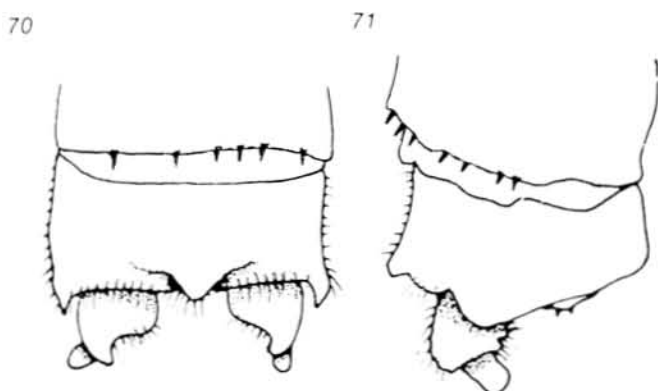


Coenagrionidae: *Ischnura*



Figs. 70–71: *Agriocnemis sania* Nielsen, 1959; male terminalia, dorsal and lateral views

Distribution: In the type locality, the species has been exterminated by the introduction of *Gambusia*. Pinhey (1974) records it from Ethiopia and from N. Kenya. There are no records from deltaic Egypt, but the species occurs in Sinai, and reaches the Jordan Valley.

Israel (Locality records): Benot Ya'aqov bridge on the Jordan River (1), Lake Hula (1), Mt. Tabor area (5), Petah Tiqwa (8), Hadera (8), Bet She'an (7), and Quseima Oasis (17).

Specimens have been caught between March and September.

Genus ISCHNURA Charpentier, 1840

Libellulinae eur., p. 20

Type Species: *Agrion elegans* Vander Linden, 1820.

Damselflies of small size, slender. Colours non-metallic, usually green or blue, sometimes brown, extensively marked with black. Females polychromatic. Wings hyaline. Pterostigma of males of different shape and colour in both pairs of wings, that of forewing bicolorous, short, covering one cell or less. d acutely pointed at its distal end. arc situated at an_2 ; Ab arising proximal to Ac. Head narrow; frons without angular crest. Postocular spots present. Posterior rim of pronotum mostly with prominent central lobe. Abdomen moderately short, segment 10 with distal rim raised to form one or two tubercles. Legs short. Female with a vulvar spine. Accessory genitalia: Lamina deeply cleft; ham. ant. squared, with inner anterior spine; lam. post. small. Ligula: the apical segment (glans) strongly built, often roughly triangular in lateral view, with long flanges and a pair of stylettes.

Distribution: Cosmopolitan, except for South America. Five species are regional.

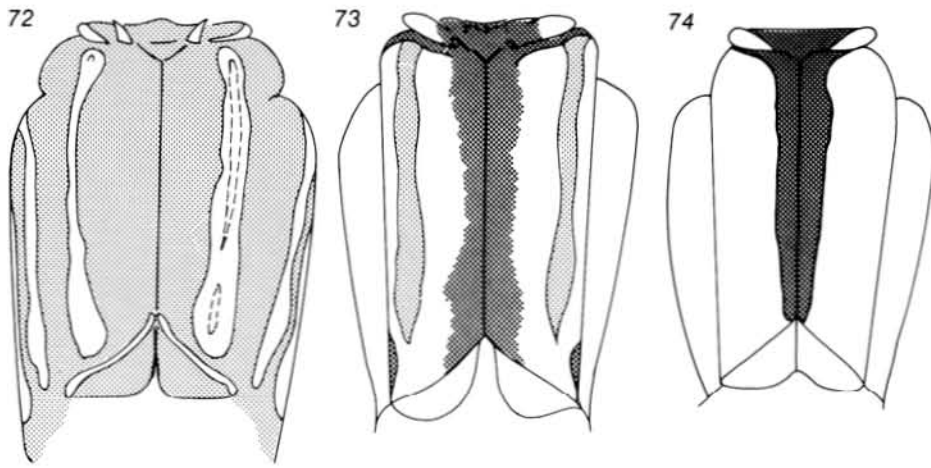
Odonata of the Levant

Key to the Species of *Ischnura*

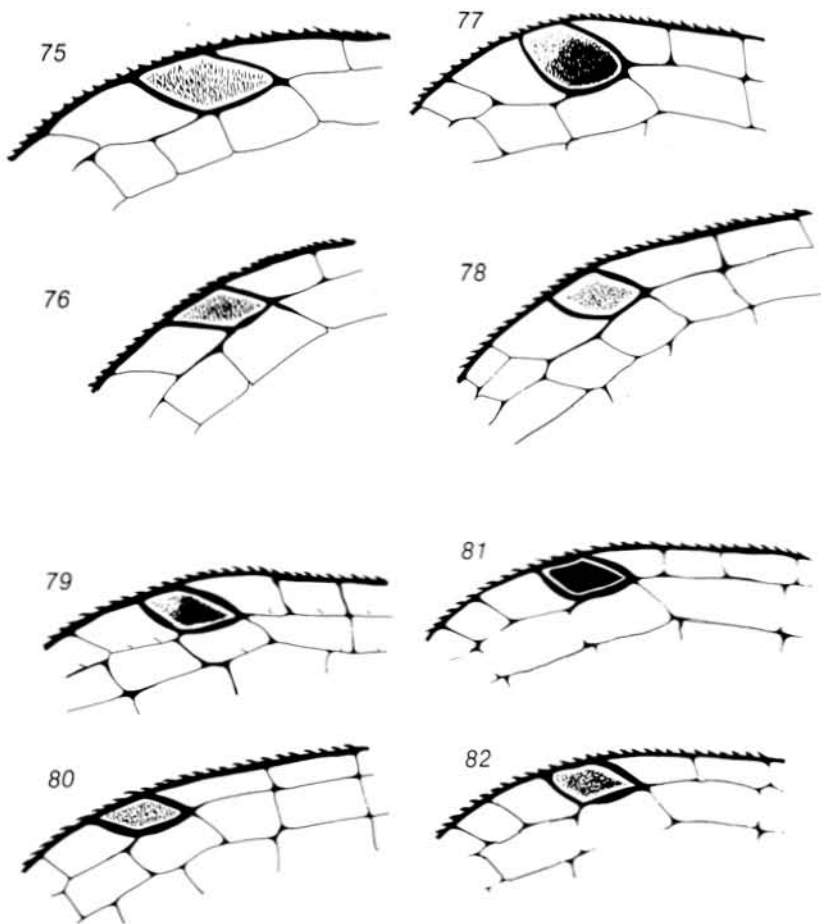
(Figs. 72–115)

1. Pt in forewing and hind wing differing in shape, that of the forewing being larger. Spine present on the inner-posterior corner of the lam. mes., adjacent to the carinal fork.
Ischnura pumilio (Charpentier)
- Pt in forewing and hind wing somewhat differing in shape, but not in size. No spine on the lam. mes., adjacent to the carinal fork 2
2. Males 3
- Females 6
3. App. inf. much longer than app. sup. and about as long as S_{10} , forcipate 4
- App. sup. and app. inf. of about equal length; these appendages not prominent, not forcipate, and much shorter than S_{10} 5
4. Hind ridge of pronotum with middle lobe modified into a steeply erected lamina; app. sup. crossed-over at their lower tips. ***Ischnura elegans ebneri*** Schmidt
- Hind ridge of pronotum with middle lobe inconspicuous, rounded, not erect. App. sup. with tips not crossed-over. ***Ischnura senegalensis*** (Rambur)
5. Pt in forewing black in its middle, surrounded by a white fringe. App. sup. somewhat horse shoe-shaped, its inwardly and downwardly curved apex blunt.
Ischnura evansi Morton
- Pt in forewing black in its basal half, clear in its apical half. App. sup. with a finger-shaped expansion on its upper inner side; the fingers of the left and right appendix usually overcross each other. ***Ischnura fontainei*** Morton
6. Vulvar spine strongly developed, long, produced over S_9 . Hind rim of pronotum without any conspicuously developed middle lobes. ***Ischnura senegalensis*** (Rambur)
- Vulvar spine acutely pointed, but not produced over S_9 . Hind rim of pronotum always with a well-differentiated, upright middle lobe 7
7. Middle lobe of hind rim of pronotum an upright lamina, longer than wide, not curved backwards. ***Ischnura elegans ebneri*** Schmidt
- Middle lobe of hind rim of pronotum shorter than wide, sometimes rounded, deeply bent over backwardly 8
8. Middle lobe about half as high as wide, arising from the upper rim of the hind border of the pronotum; the lower rim forms two folds at the sides of the lobe, not confluent under the lobe. Lam. mes. triangular, with hind ridge raised above the level of the synthorax along its entire length. Carina not forked, but preceded by a squared depression. Hind ridge of the depression not markedly raised.
Ischnura evansi Morton
- Middle lobe less than half as high as wide, arising from the upper rim of the hind border of the pronotum. The lower rim forms a fold at the sides of the lobes that is continuous under the lobe. Lam. mes. triangular, with hind ridge raised outwardly, but fading out towards the squared depression in front of the carina. Hind ridge of this depression markedly raised. ***Ischnura fontainei*** Morton

Coenagrionidae: *Ischnura*

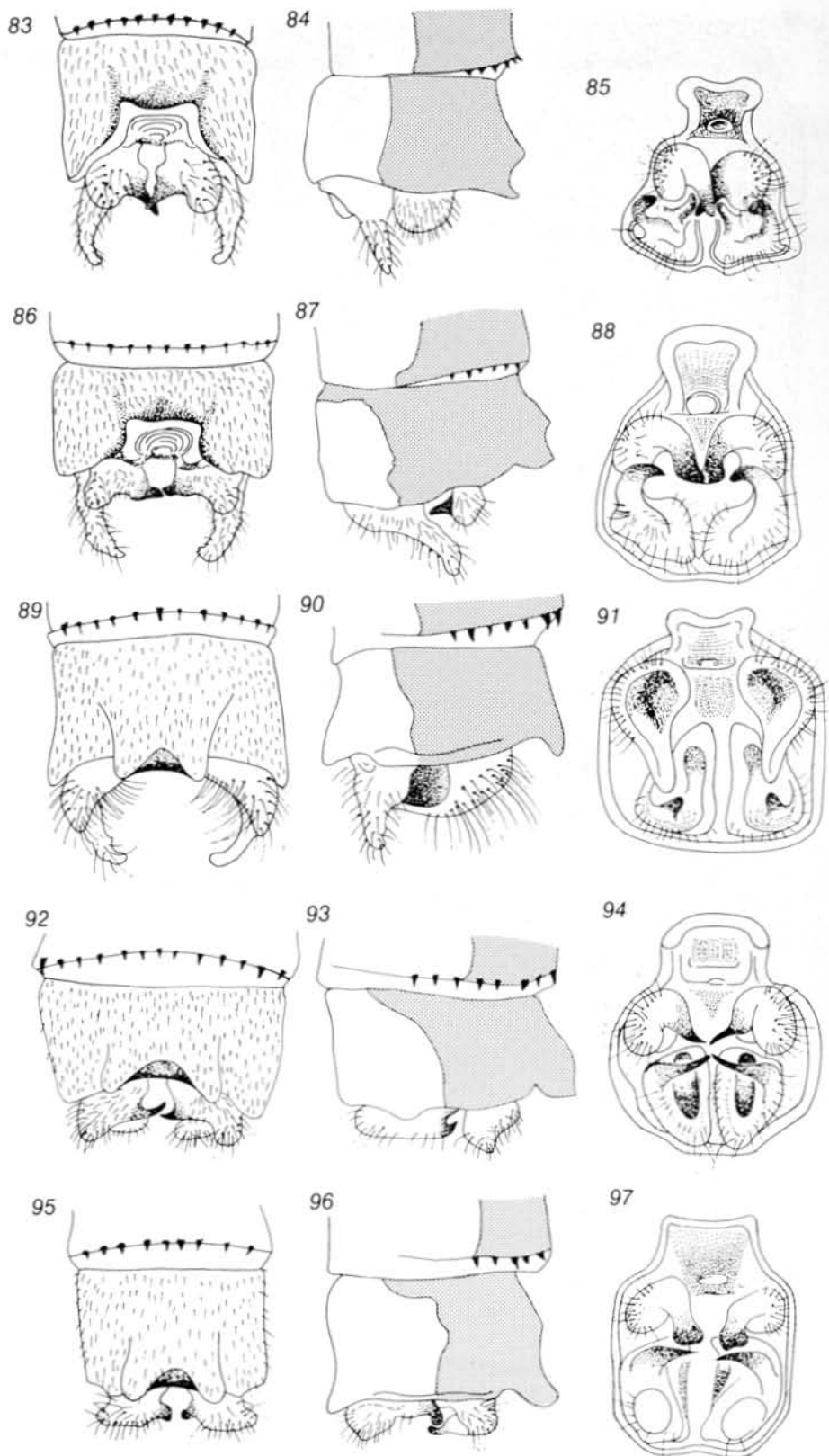


Figs. 72-74: *Ischnura pumilio* (Charpentier, 1825); synthoracic markings
72. male; 73. old female; 74. teneral female



Figs. 75-82: Wings (pterostigma area) in *Ischnura* spp.
75-76. *I. pumilio* (Charpentier, 1825); female, forewing and hind wing;
77-78. *I. pumilio*, male, forewing and hind wing;
79-80. *I. elegans ebneri* Schmidt, 1938; male, forewing and hind wing;
81-82. *I. evansi* Morton, 1919; male, forewing and hind wing

Odonata of the Levant



Figs. 83-97: *Ischnura* spp., male terminalia, dorsal, lateral, and posterior views

83-85. *I. elegans ebneri* Schmidt, 1938;

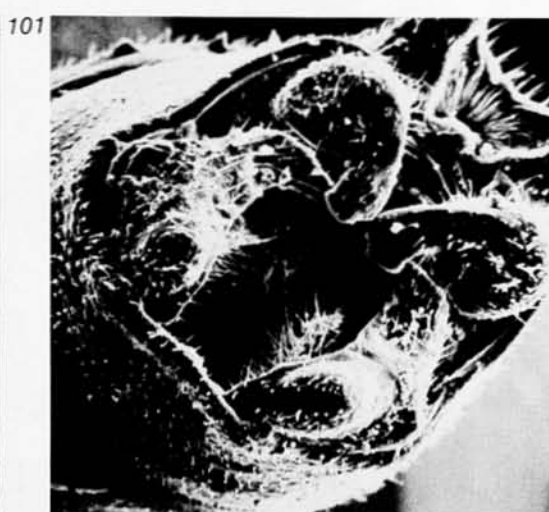
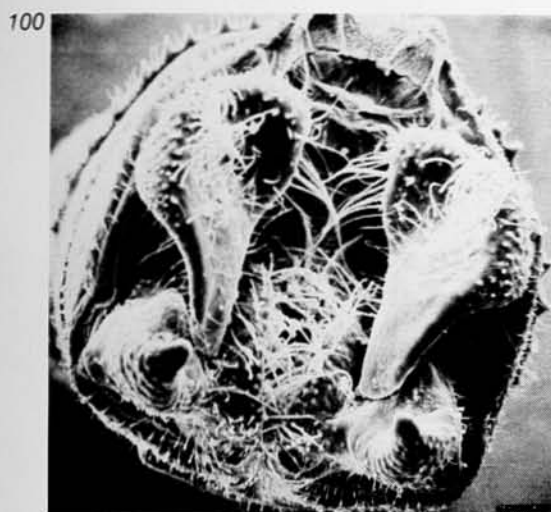
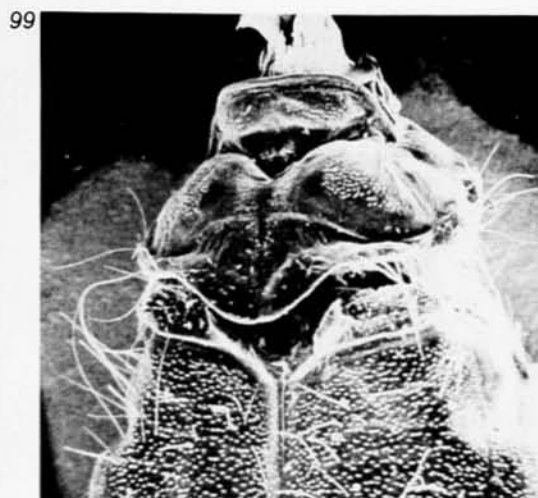
86-88. *I. senegalensis* (Rambur, 1842)

89-91. *I. pumilio* (Charpentier, 1825);

92-94. *I. fontainei* Morton, 1905;

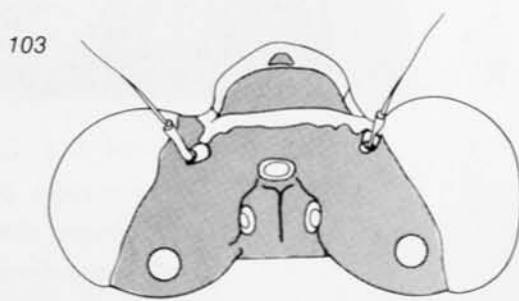
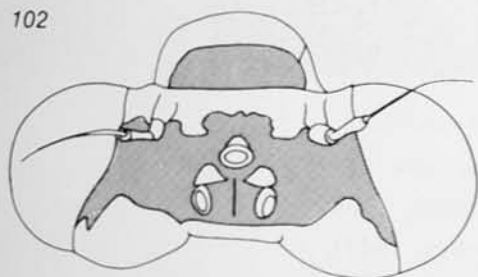
95-97. *I. evansi* Morton, 1919

Coenagrionidae: *Ischnura*



Figs. 98–101: *Ischnura* spp.

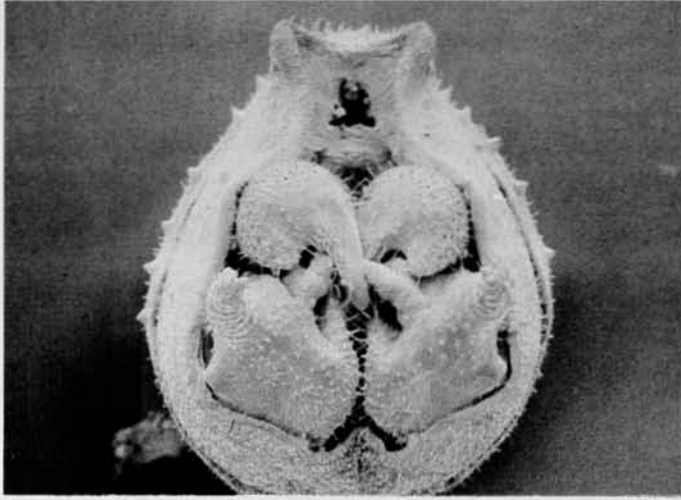
98. *I. pumilio* (Charpentier, 1825); female, pronotum and lamina mesostigmalis; 99. the same, *I. pumilio*, male; 100. *I. pumilio*, male, terminalia, posterior view; 101. *I. evansi* Morton, 1919; male, terminalia, posterior view



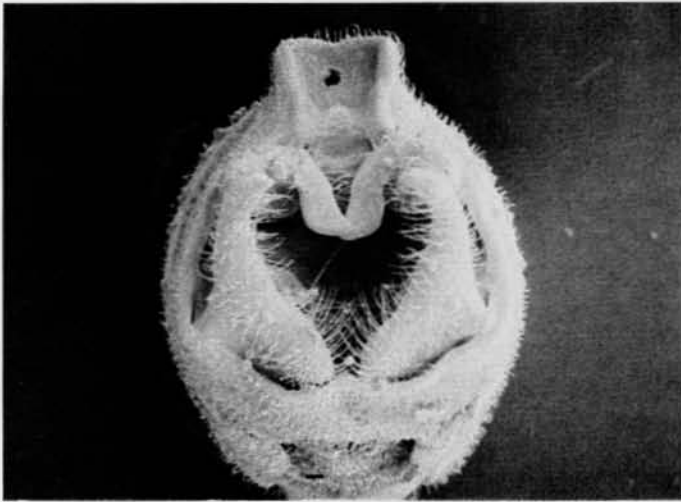
Figs. 102–103: *Ischnura senegalensis* (Rambur, 1842); head
102. teneral female; 103. aged female

Odonata of the Levant

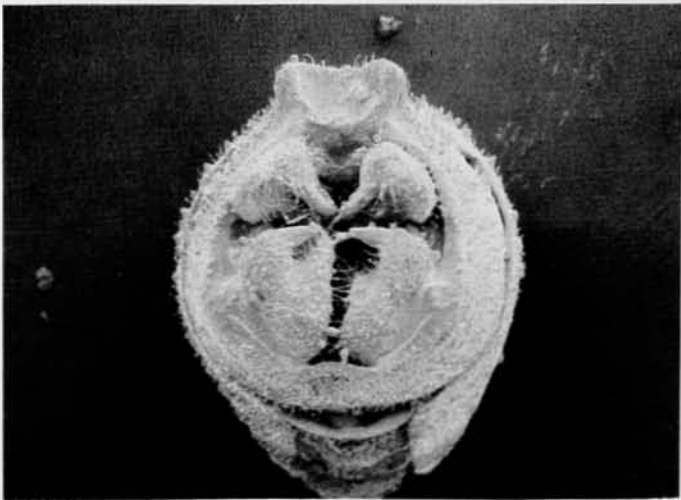
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105



106



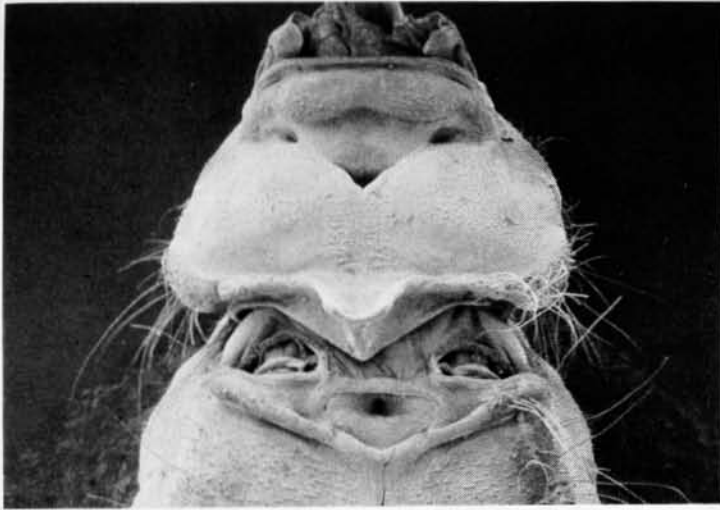
Figs. 104–106: *Ischnura* spp., male terminalia, posterior view

104. *I. elegans ebneri* Schmidt, 1938;

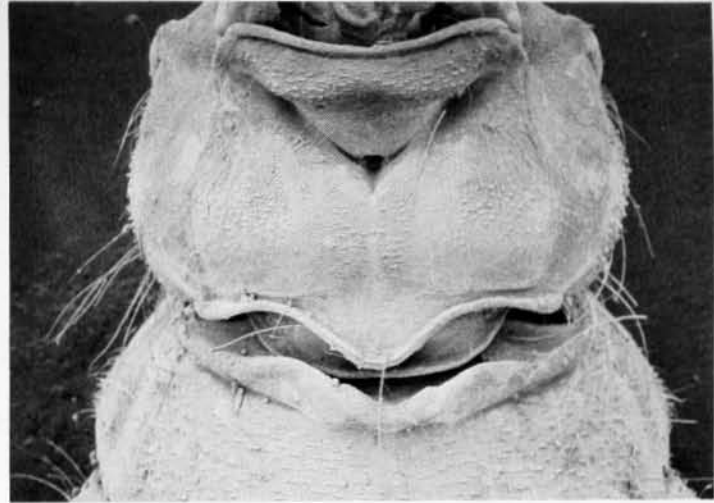
105. *I. senegalensis* (Rambur, 1842);

106. *I. fontainei* Morton, 1905

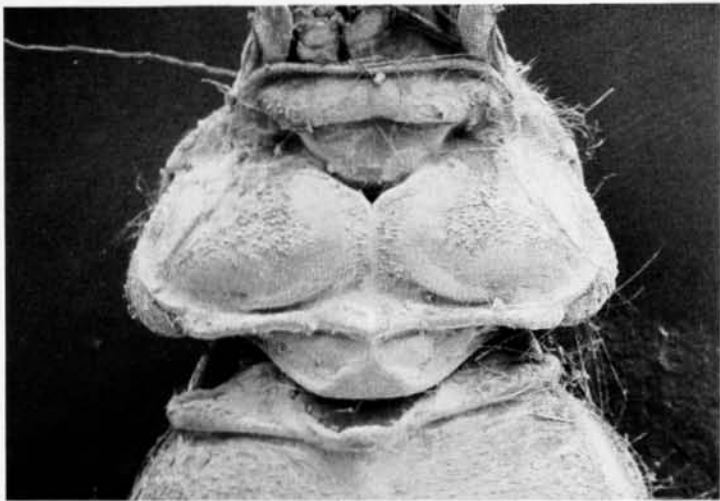
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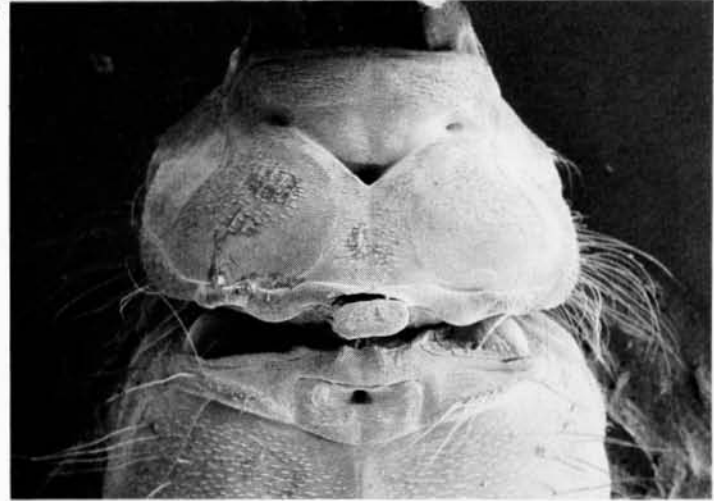
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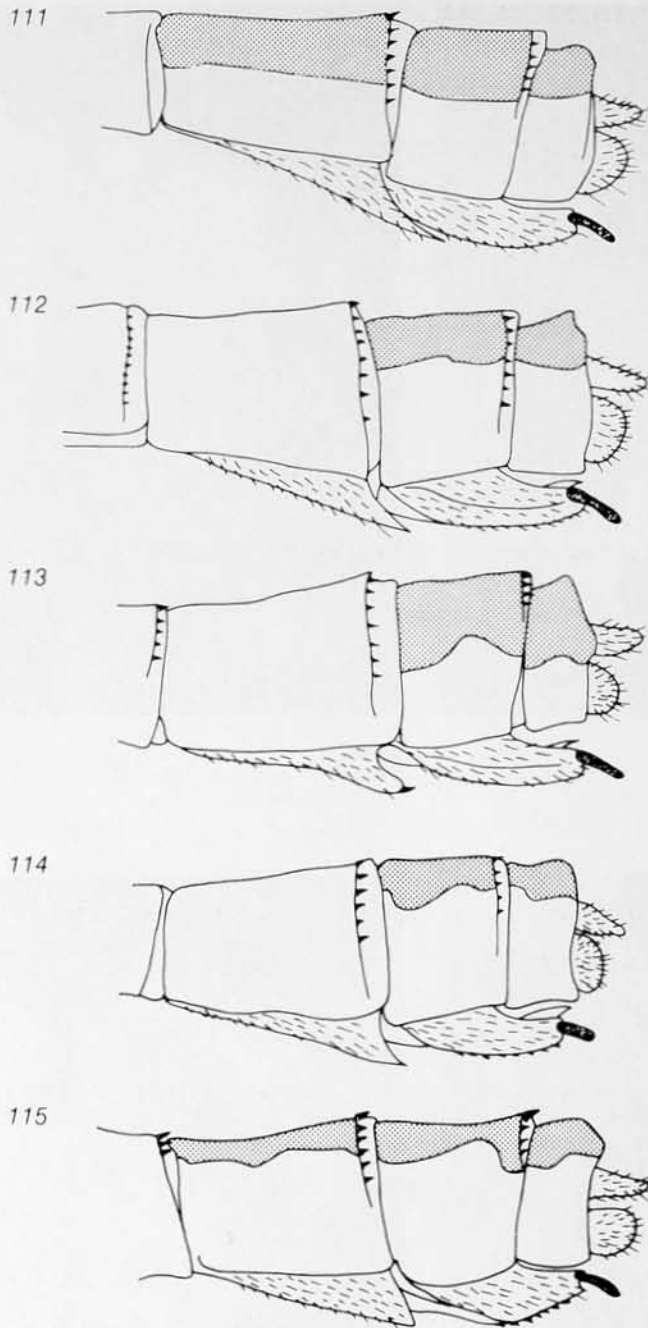


Coenagrionidae: *Ischnura*

Figs. 107–110: *Ischnura* spp. pronotum and lamina mesostigmalis

107. *I. elegans ebneri* Schmidt, 1938; male; 108. *I. senegalensis* (Rambur, 1842); 109. *I. fountainei* Morton, 1905; female;
110. *I. evansi* Morton, 1919; female (middle lobe on upper rim partly broken off)

Odonata of the Levant



Figs. 111–115: *Ischnura* spp., female ovipositor
111. *I. senegalensis* (Rambur, 1842);
112. *I. pumilio* (Charpentier, 1825);
113. *I. elegans ebneri*, Schmidt, 1938;
114. *I. evansi* Morton, 1919;
115. *I. fontainei* Morton, 1919

Coenagrionidae: Ischnura

Ischnura pumilio (Charpentier, 1825)

Figs. 72-78, 89-91, 98-100, 112

Agrion pumilio Charpentier, 1825:22. Selys, 1840:156.

Ischnura pumilio —. Selys, 1876a:267; Morton, 1924:32; Schmidt, 1938:142; Dumont, 1977b:140.

Type Locality: "Northern Italy".

Male

Mouth parts and clypeus yellowish. Dorsum of head black. Postocular spots large, blue or blue-green.

Pronotum black, its sides yellow or bluish. Posterior margin medially produced into a broad, rounded plate. Lam. mes. triangular, with a strong hook on the inner posterior corner. Carinal fork present between the laminae, with thick ridges. Synthorax black on dorsum, with a humeral stripe, and sides and ventrum bluish. Legs yellow, with dark external stripe.

Wings hyaline. Pterostigma in forewing black in its basal half, clear in its apical half. In the hind wing, it is unicolorous (pale yellow) and distinctly smaller than that in the forewing.

Abdomen black on dorsum, with end-rings narrowly yellow; posterior half of S_8 and most of S_9 blue, variously marked with black spots. Hind ridge of S_{10} only moderately raised and hollowed-out posteriorly. App. sup. shorter than app. inf., rounded in lateral view. In posterior view, they appear as two roughly triangular plates, rather acutely angled ventrally, somewhat concave medially. App. inf. longer than half of S_{10} , comparatively simple, forcipate.

Female

There are two basic colour forms.

Red form: Head bright orange, with isolated black spots on labrum and postclypeus. Vertex black. Postocular spots very large, orange-red, confluent across the dorsum of the head. Pronotum orange, with a large black patch at the base of the hind lobe. Free border of hind lobe orange. Legs orange, with interrupted black line on tibiae. Synthorax entirely orange. A carinal black line with wavy borders, and a very fine black stripe on the humeral suture. The partial suture between meso- and metathorax also accentuated by a fine black stripe. Abdomen S_1 , S_2 and apical one-fourth of S_3 bright orange. Rest of abdomen black on dorsum, orange on sides. Styli short and robust, orange. As specimens age, the bright orange colours change to more brownish tinges; S_1 and S_2 become progressively covered by more extensive black markings, turning brown on their dorsum and greenish on the sides. The humeral space on the synthorax, likewise, turns chocolate brown.

Green form: The orange colour replaced by apple green. In old specimens, the green colours become darker; the postoculars shrink in size, their edges first turning deep brown. Eventually, they get separated from one another. The humeral space of the

synthorax becomes brownish, as well as the dorsum of S_1 – S_2 . The styli are brown. In both forms, the vulvar spine is strongly developed, and the ovipositor comparatively small. The Pt, light brown in both pairs of wings, is distinctly smaller in the hind wing than in the forewing. That in the forewing tends to be asymmetrical, in having the distal margin longer than the proximal one.

Measurements (mm): Male. Total length 30–33; abdomen 23–26. *Female.* Total length 25–34; abdomen 20–27.

Distribution: Europe, the Maghreb countries of North Africa, Asia Minor, West and Central Asia. The species is locally common in Turkey.

Locality records: Morton reports a male from 'Amman (30.VIII.1921) and another male from Wadi Samak [(Nah̄al Samakh; 7), 13.V.1921]. Schmidt (1938) cites a male from Beharre, N. Lebanon, while Bolivar (1893) reports *I. pumilio* from "Syria". I have an additional record from Birkat Bab el Hawa, Golan Heights (18), June 1972.

***Ischnura elegans ebneri* Schmidt, 1938**

Figs. 79, 80, 83–85, 104, 107, 113

Agrion elegans Vander Linden, 1823:104.

Ischnura elegans —. Morton, 1924:32; Fraser, 1933:351.

Ischnura elegans ebneri Schmidt, 1938:142. Schmidt, 1968:207; Dumont, 1977b:139; Schneider, 1981a:136.

Type Locality: Bethlehem (Solomon's Pool).

Male

Labium pale whitish, marked with black at base. Rest of mouth parts and genae largely greenish-blue. Anteclypeus blue, postclypeus steely black; dorsum of head black, with rounded blue postocular spots.

Pronotum black, sides of prothorax blue-green. Posterior rim with a robust middle lobe, steeply erect, longer than wide, black. Synthorax black to level of suture between meso- and metathorax; antehumeral stripes present, blue. Lower half of synthorax blue, blue-green or green. A black stripe over Su_2 . Legs green or blue, with black stripes.

Wings hyaline; Pt of forewing diamond-shaped, its membrane white or pale blue, but its lower half strongly suffused with black. Pt in hind wing about the same size, its basal half not or only slightly blackened, and in any case not distinctly bicolorous and much paler than that in forewing.

Abdomen: Dorsum of S_{1-8} black. End-rings narrowly yellow. Sides of S_1 , S_2 and sometimes S_3 blue. S_{3-7} with yellow sides. S_8 dorsally blue. S_{9-10} dorsally black, laterally blue. S_{10} with hind rim steeply raised, deeply cleft apically, thus forming the structure which apposes to the middle lobe of the female pronotum in copula. Appendages: app. sup. short, rounded in lateral view; in posterior view, with broad rounded body and

Coenagrionidae: Ischnura

strong internal tooth. The inner teeth of both appendages almost invariably overcross each other (most diagnostic character of this subspecies). App. inf. much longer than app. sup. and more than half the length of S_{10} . Their base broadly triangular, with an inner blunt brown tooth, and external black, nipper-shaped projection.

Female

Much like the male, except for the genitalia and the Pt, which is pale yellow in both pairs of wings. Styli short, black. Ovipositor yellow. In young specimens, the sides of the synthorax are sometimes violaceous; in old specimens, the synthorax and the blue spot on the dorsum of S_8 may turn olivaceous or brownish. No heterochromatic form (without humeral black stripe, and with bright orange base colour of the synthorax) has been reported from the Levant (see further).

Measurements (mm): Male. Total length 29–36; abdomen 20–28. *Female.* Total length 30–37; abdomen 19–28.

Distribution: The subspecies occurs in south and central Anatolia, and in the Levant. Together with *P. dealbata*, it is the commonest damselfly of Israel, although the species does not reach beyond the Dead Sea. It has been found to co-occur with *I. evansi* on the Yarmouk River and in other localities in Syria and Jordan (Schneider, 1981a), and also in the oasis of El Azraq, Jordan (Dumont, unpublished observations), but not with any other of the regional *Ischnura*. It is on the wing from March to October, probably in several overlapping generations. In northern Anatolia and the Balkans, it is replaced by ssp. *pontica*.

Israel (Locality records): Dan (1), Yir'on (1), Sedé Neḥemya (1), 'Ein Jalabina (1), Qiryat Shemona (1), H_ula (1), Hurshat Tal (1), Haifa (3), Zikhron Ya'aqov (3), Nahalal (5), Migdal (7), Naḥal Z_almon (7), Umm Juni (7), Lake Kinneret (7), H_ammat Gadér (7), Bitanya (7), Massada (7), Deganya (7), 'Ubeidiya (7), Bet She'an (7), H_adera (8), Tel Aviv (8), Rosh Ha'ayin (8), Bethlehem (11), Aqua Bella (11), Jericho (13), Ramat Magshimim (18), Wasit (18), Birkat Bab el Hawa (18).

Also very common on the wadis east of the Jordan River in Jordan, in the Lebanon and Syria (Schmidt, 1954a), and in Anatolia (Dumont, 1977b).

***Ischnura fontainei* Morton, 1905**

Figs. 92–94, 106, 109, 115

Ischnura fontainei Morton, 1905:147. Ris, 1928:155; Kimmins, 1950:153; Asahina, 1973:18; Dumont, 1977b:140; Waterston, 1980:60; Schneider, 1981a:137.

Type Locality: Oasis of Biskra, Algeria.

Male

Mouth parts yellow. Labrum greenish with black base-line. Anteclypeus, genae and most of frons green. Postclypeus and dorsum of head black. Postocular spots small, blue.

Odonata of the Levant

Dorsum of pronotum black, sides yellow. Trochanters and femora broadly black, and a black stripe on all tibiae. Hind margin of pronotum with middle lobe almost completely reduced; a broad black lamella on the lower rim of the lobe forms a posteriorly directed plate with rounded margins. Synthorax: lam. mes. triangular. Carina not forked, but has a squared depression in front of it, between the laminae. Hind ridge of this depression markedly raised. Dorsum of synthorax black almost down to level of mesothorac suture. Antehumeral stripes narrow, interrupted, or almost completely obliterated. Su_2 black in its upper part. Metathorax olive green, with brownish darkenings on sutures.

Wings: Pt in forewing small; costal and radial veins much shorter than proximal and distal margins, thickened. Membrane whitish, but largely superimposed by black. In older specimens the whole Pt may turn black, with only a very fine whitish fringe. Pt in hind wing slightly larger, its four margins of roughly equal length, yellow with a very fine black reticulum, but not bicolorous.

Abdomen: S_{1-7} black dorsally; S_1 , S_2 , apical half of S_3 blue laterally; S_{3-6} yellow laterally and on top of each segment, where the black colour contracts. S_8 entirely blue; sides of S_{8-10} blue as well, their dorsum black. Hind margin of S_{10} only slightly raised, forked. Appendages very short, roughly of equal length. Superiors dark brown to black, inferiors yellow. Seen from behind, the app. sup. consist of a rounded outer tubercle, and an inner, slightly curved finger-like projection. App. inf. triangular, with a horizontally and inwardly directed black spine on top. Accessory genitalia as for the genus.

Female

Two basic forms occur. One is coloured more or less like the male (homochrome form), while the other has orange or brown as base colour, and lacks black humeral stripes (heterochrome form).

Homochrome form: this is by far the rarest. Coloured like the male: S_2 dorsally steel blue-black, and S_8 dorsally blue. Sides of synthorax greenish-brown. Pt yellow, parallelogram-shaped, identical in shape in both pairs of wings.

Heterochrome form: base colour of young specimens bright orange on the dorsum of the head, which has relatively small postocular spots. Legs entirely bright orange. Pronotum orange, with some black in the middle of the anterior collar, and at the base of the middle lobe of the hind margin. Synthorax bright orange, with a median humeral black stripe, divided into two halves by an orange carinal suture. Abdomen with S_{1-2} dorsally and laterally orange; a black marking on S_2 . S_{3-7} black dorsally, yellow laterally. S_8 orange, but often considerably darkened by a mid-dorsal black marking. The same is true for S_9 , the sides of S_{8-9} , and the whole of S_{10} . Styli and ovipositor orange. As specimens age, the postocular spots turn green, a series of black spots appear on the tibiae, ultimately confluent into a black stripe, the humeral area of the synthorax becomes a black stripe, and the humeral area of the synthorax turns chocolate brown, while the sides and dorsum of S_{1-2} become olive green. More brown appears on the terminal segments. The styli darken considerably and the ground colour of the abdominal segments changes to brown. No structural difference exists

Coenagrionidae: Ischnura

between the two colour forms. The upper rim of the hind ridge of the pronotum shows a small median lobe, tongue-shaped, much less than half as long as wide. The lower rim of the ridge is developed into a triangular plate that is widest just beneath the middle lobe.

The lam. mes. are triangular and the posterior rim of each triangle is elevated outwardly, depressed medially. The carinal fork is ellipsoidal, deep, and its hind ridge is conspicuously raised above the level of the adjacent carina and lam. mes.

Measurements (mm): Male. Total length 29–34; abdomen 22–25. *Female.* Total length 27–34; abdomen 21–25.

Distribution: Northern Algeria, S. Tunisia, Libya, Egypt (oases of the Western Desert; no records from the Nile Valley), Saudi Arabia, Jordan, Iraq, Iran, and part of the Caspian area. Specimens have been captured between March and September.

This species frequently co-occurs with *I. evansi* and *I. senegalensis* (see below).

Israel & Sinai (Locality records): Jericho (13), 'Ein Fashkha (13), 'En Avedat (17), Quseima Oasis (21), Wadi Tala near Gebel Katharina (22), Et Tur (23).

East of the Jordan River, the species ranges further north, reaching the oasis of El Azraq and the Yarmouk River.

***Ischnura evansi* Morton, 1919**

Figs. 81–82, 95–97, 101, 110, 114

Ischnura evansi Morton, 1919: 146. Morton, 1924: 32; Ris, 1928: 155; Kimmins, 1950: 153; Asahina, 1973: 17; Waterston, 1980: 59; Schneider, 1981a: 136.

Type Locality: Basra and Amara, lower Iraq.

Male

Mouth parts and genae greenish, labrum green with broad basal black band. Postclypeus and frons green. Anteclypeus, vertex and occiput black. Small blue spots may be found in front of each ocellus. Postocular spots relatively small, blue. Hind ridge of head yellow.

Dorsum of pronotum black, with some minute yellow spots. Sides and margins of hind rim greenish-yellow. Median lobe well developed, upright, about half as long as wide. Adjacent to it, hind margin sinuously depressed, then raised again in a small lateral lobe. Lower rim of hind margin produced into a narrow plate, contiguous across the middle lobe, but at least slightly concave here. Lam. mes. broadly triangular; hind ridge of each triangle raised along its entire length. Hind ridge of carinal fork moderately raised. Synthorax with dorsum black. Black humeral sutures wide, but antehumeral stripe may be as wide as humeral stripe and is never obliterated. Sides of synthorax greenish or bluish. Some black on mesothoracic suture and on Su₂. Legs yellow, heavily marked with black on femora, and striped on tibiae.

Wings: Pt in forewing black, surrounded by a narrow yellow reticulum. Pt in hind wing yellow with very fine dark reticulum.

Odonata of the Levant

Abdomen: S_{1-7} black dorsally, S_{1-2} blue laterally, S_{3-7} yellow laterally, S_8 blue dorsally. Hind rim of S_{10} strongly raised, deeply bifid, the whole segment laterally elongate. App. sup. dark brown to black, app. inf. light brown, both pairs very short and appearing in side view as an upper blunt tubercle (sup.), and a lower blunt tubercle (inf.). In posterior view, the app. sup. are bulbous, with an internal, downwardly bent, blunt black tooth on each appendix, the tips of which are slightly divergent. App. inf. block-shaped, with a deep longitudinal furrow. From the upper external corner, a robust black spine projects inwardly. The lower inferior corner is swollen, and forms a blunt boss. Genitalia as for genus.

Female

The female is polychromatic, but there are distinct differences from all other species, including the preceding ones.

Homochrome form: head, pronotum (although often with rounded yellow spots on middle lobes) and legs coloured as in male. Synthoracic black bandings as in male but ground colour of synthorax and sides of S_{1-2} greyish-blue. Abdomen coloured as in male; S_9 (partly), S_{10} and styli brown in young specimens, black in mature specimens.

Heterochrome form: differs from all other regional ones by the fact that true black humeral stripes develop here with age. Moreover, the ground colour of the synthorax in young specimens is not bright orange as in *I. fontainei* or in *I. senegalensis*, but has a distinct tinge of ochre, or sometimes dark yellow. Humeral bands begin to develop near inf_2 and under the humeral suture. As they lengthen, a second stripe appears more distally and above the suture. With time, both bands expand and finally merge into a single humeral stripe. This whole process is accompanied by a darkening of the humeral area, which turns chocolate brown. S_1 is mostly coloured as the synthorax, but S_2 is always largely black dorsally. S_8 is brown dorsally, not blue. The pronotum has two broad brown spots on its middle lobe, near the anterior collar, and two kidney-shaped brown patches behind the middle lobe of the hind rim in young specimens. With age, the kidney-shaped spots disappear, and the patches on the middle lobes decrease in size. The postocular spots are round, not acutely angled anteriorly. When these spots are confluent, the rear of the occiput always remains black behind them. Structurally, both colour forms are identical. Pronotum: hind ridge with well-expressed, tongue-shaped middle lobe; its sides depressed, somewhat sinuous. Side lobes small. Lower ridge of hind margin expanded on both sides in the depression between middle and side lobe, but these expansions not confluent under the middle lobe. Lam. mes. triangular, the hind ridge of each triangle raised along its entire length. Hind rim of carinal fork not raised above level of laminae.

Dimensions as for *I. fontainei*.

Distribution: Iraq, Iran, Syria, Jordan, Saudi Arabia, Sinai, Western Desert of Egypt. The westernmost record is from Siwa Oasis (Kimmins, 1950). In the latter locality and all over Sinai and the Negev, it is in frequent association with *I. fontainei* and *I. senegalensis*, often in great population densities. On the wadis east of the Dead Sea, and as far north as the Yarmouk River, and in the oasis of El Azraq, *I. evansi* is found in the company of *I. elegans ebneri*.

Coenagrionidae: *Ischnura*

Israel & Sinai (Locality records): Jericho (13), 'En Gedi (13), Nahal 'Arugot (13), 'Ein Fashkha (13), 'En Avedat (17), Quseima Oasis (17), Wadi Hibran (22), Hammam Musa (23).

Ischnura senegalensis (Rambur, 1842)

Figs. 86–88, 102–103, 105, 108, 111

Agrion senegalensis Rambur, 1842:276.

Ischnura senegalensis —. Selys, 1876c:273; Sowerby, 1917:10; Morton, 1924:32; Ris, 1928:159; Andres, 1928:25; Morton, 1929:60; Fraser, 1933:348; Dumont, 1977b:141.

Type Locality: "Senegal", West Africa.

Male

Mouth parts, genae, postclypeus, most of frons yellow or greenish. Labrum yellow with black base. Anteclypeus black, as are vertex and occiput. In young specimens, some green around the individual ocelli. Postocular spots round and blue.

Pronotum black. Anterior collar and sides green. Hind border of pronotum with wavy upper rim. Middle lobe expressed as a moderately developed, triangular plate. Inferior rim developed into a broad lower plate, with more or less strongly upturned margins. The two laminae and the carinal fork confluent to form a single post-pronotal triangle, sometimes with a small depression at the level of the carina. Synthorax green or blue, with narrow antehumeral bands. Legs: External side entirely black, flexor side greenish.

Wings: Pt in forewing a parallelogram with most of the membrane black and only the apical corner pale coloured. Pt in hind wing of same shape as in forewing, yellow with dark reticulum.

Abdomen: sides of S_{1-2} blue, dorsum black, contracted on top of S_2 . Sides of S_{3-7} yellow, dorsum black. S_8 entirely blue; sides of S_{9-10} blue, dorsum black. Anal appendages: app. inf. longer than app. sup; app. sup. rounded in lateral view. Seen posteriorly, they are U-shaped, with inner rim longer than outer rim, somewhat spatulate, black. App. inf. with green base and black apex, forcipate, simple. Accessory genitalia as for genus.

Female

Again, a homochrome and a heterochrome form are found, the latter going through a continuous colour change with age.

Homochrome form: coloured like the male.

Heterochrome form: clear parts of head, pronotum, synthorax, abdominal segments 1–2, and legs light orange. Postocular spots confluent with each other and with the rear of the head. A central black patch on the pronotum and a carinal black band on the synthorax. Later, this colour changes to light brown, and further to chocolate brown or to dark olive green. In old specimens, the true postocular spots turn blue

Odonata of the Levant

as in the homochrome form, while the posterior area of the head remains ochraceous or dark orange. The legs may develop dark brown, almost black stripes on femora and tibiae. The upper rim of the hind ridge of the pronotum (all forms) converges medially into a point. The hind ridge of the pronotum is underlain by a narrow, duplicature on its lower rim. The laminae and carinal fork combine to form a large triangle owing to suppression of the medial rims of the laminal triangles. Pt as in hind wing of male. Vulvar spine strongly developed, long and produced, projecting over S_9 .

Dimensions as for *I. elegans ebneri*.

Distribution: This species has a very wide range, covering the whole of Africa (except the Sahara), Iraq, Iran, India and even Japan. It is common in the deltaic area of Egypt, and in Sinai, and reaches the Negev. It is presumably perennial in localities where the climate permits.

Israel & Sinai (Locality records): Ga'ash (8), Rosh Ha'Ayin (8) (two isolated, very northern records of the species, the only ones within the domain of *I. elegans ebneri*), 'En Gedi (13), Jericho (13), Quseima Oasis (17), 'En Avedat (17), HaMakhtesh HaGadol (17), El 'Arish (20), 'Ein el Furtaga (22), Wadi Tayiba (23), Sarabit al Khadim (23), Et Tur (23), Feiran Oasis (23).

Genus COENAGRION Kirby, 1890

Cat. Odonata, p. 148

Type Species: *Libellula puella* Linnaeus, 1758.

Damselflies of small to moderate size, colours non-metallic. Male always with azure blue as ground colour, marked with black. Females with green or blue as ground colours. Wings hyaline. Pt similar in both pairs of wings, slightly longer than wide. $8-11$ an in forewing. d acutely pointed distally. arc situated at an_2 . Ab present, arising well proximal to Ac, which is situated halfway between an_1 and an_2 , or nearer to an_1 . Head narrow, no frontal ridge.

Postocular spots mostly well developed. Posterior lobe of pronotum variously modified. Legs not flattened. Anal appendages variable, occasionally of complex structure. Female without vulvar spine. Accessory genitalia: lam. ant. deeply cleft; ham. ant. as for family. Ligula with apical segment curved back over basal segment. Flanges present.

Distribution: Europe, N. America, Africa, most of Asia.

Key to the Species of Coenagrion

(Figs. 13, 56, 116-141)

1. Male: app. sup. as long as or longer than S_{10} , simple (not differentiated into an internal and external branch), forcipate.
Female: a bulb-like, spiny swelling flanks the lam. mes. **Coenagrion lindeni** (Selys)