished (except *hawaiiensis*), halteres usually pale, only seldom darkened. Large bristles on thorax always distinct, posthumeral bristle present. Legs usually yellow, sometimes more or less darkened, with usual preapical bristles and distinct long bristles arranged in three rows on at least apical half of hind tibiae. Male genitalia rather simple, right lamella of epandrium always with a single, heavily sclerotized (and darker), slender, simple or bifurcated dorsal process.

This group is distributed mainly in the Palaearctic region and especially in its western part, in Europe and North Africa; altogether 10 species are Palaearctic (*speculifera*, *beckeri*, *flavipes*, *oraria*, *nigrosetosa*, *italica*, *pontica*, *colliniana*, *adriatica*, *amaura*), one species (*houghi*) is known from North America and one (*hawaiiensis*) from the Hawaii.

4. *incana*-group. Very small to small, 0.7–1.7 mm in length, usually light grey or brownish dusted species with all bristles on head and thorax whitish to brownish (only exceptionally blackish) and very shortened, sometimes quite indistinct and replaced by only small points. The species are decidedly more naked in comparison with other species of the genus. Always 2 pairs of vertical bristles, even though very small and hardly visible. Eyes large and rather circular, jowls below eyes very narrow. Antennae small, dark, segment 3 more or less circular with very short arista, which is about as long as antenna. Frons broad, narrowest in front and evenly diverging above; face much narrower than frons in front, usually only linear. Palpi large and rather circular, clothed with only minute hairs. Sternopleura with only a very small polished patch, usually only slightly subshiny above. Thoracic bristles small, posthumeral bristle absent. Halteres darkened. Legs usually brown to dark brown, preapical bristles small (if present) and the usual large bristles to apical third to half of hind tibiae usually not very distinct and rather thin, exceptionally also absent. Male genitalia of more complicated structure than in the *speculifera*-group, the right lamella usually bears several flattened and less sclerotized dorsal processes which are broad and concolorous with the rest of hypopygium (owing to the slight sclerotization); the right lateral edge of right lamella more or less produced, forming another lateral process or very long appendages.

This group includes 5 Palaearctic (*caucasica*, *incana*, *mediterranea*, *curtipennis*, *albopilosa*) and only 1 Nearctic species (*cana*).

Table of Palaearctic species

- | | | |
|-------|--|---|
| 1 | Hind femora with strong anteroventral (usually also anterodorsal) bristles. 2 pairs of strong black vertical bristles. Jowls below eyes very deep, about as deep as one-third of the eye-height. Large blackish and conspicuously black bristled species, more than 2.5 mm in length (<i>hirta</i> -group)..... | 2 |
| — | No anteroventral and anterodorsal bristles to hind femora except for pre-apical ones. Jowls not so deep, usually very narrow. Smaller or very small black, grey or brownish, not conspicuously bristled species, less than 2.5 mm in length | 4 |
| 2 (1) | Hind femora with both anterodorsal and anteroventral rows of bristles. Halteres pale, sternopleura largely polished black | 3 |

- Hind femora with only anteroventral row of bristles. Sternopleura entirely dusted, halteres dark. Wings rather narrow, brownish tinted, with brown veins (Kamtschatka) *kamtchatkiana* Chv.
C. nubifera (Coq.) (Komandorskiye Is.) belongs to this section.
- 3 (2) Legs blackish. Wings rounded at tip, faintly brownish on costal half; veins distinct, brown; cubital and discal veins slightly divergent. Male genitalia with bifurcate dorsal process to right lamella, female cerci large (North Europe) *hirta* (Walk.).
- Legs brownish, only femora and coxae darkened. Wings narrowed towards tip, broad at base, slightly yellowish with pale veins; cubital and discal veins rather parallel. Male genitalia with a simple, curved dorsal process to right lamella, female cerci small (North Africa, Canary Is.) *pseudohirta* Chv.
- 4 (1) Halteres dark, legs brown to blackish-brown. Jowls moderately deep, as deep as one-fifth to one-quarter of the eye-height. Medium-sized or smaller blackish and black bristled species, generally from 1.5 to 2.5 mm in length (*cursitans*-group) 5
- Halteres pale; or if darkened then very small species with at least much shortened bristles on head and thorax, or legs yellow. Jowls very narrow, at most as deep as one-sixth of the eye-height. Generally smaller species... 9
- 5 (4) 2 pairs of vertical bristles 6
- 1 pair of vertical bristles 8
- 6 (5) Wings somewhat narrowed but long, much longer than abdomen. Legs dulled by greyish dust 7
- Wings narrow and abbreviated, at most only slightly longer than abdomen. Legs rather shining, tarsal segments on anterior two pairs shortened and dilated; tarsi at most as long as tibiae. No posthumeral bristle (North Europe) *arenaria* (Hal.)
- 7 (6) Anterior four tarsi long and slender, distinctly longer than tibiae. Large bristles on head and thorax long, posthumeral bristle present. Sternopleura largely polished, and the large bristles on hind tibiae present on at least apical two-thirds (North Europe) *cursitans* (Zett.)
- Anterior four tarsi shortened with slightly dilated segments, tarsi not longer than tibiae. Large bristles on head and thorax (except humeral) very shortened, about as long as antennal segment 3; no posthumeral bristle. Sternopleura entirely dulled. Large bristles on hind tibiae present on apical third only (Kamtschatka) *hackmani* sp.n.
- 8 (5) Blackish species with black antennae, legs dark brown to brown with distinct black bristles. No posthumeral bristle, 3 to 4 pairs large dorsocentrals. Male genitalia rather small with a long, bare, spoon-like dorsal process to right lamella (North Europe) *difficilis* Lundb.
- Blackish-brown species with brown antennae and legs, only a few dark bristly hairs to hind tibiae. Posthumeral bristle present, but only 1 pair of large prescutellar dorsocentrals. Male genitalia very large and globular, dorsal process to right lamella foot-shaped, apically pointed, and with a tuft of long black hairs above (Canary Is.) *gratiosa* Beck.

- 9 (4) Face broad, as broad as frons in front, palpi small or of moderate size. Sternopleura largely polished, posthumeral bristle present (except *amaura*). Legs yellow (or slightly darkened in *oraria*, *nigrosetosa*, *italica*, *pontica*), halteres yellow (darkened in *speculifera*, *flavipes*). Bristles on head and thorax long, black or pale; if smaller (*amaura*, *adriatica*) then other characters of this section. Right lamella of epandrium in male with heavily sclerotized, slender, simple or bifurcated, dorsal process. Medium-sized to very small species, 2.3–1.0 mm in length (*speculifera*-group) 10
- Face narrow (except *caucasica*), much narrower than frons; palpi large. Sternopleura with a very small polished patch. Legs dark brown (except *curtipennis*); halteres darkened, at least knobs brownish. Bristles on head and thorax pale (blackish in *caucasica*), small and hair-like or hardly visible. Male genitalia with one or several broad dorsal processes to right lamella, its right edge often produced, forming distinct lateral appendage. Small species, 0.7–1.7 mm in length (*incana*-group) 19
- 10 (9) 1 pair of vertical bristles. Basal antennal segments and legs yellow, male genitalia very large, not very shorter than abdomen (South Europe) *flavipes* sp.n.
- 2 pairs of vertical bristles. Male genitalia smaller, much shorter than half length of abdomen 11
- 11 (10) Antennal segment 3 conical, apically pointed, arista terminal. Male genitalia with a simple dorsal process to right lamella 12
- Antennal segment 3 circular, arista supra-apical or almost dorsal. Male genitalia with a simple or bifurcated dorsal process to right lamella 14
- 12 (11) Antennae bicoloured, basal segments yellow, segment 3 dark. Halteres extensively darkened, at least on tips. Large bristles on head and thorax black; wings broad, slightly yellowish. Larger species about 2 mm in length (North Europe) *speculifera* Walk.
- Antennae unicolorous yellowish to dark brown. Halteres pale, at most only very slightly darkened at tips; wings clear. Smaller species, generally about 1.5 mm in length 13
- 13 (12) Antennae yellowish. Large bristles on head and thorax brassy-yellow to tawny-brown. Wings rather small and narrow. Dorsal process to right lamella of epandrium in male large and heavily sclerotized, darkened (North Europe) *beckeri* Mel.
- Antennae brown to dark brown. Large bristles on head and thorax mostly black. Wings rather large and broad. Dorsal process to right lamella of epandrium small, slender and only slightly sclerotized (South and East Europe) *nigrosetosa* Chv.
- 14 (11) Legs with distinct black bristles and black hairs. Large bristles on head and thorax mostly black 15
- Legs in addition to black or pale bristles covered with pale hairs. Large bristles on head and thorax pale to dark brown 16
- 15 (14) Legs tawny-brown to dark brown, tarsal segments slightly dilated. Mid tibiae in male with a distinct black anterodorsal bristle in apical third.

- Jowls below eyes rather deep, about as deep as one-sixth of the eye-height. Dorsal process to right lamella of epandrium simple and pointed (South Europe) *italica* Chv.
- Legs yellow or darkened on femora, apical two segments on anterior four tarsi darkened and dilated. No anterodorsal bristle to mid tibiae in male. Jowls narrow, at most as deep as one-eighth of the eye-height. Dorsal process to right lamella broadly bifurcated (South Europe) *pontica* Chv.
- 16 (14) Acrostichals and dorsocentrals pale and evenly small, no longer pairs of dorsocentrals; no posthumeral bristle (?). Legs with only tiny dark preapical bristles and the usual bristles on apical half of hind tibiae; legs short, last tarsal segments darkened and dilated. A simple, slender dorsal process to right lamella in male. Very small species, about 1 mm in length (North Africa) *amaura* (Beck.)
- A distinct posthumeral bristle and at least 3 pairs of dorsocentrals in the inner row much longer than other hairs on mesonotum. All tarsal segments slender. Generally larger species, averaging from 1.0 to 1.9 mm 17
- 17 (16) All bristles on head and thorax mostly pale, vertical bristles somewhat smaller and the inner pair distinctly crossing. Legs with tiny pale preapical bristles, only large bristles on apical two-thirds of hind tibiae darker. Dorsal process to right lamella of epandrium bifurcated, the outer branch only small (South Europe) *adriatica* Chv.
- Large bristles on head and thorax tawny-brown to blackish-brown. Vertical bristles well developed, inner pair erected, at most only slightly crossing at tip. Large bristles on legs dark, including all preapical bristles 18
- 18 (17) Large bristles on head and thorax blackish-brown. Radial vein short, ending to costa in first-third between subcosta and cubital vein. Legs yellow, fore tibiae anteriorly with only small dark hairs, no distinct bristle. Dorsal process to right lamella of epandrium bifurcated, both branches almost equal in length (Canary Is.) *colliniana* Frey
- Large bristles on head and thorax tawny-brown to brown. Radial vein longer, ending to costa in half way between subcosta and cubital vein. Legs often darkened, especially on femora; fore tibiae with a distinct black bristle anteriorly. Dorsal process to right lamella of epandrium simple and pointed (Azores, North Africa, South Europe) *oraria* Coll.
- 19 (9) Wings clear or slightly brownish with distinct dark veins. Longer setae on head and thorax tawny-brown to blackish 20
- Wings milk-white with indistinct pale veins, or very abbreviated. Longer setae on head and thorax whitish, or replaced by only white points 22
- 20 (19) Longer setae on head and thorax black. Face broad, as broad above as frons in front; jowls rather deeper, almost as deep as one-sixth of the eye-height. Wings rather broad, slightly brownish (East Europe) *caucasica* Chv.
- Longer setae on head and thorax brownish to dark brown. Face narrow, much narrower above than frons in front; jowls below eyes narrow, at most as deep as one-eighth of the eye-height 21

- 21 (20) Wings rather narrow, distinctly brownish on costal half. Face very narrow. Fore tibiae in female with a single, tiny dark hair-like bristle in front (South Europe) *mediterranea* Chv.
 — Wings rather broad, entirely clear without any clouding. Face not so narrow, even though still distinctly narrower than frons in front. Fore tibiae with 2 tiny dark hair-like bristles in front (South Europe) ♀ sp.
- 22 (19) Wings very abbreviated, very short and narrow, scarcely extending beyond end of second abdominal segment; venation incomplete. Legs yellowish-brown (South Europe) *curtipennis* Coll.
 — Wings not abbreviated, distinctly longer than abdomen; venation complete. Legs dark brown 23
- 23 (22) Whitish setae on head and thorax distinct even though smaller. Hind tibiae with only 2 to 3 whitish preapical bristly hairs, no distinct dark bristles on at least apical third of tibia as usual. Wings rather narrow, slightly milk-white (North Africa) *albopilosa* Chv.
 — No distinct setae on head and thorax, only small pale points. Hind tibiae with usual distinct dark bristles on apical third. Wings rather broad and distinctly milk-white (North Europe) *incana* Walk.

1. *Chersodromia hirta*-group

Chersodromia hirta (Walker, 1836)

Tachypeza? hirta Walker, 1836 : 180 — England.

Chersodromia hirta Walk.: Walker, 1851 : 137; Schiner, 1862 : 96; Bezzi, 1903 : 278; Becker, 1907 : 119 — Tunisia (misidentification, = *C. pseudohirta* Chv.); Kertész, 1909 : 145; Lundbeck, 1910 : 277 — Denmark; Karl, 1930 : 58; Collin, 1950 : 78; Ardö, 1957 : 103, 171; Collin, 1961 : 62; Chvála, 1970 : 387.

Coloboneura hirta Walk.: Melander, 1928 : 294; Engel in Lindner, 1938 : 35; Brauns, 1959 : 542

Diagnosis. Very large blackish and distinctly black bristled species with 2 pairs of strong vertical bristles and dark palpi covered with strong black bristles; halteres yellowish. Legs blackish, hind femora with anteroventral and anterodorsal rows of long black bristles. Wings slightly tinted brownish on costal half, veins distinctly dark brown.

Male. Head black, frons narrower at middle, slightly widening out below and above, greyish dusted but velvety brown just above antennae. 2 pairs of strong ocellar and 2 pairs of vertical bristles, black and of the same length. Occiput blackish-grey, covered with shorter black bristles everywhere except just above the neck. Face slightly darker than frons, somewhat wider below antennae and distinctly widening out towards mouth, very prominent beneath eyes and coalescent with deep jowls. Antennae black, segment 2 as long as broad, armed with a circle of short black bristles anteriorly; segment 3 hardly larger, almost circular with pointed tip; microscopically pubescent arista very slightly longer than antenna. Proboscis very strong, black. Palpi blackish, ovate and flattened, clothed with microscopic greyish pile and short black bristles, a black terminal bristle long, about as long as palpus.

Thorax black in ground colour, greyish dusted especially on pleura, only sternopleura largely shining black. All thoracic bristles black, mesonotum covered with short black bristly hairs, from which only biserial acrostichals are narrowly separated. Other bristles long and prominent: 1 humeral, 1 posthumeral, 4—5 notopleural, 1 supra-alar, 1 postalar, 5 pairs of dorsocentrals, 1 pair of scutellar with additional pair of minute hairs at side, and 1 distinct upturned bristle on prothoracic episternum. Meso- and metasternum between posterior four coxae with tufts of strong black bristles.

Legs black, covered with short black hairs and conspicuous black bristles; all femora of about the same stoutness, armed with a long preapical anterior bristle. Fore femora with antero- and posteroventral rows of long black bristles, and one or two rows of about 8 shorter dorsal bristles on apical half. Fore tibiae spindle-shaped dilated, clothed with short black hairs, dorsally with 3 long bristles, and with a strong antero- and posteroventral preapical bristle. Mid femora with a double row of shorter bristles beneath, anterodorsally with about 4 bristles on apical half. Mid tibiae slender and short haired, in addition to 2 long preapical bristles with 2 or 3 dorsal bristles. Hind femora with an anteroventral row of long black bristles, with about 5 anterodorsal bristles on apical half, and with another anterior bristle on apical fifth. Hind tibiae slightly dilated towards tip, armed with three rows of about 5—4 strong bristles (dorsal, anterior and anteroventral), the bristles are distinctly longer than tibia is deep. Metatarsi slender and short haired, only hind metatarsus with a long bristle behind at about middle, apical tarsal segments especially on anterior two pairs distinctly dilated and covered with stronger bristly hairs.

Wings large and rounded at tip, veins distinct, brown to dark brown, costal half except for apex faintly brownish clouded. Cubital and discal veins slightly diverging, second basal cell slightly shorter than first basal cell. Squamae dusky with dark fringes, halteres yellowish to yellowish-brown.

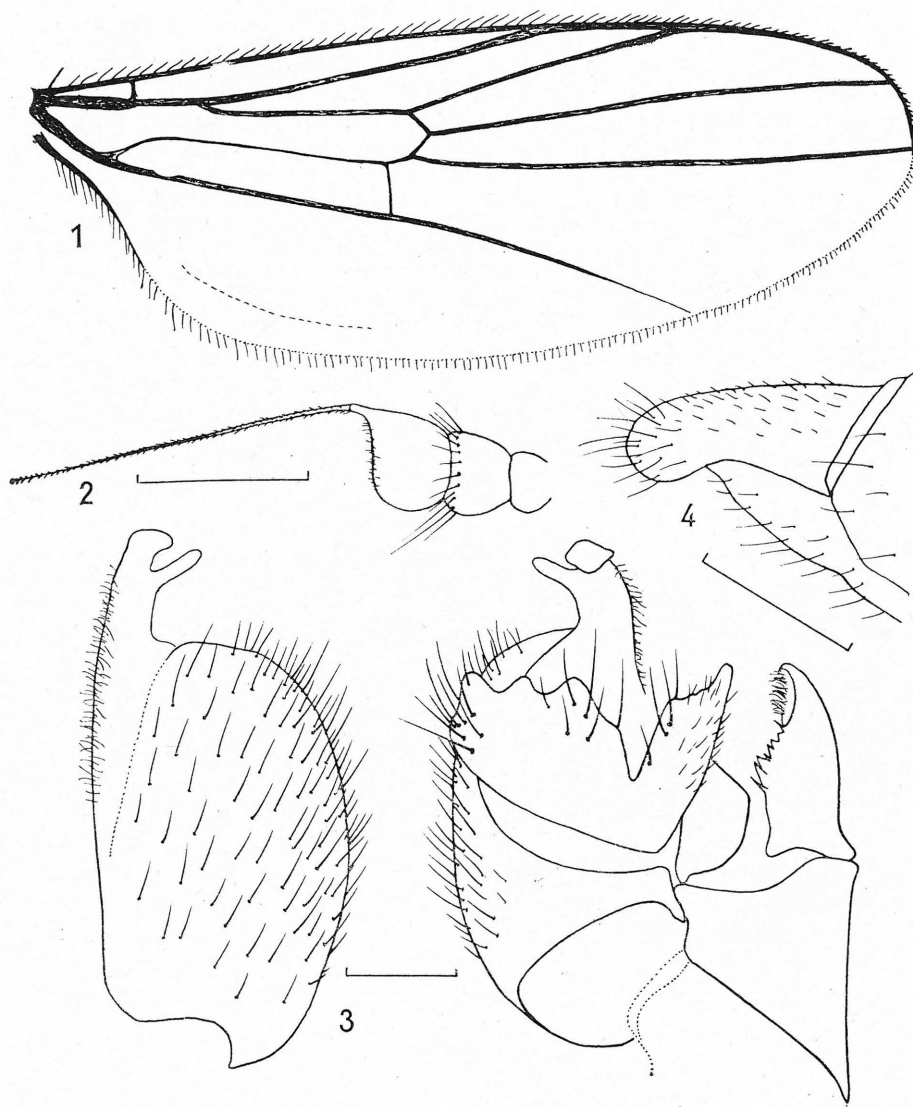
Abdomen black coloured and thinly greyish dusted, covered with fine dark brownish hairs, only last segment with long black bristly hairs on posterior margin. Genitalia large, formed mainly by a very enlarged right lamella of epandrium (placed on the left side), which is greyish dusted and wholly covered by short black bristly hairs, on the left side with a shining black, apically bifid projection. Cerci broad and flat, covered with minute reddish hairs, apically with longer black hairs.

Female. Resembling male but abdomen pointed, cerci blackish-brown, rather long and broad, blunt-ended, apically with minute black hairs.

Length: body 2.6—4.0 mm, wing 2.6—3.7 mm.

C. hirta differs from all species of this genus except *pseudohirta*, *kamtchatkiana* and *nubifera* in the large size, and in the very bristly head, thorax and especially legs; hind femora bear anteroventral and anterodorsal rows of very long black bristles which are in other species replaced by only shorter preapical bristly hairs. The further three Palaeartic species of the *hirta*-group are compared with *hirta* in their descriptions and in the differential table.

Distribution. On the coast of North and Baltic Sea from Great Britain through North Germany and Denmark as far as South Sweden (Skåne), not yet recorded eastwards. Collin (1961 : 64) recorded this species according to Villeneuve also from Bretagne, France, but I have not seen any documentary material. *C. hirta* was erroneously recorded by Becker (1907) and by all subsequent authors also from La Marsa, Tunisia, but these records refer to *C. pseudohirta*.



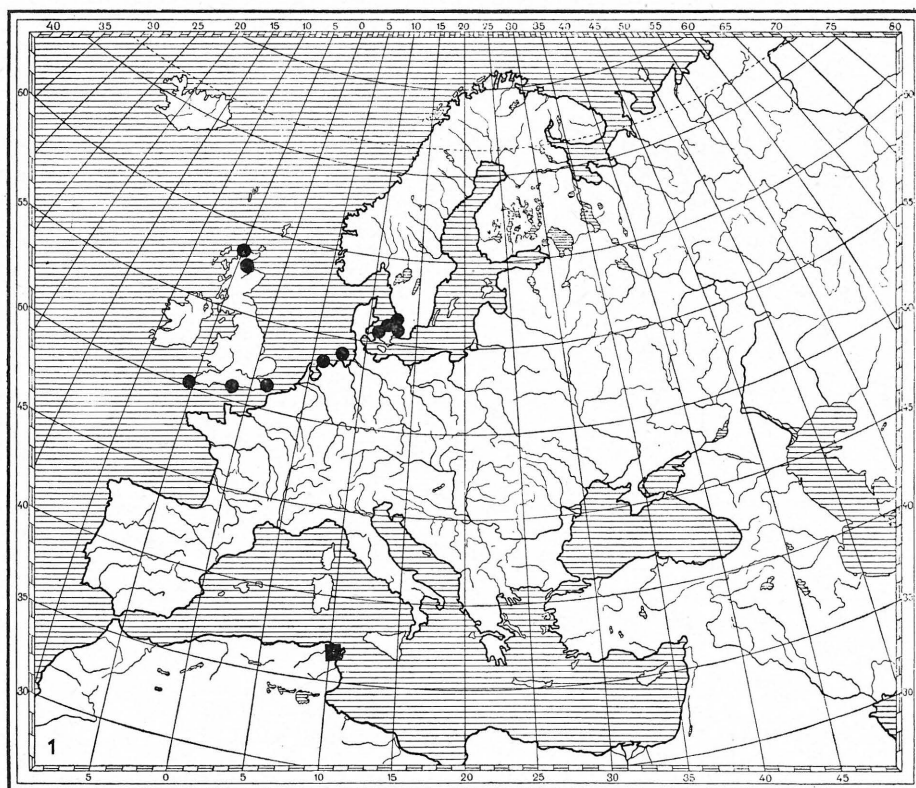
Figs. 1—4. *Chersodromia hirta* (Walk.) [Tisvilde, Denmark] ♂: 1 — wing, 2 — antenna, 3 — hypopygium (right lamella on the left and epandrium with cerci on the right). ♀: 4 — cerci. The scale lines represent 0.2 mm.

Dates. May to August, according to Collin (1961) until October, on dates ranging from 21 May (Sweden) to 21 October (England).

Biology. A very distinct black species running about on sandy seashore close to water, the adults are often resting in large numbers under dry seaweed thrown up

from the water. I have collected this species in 1969 from the beginning of June until the end of July on the sandy coast of North Sjealland, Denmark, between Liseleje and Gilleleje; the adults were very common especially in early June, running about in hundreds on the coast close to water (approximatively from 1 to 6 m), representing at this time the commonest and the most conspicuous fly on the beach.

Material examined. Great Britain — Inverness 28. viii. 1903 1 ♂ Col. Yerbury; Studland 20. viii. 1906 1 ♀ leg.? (both *hirta* Wlk., det. Verrall) (coll. UZM København). Blakesun Pr. 22. vii. 1920 1 ♂? Collin; N. Haven 29. v. 1907 1 ♀? Collin (both *hirta* Wlk., det. Collin, 1921) (coll. DEI Eberswalde). Porthcurnicle Beach nr. Portscatho, Cornwall 25. v. 1964 1 ♀ C. E. Dyte (coll. Chvála). Germany — Borkum, island 22. vii. 1919 1 ♀ Dr. Armin Bau (*cursitans* Zett., det. Enderlein, 1921) (coll. ZM Berlin). Helgoland 18. viii. 1920 1 ♀ L. Oldenberg (*hirta* Wlk., det. Oldenberg (coll. DEI Eberswalde). Denmark — Sj. Tisvilde 10.—11. vii. 1909 7 ♂ 6 ♀ W. Lundbeck (*hirta* Wlk., det. Lundbeck); Sj. Nordstrand nr. Nyköbing 15.—24. vii. 1943 1 ♀ Dr. Mortensen (coll. UZM København). Sj. Liseleje 5.—7. vi. 1969 53 ♂ 19 ♀, 6. vii. 1969 1 ♂, 15.—17. vi. 1969 3 ♂ 3 ♀; Sj. Rösnaes Fyr 13. vii. 1969 1 ♂; Sj. Rörvig, Korshage 26. vii. 1969 1 ♂ 2 ♀ all leg. M. Chvála (coll. NM Praha and coll. Chvála). Sweden — Sk. Hälsingborg 21. v. 1925 1 ♂; Sk. Ängelholm 29. v. 1937 2 ♂; Sk. Skälderviken 16. vi. 1926 1 ♂ all leg. O. Ringdahl (coll. ZIU Lund). Sk. Ängelholm 29. v. 1937 1 ♂ O. Ringdahl (coll. ZM Helsinki).



Map 1. — Distribution of *C. hirta* (Walk.) — ● and *C. pseudohirta* Chv. — ■.

Chersodromia pseudohirta Chvála, 1970

Chersodromia hirta Walker: Becker, 1907 : 119 — Tunisia (misidentification).

Coloboneura sp. Frey, 1936 : 64 — Canary Is.; Frey, 1958 : 26.

Coloboneura ornatipes Bigot?: Frey, 1958 : 27 (misidentification).

Chersodromia pseudohirta Chvála, 1970 : 385.

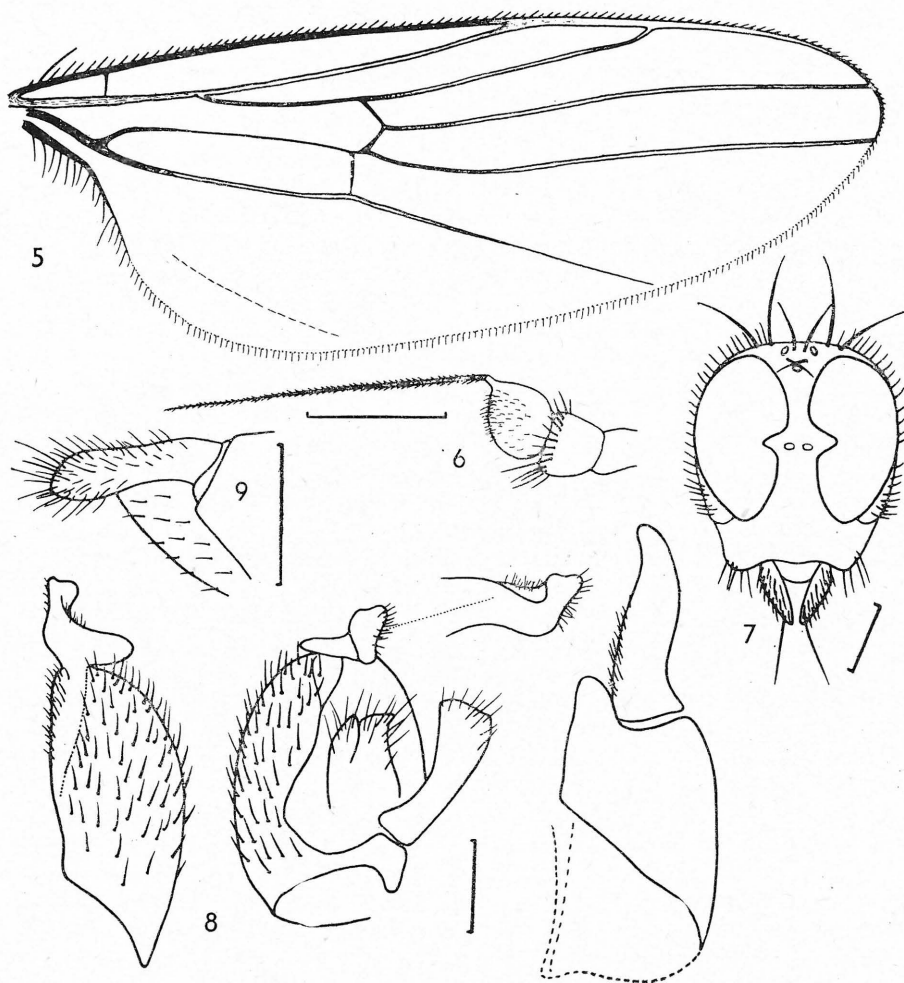
Diagnosis. A large blackish coloured and black bristled species resembling *hirta* but in addition to different genitalia in male and cerci in female, tibiae and tarsi brown, wings faintly yellowish, somewhat pointed at tip and broader at base, and veins pale yellow with cubital and discal veins more parallel and slightly bowed at middle.

Male. Head black with frons narrower at middle. 2 pairs of strong black ocellar and vertical bristles equal in length, occiput dark grey dusted with a number of short black bristles on the upper part becoming longer and finer on the lower part below neck. Antennae black, segment 2 about as long as broad with a circle of short black bristles which are longer below; segment 3 almost circular, pointed at tip; terminal arista rather long, microscopically pubescent. Palpi ovate, dark brown, clothed with very short and fine greyish pubescence and with several black bristly hairs; terminal bristle very long, as long as palpus.

Thorax black to blackish-brown, mesonotum only thinly dusted, slightly shining, pleura more densely dusted silvery-grey except for a large polished black patch on sternopleura. Mesonotum entirely covered with short black bristly hairs from which only biserial acrostichals are narrowly separated. Large thoracic bristles strong, black: 1 upturned bristle on each side of prothoracic episternum, 1 humeral, 1 posthumeral, 4–5 notopleural with some small additional bristly hairs, 1 supra-alar, 1 postalar, 5 pairs of dorsocentrals, and 1 pair of scutellar bristles, outer pair only fine. Meso- and metasternum between posterior four coxae with clusters of long black spine-like bristles.

Legs brown, only femora and coxae dark brown to black-brown, armed with very strong black bristles, other short hairs mainly brownish. All femora rather stout with distinct preapical bristles. Fore femora with a double row of long black bristles beneath, dorsally on apical half with a row of 4–5 still stronger, very long bristles. Fore tibiae spindle-shaped dilated, only short haired, dorsally with 3 long bristles and antero- and posteroventrally with a very distinct preapical bristle. Mid femora with a double row of closely inserted short black bristles beneath, with a posteroventral row of about 6 longer and thinner bristles, another anterodorsal row of 4 bristles on apical third, and with 2 bristly hairs near base beneath. Mid tibiae slender and likewise fore tibiae with 3 bristles dorsally including 2 preapical bristles. Hind femora with an anteroventral row of long black bristles, another 4 long bristles are placed dorsally on apical third, and behind them there is another row of shorter bristles on apical half. Hind tibiae slender, armed with three rows of 4–5 very strong bristles dorsally, anteriorly and anteroventrally, all bristles being much longer than tibia is deep. Tarsi only short haired except a long bristle on hind metatarsus posteriorly at middle; apical tarsal segments distinctly dilated and armed with coarser short bristles especially on anterior two pairs.

Wings slightly tinted yellowish especially near base and on costal half, all veins distinctly yellowish. Costa brownish, covered with short black hairs and with a long black bristle at base. Cubital and discal veins more parallel than in *hirta* and both



Figs. 5—9. *Chersodromia pseudohirta* Chv. [Paratype — La Marsa, Tunisia] ♂: 5 — wing, 6 — antenna, 7 — head, 8 — hypopygium (right lamella on the left, the same with cerci at middle and left lamella on the right). ♀: 9 — cerci. The scale lines represent 0.2 mm.

indistinctly arched at middle towards costa; second basal cell distinctly shorter than first basal cell. Wings somewhat narrower and slightly pointed towards tip, broader on basal third. Squamae brownish with brown fringes, halteres yellowish.

Abdomen dark brown to brownish in ground colour, thinly greyish dusted and covered with short dark hairs, apical segment with long dark bristly hairs on posterior margin. Genitalia large, dark brown, right lamella of epandrium distinctly greyish dusted and covered with longer dark hairs.

Female. Resembling male in all respects except sexual characters; cerci rather short, pale brownish and covered with dark hairs becoming longer towards tip.

Length: body 2.5–3.6 mm, wing 2.5–3.5 mm.

C. pseudohirta is a species closely allied to *hirta* differing in the brown legs, only femora and coxae are darker, and all hairs on legs (except long black bristles) are paler; furthermore fore femora bear dorsally 4–5 very long, outstanding black bristles on apical half, which are in *hirta* more numerous (about 8) and shorter. Wings are more pointed at apex, slightly tinted yellow and all veins yellowish coloured, therefore not so distinct; cubital and discal veins are almost parallel and slightly downcurved on apical half. The distinctions in the male genitalia are readily apparent, and the female cerci are smaller, paler, and more pubescent. The further two Palaearctic species of the *hirta*-group, *kamtchatkiana* and *nubifera*, have only anteroventral bristles on hind femora, dark halteres, only 1 strong dorsocentral bristle, and the posthumeral bristle is absent.

Distribution. Tunisia, Canary Is. The species is hitherto known only from two rather distant localities in the West Mediterranean and the North Atlantic Ocean but it is undoubtedly more widely distributed on the Mediterranean and Atlantic coast of North Africa. Becker (1907) misquoted this species from La Marsa near Carthage, Tunisia, under the name of *C. hirta* Walk., and this mistake was followed by all subsequent authors.

Dates. May and June.

Biology. The species has been collected by both Becker in Tunisia and Storå on the Canary Is. on the seashore and, regarding the large series of specimens collected by Becker at La Marsa, the species is probably common on the coast of North Africa.

Material examined. Tunisia — La Marsa, 52941 10 ♂ 11 ♀ coll. Dr. Th. Becker (*C. hirta* Wlk., det. Becker) (coll. ZM Berlin including the ♂ holotype, 1 pair in coll. Chvála). Tunis, 52941 v. 2 ♀; La Marsa, 52941 1 ♂ 1 ♀ Dr. Th. Becker (coll. DEI Eberswalde). Canary Is. — Gr. Canaria, Las Palmas 29. vi. 1931 1 ♀ R. Storå (*Coloboneura* sp., det. Frey) (coll. ZM Helsinki).

***Chersodromia kamtchatkiana* Chvála, 1970**

Chersodromia kamtchatkiana Chvála, 1970 : 388.

Diagnosis. A very large blackish coloured and black bristled species of the *hirta*-group with dark halteres, entirely dusted sternopleura, and hind femora with only an anteroventral row of strong black bristles on apical half. Wings long and narrow, tinted brownish, veins dark. No posthumeral bristle and only one pair of strong prescutellar dorsocentrals.

Male. Eyes small and only very microscopically whitish pubescent. Frons black, dulled greyish, rather narrow at middle (distinctly narrower than antennal segment 2) and widening out above and below. Face slightly broader, as broad below antennae as frons in front, black and covered with silvery-grey pile; widening out and produced very much downwards, very prominent below eyes and confluent with very deep jowls, which are almost as deep as one half of the eye-height. 2 pairs of ocellar and 2 pairs of vertical bristles, all black and strong. Occiput with numerous short but rather strong black bristles especially above neck. Antennae blackish, segment 1 very small but visible, segment 2 much larger, almost as large as segment 3, both

almost as long as broad; segment 3 more circular, supra-apical arista microscopically pubescent, long and dark. Palpi blackish with black bristles, rather small, terminal bristle black, distinct. Proboscis shining blackish-brown, long and very strong, curved backwards and not very much shorter than the head is high.

Thorax black in ground colour, dulled by greyish dust, more intensively on pleura; sternopleura entirely dulled, without usual shining patch, only the upper hind corner with a slight indication of a very small, somewhat polished area. Mesonotum densely covered with short black bristly hairs, biserial acrostichals very close and very narrowly separated from dorsocentrals; only the last prescutellar pair of the latter long and bristle-like. The other large thoracic bristles are as follows: 1 humeral (placed on hind part of humerus), 2 notopleural with 2 or 3 smaller hairs, 1 supra-alar, 1 postalar and 1 pair of scutellar bristles with additional pair of very fine and small hairs at side. Prothoracic episternum with 1 black upcurved bristle, no posthumeral bristle.

Legs blackish-brown, distinctly dulled by greyish dust. Fore coxae armed with long black bristles in front, posterior coxae also at sides. All femora only slightly stout, and legs covered with black hairs or bristles. Fore femora with short black hairs dorsally, covered with microscopic silver pubescence ventrally; anteroventrally with a row of black bristles becoming more scattered but longer towards tip, posteroventrally with a row of shorter fine black hairs; anterior preapical bristle very strong. Fore tibiae distinctly spindle-shaped dilated, with a posteroventral row of densely placed longer black hairs which are apically curved backwards, and with 2 strong preapical bristles beneath. Mid femora with a double row of shorter black bristles beneath. Mid tibiae rather slender, in addition to 2 distinct preapical bristles beneath with 2 strong anterior bristles on basal third and 3—4 anterodorsal bristles on basal half, ventrally with short but rather strong black bristly hairs in a comb. Hind femora short haired, with 1 long anteroventral bristle at base, another 4—5 anteroventral bristles on more than apical third, and a distinct anterior preapical bristle. Hind tibiae long and slender, slightly dilated towards tip and wholly covered with long black bristles in three irregular rows (dorsal, anterior and anteroventral), the bristles being distinctly longer than tibia is deep. Tarsi long and slender, distinctly longer than corresponding tibiae, covered with short black bristly hairs, only hind metatarsus with several distinct long black bristles at middle.

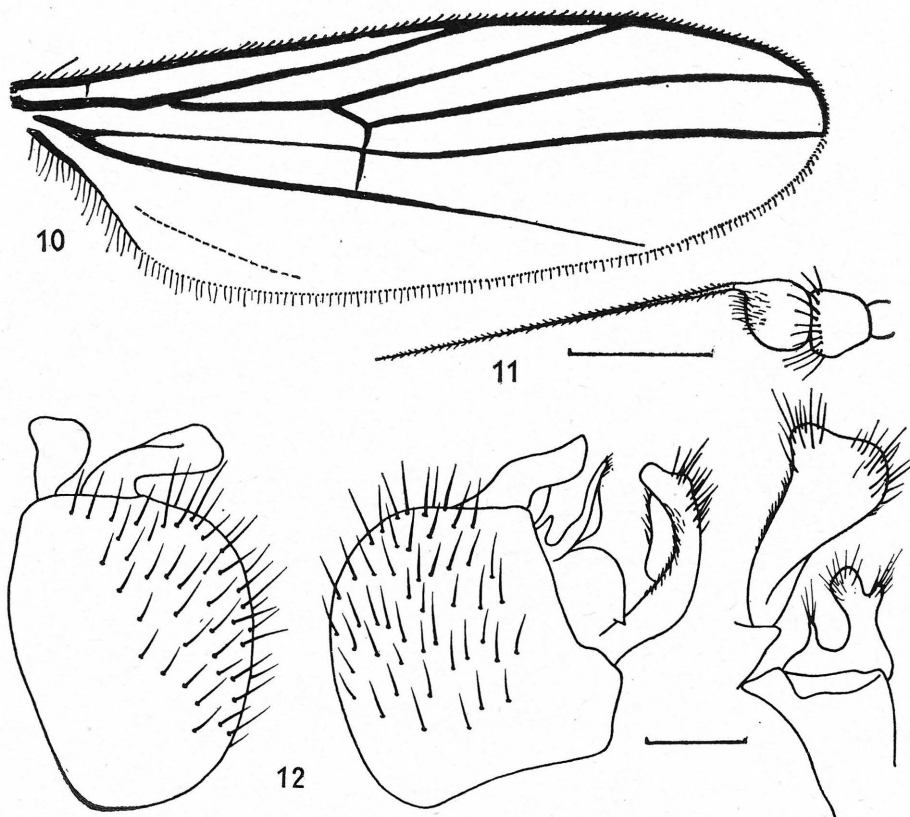
Wings long and conspicuously narrow, light brownish coloured but somewhat paler along posterior margin; veins dark brown. Radial vein rather long, cubital and discal veins almost parallel. Both basal cells equal in length, costal bristle long, black. Squamae very small, indistinct, halteres blackish-brown, yellowish at base.

Abdomen black to blackish-brown, thinly greyish dusted and covered with scattered minute dark hairs, only last segment with long dark bristly hairs on posterior margin. Genitalia rather large, blackish-brown, right lamella of epandrium very convex, almost globular, greyish dusted and covered with rather short but strong black bristly hairs; terminal processes bare.

Female. Closely resembling the male but mid tibiae beneath with longer black bristly hairs which are not so short and in comb. Abdomen dulled blackish-brown, cerci very small.

Length: body (2.4 mm 1 ♀) 2.7—2.9 mm, wing 3.0—3.1 mm.

Both *hirta* and *pseudohirta* differ from *kamtchatkiana* in the presence of a distinct row of long anterodorsal bristles on the hind femora, the presence of a posthumeral



Figs. 10–12. *Chersodromia kamtschatkiana* Chv. ♂ [Holotype]: 10 — wing, 11 — antenna, 12 — hypopygium (right lamella on the left, the same with left dorsal process at middle, and left lamella with appendages and detail of left process on the right). The scale lines represent 0.2 mm.

bristle, a large polished patch on the sternopleura, and the entirely pale halteres. Furthermore they possess five pairs of distinct large dorsocentrals bristles along the whole length of the mesonotum, and have the mid tibiae less bristled. However, *kamtschatkiana* is much more closely related to *nubifera*, the differential characters are given under the latter.

Distribution. Kamtschatka. The only known series of the holotype ♂ and 6 paratypes was collected by Y. Wuorentaus on the Kamtschatka Peninsula, but no further details are known.

Date. August.

Material examined. Kamtschatka — Bolscherjetsk 19. viii. 1917 3 ♂ 4 ♀ Y. Wuorentaus (*Halsonolates kamtschatica* Frey MS, det. Frey) (coll. ZM Helsinki including the ♂ holotype, 1 pair in coll. Chvála).

***Chersodromia nubifera* (Coquillett, 1899)**

Tachydromia nubifera Coquillett, 1899 : 343 — Komandorskiye Is.; Melander, 1902 : 342; Aldrich, 1905 : 313.
Coloboneura nubifera Coq.: Coquillett, 1903 : 265; Melander, 1910 : 52, 1928 : 294, 1945 : 81.
Tachista nubifera Coq.: Kertész, 1909 : 142.
Chersodromia nubifera Coq.: Chvála, 1970 : 390.

Diagnosis. A species very closely related to *kamtchatkiana*, having the polished patch on sternopleura and different genitalia in the male.

A very little known species described already in 1899 from a series of 1 ♂ and 2 ♀ which are deposited in the U.S. National Museum, Washington, under the No. 4051. I have not seen this species but Dr. G. Steyskal, Washington, has very kindly checked the type specimens under his charge and compared them with the manuscript description and drawings of *C. kamtchatkiana*. According to Dr. Steyskal (letter communication, 17 Dec., 1968) the type male is a rather poor specimen, one wing has the part of the tip missing and there is only a fragment of the other wing. Nevertheless the crossvein closing second basal cell is distinctly oblique, slanting above towards base of wing, and first basal cell thus distinctly longer than second basal cell; the feature already mentioned by Melander (1945 : 82). The remaining external characters agree well with *kamtchatkiana* except for the shining area in the middle of the sternopleuron (which could be due to rubbing according to Dr. Steyskal). Dr. Steyskal has kindly dissected the genitalia of the type male of *nubifera* (see Chvála 1970, fig. 9) and found considerable difference in detail, but a very close resemblance in general.

C. nubifera has been recorded in the literature either like *Tachydromia* or *Coloboneura*, it was arranged in the genus *Chersodromia* only recently by the present author (Chvála 1970).

Distribution. Komandorskiye Is. in the Bering Sea. Melander (1945) when describing *C. insignita* compared it with *Coloboneura nubifera* Coq. "from Alaska"; this record being probably a mistake since later (Melander 1965) he did not arranged *nubifera* in the Catalog of the Diptera of America north of Mexico.

No material examined.

2. *Chersodromia cursitans*-group***Chersodromia cursitans* (Zetterstedt, 1819)**

Empis cursitans Zetterstedt, 1819 : 82 — Sweden.

Tachydromia cursitans Zett.: Fallén, 1823 : 7.

Tachypeza cursitans Zett.: Zetterstedt, 1842 : 322, 1849 : 3012, 1855 : 4604, 1859 : 4996.

Chersodromia cursitans Zett.: Walker, 1851 : 137 — England and Ireland (misidentification, = *C. difficilis* Lundb.); Schiner, 1862 : 96; Bezzi, 1903 : 278; Kertész, 1909 : 145; Strobl, in Czerny et Strobl, 1909 : 179 — Spain (misidentification, not examined); Lundbeck, 1910 : 278 — Denmark; Wahlgren, 1910 : 89; Frey, 1913 : 75 — Finland; Ringdahl, 1921 : 35; Collin, 1926 : 149; Melander, 1928 : 296; Karl, 1930 : 57; Krogerus, 1932 : 112; Engel in Lindner, 1938 : 39; Frey, 1941 : 7; Backlund, 1945 : 222; Brauns, 1949 : 157 — Germany, USSR (not examined); Ardö, 1957 : 103, 171; Kröber, 1958 : 52; Brauns, 1959 : 542, 551; Collin, 1961 : 65; Coe, 1962 : 102 — Yugoslavia (reexamined by K. G. V. Smith, in litt. 1970); Smith, 1964 : 127 — England (reinstated); Kovalev, 1969 : 582; Chvála, 1970 : 384, 1970 a : 126 — Czechoslovakia, 1971 : 5 (Lectotype designation).

Chersodromia difficilis Lundb.: Frey, 1913 : 75; Krogerus, 1932 : 112; Frey, 1941 : 7 (all misidentification, examined).

Diagnosis. Medium-sized blackish species with 2 pairs of vertical bristles and dark halteres. Legs dull brownish, fore tarsi slender, longer than tibia. Wings somewhat narrower, blunt ended, brownish especially on costal half.

Male. Frons dull blackish-brown, not as wide just above antennae as antennal segment 3, and very slightly widening out towards ocelli. Face greyish-black, almost as broad as frons in front, produced downwards and confluent with moderately broad jowls. 2 pairs of ocellar and 2 pairs of vertical bristles long, almost equal in length, black. Occiput greyish dusted, covered with short black bristly hairs becoming longer and weaker towards mouth. Antennae black, segment 2 as broad as long, with a circlet of fine blackish hairs; segment 3 almost circular with microscopically pubescent, slightly supra-apical dark arista, which is distinctly longer than antenna. Palpi small, blackish-brown coloured and silvery pilose, clothed with sparse black hairs and with a longer, black terminal bristly hair.

Thorax black, thinly greyish dusted, more intensively on pleura; only sternopleura largely polished black to blackish-brown. Mesonotum uniformly clothed with rather short dark bristly hairs, only biserial acrostichals are narrowly separated. Large thoracic bristles black and in full number: 1 long humeral, 1 posthumeral, about 3 notopleural, 1 supra-alar, 1 postalar, 3 to 4 pairs of distinct long dorsocentrals, 1 pair of long scutellar with another fine at side, and one weak upcurved bristle on prothoracic episternum.

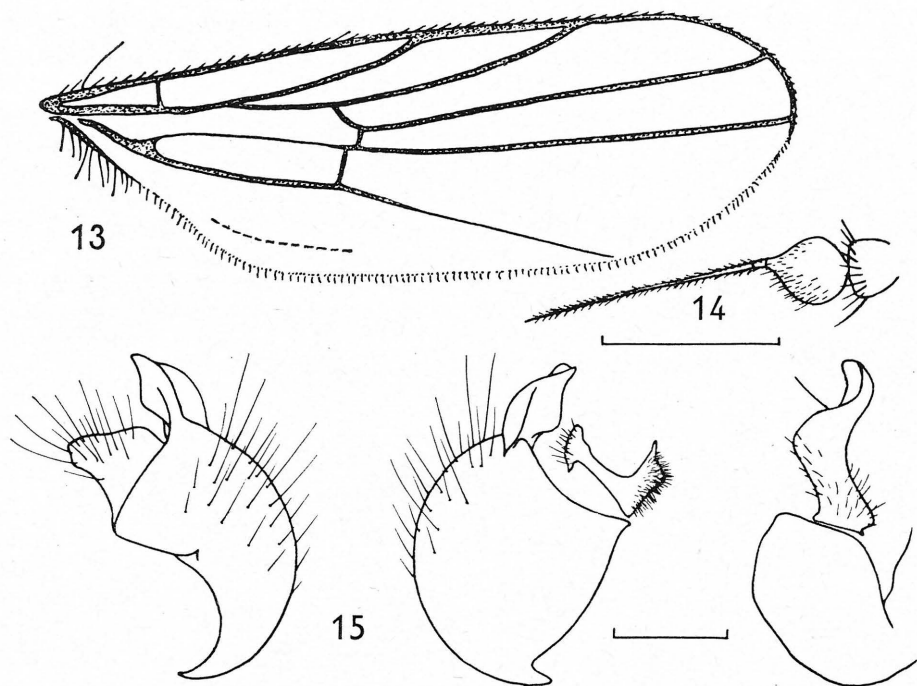
Legs blackish-brown to brownish, dulled by greyish dust. All femora of about the same stoutness and armed with a distinct anterior and another anteroventral preapical bristle. Fore femora with antero- and posteroventral rows of rather small black bristly hairs, fore tibiae slightly spindle-shaped dilated, short haired, with only 2 distinct antero- and posteroventral bristles before tip. Mid femora with a double row of black hairs beneath becoming longer towards base, mid tibiae with 2 preapical bristles beneath and with a posteroventral row of short black spiny bristles in comb on apical third. Hind femora in addition to 2 preapical bristles with only fine longer black hairs beneath. Hind tibiae with three rows (dorsal, anterior and anteroventral) of about 2 to 3 long black bristles on apical two-thirds. All tarsi short haired, long and slender, distinctly longer than corresponding tibiae; hind metatarsus with a single bristle on apical third behind.

Wing long and rather narrow, faintly brownish especially on costal half, all veins except base of discal vein rather thick and dark brown. Radial vein rather short, ending into costa at one-third distance between ending of subcostal and cubital veins, cubital and discal veins almost parallel on apical half. Both basal cells of about the same length, a long costal bristle. Squamae blackish with fine brownish fringes, halteres blackish-brown, stem slightly yellowish.

Abdomen black to blackish-brown, dulled by greyish dust and covered with rather densely set but only fine dark hairs. Genitalia rather large, right lamella of epandrium thinly greyish dusted and covered with sparse longer dark hairs. The process to right lamella broad and rather short, apically pointed.

Female. Resembling male but usually larger; the comb of black spine-like bristles to mid tibiae beneath absent but there are 2 distinct additional anterodorsal bristles in both thirds, and fore tibiae bear a similar anterodorsal bristle on apical third. Cerci short, blunt ended, clothed with only a few dark hairs at tip.

Length: body 1.4–2.4 (♀) mm, wing 1.6–1.9 mm.

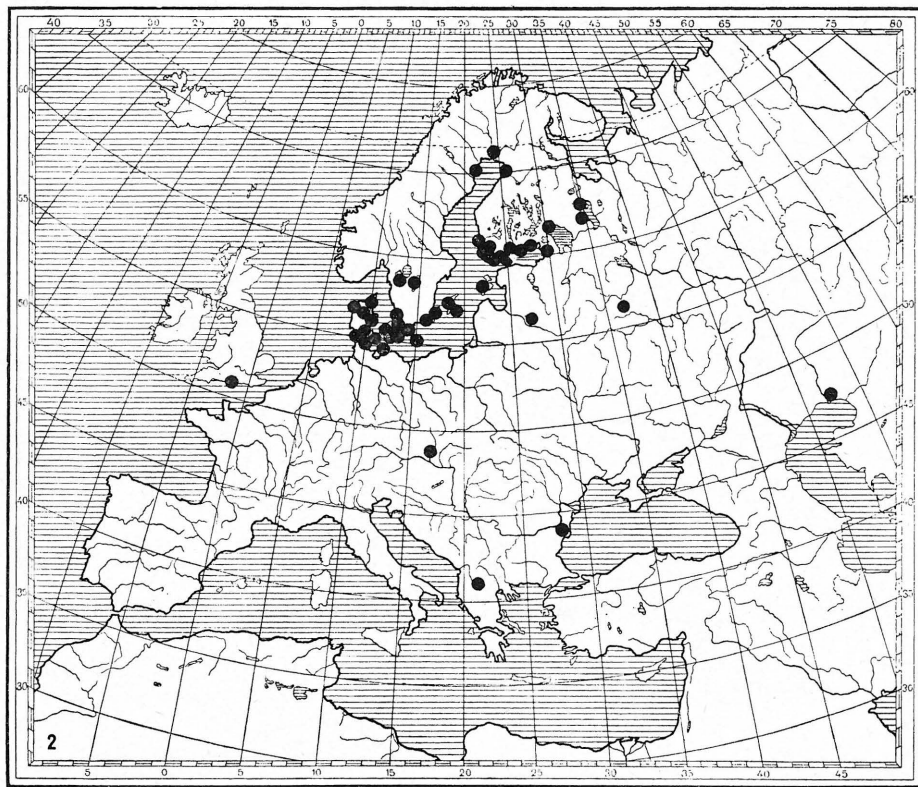


Figs. 13—15. *Chersodromia cursitans* (Zett.) ♂ [Hald Sø, Denmark]: 13 — wing, 14 — antenna, 15 — hypopygium (right lamella on the left, the same with cerci at middle, and left lamella on the right). The scale lines represent 0.2 mm.

C. cursitans needs comparison in North Europe only with two similarly black coloured medium-sized species, *arenaria* and *difficilis*; the former has shortened and dilated tarsal segments on anterior two pairs, and distinctly abbreviated wings; the latter has wings on the contrary larger and broader, and only 1 pair of vertical bristles. The most closely related species to *cursitans* seems to be *hackmani*, described from Kamtchatka; the differential characters of these two species are given under the latter and in the differential table.

Distribution. A species with an unusual large area of distribution in Europe, its centre lies on coasts of North and Baltic Sea. A very rare species in England, known at present only from two females taken in 1904 at Studland, Dorset (Smith, 1964), the earlier records from England referred to *difficilis*. A common species in Denmark and Scandinavia where it reaches along the Gulf of Bothnia to approx. 66° N (Norr-botten in Sweden and Ostrobothnia borealis in Finland), eastward it penetrates through Carelia to northern parts of the European part of the U.S.S.R., southwards along lakes and large rivers to the central regions of the European part of the U.S.S.R. (Moscow region) and to Central Europe (South Moravia, Czechoslovakia). The most southern record is from the lake Prespa Geul at Oteseva, Macedonia, where the late Mr. R. L. Coe took a single male in 1958 (the specimen was reexamined

by K. G. V. Smith). Dr. V. Beschovski took a single ♂ on a saline lake near Shabla, Bulgaria, I have collected this species in 1964 and again in 1971 on the sandy shore of the lake Mlýnský rybník at Lednice, Moravia, and Brauns (1949) recorded it from the northern shore of the Caspian Sea.



Map 2. — Distribution of *C. cursitans* (Zett.).

Dates. From the end of May until August, on the dates ranging from 29 May (Sweden) to 13 August (Finland).

Biology. *C. cursitans* is the only one North European species which inhabits also the shores of lakes and streams inland, penetrating in this way often very far inland. The adults run about very quickly, usually in large numbers, on sandy shores of both salt and fresh water, just close to the water, often on the wet sand and the seaweed thrown up from the water; they can fly for a short distance.

Material examined. Denmark — Mossø 7. vii. 1908 2 ♂, 17. vii. 1918 3 ♂ 3 ♀; Hou 12. vii. 1922 1 ♂ 1 ♀; Hald Sø 25. vi. 1910 4 ♂; Hejls 6.—30. vii. 1919 1 ♂ 3 ♀; Lohals 2. vii. 1909 3 ♀; Nysted 4. vii. 1923 1 ♀; Bornholm, Sandstrand Dueodde 18. vi. 1921 4 ♂ 1 ♀ all leg. W. Lundbeck; Agger

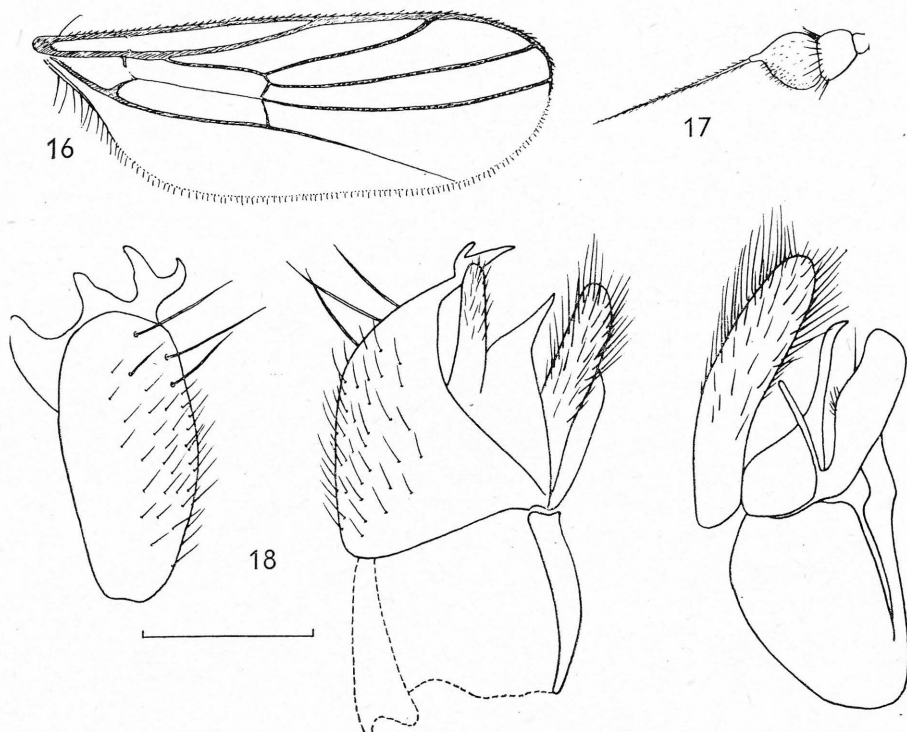
8. vi. 1919 3 ♂ 1 ♀ Dr. Th. Mortensen; Hörupshav 10. vi. 1894 1 ♂, Sottruphav 8. vi. 1896 1 ♀ Wüstnei; Vemmetofte vi. 1884 1 ♂ 1 ♀ H. Hansen (all *C. cursitans* Ztt., det. Lundbeck); Bornholm, Dueodde 18. vi. 1964 2 ♂ 2 ♀; Bornholm, Snøgebaek 18. vi. 1964 1 ♀ L. Lyneborg, O. Martin and B. V. Pedersen (coll. UZM København). Sj. Brøndbystrand 9.—13. vi. 1969 3 ♂ 1 ♀; Strandskov, coast S Køge 22. vi. 1969 19 ♂ 15 ♀; Jaernen, coast 8 km S Køge 22. vi. 1969 11 ♂ 7 ♀; Sj. Sønderø — shore 16. vi. 1969 8 ♂ 10 ♀ all. leg. M. Chvála (coll. NM Praha and coll. Chvála). Sj. Neder Draaby, Roskilde Fjord 29. vi. 1969 3 ♂ M. Chvála (coll. Chvála). Sweden — Suecia 1840 2 ♀ Alte Sammlung (coll. NM Wien). Hall. Trönninge Laxvik, dynard 30. vi. 1954 1 ♀ P. Ardö; Sk. Ringsjötrakten 3 ♀ C. D. E. Roth; Sk. Krankesjön Sjöstrand, sand 1.—5. vii. 1970 11 ♂ 19 ♀ H. Andersson; Sk. Landskrona 18. vii. 1955 2 ♂; Sk. Ringsjön 12. vii. 1912 2 ♂; Sk. Hälsingborg 4. vi. 1913 2 ♂ 1 ♀; Sk. Beddinge 26. vii. 1928 2 ♂; Gtl. Visby 1. vii. 1920 1 ♂; Gtl. Klintehamn 16. vii. 1920 1 ♂; Sk. Skalderviken 29. v. 1919 1 ♀; Vg. Hjo 21. vii. 1942 3 ♂; Nb. Piteå 4. vii. 1949 1 ♂ all leg. O. Ringdahl; Silfåkra 6 ♂ 4 ♀ coll. Zetterstedt (1 ♂ Lectotype); Gotland 2 ♀ coll. Zetterstedt (coll. ZIU Lund). Scania 4 ♂ 5 ♀; Öland 2 ♂; Gotland 1 ♂ 1 ♀; Småland 1 ♂ all C. H. Boheman (coll. NR Stockholm). Finland — Ab Karislojo Nr. 43933 8 ♂ 5 ♀ Th. Becker (*cursitans* Zett., det. Becker) (coll. ZM Berlin), the same data 2 ♂ (coll. DEI Eberswalde). Al — Jomala 1 ♀ R. Frey; Eckerö 13. viii. 1928 1 ♀ R. Krogerus; Föglö Björkör 6. vii. 1929 1 ♀ R. Forsius; Ab — Runsala 2 ♂ R. Frey; Lojo 16. vi. 1931 1 ♂ R. Krogerus; Karislojo 4 ♀ J. Sahlberg; Nagu 1 ♂ 1 ♀ R. Frey; Vichtis 2 ♀ R. Frey (1 ♀ *difficilis* Ldbk., det. Frey); N — Helsing 8 ♀ A. Palmén; Helsingfors 2 ♀ J. Sahlberg, R. Frey; Hangö 12. vi. 1925 1 ♂ 1 ♀ R. Krogerus (*difficilis* Ldbk., det. Frey); Tvärminne 28. vii. 1920 4 ♂ R. Frey; Hangö Henriksberg 12. vi. 1956 1 ♂ W. Hackman; Ka — Zavavrsaale 8. vii. 1926 1 ♂ R. Krogerus; St — Yläne 2 ♀ J. Sahlberg (*difficilis* Ldbk., det. Frey); Ytterö 10. vii. 1917 1 ♂ 1 ♀ R. Krogerus (*difficilis* Ldbk., det. Frey); Raumo 1 ♂ J. Sahlberg; Ob — Torneå 1 ♀ R. Frey; Hailuoto 7. vii. 1922 1 ♂ 1 ♀ 8. vii. 1927 1 ♂ 1 ♀ R. Krogerus (*difficilis* Ldbk., det. Frey) (coll. ZM Helsinki). USSR — K1 — Kexholm 1 ♂ J. Sahlberg; Ik — Metsäpirtti 1 ♀ R. Frey; Kon — Svätovlok 1 ♀ J. Sahlberg (*difficilis* Ldbk., det. Frey); Kol — Petrosawodsk 1 ♀ J. Sahlberg (*difficilis* Ldbk., det. Frey) (coll. ZM Helsinki). Esthonia, Sarema Is., dunes 11. vi. 1968 2 ♂ 2 ♀ V. Kovalev (coll. Chvála). Czechoslovakia — Moravia mer., Lednice, lakes 10. vi. 1964 1 ♂, 15. vi. 1971 1 ♂ 4 ♀ M. Chvála (coll. Chvála). Bulgaria — Šablenska Tuzla near Šabla 12. vii. 1967 1 ♂ V. Beschovski (coll. Beschovski).

Chersodromia hackmani sp. n.

Diagnosis. Medium-sized blackish-brown species of the *cursitans*-group with all bristles on head (including 2 pairs of vertical bristles) and thorax (except large humeral bristle) small, black; no posthumeral bristle. Sternopleura entirely covered by greyish dust. Wings rather narrower as in *cursitans*, slightly brownish. Hind tibiae with large black bristles on apical third only.

Male (holotype). Head black in ground colour, thinly silvery-grey dusted. Frons rather broad below, as broad as antennal segment 2, slightly widening above towards vertex. Face almost as broad below antennae as frons in front, conspicuously widening and convex towards mouth, and confluent with very deep jowls which are as deep as one-quarter of the eye-height. 2 pairs of ocellar and 2 pairs of vertical bristles black, rather short, about as long as antennal segment 3. Occiput thinly grey dusted and clothed on the upper part above neck with tiny black bristly hairs. Antennae blackish, segment 2 somewhat dark brown in ground colour, apically with a circle of black bristly hairs; segment 3 about as long as deep, apically distinctly pointed; arista terminal, about twice as long as antenna, microscopically dark pubescent. Palpi blackish, covered with minute black hairs and silver pile, terminal hair-like bristle black.

Thorax black in ground colour, rather densely dark grey dusted including on sternopleura, only the upper hind corner of the latter very indistinctly subshining blackish-brown. All thoracic hairs and bristles black. Acrostichals and dorsocentrals



Figs. 16—18. *Chersodromia hackmani* sp. n. ♂ [Holotype]: 16 — wing, 17 — antenna, 18 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella with appendages and left cercus on the right). The scale line (for Figs. 17, 18) represents 0.2 mm.

very small, multiserial and arranged in regular rows, but the acrostichals indistinguishable from dorsocentrals; only last prescutellar pair of latter longer, equal in length with other thoracic bristles, which are about as long as antennal segment 3; only humeral bristle very long, at least twice as long as other bristles: 2 posterior notopleural, 1 supra-alar, 1 postalar, and 1 pair of scutellar bristles; posthumeral bristle absent, and no distinct hairs on prothorax.

Legs blackish-brown in ground colour, thinly greyish dusted; all hairs and bristles black. All femora slightly stout, hind femora the longest, and all armed with several small, tiny anterior preapical bristly hairs. Fore tibiae distinctly spindle-shaped dilated towards tip, ventrally with a pair of distinct long black preapical bristles. Mid tibiae slender, in addition to the same pair of long ventral preapical bristles, with fine bristly-hairs ventrally. Hind tibiae slightly dilated at tip and armed with strong bristles on apical third arranged in three rows: 3 dorsal, 2 anterodorsal, and 3 anteroventral; the bristles are slightly longer than tibia is deep. Anterior four tarsi with shorter and slightly dilated apical 3 to 4 segments, tarsi not longer than corresponding tibiae.

Wings rather shorter and narrow, faintly brownish, veins dark brown. Cubital and discal veins parallel on apical half; second basal cell broader than first basal cell and distinctly produced in lower outer corner. Only a very small and fine costal hair. Squamae dark with short concolorous fringes, halteres dark with light brown base to stem.

Abdomen blackish-brown in ground colour, rather densely dark grey dusted (similar to thorax) and clothed with minute dark hairs; last segment with longer bristles on posterior margin. Genitalia rather large, right lamella greyish dusted and apically armed with several long blackish bristles.

Female (paratype). Closely resembling male in all respects including the bristling on legs, but the ground colour of legs and abdomen more brownish. Cerci slender, ovate, clothed with several longer fine hairs.

Length: ♂ — body 1.7 mm, wing 1.4 mm; ♀ — body 1.9 mm, wing 1.6 mm.

C. hackmani sp.n. is a species very closely related to the North European *cursitans*, but all bristles on head and thorax (except long humeral bristle) are distinctly shorter, and the large bristles on hind tibiae are more closely set to its apical third (in *cursitans* they are wider spread on apical two-thirds). Furthermore the sternopleura is entirely dusted, tarsi are shorter and stouter, and the male genitalia are different.

Holotype ♂: Kamtschatka: Bolscherjetsk 19. viii. 1917 Y. Wuorentaus; deposited in the Zoological Museum, Helsinki.

Paratype ♀: with the same data.

This species is known to me only from a single pair which was collected together with, and arranged in the collection in Helsinki among, the specimens of *C. kamtschatkiana*.

Distribution. Kamtschatka.

Dates. August.

Chersodromia difficilis Lundbeck, 1910

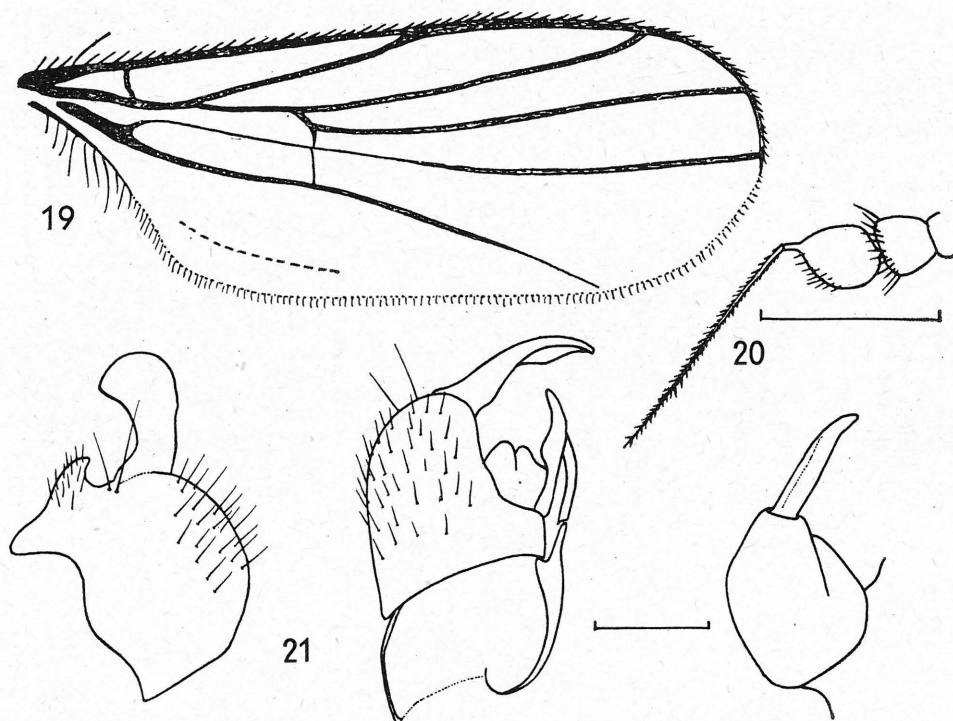
Tachypeza arenaria var.? *b. alata* Walker, 1836 : 180 — England; Collin, 1961 : 66.

Chersodromia cursitans Zett.: Walker, 1851 : 137 (misidentification); Collin, 1926 : 149.

Chersodromia difficilis Lundbeck, 1910 : 280 — Denmark, England; Frey, 1913 : 75 — Finland (misidentification, = *cursitans* Zett.); Collin, 1926 : 149; Melander, 1928 : 296; Karl, 1930 : 58; Krogerus, 1932 : 112 (misidentification, = *cursitans* Zett.); Engel in Lindner, 1938 : 40; Ringdahl, 1941 : 6 — Sweden; Frey, 1941 : 7 (misidentification, = *cursitans* Zett.); Collin, 1950 : 79; Ardö, 1957 : 103, 171; Collin, 1961 : 64; Smith, 1964 : 127; Kovalev, 1969 : 582.

Diagnosis. Medium-sized blackish species with only one pair of vertical bristles, wings rather broad and only faintly brownish clouded; halteres dark. Legs more or less brownish and rather shining, hind femora with only preapical bristles; anterior tarsal segments shortened and slightly dilated.

Male. Frons and face greyish-black, former rather broad in front, about as broad as antennal segment 3 (not about half as wide, as given by Collin, 1961 : 64), and distinctly widening out towards vertex. Face hardly narrower than frons, produced downwards and confluent with jowls, the smallest width of latter under the lower eye-corner as deep as frons in front. 2 pairs of long black ocellar bristles and only 1 pair of vertical bristles, both almost equal in length. Occiput greyish, covered with only sparse fine black hairs becoming somewhat longer above mouth. Antennae

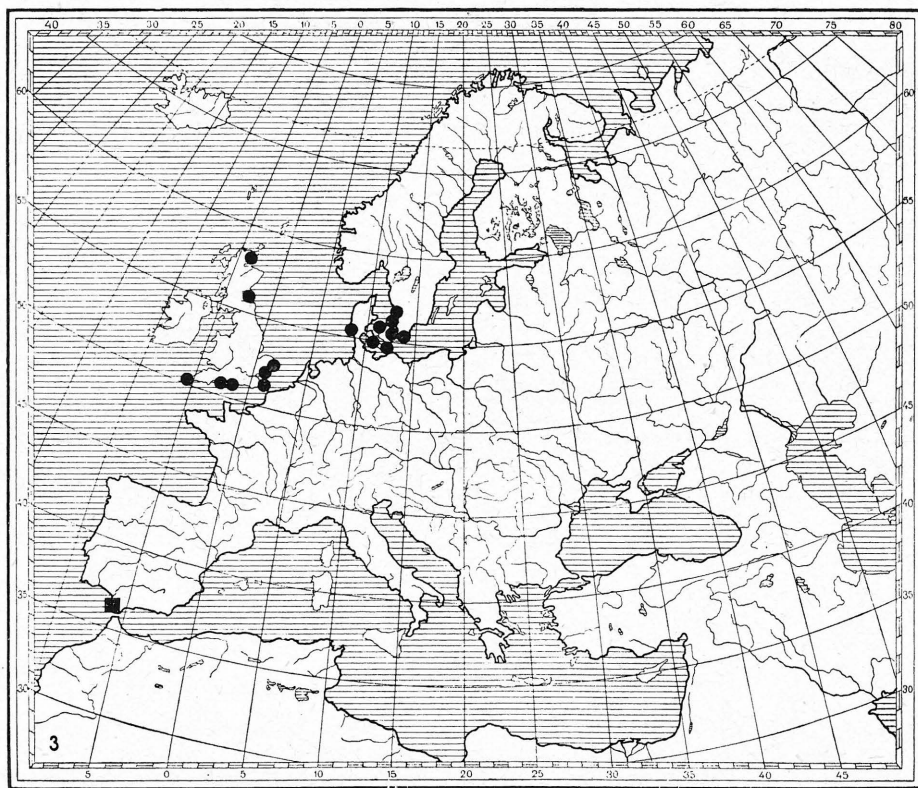


Figs. 19–21. *Chersodromia difficilis* Lundb. ♂ [Paralectotype; Tisvilde, Denmark]: 19 — wing, 20 — antenna, 21 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale lines represent 0.2 mm.

black, segment 2 with a circlet of only small tiny dark bristles; segment 3 almost circular, with a long, slightly supra-apical, dark arista which is microscopically pubescent. Proboscis shining black; palpi dark brown, egg-shaped, covered with microscopic silver pile in addition to several longer dark hairs and a black terminal bristle.

Thorax black, entirely greyish dusted, only sternopleura largely polished black to blackish-brown. Mesonotum covered with fine brownish hairs from which only biserial acrostichals are narrowly separated; large thoracic bristles long and black: 1 humeral, 2–3 notopleural, 1 supra-alar, 1 postalar, 3–4 dorsocentrals and 1 pair of long scutellar bristles with another very small, fine pair at side. No posthumeral bristle and no bristle on prothoracic episternum.

Legs dark brown to almost reddish-brown, slightly shining, only fore coxae in front and fore femora beneath distinctly greyish dusted. Fore coxae with very small hairs, all femora only slightly stout, and with only anterior and anteroventral pre-apical bristles. Fore femora with antero- and posteroventral rows of longer black hairs, fore tibiae spindle-shaped dilated, only short haired; in addition to 2 distinct preapical bristles there are 1 or 2 bristly hairs above. Mid femora with 2 longer black



Map 3. — Distribution of *C. difficilis* Lundb. — ● and *C. flavipes* sp. n. — ■.

bristly hairs at base beneath. Mid tibiae in addition to 2 preapical bristles with 2 black anterior bristles, and another anteroventral bristle on apical third, followed (more ventrally) by a comb of short black bristle-like spines towards tip. Hind tibiae long, very slightly dilated towards tip, armed with three rows (dorsal, anterior and anteroventral) of rather long black bristles on apical two-thirds. All tarsi only short haired except somewhat longer dark hairs to all metatarsi beneath; fore tarsi rather shortened with slightly dilated apical segments.

Wings broad by comparison with *cursitans* and brownish especially on costal half. Veins brownish, radial vein rather long, ending in costa at middle between subcosta and cubital vein, discal vein slightly undulating at base; both basal cells equal in length; a black costal bristle distinct. Squamae dark, halteres dark brown with stem somewhat yellowish.

Abdomen mostly blackish-brown in ground colour, thinly greyish dusted and covered with only very fine sparse brownish hairs. Genitalia rather large, right lamella of epandrium silvery-grey dusted and clothed with short black bristly hairs, apically with a distinct, spoon-like large process.

Female. Resembling male but the anteroventral comb of short black spiny bristles on apical third to mid tibiae absent. Cerci short and blunt ended, apically with only fine dark hairs.

Length: body 1.6 — 2.3 (♀) mm, wing 1.7 — 2.2 mm.

The only one North European species with only 1 pair of distinct vertical bristles (*incana* is a very small species without vertical bristles, they are replaced by only 2 pairs of small whitish points); *C. gratiosa* and *flavipes* from the Canary Is. and Spain respectively, which also possess only one pair of distinct vertical bristles and are otherwise similar, differ in the paler antennae, in the more yellowish-brown and less bristly legs, in the presence of posthumeral bristle, in the clear wings and conspicuously enlarged and quite different genitalia in male. *C. difficilis* is also closely related to *cursitans*, the latter differs, however, in the presence of two pairs of vertical bristles, the posthumeral bristle, in the dulled legs with long and slender tarsi, in the narrower wings and the smaller genitalia in male, right lamella bears only a small apical process.

Lectotype designation. There are in the Lundbeck Collection in København altogether 17 specimens (7 ♂ and 10 ♀) of *C. difficilis* labelled "Type", all originating from the year 1909 from two localities, from Tisvilde in North Sjaelland and Lohals on Langeland. I have not succeeded in finding the material from Vemmetofte, collected by H. J. Hansen in June 1884, as mentioned by Lundbeck in 1910. I have selected a male in perfect condition from Lohals (2. vii. 1909, leg. Lundbeck) which is hereby designated Lectotype of *C. difficilis* Lundb.; the specimen has been labelled accordingly.

Distribution. The species is known from a rather small area of distribution, covering the coasts of England and Scotland, Denmark and South Sweden (Skåne). The given distribution in Finland was a mistake.

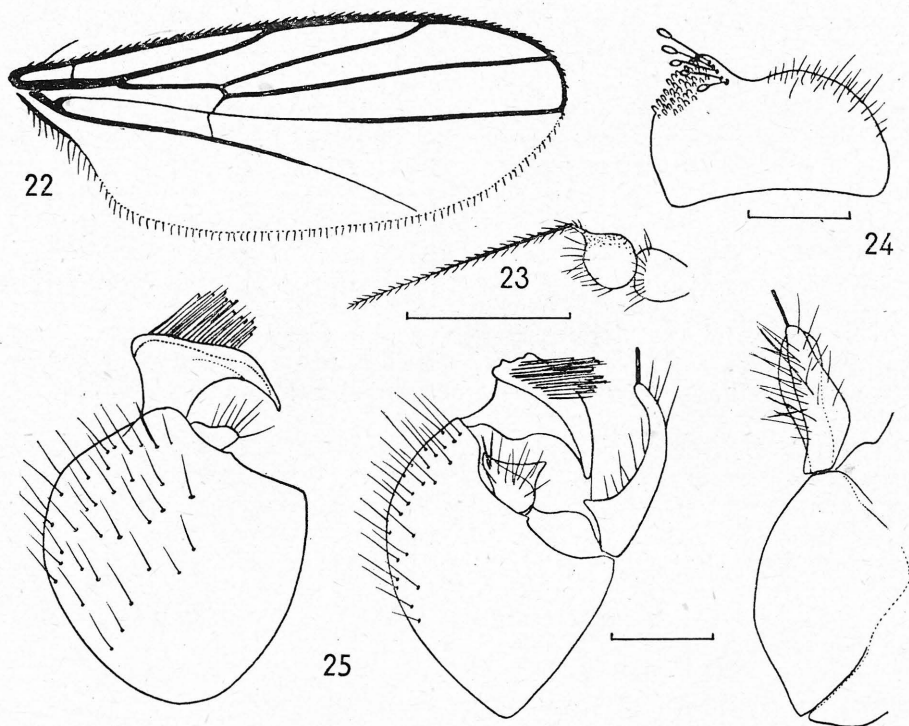
Dates. June to August, in Great Britain according to Collin (1961) until October on dates ranging from 8 June to 21 October.

Biology. The adults are sometimes very frequent on the sandy seashore, running about not far from the water and among the heaps of seaweed, they often quickly fly for a shorter distance. In contrast to *cursitans* and *arenaria*, *difficilis* seems to be more local species, at least in Denmark, even if when it occurs, then usually in large numbers; it has been never found inland.

Material examined. Great Britain — Studland 20. viii. 1906 1 ♀; Languard 10. vii. 1894 1 ♂ 5 ♀? leg. (both *cursitans*, det. Verrall) (coll. UZM København). Landguard 10. vii. 1894 1 ♂ 1 ♀ (*difficilis* Ldbk., det. Collin, 1914) (coll. ZM Berlin). Land-guard 19. vii. 1894 1 ♂; Walton on Naze 6. vii. 1912 1 ♀? Collin (*C. difficilis* Ldbk., det. Collin, 1921) (coll. DEI Eberswalde). Denmark — Tisvilde 10. vii. 1909 4 ♂ 5 ♀, 13. vii. 1909 1 ♀; Lohals 2. vii. 1909 3 ♂ 4 ♀ (♂ Lectotype), all „Type“, and leg. W. Lundbeck; Skovby Strand 30. vi. 1921 2 ♂ 3 ♀; Sj. Nordstrand by Nykøbing 15.—24. vii. 1943 4 ♂ 1 ♀; Esbjerg 9. vii. 1921 1 ♀ all leg. Dr. Th. Mortensen (coll. UZM København). Falster, Bótó 3 ♂ 1 ♀ R. Frey (coll. ZM Helsinki). Sj. Røsnaes Fyr 13. vii. 1969. 36 ♂ 34 ♀ M. Chvála (coll. NM Praha and coll. Chvála). Sj. Hellebaek, coast 5. vii. 1969 4 ♂ 3 ♀ M. Chvála (coll. Chvála). Sweden — Sk. Beddinge 26. vii. 1928 1 ♂ 1 ♀; Sk. Hallands Väderö 4. vii. 1939 2 ♂ both O. Ringdahl (*difficilis* Ldbk., det. Ringdahl); Sk. Lerberget Strand 13. viii. 1969 1 ♂ H. Andersson (coll. ZIU Lund).

Chersodromia gratiosa Becker, 1908

Chersodromia gratiosa Becker, 1908 : 41 (♂) — Canary Is.; Melander, 1928 : 296; Frey, 1936 : 63; Engel in Lindner, 1938 : 40; Frey, 1945 : 42 — Azores (misidentification, = *oraria* Coll.); Frey, 1958 : 27; Collin, 1961 : 69.



Figs. 22—25. *Chersodromia gratiosa* Beck. ♂ [Paralectotype; Orotava, Canary Is.]: 22 — wing, 23 — antenna, 24 — last sternite (ventral view), 25 — hypopygium (right lamella with cerci on the left, the same with a dark spine-like process at middle, and left lamella with dorsal appendage and spine-like process projecting behind on the right). The scale lines represent 0.2 mm.

Diagnosis. Medium-sized blackish-brown species with only 1 pair of vertical bristles, brownish antennae and abdomen, dark halteres and almost clear, rather broad wings. Large bristles on head and thorax black, legs brown with only a few tiny bristles except those on hind tibiae. Genitalia very large.

Male. Frons and face dull dark brown, former rather narrow in front, distinctly narrower than antennal segment 2 and slightly widening out towards ocelli. Face below antennae as broad as frons in front, slightly produced downwards and confluent with rather narrow jowls. 2 pairs of ocellar and 1 pair of vertical bristles, all long and black. Occiput dark brown, densely greyish dusted especially along hind eye-margin and clothed with sparse but somewhat longer fine pale hairs below. Antennae brown, segment 2 about as long as deep, segment 3 circular with a slightly supra-apical, rather long and microscopically pubescent arista. Proboscis shining brown. Palpi dark brown, small, covered with silver pile, with a few fine pale hairs and a very long pale terminal bristly hair, which is longer than palpus.

Thorax blackish-brown in ground colour, densely greyish dusted, only sternopleura largely shining. Mesonotum covered with rather long, fine pale hairs, which are on

hind part of mesonotum as long as antennal segments 2 and 3 combined; biserial acrostichals rather well separated, and only last prescutellar pair of dorsocentrals longer and darker. Other thoracic bristles long, black, but rather weak, in full number: 1 humeral, 1 posthumeral, 2 notopleural, 1 supra-alar, 1 postalar and 1 pair of scutellar bristles, outer pair only fine and pale. Prothoracic episternum bears a fine pale upcurved hair.

Wings rather broad and almost clear, veins brown to dark brown, cubital and discal veins slightly divergent. Both basal cells almost equal in length. A long black costal bristle, radial vein ending to costa closer to subcosta than to cubital vein. Squamae dark brown with very long pale fringes, halteres blackish, stem yellowish.

Abdomen yellowish-brown in ground colour, thinly dusted, and covered with sparse fine pale hairs; only apical segments with longer pale hairs on posterior margins. Genitalia dark reddish-brown, very large, occupying at least one-third of the length of abdomen. Right lamella of epandrium thinly greyish dusted and covered with fine longer dark hairs; apically with a large and pointed foot-shaped process (resembling that one of the *Tachydromia connexa*-group) which is armed above with long, black blunt ended spines. Left upper corner of right lamella produced into a very long and pointed black tooth, apically with a similar blunt ended black spine; right margin (placed above) densely pale haired. Left lamella, partly fused with a large hypandrium, bears apically a strip-like process covered with long pale hairs. Last sternite is more sclerotized and bears on its left side (viewed from below) a semiglobular process which is apically armed with broad and distally widened finger-like spines.

Female. Unknown.

Length: body 1.8–2.0 mm, wing 2.0–2.3 mm.

There are only two further Palaearctic species possessing only one pair of vertical bristles, the North European *difficilis* and the South European *flavipes*; both these species are quite different from *gratiosa*, the distinctive characters are given under the respective species and in the differential table.

Distribution. Canary Islands.

Lectotype designation. Becker described this species from 4 males, however, I have found altogether 5 males, all bear the original Becker's type labels and locality labels. Considering that all the five specimens bear different locality labels with different numbers (see 'Material examined'), the specimens have been collected by Becker individually and it is very difficult to recognize what specimens belong to the original type series. 4 males are deposited in the Becker's Collection in Berlin (originating from S. Cruz and Orotava) and 1 male (from Orotava) in the Staatliches Museum für Naturkunde, Stuttgart; the latter specimen was probably overlooked by Becker when describing this species. The only one male from Santa Cruz (iii., Nr. 47345) deposited in the Berlin collection is hereby designated Lectotype, and it has been labelled accordingly.

The record from the Azores given by Frey (1945 : 42) refers to *C. oraria* Coll., the documentary material has been revised by the present author.

Dates. January to May.

Biology. Nothing is known on this species but it was almost surely taken on the coast similarly to other species of the genus.

Material examined. Canary Islands — S. Cruz 47345 iii. 1 ♂ (Lectotype); Orotava 49911 i. 1 ♂; P. Orotava 51237 v. 1 ♂; Orotava 46857 i. 1 ♂ all leg. Th. Becker (coll. ZM Berlin). Vill. Orotava 47092 ii. 1 ♂ Th. Becker (coll. NM Stuttgart) — all specimens are labelled „Type“ and *gratiosa*, det. Becker.

***Chersodromia arenaria* (Haliday, 1833)**

Tachypeza arenaria Haliday, 1833 : 161 — Great Britain; Walker, 1836 : 180.

Tachypeza brevipennis Zetterstedt, 1838 : 548 — Norway; Zetterstedt, 1842 : 323; 1849 : 3012, 1859 : 4996; Chvála, 1971 : 5 (Lectotype designation).

Tachypeza cursitans var. b Zetterstedt, 1842 : 322 — Sweden; Chvála, 1971 : 5.

Tachydromia arenaria Hal.: Walker, 1849 : 507.

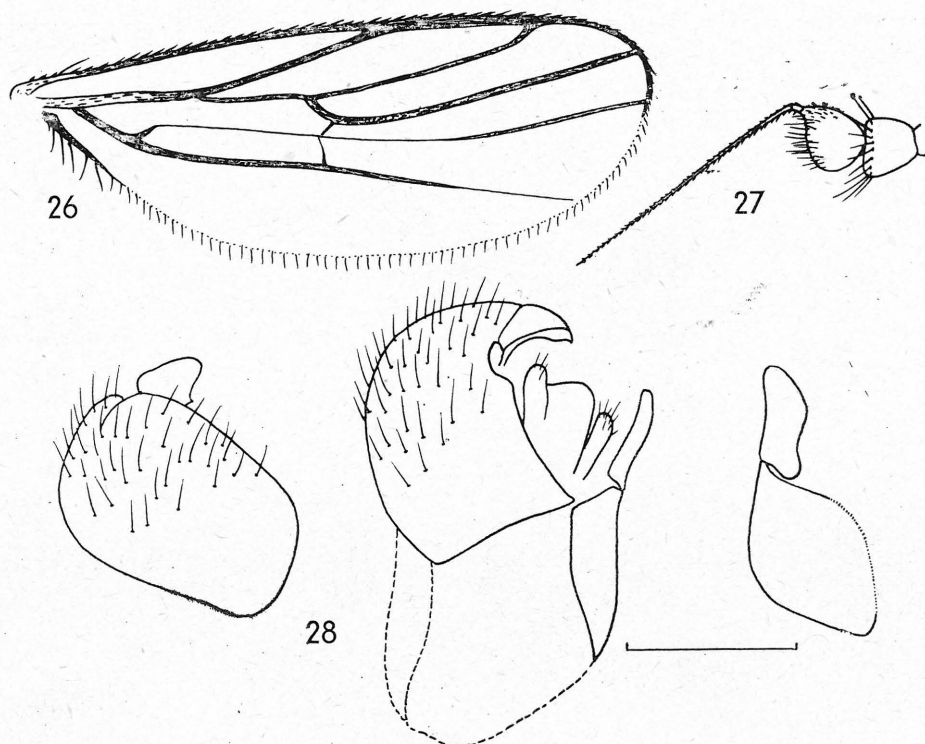
Chersodromia arenaria Hal.: Walker, 1851 : 138; Schiner, 1862 : 96; Bezzi, 1903 : 278; Kertész, 1909 : 144; Lundbeck, 1910 : 281 — Denmark; Melander, 1928 : 296; Frey, 1929 : 111 — Finland; Karl, 1930 : 57; Lindroth, 1931 : 293 — Iceland; Engel in Lindner, 1938 : 38; Frey, 1941 : 7; Backlund, 1945 : 222; Collin, 1950 : 79; Nielsen, Ringdahl et Tuxen, 1954 : 48; Ardö, 1957 : 103, 171; Kröber, 1958 : 52 — Germany (not examined); Collin, 1961 : 66; Wéber, 1961 : 429; Teschner, 1961 : 192, 1962 : 12; Smith, 1964 : 128; Kovalev, 1969 : 582; Andersson in: Lindroth, Andersson, Böldvarsson et Richter, 1970 : 4; Chvála, 1971 : 5.

Diagnosis. A smaller, dark greyish-black coloured and black bristled species of the *cursitans*-group with 2 pairs of vertical bristles, dark halteres, and distinctly abbreviated narrow brownish wings. Legs brownish, tarsi rather short with dilated apical segments on anterior pairs, hind tibiae with black bristles on apical third only.

Male. Head dull greyish-black to blackish-brown, eyes only microscopically pubescent, almost bare. Frons rather narrow at middle, hardly as broad as antennal segment 1, slightly widening out above and below. Face rather broad, wider than frons in front, densely greyish dusted, widening out towards mouth and confluent with more shining jowls, which are as deep as antennal segment 2. 2 pairs of ocellar and 2 pairs of vertical bristles, all bristles black and rather short, hardly as long as antennal segments 2 and 3 combined. Occiput greyish dusted, clothed with only small black tiny bristles becoming longer towards mouth. Antennae brown, segment 1 very small but well visible; segment 2 distinct, as long as broad; segment 3 circular, hardly as long as broad; slightly supra-apical arista long, microscopically pubescent. Palpi dark brown, small, thinly greyish dusted and clothed with some fine dark hairs; terminal bristle black, about as long as palpus. Proboscis shining blackish-brown, very pointed at tip.

Thorax blackish to blackish-brown, thinly greyish dusted except a large polished patch on sternopleura. Whole of mesonotum covered with short dark hairs, biserial acrostichals are only indistinctly separated from multiserial dorsocentrals. Large thoracic bristles black, a pair of humeral bristles and the apical pair of scutellar bristles very long, other bristles not so prominent: 2 notopleural, 1 supra-alar, 1 postalar and about 4 pairs of large dorsocentrals; the lateral pair of scutellar bristles only fine.

Legs brown, rather short and stout, covered with short dark hairs and only a few distinct bristles mainly on hind tibiae. All femora rather stout, fore femora with a double row of short, fine black hairs ending apically in 2 longer preapical bristly hairs. Fore tibiae spindle-shaped dilated, only short haired, the 2 black preapical bristles (antero- and posteroventral) rather weak but distinct. Mid femora with a single, distinct anterior preapical bristle, and another 2 weaker preapical bristles beneath. Mid tibiae slender with a single row of black bristly hairs beneath becoming

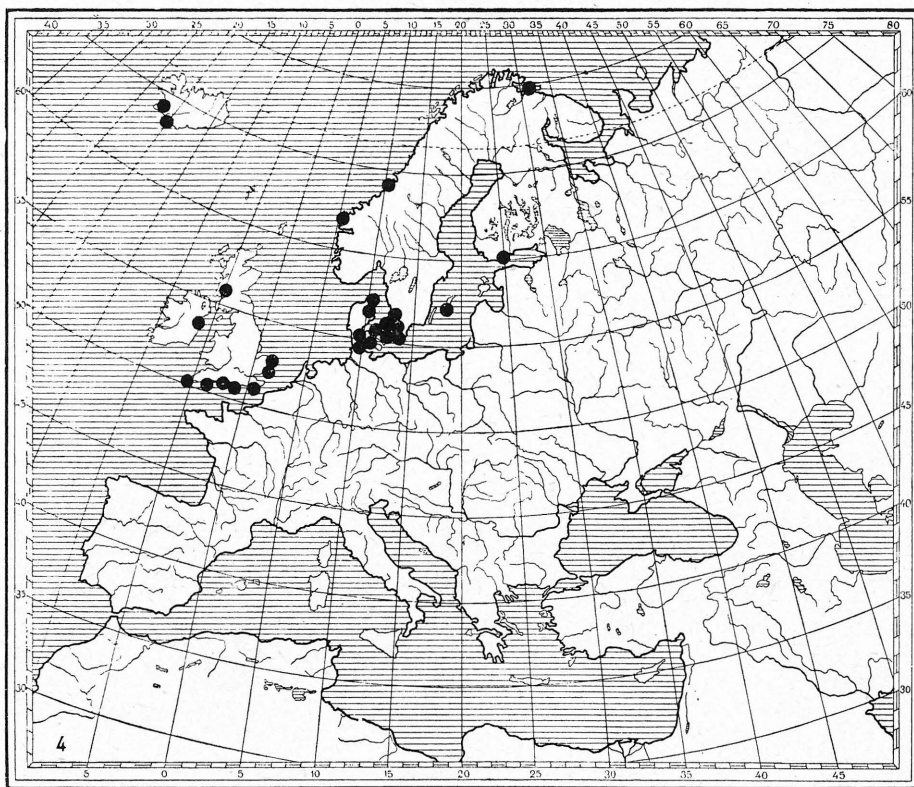


Figs. 26—28. *Chersodromia arenaria* Hal. ♂ [Frederikshavn, Denmark]: 26 — wing, 27 — antenna, 28 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 27, 28) represents 0.2 mm.

longer and stronger towards tip, otherwise only 2 small preapical bristles beneath. Hind femora with anterior and anteroventral preapical bristles, hind tibiae with 1 dorsal, 2—3 anterodorsal, and 2—3 anteroventral long black bristles on apical third. Tarsi short, about as long as corresponding tibiae; all metatarsi long, densely short haired beneath, apical four tarsal segments on anterior two pairs very short and more or less dilated.

Wings rather narrow and abbreviated, extending not much beyond the end of abdomen, distinctly pointed; usually entirely tinted light brown or more distinctly darkened on costal half; veins brown. Cubital and discal veins almost parallel, both basal cells of about the same length; only a small black costal bristle. Squamae dark brown with fine paler fringes, halteres blackish-brown, stem dirty yellow.

Abdomen dark brown, distinctly greyish dusted and covered with fine short pale hairs, venter predominantly with black hairs; apical segments with longer hairs on posterior margins. Genitalia rather small, right lamella of epandrium brownish, fine blackish haired and greyish dusted, only apical part shining blackish-brown. Apical process to right lamella small and rounded, bare.



Map 4. — Distribution of *C. arenaria* (Hal.).

Female. Resembling male in all respects including the hairing and bristling on legs. Abdomen more pointed, usually more brownish, cerci short but slender with only sparse pale hairs.

Length: body 1.2—1.8 mm, wing 0.9—1.3 mm.

C. arenaria is a very distinct species by the reason of its narrowed and abbreviated brownish wings. It somewhat resembles *cursitans* but in addition to the short wings *arenaria* is generally smaller species, with smaller ocellar and vertical bristles and without posthumeral bristle, with anterior four tarsi distinctly shortened and dilated, and hind tibiae are bristled on apical third only. *C. difficilis* is a still larger and more black bristled species with broad wings and only one pair of long vertical bristles.

Distribution. A widely distributed species in North Europe known from Iceland, Great Britain including Ireland, Denmark and almost throughout Scandinavia, especially in the north. It seems to be a common species in England, Iceland and Denmark including South Sweden (Skåne, Bohuslän, Gotland) and then on the northern coast of Scandinavia where it reaches 70° North. On the other hand the species has not yet been taken from the Gulf of Bothnia except Gotland and east-

wards is hitherto known only from a single locality in South Finland (Nylandia); the North Finnish localities (Lapponia petsamoënsis) belong now to Norway. The species has not yet been recorded from the north of the European part of the U.S.S.R.

Dates. From May until the beginning of September, on the dates ranging from 20 May (Råå, Sweden) to 6 September (Durlston, England); according to Collin (1961) already from 4 May.

Biology. The adults inhabit the seashores close to the water, they run about very quickly but never fly. I have collected this species several times in Denmark, often in large numbers, and it seems to me that the adults prefer stony (at least with small stones) to sandy beaches, they run also on large stones and rocks close to water, and I have collected it in very large numbers on rather dirty parts of the coast near ports south of Copenhagen, on places with gravel sand and full of decaying seaweed; I have never collected this species on coasts with fine sand, as are typical for example for *hirta* and *incana*.

Material examined. Iceland — Hafnarfjörðin 2. viii. 1932 1 ♀ S. L. Tuxen (coll. UZM København). Vestmannaeyjar, Heimaey Loc. 8, 14. vi. 1966 3 ex., 23. vii. 1965 15 ex. H. Andersson (ZIU Lund). Great Britain — Landguard 10. vii. 1894 1 ♂? Verrall; Aldeburgh 25. v. 1910 1 ♀? Collin (*arenaria* Hal., det. Collin) (coll. DEI Eberswalde). Landguard 10. vii. 1894 5 ♂; Swanage 4. ix. 1906 1 ♂; Durlston 6. ix. 1906 1 ♀? Verrall (all *arenaria*, det. Verrall) (coll. UZM København). Denmark — Lohals 2. vii. 1909 19 ♂ 12 ♀; Hou 3. vii. 1921 2 ♂ 4 ♀; Eggholm 28. v. 1911 2 ♂; Hejls 30. vi. 1919 3 ♂ 3 ♀; Tisvilde 19. vii. 1909 2 ♀ all leg. W. Lundbeck; Frederikshavn 16. vi. 1919 7 ♂ 2 ♀. Dr. Th. Mortensen; Aerö 29. vii. 1917 3 ♂ 1 ♀; Aerskøbing 27. vii. 1919 1 ♀ both leg. ?; Jyll. Sønderborg 27. vii. 1903 2 ♀ Wüstnei (coll. UZM København). Denmark 1920 1 ♂ 1 ♀ leg. ? (*C. cursitans* Zett., det. Collin, 1921) (coll. DEI Eberswalde). Sj. Brønbystrand, S København 9. vi. 1969 22 ♂ 23 ♀, 13. vi. 1969 8 ♂ 13 ♀; Mön, Aalebaek strand 14. vi. 1969 14 ♂ 16 ♀ all leg. M. Chvála (coll. NM Praha and coll. Chvála). Sj. Rösnaes Fyr 13. vii. 1969 2 ♂ 1 ♀; Strandskov, S Køge 22. vi. 1969 1 ♂ 1 ♀; Sj. Jaernen, 8 km S Køge 22. vi. 1969 3 ♂; Sj. Helsingør 5. vii. 1969 3 ♂ 2 ♀; Sj. Nordstrand, 3 km E. Hornbaek 17. vi. 1969 1 ♀; Sj. Rörvig, Korshage 26. vii. 1969 1 ♀ all leg. M. Chvála (coll. Chvála). Sweden — Gottland 1 ♀ Zetterstedt (*C. cursitans* var. b, det. Zetterstedt) in Dipt. Scand. Coll.; Sk. Fågelsång nr Lund 9. vii. 1 ♂ 1 ♀ C. D. E. Roth; Sk. Hålsingborg 21. vi. 1925 7 ♂ 3 ♀; Höganäs 7. vi. 1912 1 ♂, 19. viii. 1926 1 ♀; Sk. Mölle 5. vi. 1952 1 ♂ all leg. O. Ringdahl; Sk. Lomma 30. v. 1966 2 ♂ 1 ♀; Sk. Råå, Råå vassar Nr. 1632 20. v. 1961 6 ♂ 7 ♀ both leg. H. Andersson (coll. ZIU Lund). Scania 1 ♀ Stål (*Tachypeza cursitans* Zett., det. ?) (coll. NR Stockholm). Norway — Björkvik 14. vii. 1821 1 ♂ 1 ♀ (♂ Lectotype of *brevipennis*); Thynaes, Levanger 2.—7. vii. 1840 1 ♂ 4 ♀ both leg. Zetterstedt (all *brevipennis*, det. Zetterstedt) (coll. ZIU Lund). Thynaes 1 ♂ 1 ♀ leg. ? (*Tachypeza brevipennis* Zett., det. ?) (coll. NR Stockholm). Vaitolahti (Lps.) 2 ♂ 1 ♀ Hellén; Pummanki (Lps.) 5 ♂ 10 ♀ R. Frey, 1 ♀ Hellén (all *arenaria*, det. Frey) (coll. ZM Helsinki). Finland — N. Henriksberg, Tvärminne 27. vii. 1923 1 ♀ R. Frey (*C. cursitans* Ztt., det. Frey) (coll. ZM Helsinki).

3. *Chersodromia speculifera*-group

Chersodromia flavipes sp. n.

Chersodromia incana Hal.: Strobl, in Czerny et Strobl, 1909 : 179 — Spain (misidentification); Collin, 1961 : 70.

Diagnosis. Small species of the *speculifera*-group with only 1 pair of vertical bristles, basal antennal segments and legs yellow. Antennal segment 3 dark brown, short but pointed, arista terminal. Large thoracic bristles pale, and only a few dark tiny bristles on hind tibiae. Genitalia in male conspicuously large.

Male. Head rather densely light grey dusted; frons in front almost as broad as antennal segment 2, slightly widening above; face as broad as or slightly broader than frons in front, jowls very narrow. 2 pairs of rather long dark ocellar bristles, vertex with only 1 pair of still longer dark brown vertical bristles. Occiput clothed with minute whitish-grey hairs. Antennae yellow on basal segments, segment 2 slightly smaller than segment 3, apically with some tiny pale hairs; segment 3 short, scarcely longer than deep, apically pointed; arista terminal, dark, slightly longer than antenna. Palpi yellowish, clothed with minute pale hairs, terminal bristle-like hair pale. Proboscis brownish.

Thorax light grey to bluish-grey dusted, sternopleura largely polished black to blackish-brown. All thoracic hairs and large bristles very pale. Acrostichals and dorsocentrals in rows, evenly distributed over disc; acrostichals (biserial or quadriserial?) indistinguishable from dorsocentrals; latter rather longer, especially at sides, one pair of prescutellar dorsocentrals very long. Large thoracic bristles in full number: 1 humeral, 1 small posthumeral, 2 notopleural with 2–3 smaller bristles, 1 postalar, and 2 pairs of scutellar with outer pair smaller. Prothoracic episternum with 2 long pale bristles, one upcurved, the second one downcurved.

Legs yellow, only tarsi indistinctly faintly brown annulated, last tarsal segment (or apical two) blackish-brown. All femora of about the same stoutness; legs pale haired, all femora with usually 2 rather long (especially on posterior two pairs), darker anteroventral preapical bristles; hind tibiae with irregularly set, scattered tiny dark bristles on the whole length: one dorsal at about middle, 2–3 antero-dorsal, and 2 anteroventral in addition to preapical ones.

Wings rather short and broad, very clear, all veins pale yellow. Cubital and discal veins straight, very indistinctly diverging on the whole length, almost parallel. Costal bristle very long, brownish; both basal cells equal in length but second basal cell almost twice broader. Squamae brown with long pale fringes; halteres with yellowish stem, knob greyish-brown.

Abdomen subshining blackish-brown on dorsum, thinly silvery-grey dusted and covered with fine, very pale hairs which are longer at sides of tergites, very long and bristle-like on posterior margin of last tergite. Venter rather yellowish-brown coloured, especially on anterior sternites. Genitalia very large and long, hypopygium is only slightly shorter than the rest of abdomen. Both lamellae very long and slender, apically with several long appendages. Right epandrial lamella greyish dusted and clothed with long pale bristly hairs on apical half.

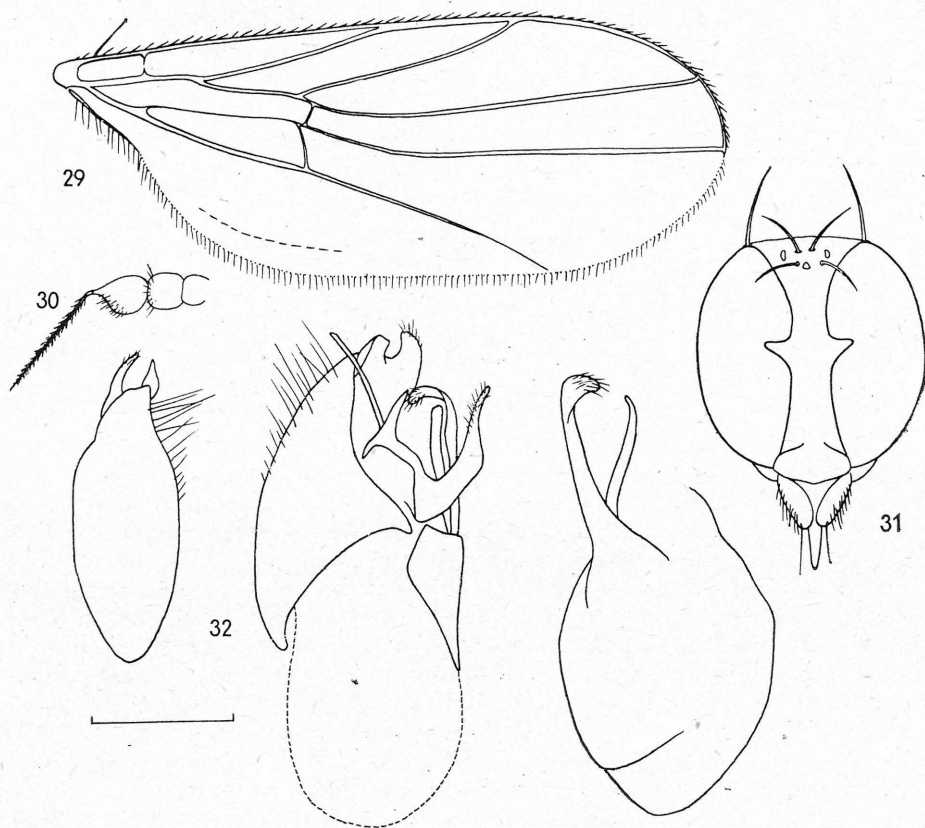
Female. Resembling male in all respects including the number and position of longer bristly hairs on legs. Abdomen more brownish coloured on dorsum, apical two segments including small and rather ovate cerci greyish dusted.

Length: ♂ — body 1.55 mm, wing 1.3 mm; ♀ — body 1.6 mm, wing 1.6 mm.

C. flavipes sp.n. is the only species so far known with only 1 pair of vertical bristles in combination with yellow basal antennal segments and yellow legs. Both the North European *difficilis* and the Canarian *gratiosa*, which also possess only 1 pair of vertical bristles, are larger, blackish to blackish-brown coloured and more dark bristled species of the *cursitans*-group.

Holotype ♂: Südsanien, S. Fernando 29/4 Prof. G. Strobl (*Tachydr. Chersodr. flavipes* m. ♂ ♀, det. Strobl); deposited in the coll. Strobl at Admont.

Paratype ♀: with the same data, pinned together with the male.



Figs. 29–32. *Chersodromia flavipes* sp. n. ♂ [Holotype]: 29— wing, 30 — antenna, 31 — head, 32 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 30, 31, 32) represents 0.2 mm.

Strobl (1909) recorded this species as follows: “*incana* Hal. (? oder *speculifera* Walk.? Nach Becker, Zeitschr. für Hym. u. Dipt., 1907, S. 119, dürften beide zusammenfallen). In den Salinen von San Fernando, ♂, ♀ (St.).“ Strobl presented also a rather long but somewhat misleading description in which he compared this species with *cursitans*.

Through the kindness of Dr. habil. G. Morge I have found the original pair (pinned together) among the material of Tachydromiinae in the Strobl's Collection, labelled as given in the Holotype ♂. The date 29 April is given by mistake, the correct date should be 27 or 28 April 1907, since according to Czerny et Strobl (1909 : 121) „Am 26. erreichten wir nach einer Tagesfahrt das reizende San Fernando bei Cadiz und sammelten hier mit Erfolg durch zwei Tage, meist auf den schmalen Dämmen zwischen den die Stadt in weitem Bogen umgebenden Salinen; ... Den 29. April verwendeten wir zur Fahrt nach Granada ...“ Strobl probably assumed that a new

species is involved but his proposed name *flavipes*, given on the locality label, retained only a manuscript name. I have used now this name for this new species.

Distribution. Spain.

Dates. April.

Biology. The species was collected on the saline biotope on the Atlantic coast of Spain near San Fernando.

Chersodromia speculifera Walker, 1851

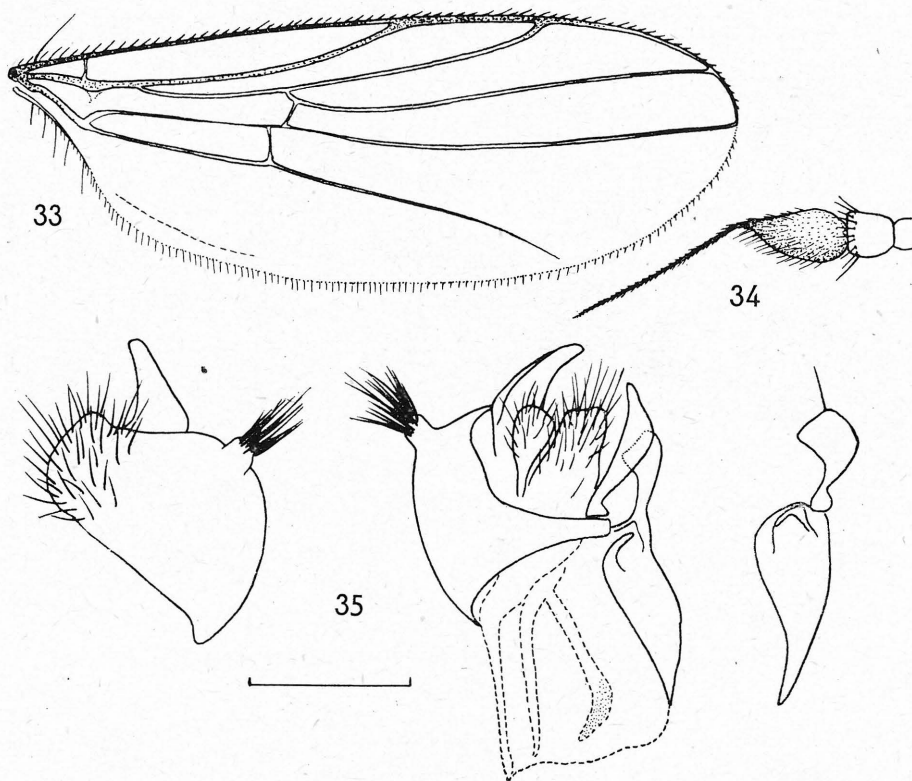
Chersodromia speculifera Walker, 1851 : 138 — England; Schiner, 1862 : 96; Bezzi, 1899 : 31 — Italy (misidentification, not examined); Bezzi, 1903 : 278; Becker, 1907 : 119 (incorrect synonymy); Kertész, 1909 : 145; Melander, 1928 : 297; Karl, 1930 : 58 — Poland (misidentification, = *beckeri* Mel.); Engel in Lindner, 1939 : 41 (partly misidentification); Collin, 1950 : 78; Ardö, 1957 : 104; Kröber, 1958 : 52 — Germany (not examined); Collin, 1961 : 67; Wéber, 1961 : 429 (misidentification, not examined); Smith, 1964 : 128; Adrewes, 1968 : 249 — Scotland; Kovalev, 1969 : 583.

Diagnosis. Medium-sized greyish species with yellow palpi, proboscis and legs. Basal antennal segments yellow, segment 3 dark, rather long and pointed, arista apical. 2 pairs of vertical bristles, all bristles on head and thorax black. Halteres with dusky knobs; wings clear to faintly yellowish, veins pale.

Male. Frons rather broad in front, almost as broad as antennal segment 2, slightly narrowed on anterior third and then slightly widening out towards vertex; silvery-grey dusted, sometimes slightly brownish below, greyish-black above. Face silvery-grey dusted, at least as broad above as frons in front, slightly widening towards mouth and confluent with rather narrow jowls. 2 pairs of ocellar and 2 pairs of vertical bristles black, rather long, of about the same length. Occiput greyish-black, on the upper half and on postocular margin with black bristly hairs. Basal antennal segments yellow, segment 2 with a circle of short black hairs; segment 3 blackish-brown to dark brown, distinctly conical and rather long, almost twice as long as deep on basal third, very pointed apically; terminal arista concolorous with segment 3, rather short, scarcely longer than the rest of antenna. Palpi yellow, rather small and ovate, clothed with adpressed silvery hairs and with some additional dark hairs; the terminal bristle-like hair black. Proboscis rather strong, yellowish-brown coloured, half as long as head is high.

Thorax black in ground colour, thinly grey dusted on mesonotum, more densely on pleura; sternopleura largely polished black. All thoracic hairs and bristles black; biserial acrostichals and irregularly quadriserial dorsocentrals rather small, hair-like, only four pairs of the latter in the inner row long and bristle-like. Large bristles in full number: 1 humeral, 1 posthumeral, 2—3 notopleural, 1 supra-alar, 1 postalar, and 1 pair of scutellar marginal bristles with an additional small pair at side. A small tiny hair on prothoracic episternum above fore coxae and usually another hair below.

Legs including coxae yellow to pale yellowish-brown, slightly shining, covered with short black hairs and usual black bristles; tarsi except basal segment brown. All femora slightly stout, fore femora in addition to 2 anterior preapical bristles with a double row of longer black hairs beneath. Fore tibiae only indistinctly dilated towards tip, in addition to 2 long ventral preapical bristles with a tiny dark anterior bristle on basal third. Mid femora with a double row of black hairs beneath becoming longer towards base; mid tibiae slender and in addition to ventral preapical bristles

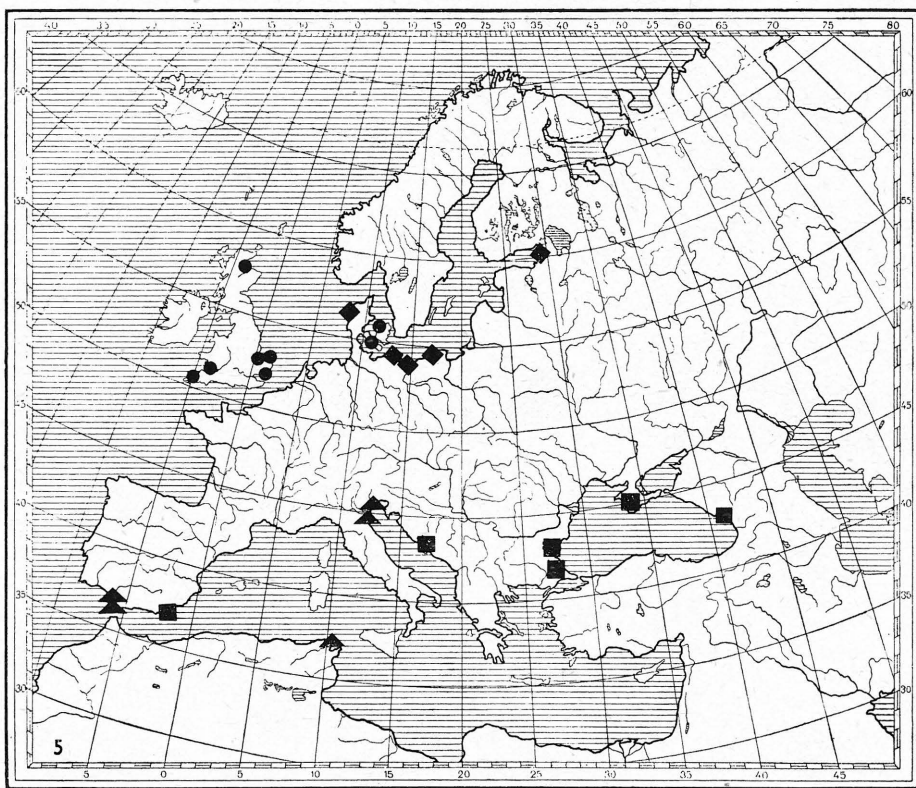


Figs. 33–35. *Chersodromia speculifera* Walk. ♂ [N. Devon, England]: 33 – wing, 34 – antenna, 35 – hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 34, 35) represents 0.2 mm.

with an anteroventral short black ciliation on at least two apical thirds. Hind femora with a row of longer black hairs anteroventrally; hind tibiae with distinct black bristles on apical two-thirds, all bristles (usually 4 dorsal, 2 anterior and 2 anteroventral) at least as long as tibia is deep. Tarsi dark brown to brownish except for metatarsi, and at least apical two segments on anterior four tarsi slightly dilated.

Wings rather broad, clear or slightly yellowish tinted, veins pale; a large costal bristle and other hairs on costa black, ciliation on posterior wing-margin very pale. Cubital and discal veins very slightly diverging, second basal cell a little shorter than the first basal cell. Squamae yellow with long pale fringes, halteres pale yellow with darkened knob.

Abdomen blackish to blackish-brown in ground colour, only thinly greyish dusted and covered with fine pale hairs which are longer and darker on posterior segments. Genitalia rather small, black in ground colour, greyish dusted and distinctly black haired. Right lamella of epandrium with a blunt ended but rather narrow terminal process, with numerous black hairs on the right (placed below) and with a distinct



Map 5. — Distribution of *C. speculifera* Walk. — ●, *C. beckeri* Mel. — ◆, *C. nigrosetosa* Chv. — ■ and *C. oraria* Coll. — ▲.

tuft of long black bristles on a small hook on the left. Cerci rather large, flat, covered with fine long hairs. Left lamella (fused partly with hypandrium) bears a rather small, apically widened dorsal process.

Female. Closely resembling male but the black anteroventral ciliation on mid tibia absent, on the other hand there is a distinct black anterior bristle on basal third. Proboscis and squamae usually brownish, and apical segments to anterior four tarsi scarcely dilated. Abdomen rather brownish and more shining, cerci brownish, rather short, pale haired.

Length: body 1.8–2.3 mm, wing 2.2–2.6 mm.

C. speculifera needs comparison especially with *beckeri*, regarding also their common occurrence in North Europe. Engel (1938) erroneously took these two species as being conspecific; *beckeri* is generally smaller species (about 1.5 mm in length) with antennae unicolorous yellowish to yellowish-brown and shorter segment 3, with all bristles on head and thorax golden-yellow, yellow halteres, narrower clear wings, and the genitalia in male are quite different.

Distribution. Great Britain and Denmark. According to Collin (1961) *speculifera* is 'a comparatively rare species' in England and I can only confirm this opinion. I have seen several specimens from England and after a revision of a numerous material of *Chersodromia* from North Europe I have found only a single female from Denmark collected by Lundbeck on 25 July 1920 at Lohals (Langeland) and in 1969 I took myself 2 females at Rösnaes Fyr (Sjælland). All other material named as *speculifera* belonged either to *beckeri* (in North Europe) or to several different species of the *speculifera*- and *incana*-groups (in the Mediterranean). Kröber (1958) recorded *speculifera* from the island of Helgoland and from Mecklenburg, unfortunately I have not found this material; it may be *speculifera* but more probably these records refer to *beckeri*; the record from Polish Slupsk (Stolp) given by Karl (1930) refers to *beckeri*.

Biology. A rare species everywhere in North Europe. According to Collin (1961) in England it frequented the salt marshes close to the sea and was chiefly obtained by sweeping the vegetation when the roots were covered at high tide. I took this species only once in Denmark on the rather stony coast at Rösnaes Fyr (North Sjælland) close to the water; only two females were running about among the very common specimens of *difficilis*, and were easily recognizable by their yellow antennae and legs.

Dates. May to July, on dates ranging from 9 May (England) to 25 July (Denmark).

Material examined. Great Britain — Walton-on-Naze, Essex 6. — 14. vii. 1912 3 ♀ J. E. Collin (coll. UZM København), 7. vii. 1912 1 ♂ J. E. Collin (coll. UM Oxford), 20. vii. 1912 1 ♀ J. E. Collin (coll. ZM Berlin), 6. vii. 1912 1 ♀ J. E. Collin; Blakeney 18. vii. 1920 1 ♀ J. E. Collin (coll. DEI Eberswalde). N. Devon, Combe Martin 9. v. 1964 1 ♂ M. Ackland (coll. Chvála). Denmark — Lohals, Langeland 25. vii. 1920 1 ♀ W. Lundbeck (coll. UZM København). Sj. Rösnaes Fyr 13. vii. 1969 2 ♀ M. Chvála (coll. Chvála).

Chersodromia beckeri Melander, 1928

Chersodromia incana Halid.; Becker, 1907 : 119 (misidentification, = partly *beckeri* — Swinemünde, partly *oraria* — La Marsa, Tunisia).

Chersodromia beckeri Melander, 1928 : 296, ♀ — Poland, nom. nov. for *incana* sensu Becker, 1907, nec Walker, 1851; Melander, 1938 : 57; Engel in Lindner, 1938 : 38 (incorrect synonymy with *speculifera*); Frey, 1941 : 7 — Finland; Collin, 1961 : 69; Chvála, 1970 : 392.

Chersodromia speculifera Hal.; Karl, 1930 : 58 (misidentification).

Diagnosis. A small, brownish to greyish-brown coloured species with bristles on head and thorax brown to golden-yellow. Antennae yellow, arista darker; palpi and halteres yellowish. Legs slender, yellow, with darkened tips of tarsi. Wings clear, long and rather narrow, veins pale.

Male. Head brownish in ground colour, silvery-grey dusted. Frons rather broad in front, about as broad as antennal segment 3, and distinctly widened out above. Face as broad below antennae as frons in front, produced downwards and confluent with rather narrow jowls. 2 pairs of ocellar and 2 pairs of vertical bristles long and more brownish, occiput with some longer pale hairs especially on orbits. Antennae unicolorous yellow to yellowish-brown coloured, covered with fine pale hairs especially towards apex of segment 3. Segment 2 small, about as long as broad; segment 3 broader and almost circular, pointed at tip; arista distinctly supra-apical, long, somewhat darker microscopically pubescent. Palpi rather small and ovate, slightly

shorter than one half of the strong yellowish-brown proboscis; pale yellowish coloured and clothed with fine whitish hairs in addition to a dark bristle-like terminal hair.

Thorax brownish to blackish-brown, densely silvery-grey dusted, only sternopleura largely polished dark brown. Mesonotum covered with fine pale hairs which are almost as long as antennal segment 2; biserial acrostichals indistinctly separated from multiserial dorsocentrals, about 4 pairs of the latter distinctly longer. Large bristles brown to dark brown: 1 humeral, 1 posthumeral, 2 notopleural, 1 supra-alar, 1 postalar, and 1 pair of long scutellar bristles with a very small pair at side.

Legs rather slender, yellow, only last tarsal segments darkened. All femora only slightly stouter, armed with an anterior and another posterior tiny dark preapical bristle. Fore femora with a row of about 10 fine dark bristly hairs beneath; fore tibiae slender, in addition to 2 dark preapical bristles beneath with an anterior tiny bristle on basal third; sometimes there is another small bristle on apical third. Mid femora with about 5 long black bristly hairs on basal third beneath; mid tibiae in addition to dark preapical bristles with a row of short but densely set and rather stout black bristles on apical third beneath, ending apically in a single long black bristle. Hind femora with a row of longer but fine dark hairs beneath; hind tibia distinctly black bristled on at least apical two-thirds, the bristles being distinctly longer than tibia is deep; in addition to distinct preapical bristles, there are usually 2–3 dorsal, 3 anterior and 2 anteroventral bristles of the same length. All tarsi only short haired, long and slender, distinctly longer than corresponding tibiae.

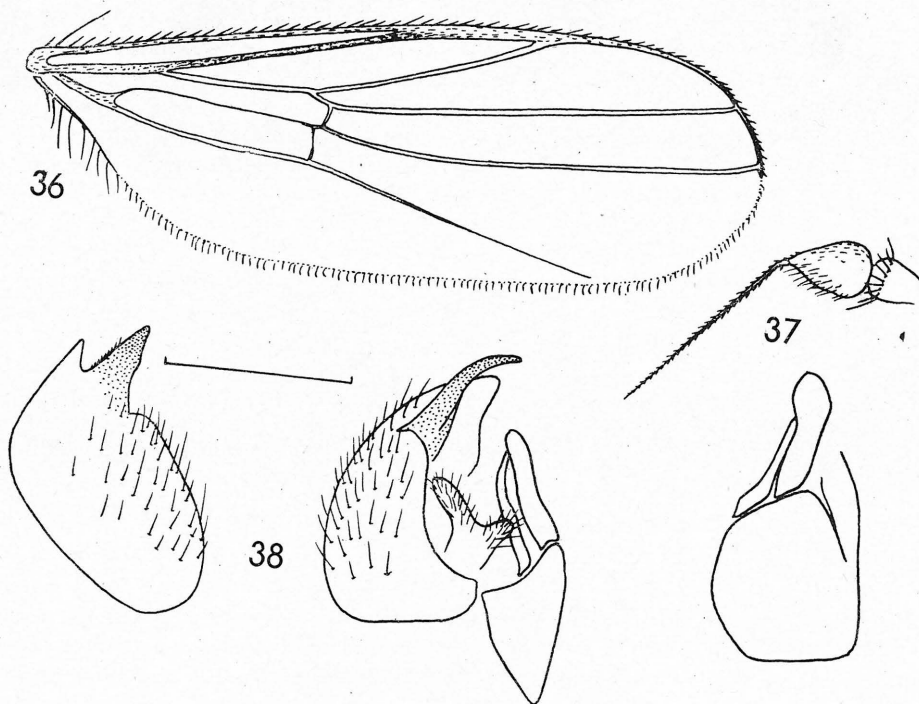
Wings clear, rather long and narrow with pale yellow veins. Cubital and discal veins only very slightly diverging, almost parallel, both basal cells equal in length; a brown costal bristle thin but very long, costal hairing fine, dark. Squamae pale with long pale fringes, halteres yellow to yellowish-brown.

Abdomen brown to blackish-brown coloured and thinly greyish dusted; dorsum with only sparse fine pale pubescence, the hairs being more numerous at sides and on venter, last segment with longer pale hairs on posterior margin. Genitalia rather small and narrow, darkish brown to light brown coloured and greyish dusted on lamellae, only an apical pointed claw blackish and shining. Right lamella of epanandrium with only minute pale hairs and with two apical pointed projections, the left one much more sclerotized, longer and more sharply pointed. Left lamella (partly fused with hypandrium) bare, apically with two finger-like processes. Cerci short haired.

Female. Resembling male but larger, all large bristles on head and thorax decidedly paler, more golden-yellow and never darkened as in some male specimens. Legs as in male but the single row of small black bristles to apical third on mid tibiae beneath absent, instead of this there are 1 or 2 small black anterior tiny bristles on basal third and on apical third. Hind tibiae more distinctly bristled, there are always 3 bristles in one row which are spread almost along the whole length of tibia. Cerci brownish, short and blunt ended, covered with fine, longer pale hairs.

Length: body 1.2–1.6 mm, wing 1.3–1.7 mm.

C. beckeri was first recorded by Becker (1907) by mistake as "*Chersodromia incana* Haliday in Walk." from North Poland, later correctly renamed and described on the basis of the same specimens as a distinct species (*beckeri*) by Melander (1928). Considering the long bristles on head and thorax *beckeri* cannot be compared with *incana*, on the other hand it is a very closely related species to *speculifera*, differing from the latter in the paler bristles on head and thorax, the entirely yellow antennae



Figs. 36—38. *Chersodromia beckeri* Mel. ♂ [Swinojuscie, Poland]: 36 — wing, 37 — antenna, 38 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 37, 38) represents 0.2 mm.

(in *speculifera* the segment 3 is distinctly darkened and longer), and in the male genitalia. *C. speculifera* is a larger species about 2 mm in length, with somewhat broader wings slightly tinted yellowish, and with halteres distinctly infuscated at tip of knob.

Lectotype designation. Melander described this species on the basis of two females sent to him by Becker, originating from the series collected by Becker at Swinujuscie (Swinemünde), Poland, and recorded by the collector (Becker, 1907) under the name of *incana*. There are 2 females in the U.S. National Museum, Washington, both labelled "Swinemünde vii, 45740" and "*Chers. incana* Halid., det. Becker". One female, sent to me kindly by Dr. L. Knutson for revision in 1970, bears Melander's red label "Type"; this female is hereby designated Lectotype of *C. beckeri* Melander, 1928, and it has been labelled accordingly. In addition to the two females deposited in the USNM Washington, there are further 2 ♂ and 12 ♀ of the original Becker's series deposited in the Zoologisches Museum, Berlin.

Distribution. A North European species, a typical species of the coasts of the Baltic. It has been recorded up to the present time only from the Polish Swinujuscie (Melander, 1928) and from Fennoscandia from Russian Carelia (Frey, 1941);

now I have found the documentary material also from Denmark and from other localities on German and Polish coasts. *C. beckeri* is a rare species but it seems to be common in the northern coast of Pommerania, especially on the island of Usedom (Usedom).

Dates. June to August, on dates ranging from 8 June (Denmark) to 13 August (Poland).

Biology. Nothing is known on the biology of this species, but the places of capture and often some remains of sand on dry specimens point to the occurrence on sandy coasts.

Material examined. Denmark — Jyll., Agger 8. vi. 1919 2 ♂ 2 ♀ (1 pair in copula) Dr. Th. Mortensen (coll. UZM København). Germany — Usedom 18. vii. 1899 1 ♂ 3 ♀ Lichtwardt (*speculifera* Hal., det. Lichtwardt) (coll. ZM Berlin). Usedom 15.—26. vii. 1899 2 ♂ 13 ♀ Lichtwardt (*speculifera* Hal., det. Lichtwardt) (coll. DEI Eberswalde). Poland — Swinojuscie (Swinemünde) 45740 vii. 1 ♀ Becker, coll. Melander 1961 — Lectotype (*Chers. incana* Halid., det. Becker) (coll. USNM Washington). Swinojuscie 45740 vii. 2 ♂ 12 ♀ Becker (*Chers. incana* Hal., det. Becker; *speculifera* Hal., det. Engel) (coll. ZM Berlin). Slupsk (Stolp i. P.) 13. viii. 1929 1 ♀ O. Karl (coll. DEI Eberswalde). USSR — Ik. Terijoki, Rajajoki 1 ♂ Krogerus (coll. ZM Helsinki).

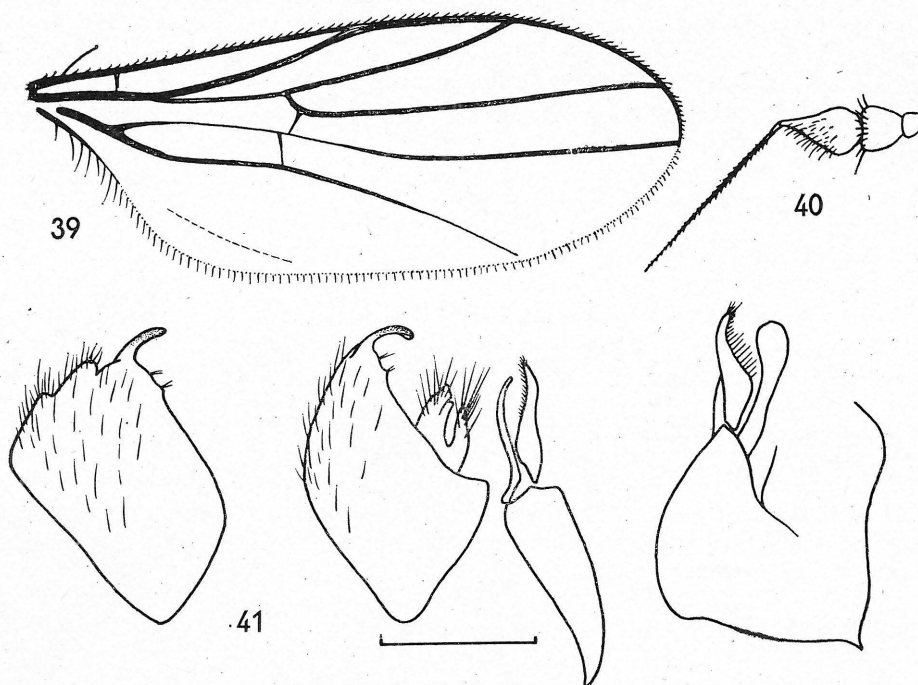
Chersodromia nigrosetosa Chvála, 1970

Chersodromia nigrosetosa Chvála, 1970 : 390 ♂ — Spain, Jugoslavia, Caucasus.

Diagnosis. A small blackish-grey species of the *speculifera*-group with all bristles and setae black. Antennae dark brown, segment 3 rather long and pointed, arista terminal. Palpi and halteres yellowish. Legs yellowish or slightly darkened, mostly black haired.

Male. Frons and face blackish; former thinly grey dusted, latter densely silvery-grey dusted. Frons in front almost as broad as antennal segment 2, almost parallel on lower half and very distinctly widening towards vertex. Face as broad below antennae as frons in front, widening towards mouth and confluent with rather narrow jowls which are scarcely broader than antennal segment 2. 2 pairs of ocellar and 2 pairs of vertical bristles long, black. Occiput greyish dusted and covered with rather long fine black hairs, especially on the upper part above neck and on postocular margin. Antennae unicolorous brown to dark brown; segment 2 almost as broad as segment 3, apically with a circlet of small black bristly hairs; segment 3 distinctly pointed and rather long, its front edge with very fine, densely set pale hairs; arista only very microscopically pubescent, slightly longer than antenna and distinctly terminal. Palpi yellowish, rather small and oval, fine whitish pubescent and clothed with black hairs, terminal bristle long, black. Proboscis not very long, yellowish and very darkened at tip.

Thorax blackish, thinly dark grey dusted on mesonotum and more densely and paler greyish on pleura; sternopleura largely shining black. Mesonotum covered with distinct short black or somewhat blackish-brown bristly hairs, representing biserial acrostichals which are narrowly separated from tri- to quadriserial dorso-centrals; 4—5 pairs of the latter in the inner row being much longer. Other thoracic bristles black and considerably larger: 1 humeral, 1 posthumeral, 2 notopleural (placed above each other), 1 supra-alar, 1 postalar, and 1 pair of very long scutellar bristles with an additional minute pair at side. Prothoracic episternum with fine, long upcurved hairs.



Figs. 39–41. *Chersodromia nigrosetosa* Chv. ♂ [Holotype]: 39 – wing, 40 – antenna, 41 – hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 40, 41) represents 0.2 mm.

Legs yellow to dirty-yellow, covered with predominantly black hairs or bristles; posterior four coxae, fore femora above, and apical 2 or 3 tarsal segments, darkened. All femora slightly stout, fore femora with a double row of long black bristly hairs beneath becoming longer towards tip, anterior preapical bristles only weak. Posterior four femora with 2 distinct anterior preapical bristles, mid femora with additional 2 long bristles at extreme base beneath, hind femora with a row of longer anteroventral bristly hairs on basal half. Fore tibiae only slightly dilated towards tip, short haired, ventrally with 2 distinct preapical bristles. Mid tibiae slender, in addition to 2 preapical bristles with a row of short spine-like black bristly hairs beneath becoming longer and stronger towards tip and ending in a distinct apical spine. Hind tibiae long and only slightly dilated towards tip, armed with usual black bristles in three rows: 2–4 very long anterodorsal and 3–4 slightly smaller anterior on apical two-thirds, and another 2 anteroventral on apical half. Tarsi short haired, long and slender, distinctly longer than corresponding tibiae.

Wings large but not very broad, clear, veins brownish except for yellowish subcosta. Cubital and discal veins very slightly divergent, both basal cells of about the same length. A distinct black costal bristle. Squamae pale with very long whitish fringes, halteres pale yellowish.

Abdomen mostly black, only thinly greyish dusted. Dorsum covered with scattered fine dark hairs, venter with more numerous and more distinct black hairs. Genitalia rather large, prolonged, hypandrium conspicuously convex and shining black. Right lamella of epandrium covered with silver pile and with sparse pale pubescence, dorsal process simple, light brown, darker at tip.

Female. Resembling male but mid tibia with 2 long black bristles in basal and apical thirds dorsally, beneath with only fine minute hairs, and halteres with darkened knobs. Abdomen subshining with short ovate cerci and everywhere with only fine minute hairs.

Length: body 1.4–1.9 mm, wing 1.5–1.8 mm.

Regarding the small size, mostly yellowish legs and many other characters including the structure of male genitalia, *nigrosetosa* belongs to the *speculifera*-group. The predominantly black pubescence on the head, thorax and legs, in combination with unicolorous dark brown antennae with segment 3 pointed and terminal arista, distinguish it at once from all other species of this group. The North European *beckeri*, which has the antennal segment 3 of similar shape, has the antennae mostly yellowish, the bristles on head and thorax paler, and quite different male genitalia. The South European *italica*, *adriatica* and *pontica* have in addition to many different characters antennal segment 3 circular with more or less supra-apical arista, and quite different male genitalia.

Distribution. A South European species known from the coasts of Spain, Jugoslavia, eastwards as far as from the Caucasus. The single male from the Coll. Becker, labelled only "Kaukasus", was taken very probably on the Caucasian coast of the Black Sea, but Beschovski took this species in Bulgaria and Kovalev (in litt.) in Crimea.

Dates. From the end of March (Spain) to August (Caucasus).

Biology. Dr. Lyneborg took the holotype male on sandy dunes close to the seashore at Albufera, Spain.

Material examined. Spain — Almeria, Albufera 23. iii. 1966 1 ♂ L. Lyneborg, Holotype (coll. UZM København). Jugoslavia — Dalmatia, Orebić 13. — 22. iv. 1930 1 ♂ Zerny, Paratype (*cursitans* Zett., det. Engel) (coll. NM Wien). USSR — „Kaukasus“ 50365, viii. 1 ♂ Becker, Paratype (*Chers. incana*, det. ?) (coll. ZM Berlin). Bulgaria — S. Vartara 27. vi. 1963 1 ♂ 3 ♀ V. Beschovski, Galito 30. v. 1967 1 ♀ V. Beschovski (coll. Chvála).

Chersodromia oraria Collin, 1966

Chersodromia incana Halid.; Becker, 1907 : 119 (misidentification, = partly *beckeri* — Swinemünde, partly *oraria* — La Marsa, Tunisia).

Chersodromia gratiosa Becker; Frey, 1945 : 42 (misidentification) — Azores.

Chersodromia oraria Collin, 1966 : 33 — Italy, Tunisia; Chvála, 1970 : 399.

Diagnosis. A small, dark grey species with all large bristles on head and thorax brownish. Antennae small, blackish-brown, segment 3 circular with supra-apical arista. Palpi and halteres yellow; legs yellow, often darkened especially on femora, pale haired and with usual black bristles; apical tarsal segments brownish. Wings milk-white, broad, veins pale yellowish. Male genitalia with a simple pointed apical process to right lamella, and a large bilobed dorsal appendage to left lamella.

Male. Frons dark brown in ground colour, more or less densely silvery-grey dusted; rather broad in front, about as broad as antennal segment 3, almost parallel towards front ocellus and then distinctly widening out. Face densely silvery-grey dusted, as broad below antennae as frons in front, distinctly widening out towards mouth and confluent with narrow jowls. 2 pairs of ocellar and 2 pairs of vertical bristles long, almost as long as antennal segments 2 and 3 combined, brownish and darkened at tip. Vertex and occiput greyish dusted, latter on the upper half above neck with fine brownish hairs becoming longer towards vertex. Antennae dark brown, segment 1 not visible, apical two segments of about the same length, as broad as long; segment 3 distinctly circular with a rather short, dark, and microscopically pale pubescent supra-apical arista, which is only slightly longer than antenna. Palpi pale yellow, oval and rather large, less than one-half length of the strong yellow proboscis; clothed with fine whitish hairs, terminal bristle fine, pale.

Thorax rather densely greyish dusted, sternopleura largely polished black. Mesonotum clothed with short pale hairs forming biserial acrostichals narrowly separated from tri- to quadriserial dorsocentrals; 4—5 pairs of latter longer but likewise other small hairs pale. Large thoracic bristles distinctly brownish: 1 humeral, 1 post-humeral, 2 notopleural, 1 supra-alar, 1 postalar, and 1 pair of scutellar bristles with a small pair at side. Prothoracic episternum with a small pale upward bristly hair, another downward hair above fore coxae.

Legs yellow, rather long and slender, apical 3 to 4 tarsal segments darkened. All femora only slightly stout, often brownish about middle, leaving sometimes only tips narrowly yellow; pale haired, with longer hairs beneath and small dark anterior preapical bristles. Fore tibiae only indistinctly thickened, in addition to 2 black ventral preapical bristles usually with about 3 tiny dark bristly hairs in front, that one on basal third being more prominent. Mid tibiae slender, dorsally with 2—3 small, fine dark bristly hairs, and with a distinct black bristle in apical third; ventrally with a single row of distinct short black bristles on the whole length, becoming longer towards tip and ending in 2 preapical bristles. Hind tibiae with long black bristles on apical two-thirds arranged in three rows: 4 dorsal, 2—3 anterodorsal and 2 anterior. All tarsi only short haired, rather long and slender, longer than corresponding tibiae.

Wings somewhat milk-white and rather broad, veins pale yellow. Cubital and discal veins straight, only indistinctly diverging, cubital vein slightly downcurved just before tip; basal cells equal in length. Costal bristle very long and thin, dark, brownish at base. Squamae pale with whitish fringes, halteres yellow.

Abdomen blackish in ground colour, only very thinly greyish dusted, and covered with scattered fine pale hairs which are longer on venter and on apical segments. Genitalia rather small and narrow, blackish coloured and thinly dusted; right lamella with fine, longer pale hairs, dorsal process simple and pointed, heavily sclerotized. Cerci rather large, similarly shaped to *colliniana*. Left lamella (partly fused with black hypandrium) with a large and flat, bilobed apical appendage.

Female. Resembling male but generally larger, palpi sometimes slightly brownish or darkened, also femora usually darkened except for tips. The row of short black bristles to mid tibiae beneath absent, but anteriorly there are 2 distinct dark bristles in both thirds. Abdomen long and pointed, cerci rather short but slender, slightly ovate, apically with some fine brownish hairs.

Length: body 1.3—1.9 (♀) mm, wing 1.4—1.9 mm.

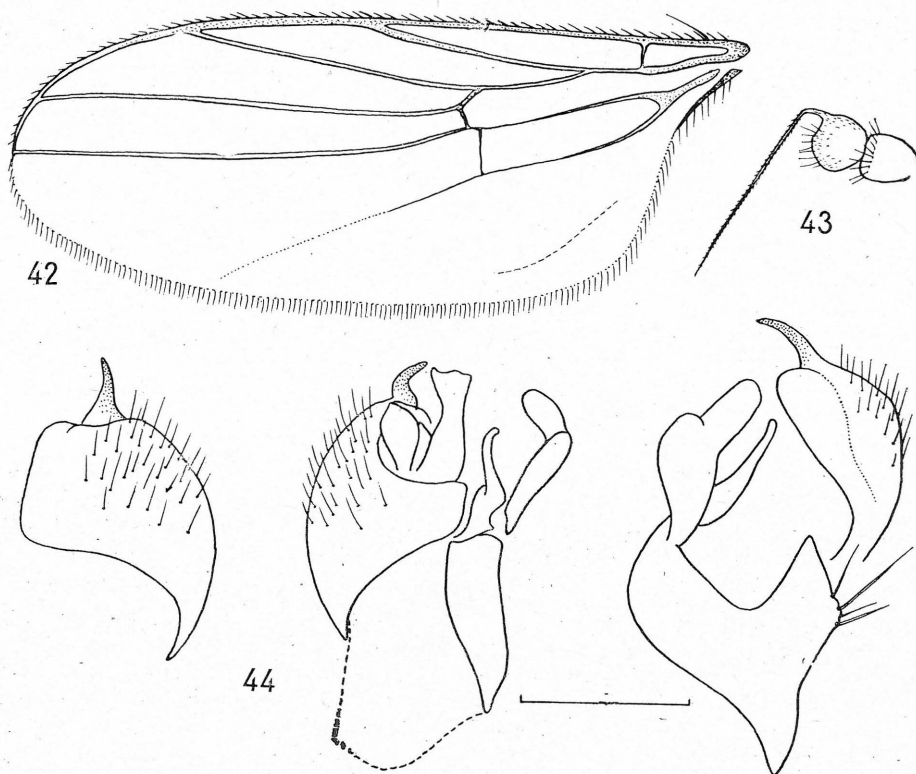


Fig.. 42—44. *Chersodromia oraria* Coll. ♂ [S. Miguel, Azores]: 42 — wing, 43 — antenna, 44 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella with appendages and right lamella on the right). The scale line (for Figs. 43, 44) represents 0.2 mm.

C. oraria is a species of the *speculifera*-group, most closely related to the Canarian *colliniana*; the latter differs in the darker bristles on head and thorax, in the absence of dark tiny bristles on dorsum of anterior four tibiae, in the shortened radial vein, and the structure of male genitalia is different: the sclerotized dorsal process to right lamella is distinctly bifurcated, epandrium bears stronger bristly hairs, and the terminal appendage on the left lamella is small and oval, not so large and bilobed as in *oraria*.

Distribution. A species with a large area of distribution from the Azores in the Atlantic eastwards through Spain to Italy and Tunisia.

C. oraria was described only in 1966 by Collin from Italy and Tunisia, however, it was recorded as *incana* already in 1907 by Becker from Tunisia (La Marsa) and on the basis of a single male as *gratiosa* in 1945 by Frey from the Azores. I have found further documentary material among the specimens of *Chersodromia* also from Spain and from a further Italian locality (Venezia). Through the kindness of Mr M. Ackland, Oxford I had the opportunity to study the male and female para-

types of *oraria* from Italy deposited in the Collin Collection, now in the University Museum, Oxford. Engel determined this species either as *cursitans* or as *speculifera*.

Dates. From the end of April until August, on the dates ranging from 26 April (Algeciras, Spain) to 30 August (Venezia, Italy).

Biology. Only a little is known on biology of this species but it deals undoubtedly with a coastal habitat as usual in this genus. Dr. A. G. Soika collected the type specimens on the Adriatic seashore near Ferrara on the sandy dunes close to the sea.

Material examined. Azores — S. Miguel, Ribeira Grande 26. v. 1938 1 ♂ R. Frey (coll. ZM Helsinki). Spain — Andalusia, Algeciras 26.—30. iv. 1925 1 ♂ Zerny, 12.—20. v. 1925 1 ♂ Zerny (both *Chers. cursitans* Zett., det. Engel) (coll. NM Wien), 12.—20. v. 1925 1 ♂ Zerny (coll. NM Stuttgart). La Linea 2. viii. 1960 1 ♂ J. R. Vockeroth (coll. ERI Ottawa). Italy — Litorale Ferrarese, Lido di Volano 24. v. 1959 1 ♂ 1 ♀ A. G. Soika (Prime dune, terreno nudo) Paratypes (coll. UM Oxford). Italia sup., Venezia 28.—30. viii. 1905 2 ♂ 1 ♀ Kertész (*speculifera* Hal., det. ?) (coll. NM Stuttgart). Venezia 28.—30. viii. 1905 4 ♂ 8 ♀ Kertész (*Chers. speculifera* Walk., det. Engel) (coll. DEI Eberswalde, 1 ♀ coll. Chvála). Tunisia — La Marsa 52940 4 ♀ Becker (*incana* Halid., det. Becker; *speculifera* Hal., det. Engel), 2 ♀ with the same data (*Drapetis arcuata* Lw., det. ?; *speculifera* Hal., det. Engel) (coll. ZM Berlin).

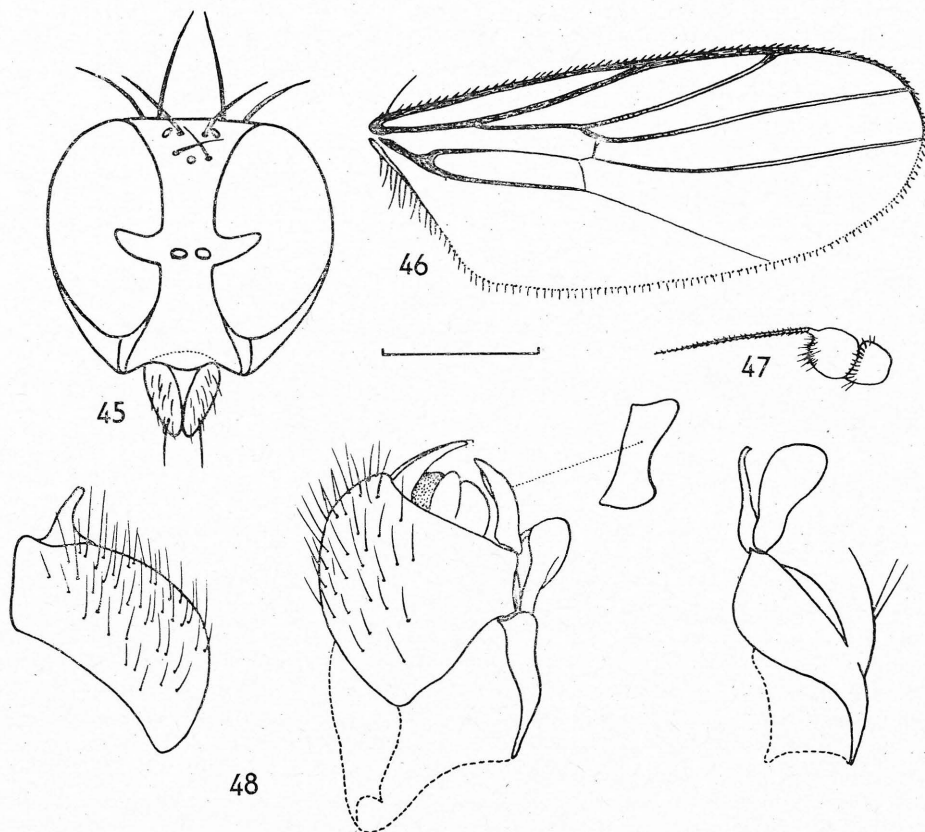
Chersodromia italica Chvála, 1970

Chersodromia italica Chvála, 1970 : 393 — Italy.

Diagnosis. A smaller greyish-black coloured and black bristled species of the *speculifera*-group with tawny-brown to brown legs; large bristles and hairs on legs black. Antennae dark brown, segment 3 almost circular with long, slightly supra-apical arista. Jowls below eyes deeper than is usual in this group of species. Male genitalia with a dorsal process to right lamella simple, slender and pointed.

Male. Frons and face brownish to dark brown in ground colour, densely silvery-grey dusted. Frons broad in front, as broad as antennal segment 3, distinctly widening above; face as broad below antennae as frons in front, widening towards mouth and confluent with rather deep jowls which are as deep as one-sixth of the eye-height. 2 pairs of ocellar and 2 pairs of vertical bristles thin and long, blackish. Occiput greyish dusted and clothed with numerous dark brown hairs on the upper half above neck and on postocular margin. Antennae dark brown to blackish-brown, basal segment not visible; segment 2 small, club-shaped, apically with a fringe of small dark hairs; segment 3 circular, apically pale haired; arista long, about twice as long as rest of antenna, slightly supra-apical and only microscopically pubescent. Palpi pale yellow, sometimes slightly darkened at base, clothed with fine silvery and several darker hairs, terminal bristle blackish; oval in shape and rather long, slightly longer than one-half length of rather small, slender light brown proboscis.

Thorax blackish-brown in ground colour, greyish dusted, only sternopleura largely polished. Acrostichals and dorsocentrals brownish, distinct; former biserial, rather close and distinctly separated from quadriserial dorsocentrals, of which 3—4 pairs in the inner row are much longer. Other large thoracic bristles almost black and distinct: 1 humeral, 1 posthumeral (often with an additional smaller seta), 2 notopleural (usually with some smaller additional setae), 1 supra-alar, 1 postalar, and 1 pair of very long scutellar bristles with a smaller pair at side. Prothoracic episternum with a tiny upcurved hair, another similar downcurved hair above fore coxae.



Figs. 45—48. *Chersodromia italica* Chv. ♂ [Holotype]: 45 — head, 46 — wing, 47 — antenna; [Paratype]: 48 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 45, 47, 48) represents 0.2 mm.

Legs brown to tawny-brown, covered with black bristles and black hairs, tarsal segments on anterior two pairs slightly dilated but tarsi still longer than tibiae. All femora somewhat stout, in addition to distinct black anterior preapical bristles with a double row of longer black hairs beneath. Fore tibiae rather slender, only slightly spindle-shaped dilated towards tip, armed with ventral preapical bristles and with a small anterodorsal bristle in basal third. Mid tibiae slender, armed with a pair of rather long black ventral preapical bristles, a somewhat smaller black anterodorsal bristle in apical third, and with black spines in comb on apical two-thirds beneath becoming longer towards tip. Hind tibiae slender, with strong black bristles arranged in three rows (usually 5 anterodorsal, 2—3 anterior and 2 antero-ventral) on at least apical two-thirds.

Wings clear, rather broad than narrow, veins mostly yellowish. Cubital and discal veins only indistinctly divergent, almost straight, both basal cells of about the same length and broadness, or first basal cell slightly longer. Radial vein ending in costa

at about half way between subcosta and cubital vein. A very strong black costal bristle, otherwise costa with only small black hairs. Squamae dusky with long brownish fringes, halteres pale yellow.

Abdomen dark brown in ground colour, only thinly greyish dusted and covered with fine brownish hairs. Genitalia not very large, greyish dusted, right lamella covered with longer dark hairs. The structure of epandrium resembling that one of *pontica*, but the dorsal process to right lamella simple and pointed, and the right lateral appendage oblong, not pointed basally and hence triangular in shape as in *pontica*.

Female. Resembling male but generally larger, no black spines in comb to mid tibiae beneath, on the other hand there are 2 distinct black anterodorsal bristles, the second one in apical third. Cerci small and ovate, apically with longer, fine brownish hairs.

Length: body 1.4–1.8 (♀) mm, wing 1.5–1.6 mm.

The only species of the *speculifera*-group with brown legs, closely related to *pontica*; the latter differs, however, in the yellow legs, the narrow jowls, and the conspicuously, broadly bifurcated dorsal process to right lamella of epandrium in male.

Distribution. Italy; this species is still known to me only from the type series of 11 specimens taken by Kertész on the Adriatic coast at Rimini, Italy.

The whole series was originally deposited in the collection of the Deutsches Entomologisches Institut, Eberswalde and it is curious that 9 specimens were determined by Engel as *C. speculifera* and 2 specimens by the same determinator as *C. difficilis*!

Dates. August.

Biology. Nothing is known on biology of this species but according to the type locality the adults inhabit the seashore as usual in this genus.

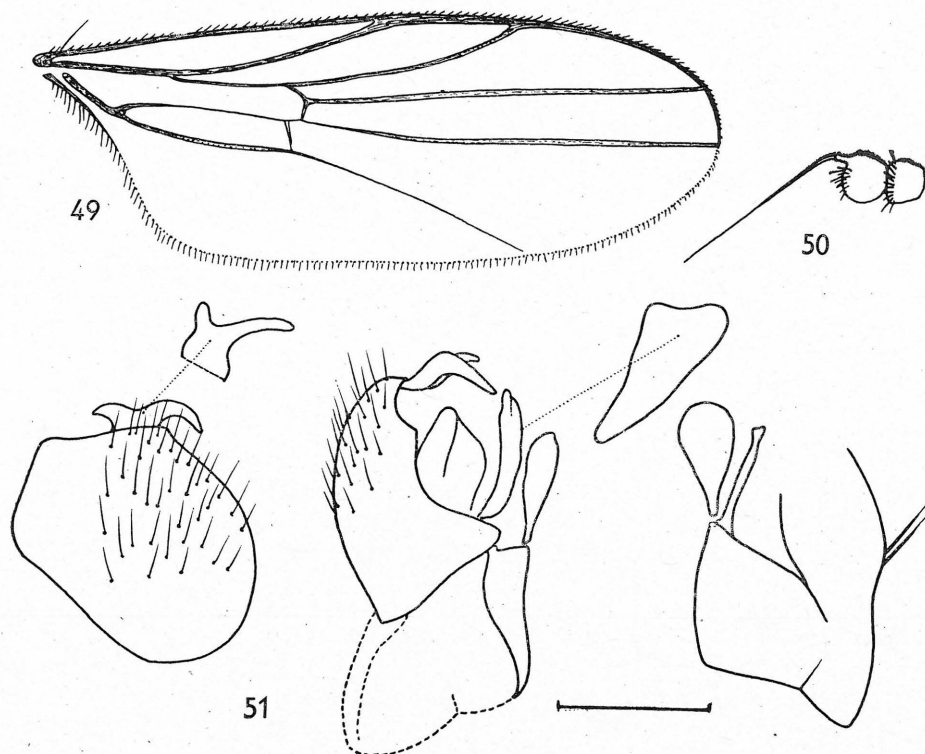
Material examined. Italy — Italia sup., Rimini 3. viii. 1905 2 ♂ 9 ♀ Kertész, Holotype ♂ and Paratypes 1 ♂ and 9 ♀ (2 ♂ and 7 ♀ *speculifera* Wlk., det. Engel; 2 ♀ *difficilis* Ldbk., det. Engel) (coll. DEI Eberswalde and 1 pair in coll. Chvála).

***Chersodromia pontica* Chvála, 1970**

Chersodromia pontica Chvála, 1970 : 395. — Bulgaria.

Diagnosis. A rather smaller blackish-grey species of the *speculifera*-group with all large thoracic bristles blackish-brown and short hairs on mesonotum pale. Antennae brownish, segment 3 circular with almost bare, supra-apical arista. Legs yellowish to yellowish-brown, covered with black hairs and distinct black bristles, anterior four tarsi brown with apical segments dilated. Male genitalia with a large, apically broadly bifurcated process to right lamella.

Male. Frons broad, as broad in front as antennal segment 3, distinctly widening out towards vertex; brownish in ground colour and only very thinly greyish dusted. Face as broad below antennae as frons in front, densely silvery-grey dusted, widening towards mouth and confluent with rather narrow jowls. 2 pairs of ocellar and 2 pairs of vertical bristles long, blackish-brown. Occiput blackish-brown in ground colour, grey dusted and clothed with scattered fine brownish hairs. Antennae rather small, brown; segment 2 with a circle of short black bristly hairs apically; segment 3 circular, anteriorly pale pubescent, and with almost bare, dark supra-apical arista



Figs. 49—51. *Chersodromia ponvica* Chv. ♂ [Holotype]: 49 — wing, 50 — antenna, 51 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 50, 51) represents 0.2 mm.

which is distinctly longer than antenna. Palpi rather large, yellowish, clothed with silver pile, a few fine black hairs, and with a long black terminal bristly hair. Proboscis yellowish-brown, shining.

Thorax dark brown in ground colour, densely dusted with dark grey, paler greyish on pleura; sternopleura with a large polished patch anteriorly. Mesonotum covered with fine pale hairs representing biserial acrostichals narrowly separated from multiserial dorsocentrals, about 4 pairs of latter distinctly longer and darker. Large bristles on thorax blackish-brown: 1 humeral, 1 posthumeral, usually 2 large and 2 smaller notopleural, 1 supra-alar, 1 postalar, 1 pair of long scutellar bristles with an additional fine pair at side. Prothoracic episternum with a fine upturned pale hair, another similar hair above fore coxae directed downwards.

Legs yellowish or slightly tinged with brownish, covered with only black hairs and more or less distinct black bristles. All femora slightly stout, tarsi brownish, apical 2 or 3 segments on anterior four tarsi brown and distinctly dilated; tarsi not shortened, at least as long as corresponding tibiae. Coxae armed with black bristly hairs. Four anterior femora with a double row of long black hairs beneath,

the hairs becoming shorter towards tip on mid pair, and with 2 anterior preapical bristles. Hind femora with an anteroventral row of black hairs becoming longer towards tip, with a single longer bristle anteroventrally at base, and with a posteroventral row of very fine, shorter pale hairs; the 2 anterior preapical bristles distinct. Fore tibiae only very slightly spindle-shaped dilated, short black haired, in addition to 2 preapical bristles beneath with a distinct dorsal bristle on basal third. Mid tibiae slender, beneath with a row of short but distinct black bristles becoming longer towards tip and ending in a long ventral preapical bristle; the single antero- and posteroventral preapical bristles distinct. Hind tibiae long and slender, armed with very long black bristles in three rows at least on apical two-thirds: 5—6 dorsal, 2—3 anterior and 2—3 anteroventral; all bristles being longer than tibia is deep.

Wings long and not very broad, clear, veins yellow but especially on costal half more brownish. Cubital and discal veins only very slightly divergent, second basal cell a little shorter than first basal cell; a long black costal bristle. Squamae pale brownish with long fine whitish fringes, halteres pale yellowish.

Abdomen dark brown in ground colour and thinly greyish dusted; dorsum with scattered fine pale hairs, venter more densely blackish haired. Genitalia rather large but not broader than last abdominal segment, dark brown, only hypandrium together with partly fused left lamella and terminal appendages shining. Right lamella large, covered with microscopic silver pile and longer brownish hairs, dorsal process large and broadly bifurcated.

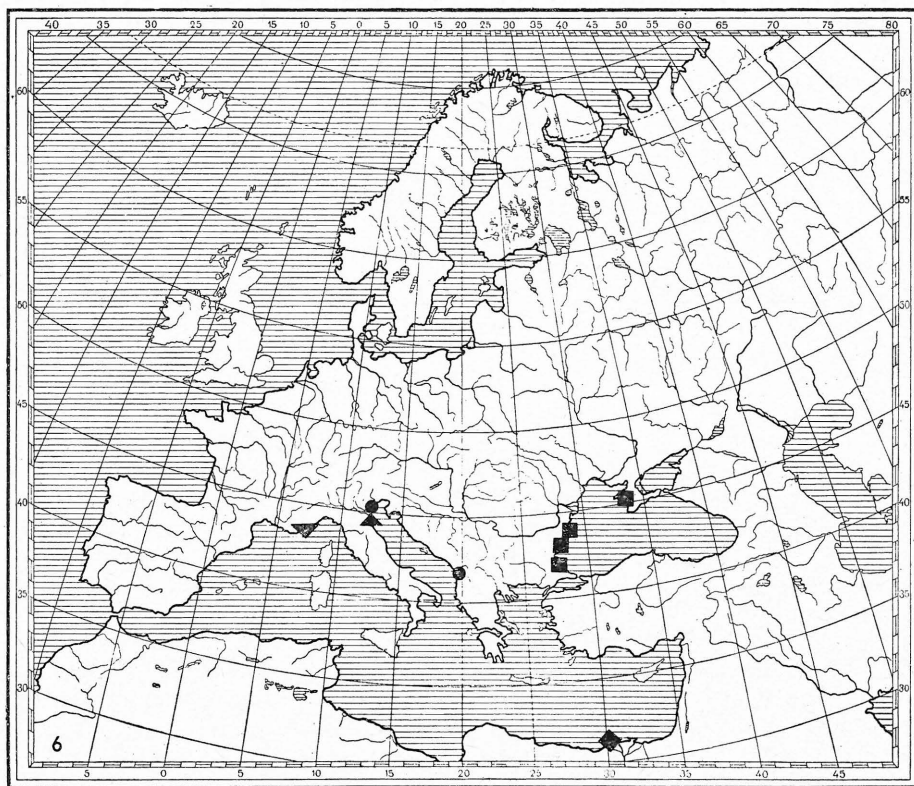
Female. Resembling male but larger, palpi often more brownish, and also legs, especially femora, sometimes extensively darkened, almost brown. Mid femora with very indistinct black hairs beneath; no ventral row of short black bristles on mid tibiae but, on the other hand, there are 2 distinct black bristles on dorsum: the lower one on apical quarter, the upper one (occasionally double) in basal third to half. Large bristles on hind tibiae appear to be still longer and coarser than in the male. Wings sometimes very slightly clouded on costal half and veins darker there. Cerci short, slender, apically with some minute brown hairs.

Length: body 1.3—1.8 (♀) mm, wing 1.4—1.7 mm.

C. pontica belongs to the *speculifera*-group and, with regard to the unicolorous dark antennae and black haired legs (often darkened, especially in ♀), most resembles *nigrosetosa*; the latter has all bristles on the head and thorax (including the small hairs on mesonotum) blackish, antennal segment 3 longer and pointed, and only a simple process to right lamella of epandrium in male. The other species with a bifurcated dorsal process on the right lamella of epandrium (*colliniana*, *adriatica*) have legs pale haired with apical tarsal segments slender, wings shorter and broader, and are in general paler pubescent species.

Distribution. On the coast of the Black Sea in Bulgaria and Rumania, where it is a very common species, Kovalev (in litt.) took it in Crimea.

This species was described from a series of ♂ Holotype and 5 Paratypes (1 ♂ and 4 ♀) collected by Zerny in 1930 at Aladža, Bulgaria, and deposited in the Naturhistorisches Museum, Wien. Likewise in the foregoing species (*italica*) Engel determined, undoubtedly without any knowledge of this genus and individual species, three specimens of the type series as *cursitans* Zett. and three specimens as *difficilis* Lundb. In 1970 and 1972 the species was very common on the seashore between Constanta, Rumania and the Bulgarian frontier.



Map 6. — Distribution of *C. italica* Chv. — ▲, *C. pontica* Chv. — ■, *C. adriatica* Chv. — ●, *C. amaura* (Beck.) — ◆, and *Chersodromia* sp. of the *speculifera*-group — ▼.

Dates. From mid April until mid July, on dates ranging from 20 April to 16 July (both Bulgaria).

Biology. The adults are very common on sandy coasts under the dry seaweed not far from the water, usually up to 3 to 4 m, when disturbed they run very quickly and fly rapidly for a short distance; such mobile flies are very easily overlooked on the sand. Several times I collected the adults (often in copulation) several tens of metres far from the sea on the flat sandy dunes running about on ground vegetation.

Material examined. Bulgaria — Aladža near Varna 16. vii. 1930 2 ♂ 4 ♀, Holotype ♂ and Paratypes (2 ♂ and 1 ♀ *cursitans* Zett., det. Engel; 3 ♀ *difficilis* Ldbk., det. Engel) (coll. NM Wien, 1 ♀ coll. Chvála); Obzor 20. iv. 1968 1 ♂, Galata 8. v. 1968 4 ♂ 2 ♀ V. Beschovski (coll. Chvála). Rumania — Mangalia 6. vii. 1970 2 ♂ 3 ♀; Doi Mai near Mangalia 11. vii. 1970 1 ♂ 1 ♀ (in cop.), 14. vii. 1970 4 ♂ 2 ♀, 7. vi. — 11. vii. 1972 ♂♂♀♀; Vama Veche 7. vii. 1970 7 ♂ 10 ♀, 13. vii. 1970 4 ♂ 3 ♀; Agigea 22. vi. 1972 2 ♂ 1 ♀ — all leg. M. Chvála (coll. Chvála).

Chersodromia adriatica Chvála, 1970

Chersodromia adriatica Chvála, 1970 : 397 — Albania, Italy

Diagnosis. A small brown species of the *speculifera*-group with all bristles on head and thorax pale. Antennae brown, segment 3 circular with supra-apical arista. Legs yellow and pale haired, only hind tibiae with a few long, weak brownish bristles. 2 pairs of vertical bristles rather smaller. Male genitalia with a small bifurcated process to right lamella.

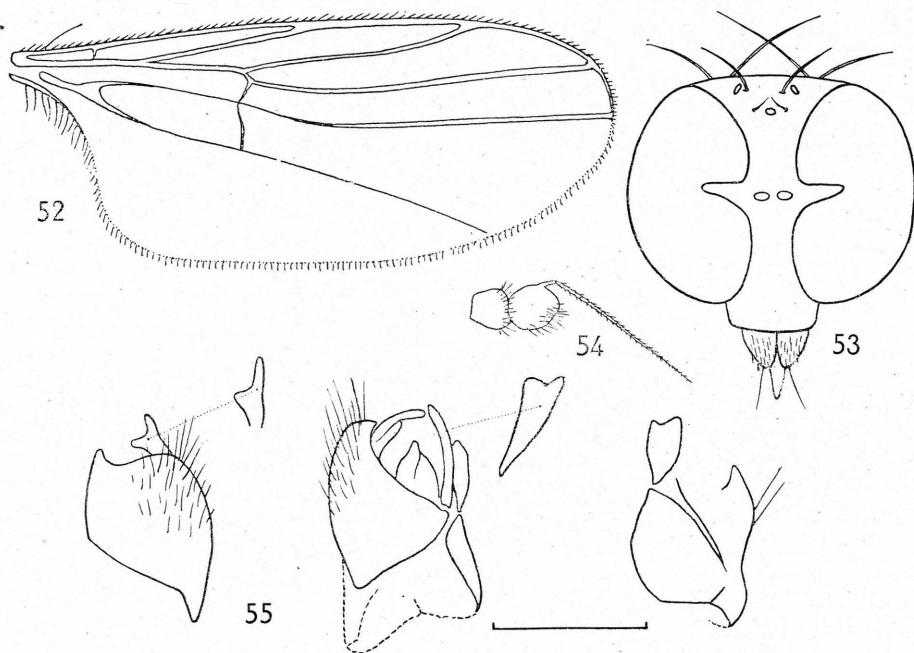
Male. Frons and face dull brown and only very indistinctly greyish dusted; former broad in front, as broad as antennal segment 3, and distinctly widening out on the upper part. Face almost as broad below antennae as frons in front, widening towards mouth and confluent with narrow brownish jowls. Occiput brownish in ground colour but distinctly greyish dusted, covered with fine pale hairs. Long bristles on head distinctly pale; front pair of ocellar bristles smaller (very distinctly in the Holotype), hind pair as long as 2 pairs of vertical bristles which are less erect than usual, inner pair crossing. Antennae brown, small; segment 1 hardly visible, segment 2 almost globular but smaller than segment 3, apically with a circle of only minute brownish hairs; segment 3 circular, anteriorly with fine brownish pubescence; arista supra-apical, dark, microscopically pubescent, about twice as long as antenna. Palpi of moderate size, pale yellow in ground colour and clothed with only fine pale hairs, terminal bristle-like hair pale. Proboscis yellowish.

Thorax dull brown in ground colour, only very indistinctly greyish dusted, sternopleura largely polished brown. All large thoracic bristles and hairs pale; acrostichals and dorsocentrals fine but distinct, former biserial and indistinctly separated from irregularly quadriserial dorsocentrals, 4 pairs of the latter in the inner row distinctly longer. Large thoracic bristles not very prominent, hardly as long as antennal segment 2 and 3 combined, present in full number: 1 humeral, 1 posthumeral, 2 notopleural, 1 supra-alar, 1 postalar, 1 pair of long scutellar bristles with a very minute pair at side. Prothoracic episternum with a rather long pale upturned hair.

Legs pale yellow coloured, only pale haired, apical 2 or 3 tarsal segments darkened and slender, tarsi slightly longer than corresponding tibiae. Usual anterior preapical bristles to all femora and ventral preapical bristles to anterior tibiae rather fine and pale especially at base, large bristles to hind tibiae darkened, long but conspicuously weak. All femora distinctly stout, hind femora with some longer darker hairs on basal half beneath. Mid tibiae with a ventral comb of small black bristles on apical two-thirds; neither fore tibiae nor mid tibiae with darker hairs above. Hind tibiae with long bristles in three irregular rows on apical two-thirds.

Wings very clear with indistinct pale veins, rather broad and blunt ended, axillar lobe well developed. Costal bristle long but fine, brownish, all hairs on costa and fringes to posterior margin pale. Cubital and discal veins slightly diverging and undulating, both basal cells of about the same length but second basal cell distinctly broader. Squamae light brown with long pale fringes, halteres pale yellow, brownish at extreme base.

Abdomen brownish, more or less shining, all segments with fine pale hairs which are longer on posterior segments. Genitalia rather short but as broad as last abdominal segment, brownish to yellow-brown in ground colour, only thinly grey dusted. Right lamella with longer brownish hairs. The structure of the genitalia, especially



Figs. 52—55. *Chersodromia adriatica* Chv. ♂ [Holotype]: 52 — wing, 53 — head, 54 — antenna, 55 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 53, 54, 55) represents 0.2 mm.

the rest of left lamella with its appendages, resembles very much that of the Canarian *colliniana*.

Female. Closely resembling male but without a comb of small dark spine-like bristles to mid tibiae beneath, on the other hand there is a small darker anterior bristly hair on apical third. Cerci small and ovate.

Length: body 1.0—1.6 mm, wing 1.1—1.6 mm.

C. adriatica may be distinguished from the other species of the *speculifera*-group with yellow legs and brown antennae with circular segment 3 by the very pale pubescence on the head, thorax, legs and abdomen; only the longer bristles on the hind tibiae are slightly darker. It closely resembles the Canarian *colliniana* and the South European *pontica* in the structure of male genitalia, but both these species are darker, with blackish-brown bristles on the head and thorax, and have distinctly erect vertical bristles; some minor differences are evident also in the genitalia, for example the terminal process to right lamella is more strongly bifurcated, and the lamella covered with darker bristles. In general *adriatica* shows some affinity to the South European *oraria*, but the latter is more densely and darker haired species on head and thorax, and the large brownish bristles on the thoracic disc are much more prominent and distinctly longer than the length of antenna. *C. oraria* may also be distinguished by the presence of a large anterior bristle in the apical third of mid tibiae in male (absent in *adriatica*) and by 2 bristles in female (only 1 in *adriatica*).

The main distinction, however, lies in the male genitalia: in *oraria* the dorsal process of the right lamella is simple and very narrowly pointed; the left appendage of the right lamella (imitating left cercus) is broad at base, in *adriatica* very narrowed and pointed towards base and apically widened; and the dorsal appendage of the left lamella is very large, conspicuously bilobed, rounded at tip (rather small and more triangular in *adriatica*).

Distribution. On the Adriatic coast of Italy and in Albania. The species is known to me still only from the type series, the Holotype ♂ from Albania which is deposited in the Naturhistorisches Museum, Wien and which is a larger specimen, 1.6 mm in length; and from nine Paratypes (8 ♂ and 1 ♀) from Venezia, Italy, which represent a series of generally smaller and more greyish dusted specimens deposited in the DEI Eberswalde. All the specimens were erroneously determined as *speculifera* Walk.

Dates. July and August.

Biology. Nothing is known on biology of this species but it is undoubtedly a coastal species; the nine paratypes were collected by Kertész on the same date and on the same locality together with *oraria*.

Material examined. Italy — Italia sup., Venezia 28. viii. 1905 8 ♂ 1 ♀ Kertész, Paratypes (*speculifera* Hal., det. Engel) (coll. DEI Eberswalde, 1 ♀ in coll. Chvála). Albania — Shengjin 6. vii. 1918 1 ♂ Karny, Holotype (*speculifera*, det. ?) (coll. NM Wien).

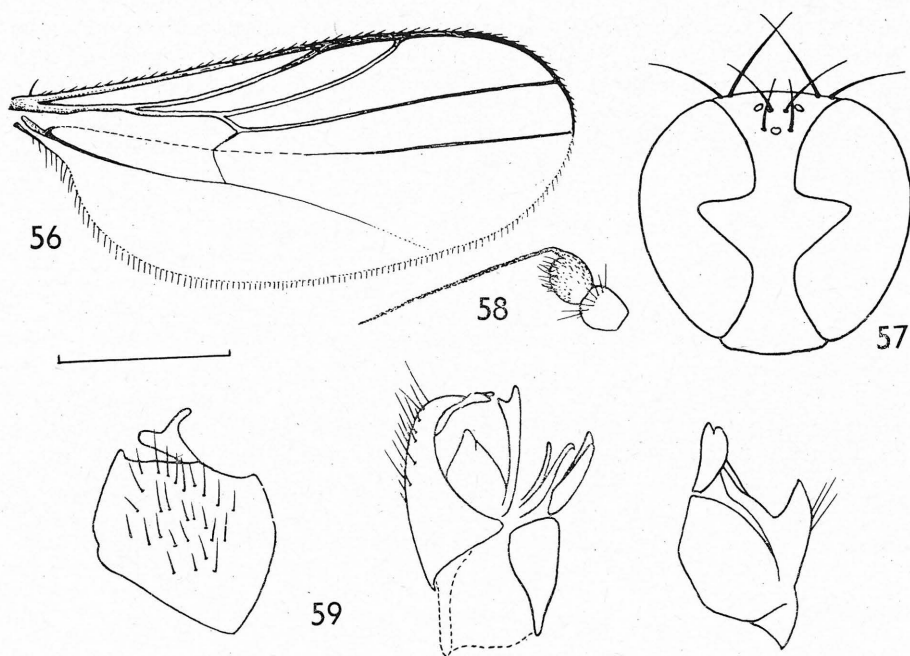
Chersodromia colliniana Frey, 1936

Chersodromia colliniana Frey, 1936 : 63 — Canary Islands; Engel in Lindner, 1938 : 39; Caspers, 1951 : 155 — Bulgaria (misidentification); Frey, 1958 : 26; Collin, 1961 : 69; Chvála, 1970 : 397, 399.

Diagnosis. A small, dark coloured and pale greyish dusted species with short brown antennae, segment 3 circular, arista supra-apical. 2 pairs of vertical bristles rather long, blackish-brown. Wings clear, rather large and broad, veins pale yellow. Palpi, proboscis and halteres yellow. Legs yellow except infuscated last tarsal segments, hind tibiae with distinct black bristles on apical two-thirds. Large bristles on thorax blackish-brown, male genitalia with a small bifid process to right lamella.

Male. Head blackish-brown to dark brown in ground colour, greyish dusted. Frons rather broad in front, as broad as antennal segment 2 and slightly widening out towards vertex, more brownish above antennae. Face densely light grey dusted, as broad below antennae as frons in front, distinctly produced towards mouth and confluent with only narrow jowls. 2 pairs of ocellar and 2 pairs of vertical bristles rather long and almost black, dark brown from some points of view. Occiput pale greyish dusted, covered with only scattered fine pale hairs above neck. Antennae brown to dark brown, short, segment 1 not visible; apical two segments of about the same length, segment 3 circular with longer, fine pale hairs anteriorly; slightly supra-apical arista microscopically pale pubescent, distinctly longer than antennae. Palpi pale yellow, clothed with whitish hairs becoming longer towards tip, rather large, ovate, about as long as one half length of rather strong, yellow proboscis; terminal bristle pale.

Thorax blackish-brown coloured and densely light grey dusted, only sternopleura largely polished. Mesonotum covered with fine whitish hairs, biserial acrostichals narrowly separated from multiserial dorsocentrals, about 4 pairs of latter distinctly



Figs. 56—59. *Chersodromia colliniana* Frey ♂ [Paralectotype]: 56 — wing, 57 — head, 58 — antenna, 59 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 57, 58, 59) represents 0.2 mm.

longer and darker. Large thoracic bristles long, blackish or brown-black from some points of view: 1 humeral, 1 posthumeral, about 2 notopleural, 1 smaller supra-alar, 1 postalar, and 1 long apical pair of scutellar bristles, outer pair much smaller. Prothoracic episternum with 2 rather long pale bristly hairs, the upper one directed upward, the lower one downward.

Legs yellow to pale yellow, covered with fine pale hairs, only last tarsal segments on all pairs brownish. All femora only slightly stout, armed with 2 small, fine black anterior preapical bristles, and with somewhat longer pale hairs beneath. Fore tibiae very slightly dilated, 2 black preapical bristles beneath only small, antero-dorsally 2—3 very small dark tiny bristles. Mid tibiae in addition to 2 preapical bristles with a single row of short but rather distinct black bristles on apical two-thirds beneath, the bristles becoming longer towards tip and ending in a long ventral preapical bristle. Hind tibiae with long, distinct black bristles on apical two-thirds, usually 3—4 dorsal, 2 anterior, and 2—3 anteroventral. Tarsi slender and short haired, distinctly longer than tibiae, apical segments not dilated.

Wings clear, rather broad and rounded at tip, veins pale yellow. Radial vein rather short, ending close to subcosta; cubital and discal veins slightly diverging, both basal cells equal in length. A costal bristle blackish, distinct. Squamae brownish with fine whitish fringes, halteres pale yellow.

Abdomen blackish-brown coloured and pale greyish dusted, covered with only scattered minute pale hairs, last segment with longer hairs on posterior margin. Genitalia rather long and slender, blackish-brown in ground colour and densely greyish dusted (not "glänzend schwarz" as stated by Frey in the original description) especially on epandrial lamellae, shining only on basal part of hypandrium. Right lamella covered with long brown bristly hairs, dorsal process heavily sclerotized and bifid. Cerci rather large, left lamella (partly fused with hypandrium) with only a small, prolonged dorsal appendage.

Female. Resembling male but no comb of short black bristles to mid tibiae beneath, and the black bristles on hind tibiae seem to be somewhat longer and more distinct. Mid tibiae armed with an additional long but thin black anterodorsal bristle in apical third. Cerci brownish, short and blunt ended, covered with very fine brownish hairs.

Length: body 1.2–1.6 mm wing 1.3–1.5 mm.

C. colliniana shows some affinity to the North European *beckeri*, the latter differs, however, in paler and more golden bristles on head and thorax especially in female, in the more yellow antennae, smaller palpi, narrower wings and darkened tarsi, in addition to different genitalia in male: cerci are smaller, and the sclerotized projection to right lamella is distinctly longer, pointed, and not bifurcated. The South European *oraria* is another closely related species to *colliniana*, with which it is compared in its description.

Lectotype designation. Frey described this species on the basis of 50 specimens taken by him and R. Storå at Puerto de la Cruz, Tenerife. I have found in the collections of the Zoological Museum, Helsinki altogether 47 specimens of the original series, all labelled "Tenerife, Puerto Cruz" with corresponding collector, R. Frey (40 specimens) or R. Storå (7 specimens). One male collected by R. Frey, which bears a green label "Spec. typ. No. 4936", is hereby designated lectotype and it has been labelled accordingly.

Distribution. Tenerife, Canary Islands. The species is known to me from the type series of 47 specimens collected by R. Frey and R. Storå at Puerto de la Cruz in July 1931, and from further 2 ♀ taken in May 1947 by H. Lindberg on the same locality.

Dates. May to July.

Biology. According to Frey (1936) the adults swarmed in July 1931 on the seashore at Puerto de la Cruz, Tenerife together with *Aphrosylus* (Dolichopodidae) and *Canace* (Canaceidae); the unlikely behaviour in the genus *Chersodromia* and virtually unknown in the subfamily Tachydromiinae. The adults of *Chersodromia* (and also of other genera of the subfamily) usually only run about and if they fly, then usually very rapidly for shorter or longer distances, but they never swarm. Frey possibly made a mistake in his note-book when collecting insects in the Canary Islands.

Material examined. Canary Islands — Puerto Cruz, Tenerife 1 ♂ 4 ♀ and further 35 specimens, R. Frey (♂ Lectotype, Spec. typ. No. 4936), 1 ♂ 2 ♀ and further 4 specimens, R. Storå (all *C. colliniana*, Spec. typ. No. . . ., det. R. Frey); 10. v. 1947 1 ♀ H. Lindberg (coll. ZM Helsinki). Puerto de la Cruz, Tenerife 7. — 8. v. 1947 1 ♀ H. Lindberg (coll. Chvála).

Chersodromia amaura (Becker, 1902)

Halsanalotes amaurus Becker, 1902 : 42 ♂ — Egypt; Bezzi, 1903 : 277; Kertész, 1909 : 143; Melander, 1928 : 298.

Chersodromia amaura Beck.: Enge lin Lindner, 1938 : 38 ♂♀; Collin, 1950 : 79; 1961 : 61.

Diagnosis. Very small greyish species with short yellow legs, only last tarsal segments brown; femora and tibiae with very minute dark preapical bristles, hind tibiae with tiny black bristles on apical half. Thoracic pubescence pale, larger bristly-hairs dark; 2 pairs of vertical bristles, no posthumeral bristle. Halteres yellowish. Wings rather broad and rounded at tip, entirely clear or slightly whitish with pale veins.

Male. Thorax blackish-brown in ground colour, rather densely greyish dusted, only lower part of sternopleura above mid coxae polished. Mesonotum, especially in front, with an indication of two more polished stripes between acrostichals and dorsocentrals. The small hairs on mesonotum pale and very minute, indicating rather close biserial acrostichals which are more widely separated from multiserial dorsocentrals; only last prescutellar pair of the latter larger and darker. Other "large" bristles longer and dark: 1 humeral, 2 notopleural, 1 supra-alar, and 1 post-alar. According to Becker's original description 2 scutellar bristles but these are broken now on male holotype.

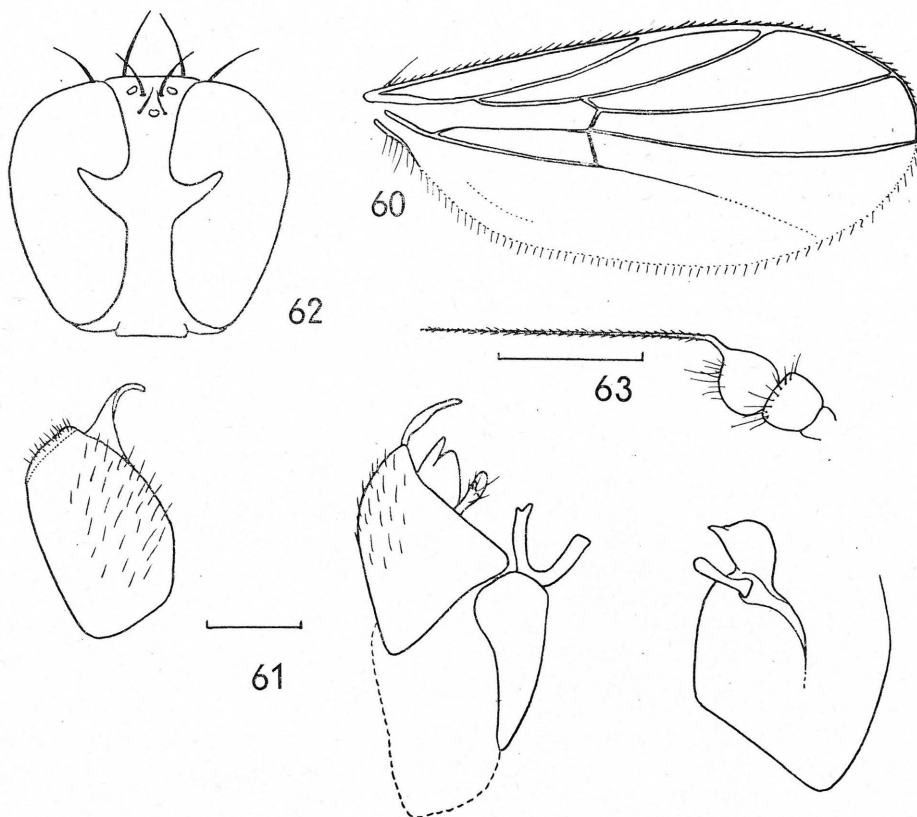
Legs pale yellowish coloured and fine pale pubescent, only four posterior coxae, tip of hind femora, and last segment of all tarsi, brownish. Coxae with several long darker bristly hairs anteriorly. All femora slightly stout, only short pale haired and armed with very small, slightly darker, tiny preapical bristly hairs, which are more distinct on hind femora. All tibiae slender, beneath with 2 longer and darker preapical bristles; mid tibiae with a row of short black tiny bristles on apical half beneath; hind tibiae in addition to preapical bristles with 2 anterior, 3 anterodorsal and 3 dorsal bristles on apical half, all bristles being dark brown and long, at least as long as tibia is deep. All tarsal segments rather short and except last segment not obviously dilated; tarsi about as long as or slightly longer than corresponding tibiae.

Wings clear or slightly whitish from some points of view (not "nur sehr schwach gelbbraunlich gefärbt" as stated by Becker), rather broad on apical half and rounded at tip. Veins pale, cubital and discal veins distinctly divergent, both basal cells of the same length; a distinct blackish costal bristle. Squamae light brown with long pale fringes, halteres whitish-yellow.

Abdomen black-brown, more or less thinly greyish dusted and clothed with only sparse fine pale hairs, especially on venter; last segment with long pale hairs on posterior margin. Genitalia shining blackish-brown, rather small, only right lamella of epandrium densely greyish dusted and covered with fine, short pale hairs; apically with a long and slender, slightly curved process. Left lamella (partly fused with hypandrium as usual in this genus) small with two dorsal projections.

Length: holotype — body without head 0.9 mm, wing 1.2 mm.

C. amaura is hitherto known only from the two original specimens deposited in the Becker Collection in Berlin. Becker described this species from two males, but the documentary material represents a pair (as already stated by Engel 1938 : 38): a male, labelled as "Typus" (= Holotype), at present unfortunately without head, and a female, labelled "Paratypus"; both specimens bear a locality label "Alexandria xi, 44129". After a study of these two specimens it seems to me unlikely that they belong to the same species. The female has longer pale hairs on thoracic disc, especially dorsocentrals are slightly longer, and large thoracic bristles are distinctly pale instead of blackish as in the male holotype. The latter character is, however, not so decisive, the different colouration of thoracic bristles in males and females is to



Figs. 60—63. *Chersodromia amaura* (Beck). ♂ [Holotype]: 60 — wing, 61 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). *Chersodromia* sp. ♀, Paratype of *amaura* [Egypt]: 62 — head, 63 — antenna. The scale lines represent 0.1 mm.

be seen for example also in *beckeri*, where I could verify this fact on a pair taken in copula. Unfortunately the male has lost its head and the Becker's original description is not very detailed, it fits both male and female. Another fact supporting my assumption that maybe two different species are involved is a figure of antenna given by Collin (1961, fig. 31a). Collin (p. 61) has examined "one of the two specimens" without notice of the sex; Collin had very probably the male, since he was such experienced dipterist that he would have noticed the female (even the type female) of a species known only from the male sex. Collin consequently had before him the male holotype, at that time still possessing the head; the figured antenna has very short arista, which is only slightly longer than apical two antennal segments combined, while in the female paratype arista is almost twice longer.

From this reason it is necessary in the meantime to restrict this species only to the above given redescription of the male holotype and all other conclusions must wait for discovery of a further new material for comparison.

The female paratype, even if it deals with a very small specimen, shows some affinity to the South European *adriatica*. For completeness and for comparison with the Becker's original description, I give also the redescription of the female paratype:

Female. Eyes only very indistinctly microscopically pubescent. Frons and face dark brown in ground colour and thinly grey dusted. Frons very broad in front, distinctly broader than antennal segment 3, widening out towards vertex; face as broad below antennae as frons in front, widening out towards mouth, jowls very narrow. [According to Melander (1928 : 298) "cheeks one-fourth the eye-height" but Melander has hardly seen the type male and Becker when describing this species does not mention this character; maybe, Melander wrote this statement on the basis of the figure given by Becker (1902, Table iv, Fig. 1), but these figures are really "somewhat misleading" as stated by Collin (1961 : 61).] 2 pairs of ocellar and 2 pairs of vertical bristles light brown and rather long. Occiput greyish dusted and clothed with fine small pale hairs. Antennae brown, apical two segments of about the same length and distinctly pale pubescent, segment 3 circular. Arista brown, rather long, almost twice as long as antenna; it seems to be whitish (as given by Becker in the original description: "Fühler rotgelb, deren Borste weisslich") because of the dense pale pubescence. Palpi small, yellowish and short pale haired, distinctly shorter than rather short brown proboscis.

Thorax with somewhat longer pale hairs on mesonotum than in the above redescribed male holotype, especially the inner row of dorsocentrals distinctly longer than the hairs in outer rows. Large bristles on margin of mesonotum (they are preserved in a small number only) including one pair of long scutellar bristles are distinctly pale brownish. Mesonotum uniformly greyish dusted without any indication of more shining stripes.

Legs of the same shape and colour as in the above described male but hind femora not darkened at tip and a single row of small black bristles on apical half of mid tibiae beneath absent, on the other hand there are 3 distinct dark preapical bristles (anteroventral, ventral and posteroventral), and another one anterior bristle on apical third. Last tarsal segment brownish and slightly dilated as in male.

Wings as in the male clear and broad but all veins still paler, and cubital and discal veins not so much divergent.

Abdomen thinly greyish dusted, cerci very short, ovate.

Length: body (including head !) 0.75 mm, wing 1.0 mm.

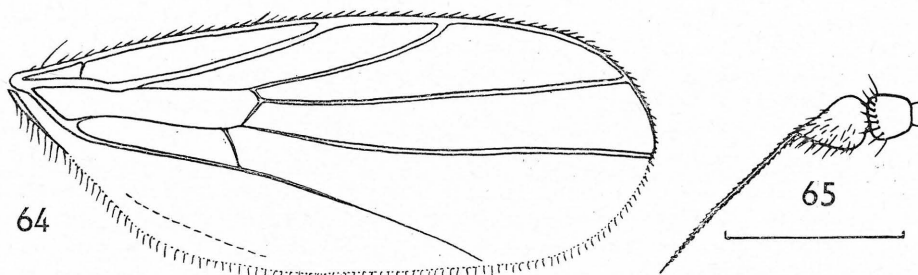
C. amaura is a distinct species showing some affinity to the *incana*-group (very small and equal dorsocentrals and acrostichals on mesonotum, no posthumeral bristle) but the yellow legs, the rather large polished patch on sternopleura, and the structure of male genitalia, prove its classification into the *speculifera*-group.

Almost nothing is known about this species except for the Becker's original description and a few records in various catalogues and some notes in the literature. I have not succeeded in finding this species among other material of *Chersodromia*. Collin (1950) correctly synonymized the genus *Halsanalotes* Becker, 1902 (of which *amaura* was the type species) with the genus *Chersodromia* Walk., since there were no reasons to separate *amaura* from other *Chersodromia* species; the dissections of male terminalia proved this fact.

Distribution. Egypt, North Africa.

Dates. November.

Biology. Becker took this species on the shore of salt lake near Alexandria, Egypt.



Figs. 64–65. *Chersodromia* sp. ♀ of the *speculifera*-group [Provence, France]: 64 — wing, 65 — antenna. The scale line (for Fig. 65) represents 0.2 mm.

Material examined. Egypt — Alexandrien 44121, xi. 1 ♂ Becker (*Halsanalotes amaurus* Typus, det. Becker; Holotype, design. Chvála, 1969); 1 ♀ with the same data (*Halsanalotes amaurus* Paratypus, det. Becker; *Chersodromia*? *amaura* Beck., ? *adriatica* Chv., det. Chvála, 1969) (coll. ZM Berlin).

Chersodromia sp. ♀

There is a single female from Provence, France in the collection of the Naturhistorisches Museum. Wien labelled "Provence, Fréjus (Var) 9.vi. 1924 leg. Zerny" and "*Chers. cursitans* Zett., det. E. O. Engel", which probably also belongs to this group. However, it shows at the same time a great resemblance to the *incana*-group. Unfortunately the female is in rather poor condition, especially the bristles on head and front part of mesonotum, which are important for precise determination, are missing. Therefore it is impossible to arrange this species, for the present, into the system with certainty.

Female. Both frons and face rather broad, almost as broad as antennal segment 3, blackish-brown in ground colour and densely covered by grey dusting. Both are rather parallel, only slightly widening out just before the ocellar tubercle or the mouth-opening respectively. Antennae small, dark brown; segment 3 more darkened, somewhat pointed, longer than deep; arista almost terminal, microscopically pubescent, and distinctly longer than the rest of antenna. Palpi small, brown, covered with minute silvery hairs and with a long black apical hair-like bristle. Probably 2 pairs of vertical bristles but only the base of the inner bristle on the right is preserved; however, the rest indicates large black bristles. Thorax blackish in ground colour, thinly greyish dusted, more densely on pleura leaving a large patch on sternopleura shining. Acrostichals and dorsocentrals (including some longer pairs) rather distinct, pale. Of the large bristles only 1 long black posthumeral and 1 postalar on one side and a very long but thin pair of black scutellar marginal with a small pair at side preserved. Legs very dark brown coloured except for somewhat light brownish coxae, basis of femora, "knees", and basal tarsal segment to all pairs. Legs only fine pale haired except for tiny black preapical bristles to all femora and tibiae, and usual black bristles on apical half of hind tibiae. Last tarsal segment darkened. Wings clear or indistinctly milk-white, rather broad and distinctly rounded at tip; veins brown. Cubital and discal veins slightly diverging, both basal cells almost

equal in length. Radial vein ending at costa closer to subcosta than to cubital vein. Costal bristle and short pubescence on costa pale. Squamae dusky, halteres dark brown, stem yellowish. Abdomen blackish-brown in ground colour, rather densely greyish dusted and clothed with fine, minute pale hairs. Last abdominal segment prolonged and very slender, cerci rather long. Length: body 1.5 mm, wing 1.5 mm.

This unnamed species differs from all others of the *speculifera*-group in the extensively darkened legs and in the dark halteres; these characters show, together with a small size, some resemblance to the *incana*-group. However, such characters like the rather broad face, small palpi, probably large black vertical bristles, conical antennal segment 3, a large polished patch on sternopleura, etc., demonstrate its position in the *speculifera*-group.

I only check this species in the present revision as an unnamed species of the *speculifera*-group, since the more numerous material and especially the finding of the male sex must precede its description.

4. *Chersodromia incana* - group

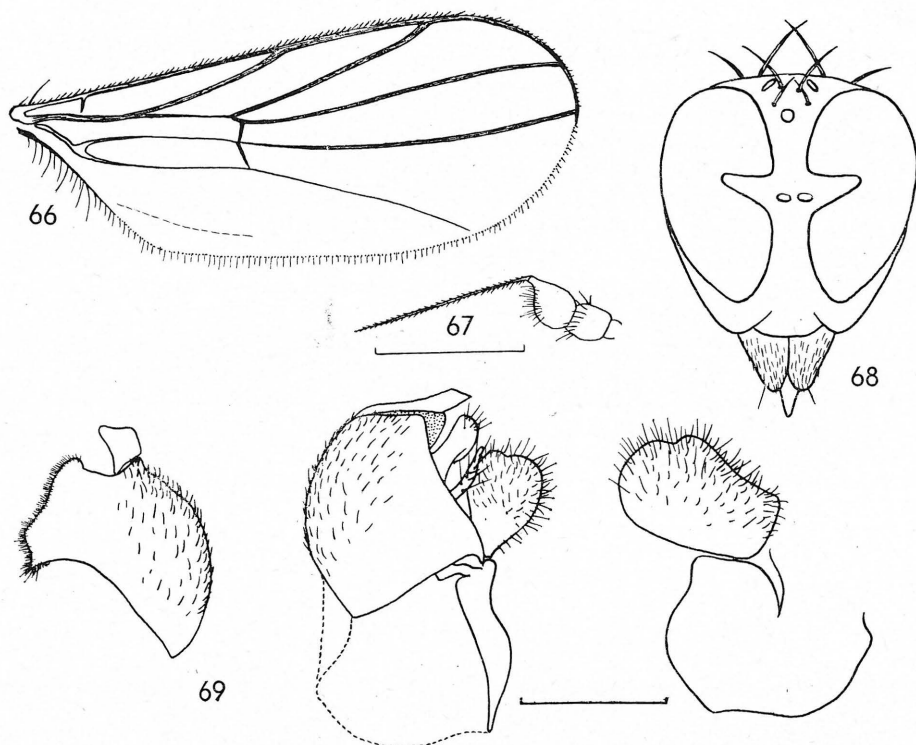
Chersodromia caucasica Chvála, 1970

Chersodromia caucasica Chvála, 1970 : 400 ♂ — Caucasus.

Diagnosis. Very small light grey species of the *incana*-group with 2 pairs of black rather short vertical bristles. Large thoracic bristles black, small hairing pale. Antennae small, brown, segment 3 slightly pointed; distinct jowls below eyes. Wings broad, slightly tinted brownish, veins dark brown; halteres darkened. Legs dark brown, hind tibiae with long but thin black bristles on no more than apical half.

Male. Frons blackish-brown in ground colour, thinly grey dusted, rather broad and slightly widening above, almost as broad in front as antennal segment 2. Face more silvery-grey dusted, as broad above as frons in front, slightly widening towards mouth and confluent with unusually (in the *incana*-group) deep jowls, which are about as broad as one-sixth of the eye-height. 2 pairs of ocellar and 2 pairs of vertical bristles equal in length, rather short, only indistinctly longer than antennal segment 3, and not very erect. Occiput more densely grey dusted along postocular margins, on the upper half above neck with minute pale hairs. Antennae brown to dark brown, segment 2 small, armed with a circlet of minute black bristles; segment 3 distinctly conical but not much longer than deep, finely pale pubescent; arista, owing to the pointed segment 3, seems to be terminal, microscopically pale pubescent and distinctly longer than antenna. Palpi not very large, brownish but densely clothed with minute pale hairs, pale terminal hair only fine.

Thorax black in ground colour, densely greyish dusted on mesonotum, more silvery-grey on pleura; sternopleura with only small, somewhat shining area about at middle, no distinct polished patch. Mesonotum covered with very fine minute pale pubescence (irregularly biserial acrostichals and multiserial dorsocentrals), several dorsocentrals in the inner row darker and more distinct, but only last pair just in front of scutellum long and black. Other thoracic bristles rather long, black but also only thin: 1 humeral, 2 notopleural, 1 smaller supra-alar, 1 postalar and 1 pair of scutellar bristles with a very minute pale pair at side. No posthumeral bristle.



Figs. 66—69. *Chersodromia caucasica* Chv. ♂ [Holotype]: 66 — wing, 67 — antenna, 68 — head; [Paratype]: 69 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 67, 68, 69) represents 0.2 mm.

Legs slender, mostly dark brown in colour and thinly grey dusted, only tarsi paler; apical 2 segments extensively darkened and on four anterior legs slightly dilated. All femora slightly stout, very finely pale pubescent, anterior preapical bristles blackish but very fine. Fore femora with a double row of 6 fine dark hairs beneath, those on mid femora more numerous but smaller, only 1 pair at extreme base very long. Fore tibiae slightly spindle-shaped dilated towards tip, ventral preapical bristles rather long, black, otherwise tibiae with only short, dense, pale pubescence. Mid tibiae slender, in addition to 2 long ventral preapical bristles with a ventral comb of short black bristles on apical third, ending apically in 1 black spine-like bristle, and with a thin but rather long black anterior bristle in apical quarter. Hind tibiae with very long but thin dark bristles (3—4 dorsal, 2 anterior, 1 anteroventral) on apical half, sometimes an additional smaller dorsal bristle near base.

Wings rather broad with conspicuously round apex, very slightly tinted brownish or almost clear; veins distinct, dark brown. Radial vein rather long, cubital and discal veins slightly divergent on basal two-thirds but almost parallel before tip. Second basal cell with slightly produced lower outer corner, but both cells equal in

width. A small dark costal bristle. Squamae brownish with pale fringes, halteres blackish-brown with yellowish stem.

Abdomen densely light grey dusted and fine pale pubescent, the hairs longer and darker on posterior two segments. Genitalia rather broad, right lamella of epandrium (placed below owing to the twisting) densely greyish dusted. Left lamella (partly fused with hypandrium) slightly shining brown, its dorsal flat appendage densely pale haired, and overlaps the whole genitalia from above. Right lamella slightly produced on the right, somewhat bilobed laterally, its outer edge very short and densely pale pubescent.

Female. Unknown.

Length: body 1.3 mm, wing 1.5 mm.

C. caucasica represents an intermediate form between the *speculifera*- and *incana*-groups of species; it belongs undoubtedly to the *incana*-group having short ocellar and vertical bristles, no distinct polished patch on sternopleura, dark brown legs, only a few bristles on mesonotum, dark halteres, and the right lamella of genitalia being on the outer right edge slightly produced (with indication of bilobed prolongation as in *mediterranea*), and having the dorsal process rather broad and blunt; on the other hand *caucasica* shows still some affinity to the *speculifera*-group, having rather broad frons and face, and black bristles on head and thorax. It differs from all other species of the *incana*-group in the black bristled head and thorax, the pointed antennal segment 3, the rather broad face, and in the quite distinct male genitalia with exceptionally large, flat oval process of the left lamella of the epandrium.

Distribution. Caucasus; nothing more is known on the origin of this species but it was collected by Becker probably on the Caucasian Black Sea coast.

C. caucasica is still known only from the type series of five males, the holotype and 4 paratypes, which are all deposited in the Becker Collection in the Zoologisches Museum, Berlin. It is curious that Becker gave to these five males of the same origin three distinct names, viz., *cursitans*, *speculifera* and *incana*.

Dates. August.

Biology. Nothing is known on biology of this species.

Material examined. Caucasus — „Kaukasus“ 50365, viii 2 ♂ Becker, Holotype and Paratype (*cursitans* Zett., det. Becker), 2 ♂ Paratypes (*speculifera* Walk., det. Becker), 1 ♂ Paratype (*incana* Hal., det. Becker) (coll. ZM Berlin).

Chersodromia mediterranea Chvála, 1970

Chersodromia mediterranea Chvála, 1970 : 402 — Crete.

Diagnosis. Very small blackish-brown coloured and greyish dusted species resembling *incana* but bristles on head and thorax small, dark brown; acrostichals and dorsocentrals minute, pale. Antennae dark brown, segment 3 circular with somewhat supra-apical arista. Large palpi and halteres yellowish. Legs dark brown, pale haired, with tiny dark bristles. Wings brownish, polished patch on sternopleura very small. Frons broad, face very narrow.

Male. Frons blackish-brown in ground colour, more or less densely greyish dusted; rather broad in front, almost as broad as antennal segment 3, slightly widening

towards vertex. Face more densely silvery-grey dusted, very narrow on the upper half below antennae and conspicuously widening on lower half, confluent below with very narrow jowls. 2 pairs of ocellar and 2 pairs of vertical bristles equal in length, rather short and weak, brownish, distinctly shorter than apical two antennal segments combined. Occiput greyish dusted, on the upper half above neck and on postocular margin with minute pale hairs, and with a few long pale hairs above mouth. Antennae dark brown, segment 2 somewhat paler and distinctly smaller than segment 3; latter circular, with minute pale hairs anteriorly; the dark and very microscopic pubescent arista obviously supra-apical, slightly longer than antenna. Palpi very large, flat and oval, distinctly longer than one-third of the eye-height; yellow in ground colour and densely clothed with fine silvery hairs, only a small, fine pale terminal hair-like bristle. Proboscis brownish.

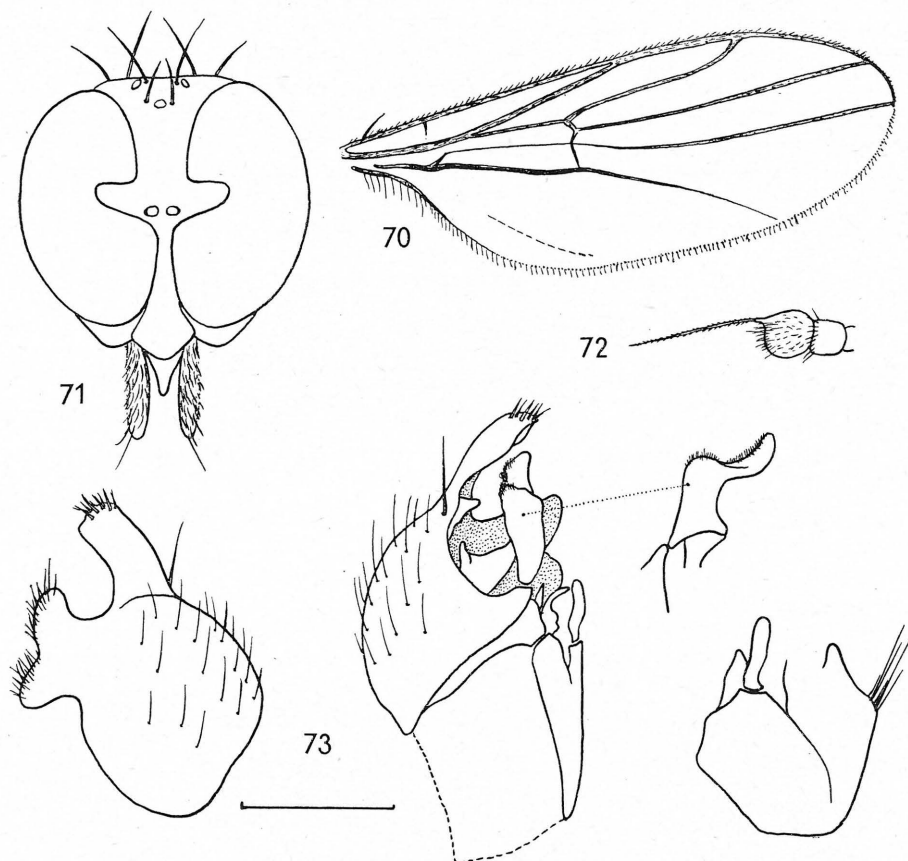
Thorax blackish, slightly brownish on pleura, mesonotum greyishdusted, pleura more densely silvery-grey, leaving only a very small oval patch anteriorly on sternopleura shining. Acrostichals and dorsocentrals very minute, pale, former biserial and separated from multiserial dorsocentrals by an indefinite darker stripe. About 4–5 pairs of dorsocentrals slightly longer. Other bristles more distinct but only small and weak, dark brown: 1 humeral, 2 shorter notopleural with other fine hairs in front, 1 postalar, and 1 pair of almost black and rather long scutellar bristles. No posthumeral and perhaps supra-alar bristles, a small pale hair above fore coxae directed downwards.

Legs dark brown to brown, only "knees" yellowish, thinly greyish dusted, covered with fine pale hairs and tiny dark bristles. A tiny black anterior preapical bristle distinct only on posterior four femora; fore femora with a double row of longer pale hairs beneath, which are on posterior femora only slightly visible. Fore tibiae slightly spindle-shaped dilated towards tip, only short pale haired, ventrally with 2 black tiny preapical bristles. Mid tibiae slender, in addition to small preapical bristles beneath with 2 distinct black anterodorsal bristles on apical quarter and at middle, with 1 smaller dark anterior bristle on apical third, and with a ventral comb of very small but pointed black bristly hairs on apical third. Hind tibiae with the usual black bristles in three rows on apical half, all bristles being slightly longer than tibia is deep. Tarsi slender and short haired, at least as long as tibiae.

Wings rather narrow with brown veins, slightly tinged brownish on costal half. Axillary part of wing only a little developed. Cubital and discal veins indistinctly divergent before tip, almost parallel. Both basal cells almost equal in length; a distinct dark costal bristle. Squamae brownish with long whitish fringes, halteres yellow with brownish knobs.

Abdomen somewhat shining blackish-brown, almost naked on dorsum, venter more greyish dusted and clothed with dense but very minute pale hairs. Genitalia small but rather broad, almost as broad as last abdominal segment. Right lamella brown coloured and greyish dusted, clothed with pale hairs; dorsal process large and broad, rather shiny; right lateral edge produced into a distinct, large bilobed process. Left lamella small, apically with two small processes.

Female. Closely resembling male but the short black bristles in apical comb ventrally to mid tibiae absent, and all bristles on legs distinct and blackish; the 2 anterodorsal bristles to mid tibiae very long, more than twice longer than tibia is deep, and fore tibiae with a very fine, tiny dark bristle in front at middle. Halteres more darkened at tip. Abdomen very thinly greyish or slightly shining on dorsum,



Figs. 70—73. *Chersodromia mediterranea* Chv. [♀ Paratype]: 70 — wing; [♂ Holotype]: 71 — head, 72 — antenna, 73 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right). The scale line (for Figs. 71, 72, 73) represents 0.2 mm.

almost bare. Cerci brownish, rather long, rounded at tip, apically with minute pale hairs.

Length: body 1.3—1.4 mm, wing 1.4—1.5 mm.

C. mediterranea is a closely related species to the North European *incana*, having many common characters, including the same type and general structure of male genitalia. However, *incana* differs in the complete absence of distinct bristles on head and thorax, all bristles being represented by only small pale points; in the smaller dark bristles on legs and the absence of the preapical bristles on femora; and in the much broader and distinctly milk-white wings with pale veins.

Distribution. Crete; only the type series of the male Holotype and the pair of Paratypes collected by Becker on the island of Crete is known up to the present time.

Dates. March.

Biology. Nothing is known on the biology of this species but it is undoubtedly a coastal species as usual in this genus.

Material examined. Crete — „Kreta“ 49655, iii. Becker, 1 ♂ Holotype, 1 ♀ Paratype (*incana* Hal., det. Becker and Engel) (coll. ZM Berlin), 1 ♂ Paratype (coll. Chvála).

***Chersodromia* sp. cf. *mediterranea* Chv.**

Chersodromia incana Walk.; Becker, in Becker, Kuntze, Schnabl et Villeneuve, 1910 : 646 — Corsica (misidentification).

Chersodromia sp. ♀ Chvála, 1970 : 404 — Crete.

There is a second, probably different species from *mediterranea* which is known only from the female sex; Becker (1910) recorded it from the island of Corsica under the name of *incana* and I have found a further female from the island of Crete. The so far known three females very probably represent an unknown species very closely allied to *mediterranea*.

The females resemble very much the female sex of *mediterranea* having the same type and number of bristles on the head and thorax, and all other characters are the same except for the somewhat darkened palpi and more yellow halteres; the face is slightly broader below antennae but still very narrow; the fore tibiae bear 2 tiny dark bristles in front instead of only 1 as in *mediterranea*; finally the wings are broader, entirely clear (neither brownish as in *mediterranea*, nor milk-white as in *incana*) and have distinct brownish veins. The latter feature seems to be most important, distinguishing these females at once, but the description should await discovery of the male sex.

Distribution. Corsica, Crete.

Dates. April and May.

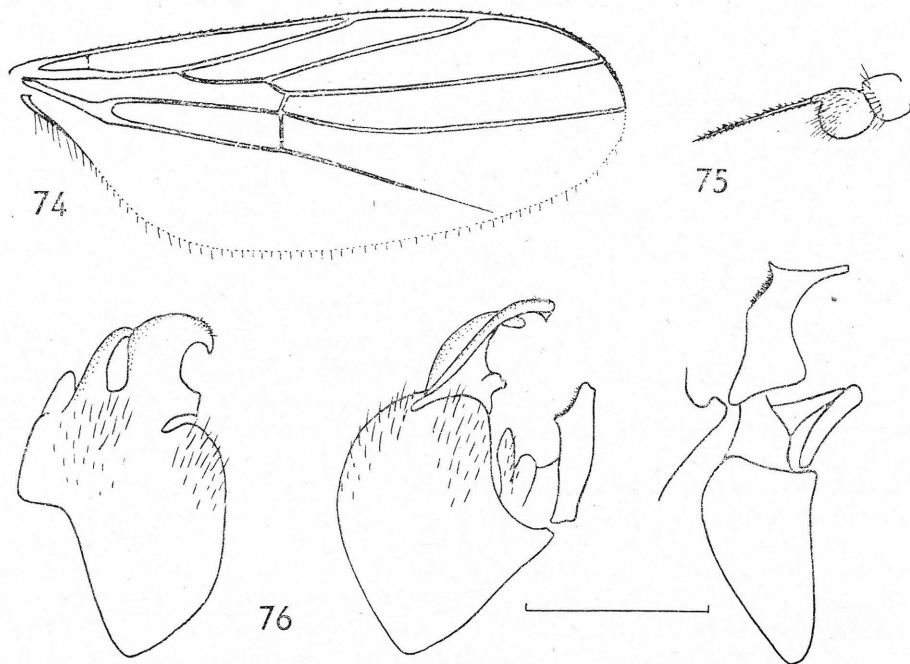
Material examined. Corsica — „Korsika“ 54664, v. 2 ♀ Becker (*incana* Hal., det. Becker and Engel) (coll. ZM Berlin). Crete — Biró, Hérakleion iv. 1906 1 ♀ (coll. DEI Eberswalde).

***Chersodromia incana* Walker, 1851**

Chersodromia incana Walker, 1851 : 138 — England, Ireland; Schiner, 1862 : 96; Bezzi, 1903 : 278; Becker, 1907 : 119 — Poland, Tunisia (misidentification, = partly *C. beckeri* Mel., partly *C. oraria* Coll.); Kertész, 1909 : 145; Strobl, in Czerny et Strobl, 1909 : 179 — Spain (misidentification, = *C. flavipes* sp. n.); Lundbeck, 1910 : 282 — Denmark; Becker, in Becker, Kuntze, Schnabl et Villeneuve, 1910 : 646 — Corsica (misidentification, = *C. sp. cf. mediterranea* Chv.); Ringdahl, 1921 : 34 — Sweden; Melander, 1928 : 296; Karl, 1930 : 58 — Poland (not examined); Engel in Lindner, 1939 : 41; Collin, 1950 : 78; Ardö, 1957 : 103, 171; Kröber, 1958 : 52 — Germany, Holland (not examined); Brauns, 1959 : 542, 550; Collin, 1961 : 69; Teschner, 1961 : 192, 1962 : 15; Smith, 1964 : 128; Kovalev, 1969 : 582; Chvála, 1970 : 404, 406.

Diagnosis. A very small silvery-grey dusted species with distinctly milk-white wings, and head and thorax with only minute whitish points representing the usual bristles. Antennae and legs brownish-black, legs with only a few tiny bristly hairs on hind tibiae. Palpi very large, whitish.

Male. Frons and face very dark brown in ground colour, densely silvery-grey dusted. Frons rather broad in front, as broad as or broader than antennal segment 2,



Figs. 74–76. *Chersodromia incana* Walk. ♂ [Agger, Denmark]: 74 — wing, 75 — antenna, 76 — hypopygium (right lamella on the left, the same with cerci and left dorsal process at middle, and left lamella with appendages and detail of left dorsal process on the right). The scale line (for Figs. 75, 76) represents 0.2 mm.

distinctly widening towards vertex; face much narrower below antennae than frons in front, but distinctly widening out towards mouth and confluent with narrow jowls. Ocellar triangle with some very minute and hardly visible whitish hairs representing 2 pairs of ocellar bristles. Vertex with 2 pairs of similar and very indistinct minute whitish bristles (in form of whitish points), originally 2 pairs of vertical bristles. Occiput with several minute pale hairs. Antennae brownish-black, segment 2 small, as long as broad; segment 3 very short and distinctly oval with almost naked, short supra-apical dark arista, which is only slightly longer than antenna; apical two segments armed with very fine, minute whitish hairs. Palpi very large, egg-shaped, about as long as shining brown proboscis; whitish-yellow, usually somewhat darkened at extreme base, and covered with fine whitish hairs.

Thorax densely light grey dusted, sternopleura with only a small shining dark brown patch. Mesonotum with small whitish punctures in irregular rows imitating acrostichals and dorsocentrals; former slightly separated from dorsocentrals on anterior two-thirds of mesonotum, biserial; hind third of mesonotum in front of scutellum except sides naked, scutellum with several whitish punctures on posterior margin. Notopleura with slightly longer whitish hairs.

Legs dark brown to brownish-black, thinly grey dusted, only "knees" and posterior four metatarsi yellowish-brown; legs clothed with fine, whitish, very short hairs.

All femora only slightly stout, without preapical bristles. Fore femora with a double row of slightly longer pale hairs beneath becoming longer towards base, fore tibiae spindle-shaped dilated towards tip and armed with 2 longer dark preapical bristly hairs beneath. Mid tibiae in addition to 2 small dark preapical hairs with further 2 small black bristly hairs on apical quarter in front, and with a row of very short black bristles on apical third beneath. Hind tibiae with about 4 black tiny bristles anteriorly on apical third and 2 dark preapical bristly hairs beneath; tibiae slightly dilated towards tip and there more densely whitish pubescent. Tarsi rather long and slender, as long as or longer than tibiae, only apical two or three segments on anterior four tarsi shortened and slightly dilated.

Wings milk-white, rather blunt ended, veins whitish and very inconspicuous. No costal bristle, cubital and discal veins almost parallel, both basal cells equal in length. Squamae dark brown, paler on anterior margin and with scarce, fine whitish fringes. Halteres yellowish, knobs dirty yellow to greyish.

Abdomen dark brown in ground colour, thinly silvery-grey dusted especially on tergites. Dorsum almost naked, venter with more fine pale minute hairs, last segment with longer pale hairs on posterior margin. Genitalia small, dark brown in ground colour, greyish dusted except for darker and shiny apical processes. Right lamella of epandrium with only sparse fine darker hairs, apically with three strip-like processes, the left one the broadest and more curved at tip. Cerci very small.

Female. Resembling male but the row of very short and minute black bristles on apical third of mid tibiae beneath absent. Abdomen pointed, cerci blackish-brown, very short and rounded at tip, covered with tiny whitish hairs.

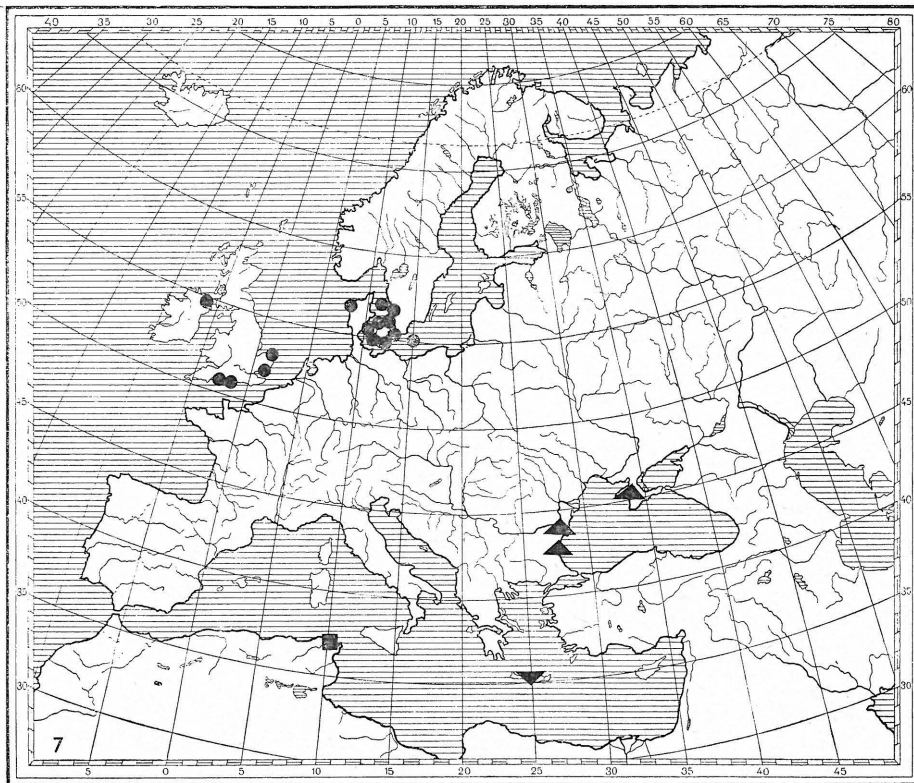
Length: body 1.1–1.7 mm, wing 1.1–1.4 mm.

One of the smaller species of this genus, it may be at once recognized from all species of the *incana*-group by the absence of the usual bristles or bristly hairs on head and thorax, which are represented by small whitish points only.

Distribution. A North European species known from the coasts of the North Sea and from the West Baltic, distributed on coasts from Ireland and England through Denmark to South West Sweden (Skåne, Halland) and Bornholm. I have seen the documentary material only from England, Denmark and the Swedish coast close to Denmark, but Kröber (1958) recorded this species also from the German island of Amrum in Schleswig Holstein and after Karl (1930) also from Polish Pommerania and from Holland. The specimens taken by Becker (1907) at Swinojuscie (Swinemünde), North Poland were later correctly described by Melander (1928) as a distinct species under the name of *beckeri*. The description and figures of *incana* given by Engel (1939) refer to some species of the *speculifera*-group. *C. incana* was several times recorded by mistake as a South European species, either by Becker (1907) from Tunisia (= *orària*), or Strobl (1909) from Spain (= *flavipes*), or again by Becker (1910) from Corsica (= indet. sp. close to *mediterranea*); unfortunately these records were followed by all subsequent authors up to the present time.

Dates. From the end of May until August, on dates ranging from 26 May to 20 August (both Studland, England).

Biology. The adults run very rapidly on sandy seashores, usually at most several metres from the water, always on fine dry sand. Regarding their very pale, light grey colouration and small size they can be very easily overlooked on the sand and are almost invisible when stationary, one can see them only in motion. Sometimes



Map 7. — Distribution of *C. incana* Walk. — ●, *C. mediterranea* Chv. — ▼, *C. albopilosa* Chv. — ■, and *C. curtipennis* Coll. — ▲.

they occur in very large numbers, the adults were very common, in hundreds of specimens, during the whole of June 1969 on the broad sandy beach near Liseleje and Tisvilde in North Sjaelland, Denmark. Walker (1851), when describing this species, recorded it also from the sandy shores of lakes, according to Collin (1961) referring probably to the shores of Lough Neagh, Ireland. However, I have never seen this species from the inland locality.

Material examined. Great Britain — Studland 20. viii. 1906 3 ♀ ? Verrall; Palling 17. vi. 1904 2 ♀ ? Verrall (*incana* Wlk., det. Verrall) (coll. UZM København). Studland 20. viii. 1906 1 ♀ ? Verrall, 10. viii. 1909 1 ♂, 26. v. 1912 1 ♂ 1 ♀ ? Collin (*incana* Walk., det. Collin, 1921) (coll. DEI Eberswalde). Denmark — Sjaelland: Tisvilde 8.—10. vii. 1909 4 ♂ 7 ♀; Langeland: Lohals 1.—2. vii. 1909 7 ♂ 6 ♀; Jylland: Agger 7.—8. vi. 1919 9 ♂ 10 ♀; Fyn: Strib 8. vii. 1909 1 ♀; Bornholm: Rønne 6. viii. 1911 1 ♂ 1 ♀, Sandvig 12. viii. 1911 1 ♂ 1 ♀ all leg. W. Lundbeck; Falster: Falsters Østkyst 30. vi. 1921 3 ♂ 5 ♀ Dr. Th. Mortensen (all *incana* Walk., det. Lundbeck) (coll. UZM København). Anholt prof F 18. vii. 1953 2 ♀ Meurling, Ardö (*Chers. incana* Walk., det. Frey) (coll. ZIU Lund). Sj., Liseleje 5.—17. vi. 1969 18 ♂ 30 ♀, 6. vii. 1969 1 ♂ 3 ♀; Rösnaes Fyr 13. vii. 1969 4 ♂ 7 ♀ all leg. M. Chvála (coll. NM Praha and coll. Chvála). Sweden — Sk. Skälderviken 29. v. 1919 1 ♂ 2 ♀, 16. vi. 1926 3 ♂; Sk. Skanör 8. viii. 1945 2 ♂ 1 ♀ all leg. O. Ringdahl (*incana* Walk., det. O. Ringdahl); Hall. Trönninge Laxvik, högstrand 30. vi. 1957 1 ♂ Ardö (coll. ZIU Lund). Sk. Skälderviken 29. v. 1919 1 ♀ O. Ringdahl (coll. ZM Helsinki).

***Chersodromia albopilosa* Chvála, 1970**

Chersodromia albopilosa Chvála, 1970 : 404 — Tunisia.

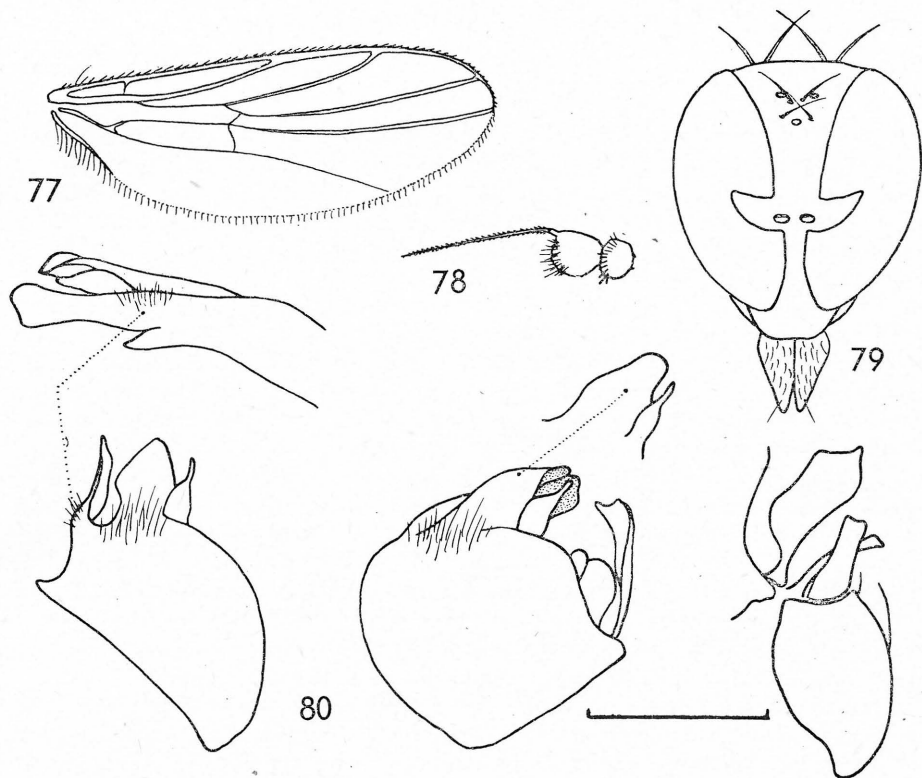
Diagnosis. A very small blackish-brown coloured and silvery-grey dusted species of the *incana*-group with all hairs and setae white, including small preapical setae on all femora and tibiae, except small black spines in ventral comb on apical quarter to mid tibiae in male. Hind tibiae with only a few whitish setae apically, no dark bristles in three rows as usual in this genus. Legs dark brown, 2 pairs of small white vertical bristles.

Male. Frons and face blackish-brown in ground colour, densely silvery-grey dusted; frons broad, about as broad in front as antennal segment 3, slightly widening above. Face much narrower, almost half of the width above than frons in front, slightly widening on lower third and confluent with narrow, silvery-grey dusted jowls. 2 pairs of ocellar and 2 pairs of vertical bristles, the inner pair of latter distinctly crossing; all bristles equal in length, white, not very long, slightly shorter than antennal segments 2 and 3 combined. Occiput silvery-grey dusted, covered with some fine whitish hairs on the upper part above neck and on postocular margin. Antennae dark brown, segment 1 invisible; apical two segments almost circular, segment 2 shorter and armed with a circlet of short whitish hairs, segment 3 with longer whitish hairs apically; arista concolorous with antennae, only microscopically pubescent, distinctly longer than antenna. Palpi large, ovate and somewhat narrowed apically, about as long as two-thirds of face; whitish-yellow in colour, clothed with minute whitish hairs, apically with a small, fine pale hair-like bristle.

Thorax densely silvery-grey dusted, leaving only a very small patch on sternopleura above mid coxae polished blackish-brown. Acrostichals and dorsocentrals white, fine but distinct; former biserial and only very indistinctly separable from quadriserial dorsocentrals, the inner row of the latter somewhat longer. Large bristles whitish, rather short but stout, only slightly longer than antennal segment 3, posthumeral bristle absent; the other bristles present as follows: 1 humeral, 3 notopleural, 1 supra-alar, 1 postalar, and 1 pair of marginal scutellar bristles.

Legs unicolorous dark brown in colour, clothed with only fine whitish hairs and concolorous few tiny bristles, only mid tibiae with a comb of short, minute black spine-like bristles beneath before tip. Tarsi about as long as corresponding tibiae, apical three segments on anterior two pairs slightly dilated. All femora only slightly stout, armed with whitish tiny anterior preapical bristles and concolorous pair of longer hairs at base beneath; fore femora with a double row of about 8 shorter whitish hairs beneath. Fore tibiae spindle-shaped dilated towards tip, densely clothed with minute white adpressed hairs, and with 2 ventral preapical bristles. Mid tibiae slender, in addition to minute ventral preapical bristles with 2 longer white anterior setae on basal and apical thirds, with another anteroventral white seta on basal third, and with 8—10 distinct short black bristles in comb ventrally on apical third, ending in longer curved apical spine-like bristles. Hind tibiae without usual long black bristles apically, there are only 2 or 3 longer whitish setae at tip.

Wings rather small and narrow, milk-white, with indistinct whitish veins. Cubital and discal veins slightly diverging and evenly curved up before tip, radial vein ending to costa half way between subcosta and cubital vein. Basal cells equal in length, apically distinctly produced, second basal cell broader. Only a small, fine



Figs. 77—80. *Chersodromia albopilosa* Chv. ♂ [Holotype]: 77 — wing, 78 — antenna, 79 — head, 80 — hypopygium (right lamella with detail of lateral appendage on the left, the same with cerci and left dorsal process at middle, and left lamella with appendages and detail of left dorsal process on the right). The scale line (for Figs. 78, 79, 80) represents 0.2 mm.

whitish costal bristle, other costal hairing and fringes on posterior margin white. Squamae dark brown with sparse, long white fringes; halteres yellowish, knob slightly darkened apically.

Abdomen dark brown in ground colour, silvery-grey dusted and covered with sparse minute whitish hairs which are longer on posterior segments. Genitalia short but comparatively broad, concolorous with abdomen and evenly greyish dusted, leaving only broad apical appendages light brownish and somewhat shining. Right lamella with a broad dorsal process, some fine whitish hairs at its base, and a small and narrow, apically distinctly pointed process on the left; right edge of right lamella produced into a long lateral appendage which overlaps the hypopygium.

Female. Resembling male but the short black spine-like bristles in comb to mid tibiae beneath absent and the ventral whitish preapical bristles longer; the 2 anterior setae in both thirds and the anteroventral seta on basal third as in the male. Abdomen almost naked, cerci ovate, small and rather broad, apically fine pale haired.

Length: body 1.2 mm, wing 1.0 mm.

C. albopilosa may be separated from all species of the *incana*-group and of the genus without difficulty by the presence of only white hairs and fine bristles both on body and legs, and by the somewhat milk-white wings. *C. incana*, which also has milk-white wings, has replaced all bristles and hairs on the head and thorax with only small whitish points and, similarly as in other species, it possesses distinct black bristles at least on the apical third of the hind tibiae.

Distribution. Tunisia, North Africa. The species is known only from the type pair taken by Hoegen in Tunisia and deposited in the Oldenberg Collection in the Deutsches Entomologisches Institut, Eberswalde. Both specimens were determined by Engel as *speculifera*.

Dates. Unknown.

Biology. Unknown.

Material examined. Tunisia — „Tunis“ 1 ♂ (Holotype) 1 ♀ (Paratype) Hoegen, coll. Oldenberg (*speculifera* Walk., det. Engel) (coll. DEI Eberswalde).

Chersodromia curtipennis Collin, 1950

Chersodromia curtipennis Collin, 1950 : 78 ♀ — Bulgaria; Caspers, 1951 : 156; Canzoneri and Ratti, 1970 : 222 ♂ — Italy (misidentification, = *neocurtipennis* Besch.).

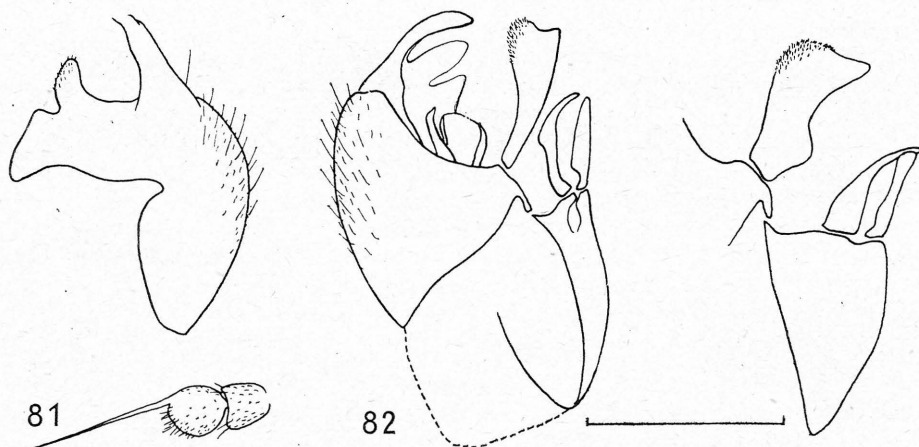
Diagnosis. A very small species of the *incana*-group having the pale bristles on head and thorax more distinct than in *incana* and differing from all other species of this group by very abbreviated wings, scarcely extending beyond end of second abdominal segment.

Male. Head black in ground colour and rather densely light grey dusted. Frons broad in front, as broad as antennal segment 3, widening above; face more silvery-grey, narrower above than frons in front, widening below and confluent with rather narrow jowls. 2 pairs of ocellar and 2 pairs of vertical bristles whitish and fine, equal in length, slightly longer than antennal segment 3. Antennae blackish, segment 3 small and almost spherical, supra-apical arista slightly longer than antenna. Palpi large but rather narrower, almost as long as blackish-brown proboscis, pale and densely covered with silvery-white pile.

Thorax entirely rather light grey dusted including sternopleura, all hairs and bristles whitish; ac and dc small, former biserial, indistinctly separated from numerous dc; a humeral, a notopleural and a postalar longer, a pair of apical scutellars the longest.

Legs dark, coxae and femora blackish-brown, knees, tibiae and tarsi lighter brown, and all legs rather thinly grey dusted. All hairs whitish but a small anterior preapical bristle on all femora, a ventral pair of preapical bristles on anterior four tibiae, and the usual bristles on apical half of hind tibiae, brownish; mid tibiae with at least one anterior and one ventral bristle on apical third and with a comb of small blackish ventral bristles towards tip. Fore tarsi slightly shortened, posterior four tarsi long. Fore and hind femora slightly thickened, mid femora slender.

Wings very short and narrow, scarcely extending beyond abdominal segment 2, whitish; veins very pale, indistinct. Halteres well developed, not very much shorter than wings, whitish-grey.



Figs. 81—82. *Chersodromia curtipennis* Coll. ♂ [Mangalia, Rumania]: 81 — antenna, 82 — hypopygium (right lamella on the left, epandrium with cerci at middle, and left lamella on the right with detail of left dorsal process). The scale line represents 0.2 mm.

Abdomen densely light grey dusted and covered with scattered fine whitish hairs, genitalia small, polished dark brown.

Female. Resembling male but halteres darker grey on knobs, mid tibiae without the ventral comb of small black bristles on apical third but the large anterior and anterodorsal bristles more distinct on apical half of tibia and almost blackish. Abdomen similarly grey dusted but rather brownish in ground colour, cerci ovate, short.

Length: body 0.7—1.3 mm, wing 0.2—0.3 mm.

C. curtipennis is one of the smaller species of the genus and the only so far known Palearctic species with very abbreviated wings (partly abbreviated wings are found in *arenaria*) resembling in this way only the Nearctic *C. parallela* Mel. of the *cursitans*-group. Canzoneri and Ratti (1970) described the male sex on the basis of the material from Volano, Italy; however, considering the given description and the given figures of legs and particularly the very distinct genitalia, it is a different species (see *C. neocurtipennis* Besch. under 'Addendum').

Distribution. Described from the series of five syntypic females (Collin did not name the holotype) collected by Dr. H. Caspers at Mesembria on the Black Sea Coast, north of Burgas; recently it has been several times collected in Bulgaria and Rumania, Kovalev (in litt.) took it in Crimea.

Dates. From the end of April until August, on dates ranging from 28 April to 28 August (both Bulgaria).

Biology. The adults run very rapidly on the sandy coasts, at most several metres from the water on fine dry sand, and are quite invisible when stationary.

Material examined. Bulgaria — Galata 8. v. 1968 4 ♂, Kranevo 28. iv. 1968 4 ♀ all leg. V. Beschovski (coll. Chvála). Rumania — Doi Mai near Mangalia 7.—12. vi. 1972 10 ♂ 9 ♀ M. Chvála (coll. Chvála).

IV. Zoogeography

The *Chersodromia* are littoral species inhabiting seashores, very limited in the dispersal mechanism considering that they fly, if they ever do, only for a short distance, and therefore very interesting from the zoogeographical point of view. The genus is mostly Holarctic in distribution, altogether 32 species are hitherto recorded from the Palaearctic region (24 species) and from North America north of Mexico (8 species). One species is recorded from Central America, Panama and one species from Hawaii. The cipher 34 represents a number of *Chersodromia* species positively known at present. The genus has been several times recorded also as Indo-Australian; *C. argyropalpa* (Bezzi, 1904) was described (in the genus *Coloboneura*) from New Guinea, *C. lutescens* Bezzi, 1904 from New South Wales, Australia, *C. species* Bezzi, 1912 from Formosa, and finally *C. argentina* Quate, 1960 from the island of Palau in the Western Caroline Is., Micronesia. However, all these species probably do not belong to this genus but to some of the genera of the *Austrodromia* Coll. complex.

The 24 so far known Palaearctic species may be separated into 3 different and quite isolated zoogeographical groups of species: 1. North European, inhabiting coasts of North Europe around the Baltic and the North Sea; 2. South European, inhabiting the Mediterranean and Atlantic coasts of South Europe and North Africa including the Canary Islands and Azores; 3. North East Asiatic, inhabiting the peninsula of Kamtchatka and the Komandorskiye Islands in the Bering Sea.

It is very interesting to compare the representation of the four systematic groups of species (*hirta*-, *cursitans*-, *speculifera*- and *incana*-group) in the three Palaearctic zoogeographical groups; the present situation is given in the following table:

	<i>hirta</i> -g.	<i>cursitans</i> -g.	<i>speculifera</i> -g.	<i>incana</i> -g.
North Europe	1	3	2	1
South Europe	1	1	8	4
North East Asia	2	1	—	—

It is quite obvious from the table that the separation into the 4 systematic groups of species is of a very old date in the Old World. It seems probable at the same time that the origin and centre of distribution of *Chersodromia* lies in the colder regions of Europe and Asia, and that the systematic groups of species originated from the fauna of North Europe. The South European and North African species seem to be of younger origin, the number of closely related species of the phylogenetically younger *speculifera*- and *incana*-groups supports this opinion.

1. North European species. There are 3 species, *hirta*, *difficilis* and *incana*, with almost the same area of distribution covering coasts of the North and Baltic Sea from Great Britain eastwards to Denmark and the south west Swedish coast (Skåne) close to the Danish island of Sjaelland. *C. speculifera* shows almost the same pattern of distribution but it is a rather rare species everywhere and it has not yet been recorded from South West Sweden. *C. beckeri* is known only from the Baltic, pene-

trating mainly along the North European coast (Germany, Poland) as far as Russian Carelia. The only locality on the North Sea coast known to me lies on the west coast of Danish Jylland. *C. arenaria*, known from Great Britain, Denmark and eastwards from southern parts of Sweden and Finland, goes farther north than any other species of the genus, it is a rather common species in Iceland and on the north coast of Fennoscandia where it reaches 70° North. *C. cursitans* is a species with the largest area of distribution; it is very rare in England but very common in Denmark and the whole of Fennoscandia, where it reaches along the Gulf of Bothnia to about 66° North. It is known from the northern area of the European part of the U.S.S.R. and like the only species of the genus it is distributed along rivers and lakes far inland to the central areas of the European part of the U.S.S.R., to the Moscow District (according to the unverified literary records to as far as the north coast of the Caspian Sea). In central parts of Europe *cursitans* penetrates as far as Central Europe, Czechoslovakia and southwards to Jugoslavia, Dalmatia; its occurrence on the coasts of South Europe is not impossible.

2. South European species. 2 species, *gratiosa* and *colliniana*, are known only from the Canary Islands, *pseudohirta* from the Canary Islands and Tunisia and is probably much more widely distributed in the Mediterranean. *C. flavipes* is hitherto known only from the Atlantic coast of Spain, *amaura* and *albopilosa* only from North Africa, from Egypt and Tunisia respectively. 2 species are known only from the Adriatic coast, viz., *italica* from Italy and *adriatica* from Italy and Albania. *C. mediterranea* was taken on the island of Crete, and further 2 species are known only from the Black Sea coast — *pontica* and *curtipennis*; the third species, *caucasica*, was described from the material labelled "Caucasus" but this species was very probably collected on the Caucasian Black Sea coast. All the above mentioned species are recorded from only more or less small areas of distribution (often from a single locality), which is caused by the scanty material of *Chersodromia* available from this region. Some of the species will no doubt prove to be more widely distributed and at least several new species await discovery in this area. Only 2 so called South European species are known from a large area of distribution; *oraria* is recorded from the Azores in the Atlantic Ocean through Spain and Tunisia in the Mediterranean as far as the Adriatic coast of Italy; *nigrosetosa* is distributed in the Mediterranean from Spain through the Adriatic coast of Jugoslavia eastwards to the "Caucasus", probably to the Caucasian coast of the Black Sea, but positively known from Bulgaria and Crimea.

3. North East Asiatic species. Only 3 species are known so far from this area, 2 species of the *hirta*-group and 1 species of the *cursitans*-group, thus of phylogenetically older groups; *kamtchatkiana* and *hackmani* were collected on Kamtchatka, *nubifera* on the Komandorskiye Islands in the Bering Sea.

The 8 Nearctic species represent two different and quite isolated zoogeographical groups of species, the smaller group of species inhabiting the Atlantic coast of the U.S.A., and the second, larger group of species which are distributed along the Pacific coast. 3 species are of Atlantic distribution; *houghii* is known from the northern part of the Atlantic coast from Massachusetts, Connecticut and New York, *nana* from Florida, and *inuitata* from a large area of distribution on the Atlantic coast from Maine in the north to Florida in south. Of the 5 known species of Pacific distribution 4 species, viz., *cana*, *inchoata*, *insignita* and *megacetes*, are recorded from California, and *parallela* from Washington.

V. Catalogue of world species

- adriatica* Chvála, 1970 Acta ent. bohemoslov., 67 : 397 — Pal.; S. Europe
albopilosa Chvála, 1970 Acta ent. bohemoslov., 67 : 404 — Pal.; N. Africa
amaura (Becker, 1902) Mitt. Zool. Mus. Berlin, 2 : 42 (*Halsanalotes*) — Pal.; N. Africa
arenaria (Haliday, 1833) Ent. Monthly Mag., 1 : 161 (*Tachypeza*) — Pal.; N. Europe (syn. *brevipennis* Zetterstedt, 1838)
beckeri Melander, 1928 Gen. Ins., 185 (1927) : 296 — Pal.; N. Europe
cana Melander, 1945 Psyche, 52 : 82 — Nea.; Pacific Coast
caucasica Chvála, 1970 Acta ent. bohemoslov., 67 : 400 — Pal.; E. Europe
colliniana Frey, 1936 Comment. Biol. Soc. Sci. Fenn., 6 (1) : 63 — Pal.; Canary Is.
cursitans (Zetterstedt, 1819) K. Vetensk. Akad. Handl., 1819 : 82 (*Empis*) — Pal.; N., C. and E. Europe
curtipennis Collin, 1950 Proc. R. Ent. Soc. Lond. (B), 19 : 78 — Pal.; S. Europe
difficilis Lundbeck, 1910 Dipt. Dannica, 3 : 280 — Pal.; N. Europe
flavipes sp.n. — Pal.; S. Europe
gratiosa Becker, 1908 Mitt. Zool. Mus. Berlin, 4 : 41 — Pal.; Canary Is.
hackmani sp.n. — Pal.; Kamtchatka
hawaiiensis Melander, 1938 Proc. Haw. Ent. Soc., 10 : 57 — Hawaii
hirta (Walker, 1836) Ent. Monthly Mag., 3 : 180 (*Tachypeza*) — Pal.; N. Europe
houghii (Melander, 1902) Amer. Ent. Soc. Trans., 28 : 206 (*Stilpon*) — Nea.; Atlantic Coast
incana Walker, 1851 Ins. Brit. Dipt., 1 : 138 — Pal.; N. Europe
inchoata (Melander, 1906) Ent. News, 17 : 370 (*Thinodromia*) — Nea.; Pacific Coast
insignita Melander, 1945 Psyche, 52 : 81 — Nea.; Pacific Coast
inuitata (Melander, 1902) Amer. Ent. Soc. Trans., 28 : 230 (*Coloboneura*) — Nea.; Atlantic Coast
italica Chvála, 1970 Acta ent. bohemoslov., 67 : 393 — Pal.; S. Europe
kamtchatkiana Chvála, 1970 Acta ent. bohemoslov., 67 : 388 — Pal.; Kamtchatka
longicornis (Curran, 1931) Amer. Mus. Nov., 467 : 11 (*Coloboneura*) — Neo.; Panama
mediterranea Chvála, 1970 Acta ent. bohemoslov., 67 : 402 — Pal.; S. Europe
megacetes Melander, 1945 Psyche, 52 : 80 — Nea.; Pacific Coast
nana (Coquillett, 1903) Ent. Soc. Wash. Proc., 5 : 267 (*Coloboneura*) — Nea.; Atlantic Coast
nigrosetosa Chvála, 1970 Acta ent. bohemoslov., 67 : 390 — Pal.; S. and E. Europe
nubifera (Coquillett, 1899) Dipt. Commander Isl., p. 343 (*Tachydromia*) — Pal.; Komandorskyie Is.
oraria Collin, 1966 Boll. Mus. Civ. Venezia, 16 : 33 — Pal.; S. Europe, N. Africa
parallela (Melander, 1928) Gen. Ins., 185 (1927) : 297 (*Thinodromia*) — Nea.; Pacific Coast
pontica Chvála, 1970 Acta ent. bohemoslov., 67 : 395 — Pal.; S. Europe
pseudohirta Chvála, 1970 Acta ent. bohemoslov., 67 : 385 — Pal.; Canary Is., N. Africa
speculifera Walker, 1851 Ins. Brit. Dipt., 1 : 138 — Pal.; N. Europe

VI. Summary

The present paper is a revision of the Palearctic species of the genus *Chersodromia* Walker, 1849 based on the study of the type specimens and considerable documentary material from various European Museums and Institutions. The *Chersodromia* species are coastal species, penetrating only rarely inland.

Altogether 24 species are known recently from the Palearctic region but this number is far from definite, the finding of many new species may be anticipated especially along South European, North African and Asiatic coasts. 34 species are known at the present time in the world, the genus is mostly Holarctic in distribution, 8 species are Nearctic, 1 species is known from Panama and 1 from the Hawaii. All species are separated into four natural groups of species, viz., *hirta*-group, *curvitars*-group, *speculifera*-group and *incana*-group.

The Palearctic species represent, from the zoogeographical point of view, 3 provisional specific isolated groups which may be roughly characterized as North European (7 species), South European (14 species) and North East Asiatic (3 species). The Nearctic fauna forms 2 zoogeographically isolated groups of species, the first is distributed along the Atlantic coast (3 species), the second one along the Pacific coast (5 species).

Two species are described as new to science, *C. hackmani* sp.n. from Kamtchatka and *C. flavipes* sp.n. from Spain. A lectotype is designated for *C. difficilis* Lundbeck, 1910; *C. gratiosa* Becker, 1908; *C. beckeri* Melander, 1928; and for *C. colliniana* Frey, 1936; the holotype of *C. amaura* (Becker, 1902) is identified. ♀ of *C. nigrosetosa* Chvála, 1970 is described for the first time.

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VIII. Alphabetic index of names

(Synonyms in italics; page-references are given in order of decreasing importance.)

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IX. Addendum

Since 1972, when the above revision was accepted for print, several new records on *Chersodromia* including descriptions of new taxa appeared in the literature during the period 1972–1976.

New taxa described:

bureschi Beschovski, 1973 Zool. Anz., Leipzig, 191 : 340 — Pal.; S. Europe (*speculifera*-group)

madelinae Arnaud, 1975 The Pan-Pacific Entomologist, 51 : 152 — Neo.; Mexico, Pacific Coast (*cursitans*-group)

milanchvalai Beschovski, 1973 Zool. Anz., Leipzig, 191 : 337 — Pal.; S. Europe (*cursitans*-group)

neocurtipennis Beschovski, 1974 Boll. Mus. Civ. Venezia, 25 : 65 — Pal.; S. Europe (*incana*-group)

New data on earlier described species:

Arnaud P. H., Jr., 1975: A New Species of *Chersodromia* from Mexico. — *The Pan-Pacific Entomologist*, 51 : 152–158 (*C. longicornis*).

Beschovski V., 1973: Contribution to the Dipterous Fauna (Diptera-Brachycera) of the Bulgarian Black Sea Coast. III. — *Bull. Inst. Zool. et Mus., Acad. Bulg. Sci.*, 37 (1972) : 33–41 (*C. pontica*).

- Beschovski V., 1973: Ecological investigations on the representatives of Diptera, Brachycera from the salt biotopes along the Bulgarian Black Sea coast. II. The dipteran fauna from the sea-weeds cas. — *Bull. Inst. Zool. et Mus., Acad. Bulg. Sci.*, 38 : 5—20 (*C. pontica*).
- Beschovski V., 1973: Ökologische Untersuchungen über Diptera, Brachycera Vertreter aus den salzigen Biotopen des bulgarischen Schwarzmeerstrands. III. Die Diptera-Fauna des von Wellen überfluteten sandigen Strandes. — *Bull. Inst. Zool. et Mus., Acad. Bulg. Sci.*, 38 : 195—230 (*C. pontica*, *C. curtipennis*).
- Beschovski V. L., 1973: Deux nouvelles espèces du genre *Chersodromia* (Diptera: Empididae) : *Chersodromia milanchvalai* sp. n. et *Chersodromia bureschi* sp. n. du littoral bulgare de la Mer Noire. — *Zool. Anz., Leipzig*, 191 : 337—342 (*C. pontica*, *C. nigrosetosa*, *C. curtipennis*).
- Beschovski V. L., 1974: *Chersodromia neocurtipennis* sp. n. a second species with very short wings of the *Chersodromia* genus (Diptera, Empididae). — *Boll. Mus. Civ. Venezia*, 25 : 65—68 (*C. curtipennis*).
- Chvála M., 1975: The Tachydromiinae (Dipt. Empididae) of Fennoscandia and Denmark. — *Fauna ent. scand.*, 3, 336 pp., Scand. Sci. Press Ltd., Klampenborg, Denmark (*C. hirta*, *C. cursitans*, *C. difficilis*, *C. arenaria*, *C. speculifera*, *C. beckeri*, *C. incana*).
- Chvála M., 1976: Swarming, mating and feeding habits in Empididae (Diptera), and their significance in evolution of the family. — *Acta ent. bohemoslov.*, 73 : 353—366 (*C. colliniana*).