The subfamily Prodiamesinae is closely related to the Diamesinae and Orthocladiinae (Saether, 2000). In the older literature the subfamily was included in the Orthocladiinae (e.g. Brundin, 1949; Lehmann, 1971). This practice was continued in Moller Pillot (1984), because it made identification of larvae a little easier. In this book we treat the subfamilies in different chapters, but we place the species of all subfamilies alphabetically together in the tables in Chapter 9.

In Europe the subfamily contains only four genera: Monodiamesa, Odontomesa, Prodiamesa and Propsilocerus. The last genus was included in the Orthocladiinae until 2012.

**Monodiamesa** Kieffer, 1922

The five European species have been listed by Langton & Visser (2003) and Ashe & O’Connor (2009). Three species are known as pupa (Langton & Visser, 2003). Only one species, *M. bathyphila*, can be expected in the lowland of western Europe. The larvae of this species can be identified by the relatively large head capsule: 0.69–0.75 mm; in *M. alpicola*, *M. ekmani* and *M. nitida* the head length is less than 0.65 mm (Schmid, 1993; Langton & McLarnon, 1998). The larva of *M. nigra* is unknown. Only *M. bathypila* and *M. ekmani* are treated here.

**Monodiamesa bathyphila** (Kieffer, 1918)

*Prodiamesa bathyphila* Pankratova, 1970: 109–111, fig. 56

**DISTRIBUTION IN EUROPE AND THE NETHERLANDS**

*M. bathyphila* has been recorded throughout most of Europe, but is possibly absent from Spain and Portugal (Saether & Spies, 2010). In the Netherlands the species has been found fossil in river sediments (Klink, 1989) and seems to have become almost extinct. In recent times the larvae have been found only in a small stream near Diepenheim and Goor (Klink & Moller Pillot, 1996; Limnodata.nl).

**FEEDING**

According to Brundin (1942: 90), the larvae feed on planktonic detritus and not on remains of plants. Paasivirta (1974) suggested that the larvae are predators, also feeding on bacteria. This seems more probable for larvae living in brooks and streams.

**MICROHABITAT**

The larvae are bottom dwellers. In the profundal zone of lakes they live on organic silt, often with sand (Brundin, 1949, cf. Särkkä, 1983). In streams they live mainly in sandy bottoms, sometimes with stones or gravel or on clayish substrate (Pankratova, 1964; Zinchenko, 2002; Janzen, 2003).
WATER TYPE

Current and dimensions
In Russia the larvae are common bottom dwellers in lowland brooks, streams and rivers with a current speed of 7 to 50 cm/sec (Pankratova, 1964; Zinchenko, 2002). They have also been scarcely collected in the mid-river bed of the river Warta in Poland (Grzybkowska & Dukowska, 2002) and in the river Danube (Schmid, 1993; Bitušik, 2000). Janzen (2003) found the species in several sandy lowland streams in Germany and there are some records from a lowland stream in the Netherlands (see Distribution).

Stagnant water
M. bathyphila is an inhabitant of the profundal zone of cold oligotrophic and mesotrophic lakes (Brundin, 1949; Saether, 1979), in some cases living in the sublittoral zone (e.g. Särkkä, 1983). In many cases the larvae are most common in the epiprofundal and scarce in deeper parts of the lake (e.g. Paasivirta, 1974: fig. 2).

TROPHIC CONDITIONS AND SAPROBITY
According to Brundin (1942: 90), the larvae can be rather common in the profundal of moderately eutrophic lakes, but they are absent from most polyhumic lakes, because they require a high oxygen supply and feed on planktonic detritus. Their occurrence is positively correlated with oxygen content. It is not clear why the larvae are confined to oligotrophic environments in the Nearctic. They can occur abundantly in mesotrophic lakes in Europe (Moore, 1979a: 319).
In western European streams the species seems to be almost extinct because of its high demands on oxygen content.

Monodiamesa ekmani Brundin, 1949
This species has been collected in montane lakes and streams in northern Europe, Scotland, Ireland, the Alps and the Pyrenees. The adult male is keyed in Langton & Pinder (2007); the pupa keys out as Monodiamesa Pe 1a in Langton (1991). The female, pupa and larva are described in Langton & McLarnon (1998). These authors suggest that the larvae require an undisturbed sandy substratum and year-round high oxygenation.

Odontomesa fulva (Kieffer, 1919)
SYSTEMATICS AND IDENTIFICATION
O. fulva is the only species of the genus in Europe. Identification presents no problems in all stages. The female has been described by Saether (1985c). The larval head capsule is unique in nearly all features.

DISTRIBUTION IN EUROPE AND THE NETHERLANDS
The species is distributed throughout Europe, but is absent from Ireland (Saether & Spies, 2010). In the Netherlands it is widely distributed in Pleistocene areas and in southern Limburg, but very scarce in the Holocene areas (Limnodata.nl), for example in Flevoland (Klink & Mulder, 1992).

LIFE CYCLE
Adults emerge in the Netherlands from March to October, in Germany from April