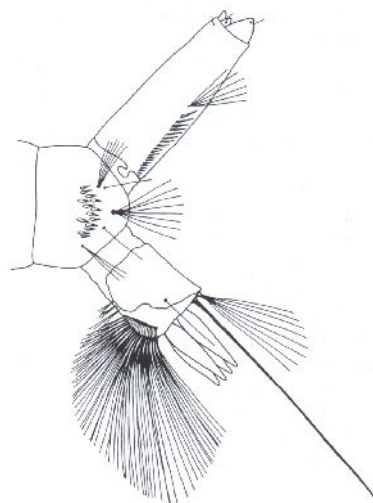
Fig. 10.73 Hypopygium of *Oc. punctodes*

arises from the gonocoxite, whereas in *Oc. punctator* the basal part of the lobe arises more gradually from the gonocoxite. The claspette filament is relatively long and narrow, and of almost the same length as the stem and weakly sclerotized, but in *Oc. punctator* the filament is shorter than the stem and strongly sclerotized (Fig. 7.42b). Carpenter and La Casse (1955) stated that the spine of the basal lobe is more weakly developed in *Oc. punctodes* and sometimes is difficult to separate from the long setae at the base of the lobe. In *Oc. punctator* the spine of the basal lobe is strongly developed and distinctly different from the long setae at the base of the lobe.

Larva: The inner (5-C) and median (6-C) frontal setae are usually single (Fig. 8.32b), whereas in *Oc. punctator* both pairs are usually 2-branched. The saddle does not completely encircle the anal segment, and extends to near the midventral line (Fig. 10.74). The anal papillae are usually much shorter than in larvae of *Oc. punctator*, varying from much shorter to slightly longer than the saddle.

Biology: *Oc. punctodes* belongs to the typical salt marsh fauna in subarctic regions (Frohne 1953). The larvae occur predominantly in the more saline waters, whereas the larvae of the closely related *Oc. punctator* prefer fresh water habitats. In these habitats the larvae of *Oc. punctodes* can be found together with those of *Oc. punctator*, *Oc. communis*, *Oc. impiger*, *Oc. excrucians*, and *Oc. flavescens*. Frohne (1953)

Fig. 10.74 Larva of *Oc. punctodes*

found newly hatched larvae of *Oc. punctodes* in Alaska at the end of April and a few larvae were still present in August.

Distribution: *Oc. punctodes* is a subarctic species. It is reported from Alaska and in Europe from Norway, Sweden, Finland, and European Russia.

Ochlerotatus (Ochlerotatus) punctator (Kirby 1837)

Female: A medium sized species. The proboscis and palps are dark scaled. The occiput has golden yellowish narrow scales and yellow erect forked scales dorsally, with broad appressed creamy white scales laterally. The scutum is covered with yellowish brown scales, usually with a median stripe of dark brown scales and occasionally divided by an acrostichal stripe of yellowish scales, and the posterior submedian areas with dark brown scales. The scutellum has yellowish brown scales and light brown setae on the lobes. The prosternum has no scales on the anterior surface, or occasionally has scattered pale scales, but is not as extensively covered with scales as in *Oc. hexodontus*. The postpronotum has narrow yellowish brown scales anteriorly and broader paler scales at the

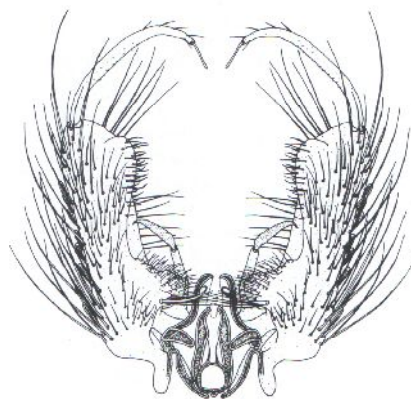
posterior margin. The postprocoxal membrane has pale scales (absent in *Oc. communis*). A hypostigmal patch is absent, the subspiracular patch is divided into an upper and lower portion, and the postspiracular patch is well developed. The upper and lower mesepisternal scale patches are fused, and extend to the anterior angle of the mesepisternum, narrowly separated from the prealar patch (Fig. 6.47a). The scales on the mesepimeron extend to its lower margin, and 1–5 lower mesepimeral setae are present. The femora, tibiae and tarsomeres are mostly dark scaled. The claws of the fore legs are elongated, and gradually curving distal to the subbasal tooth. The wing veins are usually entirely dark scaled, with a few pale scales present occasionally (less than in *Oc. hexodontus*, *Oc. communis*, and *Oc. pionips*) at the base of the costa (C). The abdominal terga are dark scaled with basal bands of white scales, which are distinctly confined in the middle or even interrupted on the more anterior terga (Fig. 6.48a). The sterna are covered with greyish white scales, and the apices of some of the dark sterna are scaled medially.

Male: The lobes of tergum IX are sclerotized, each bearing several spine-like setae. The gonocoxite is about three times as long as it is wide, the basal lobe of the gonocoxite is well developed, and more or less triangular shaped (Fig. 10.75). The basal part has a row of long setae, a long apically recurved spine, and

the apical part is densely covered with short setae. The apical lobe is broadly rounded with short curved setae extending downwards to near the middle of the gonocoxite. The gonostylus is slightly expanded in the middle with several small setae before the apex, and the apical spine of the gonostylus is slender. The paraprot is strongly sclerotized, with the apex inwardly pointed. The claspette stem is short and slightly curved near the middle. The claspette filament is shorter than the stem, lanceolate, wide in the middle, strongly sclerotized and not transparent, with a curved apex. The aedeagus is cylindrical, and notched at the apex.

Larva: Very similar to that of *Oc. hexodontus*. For separation of the two species see the description of the latter. The antennae are less than half as long as the head, and covered with numerous spicules. The antennal seta (1-A) is situated in the middle of the antennal shaft or slightly below it, with 4–7 branches not reaching the tip. The postclypeal seta (4-C) has 2–4 short branches. The inner (5-C) and median (6-C) frontal setae have 1–3 branches, usually 2-branched, and the outer frontal seta (7-C) has 2–8 branches (Fig. 8.32a). The comb has 10–25 small scales, usually arranged in 2–3 irregular rows or a triangular patch, and each scale has a prominent median spine and several smaller spines in the basal part. The siphon tapers in the apical half, and the siphonal index is about 3.0 (Fig. 10.76). The pecten has 14–26 evenly spaced teeth confined to the basal half of the siphon. The siphonal tuft (1-S) is located beyond the distalmost pecten tooth, with 3–9 branches, and is about as long as the width of the siphon at the point of origin. The saddle completely encircles the anal segment, and the saddle seta (1-X) is usually as long as or a little longer than the saddle. The upper anal seta (2-X) has 5–9 branches, and the lower anal seta (3-X) is single and long. The ventral brush has 16–19 tufts of cratal setae (4-X) and 1–2 precratal setae. The anal papillae taper and are of variable length but are always distinctly longer than the saddle.

Biology: *Oc. punctator* is a snow-melt mosquito, which has a preference for swampy forests with boggy waters. The larvae hatch during the snow-melt, when the water temperature is only a little above 0°C. While Monchadskii (1951) and Horsfall (1955) found larvae only in springtime, they occur in southern Germany also in the summer after strong rainfall; sometimes together with the larvae of *Ae. cinereus*

Fig. 10.75 Hypopygium of *Oc. punctator*

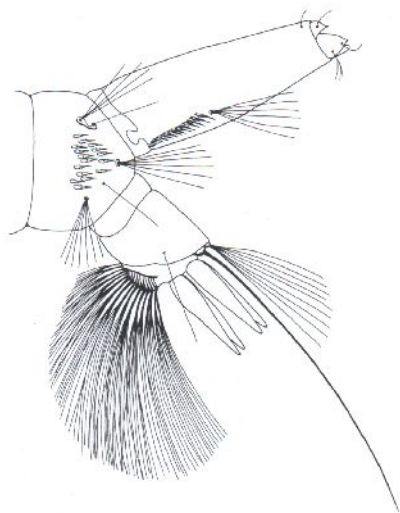


Fig. 10.76 Larva of *Oc. punctor*

and *Cs. alaskaensis* (Peus 1929; Vogel 1933, 1940; Becker and Ludwig 1981). Some larvae may overwinter together with those of *Oc. rusticus* and *Cs. morsitans*. Larvae of this acidophilic species can be found in great numbers in boggy waters with *Sphagnum* sp. growth, where the pH-value can be less than 4.0. The optimum temperature for the development of *Oc. punctor* is 25°C, however the lowest mortality rate is found at temperatures of 15°C. At 25°C larval and pupal development lasts 10–17 days, at 20°C 15–22 days, at 15°C 20–26 days and at 10°C 33–41 days. At 30°C the larvae die in the first and second larval stages. In early spring the larvae of *Oc. punctor* occur together with those of *Oc. communis*, and a little earlier than the larvae of *Oc. diantaeus* and *Ae. cinereus*. In central Europe, the adults occur in the second half of April, mostly later than those of *Oc. communis*, but earlier than *Oc. cantans*. The adults prefer sheltered terrain and seldom migrate out of the forest. Their peak biting activity is during dusk, on sultry days and in strongly shaded situations they can be troublesome even during daytime.

Distribution: *Oc. punctor* is a Holarctic species and can commonly be found in North America and

Eurasia. In Europe it is distributed from Scandinavia to the Mediterranean region.

***Ochlerotatus (Ochlerotatus) riparius*
(Dyar and Knab 1907)**

Female: The species has a brownish integument. The proboscis is predominantly white scaled and the palps are dark scaled with scattered white scales or a narrow white band. The vertex and occiput are covered with bronze golden narrow scales and a small lateral, white patch. The scutum has narrow, bronze and golden gleaming scales, and a broad median stripe of darker scales is usually present. Small pale anterior submedian patches close to the transverse suture may be present, and the prescutellar bare space is usually surrounded by pale scales (Fig. 6.33a). The scutellum has bronze scales and a diffuse pale patch on the median lobe. The postpronotum is covered with narrow bronze scales in the upper half and with narrow sickle shaped pale scales in the lower half. Small white scale patches on the antepnotum and propleuron are present, and the postprocoxal membrane has a small white patch. A small hypostigmal patch of scales is sometimes present. The postspiracular area and paratergite have pale scale patches. The mesepisternum has three distinct patches along the posterior margin, and the mesepimeral patch of pale scales covers a little more than half of the mesepimeron. The coxae have white scale patches, the fore femur and all the tibiae have mixed scales dorsally, with white scales ventrally; and the femora of the mid and hind legs are a little darker. Tarsomeres I of all the legs are predominantly white scaled with a diffuse basal ring (sometimes absent), tarsomeres II–IV have a basal white band of a different width, tarsomeres V are entirely dark scaled, and the tarsal claws are evenly curved (Fig. 6.32b). The wing veins are covered with dark greyish scales, which on the costa (C) and subcosta (Sc) are mixed with white scales. The abdominal terga have distinct white or pale basal bands, which are sometimes diffused or interrupted in the middle forming indistinct triangular patches laterally. All terga have scattered white scales apically which usually form apical bands at least on segments VI–VIII (Fig. 6.34a). The sterna are covered with broad white scales.