Distinguishing between genera:
New Zealand Tanypodinae subfossil taxa remain poorly classified. Macropelopini are readily distinguishable from Pentaneurini by the presence or absence, respectively, of dorsomental teeth. Subdivision below this level is difficult. Ligula are not consistently diagnostic. Paraligula are nearly all bifid and frequently not present. Mandibles are of little use in distinguishing between taxa. Cephalic setation, promoted by Rieradevall and Brooks (2000) and Brooks et al. (2007) to distinguish between Tanypodinae types of the Northern Hemisphere, have not proven to be of use in distinguishing between New Zealand Macropelopini types, but do seem to be consistent between the two Pentaneurini types we recognize.

Full larvae of Macropelopini types are difficult to differentiate to genus (Stark and Winterbourn 2006) with the exception of *Gressittius antarcticus*. Generic level information about head capsules is insufficient to permit further differentiation. Boothroyd (unpub.) has suggested that the 1st tooth of *Gressittius* is notched, but we have found this feature to be extremely difficult to see in most specimens. Shakau (1993) described *Gressittius* as having 6 teeth, *Apsectrotanypus* as having 4 to 5 teeth, and *Macropelopia* as having 7-8 teeth. We strongly suspect differences between instars preclude use of number of teeth alone as a distinguishing feature. We do consistently find two Macropelopini types having a distinct shape to the ventromental apex, consistent teeth numbers, and, in the smaller of the two types, Macropelopini type 1, a distinct ligula. We suspect these two types may simply represent early instars. We group all Macropelopini heads other than the types 1 and 2 described in this guide as Macropelopini type 3.

We recognize two Pentaneurini types, *Ablabesymia* and Pentaneurini type 1. These are differentiated by slight differences in cephalic setation and head capsule length. *Ablabesmyia* is common, but we have found Pentaneurini type 1 only in late-glacial-age sediment from a single site.

Ecology:

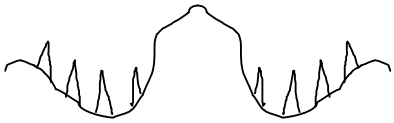
Subfossil: Provided for individual taxa.

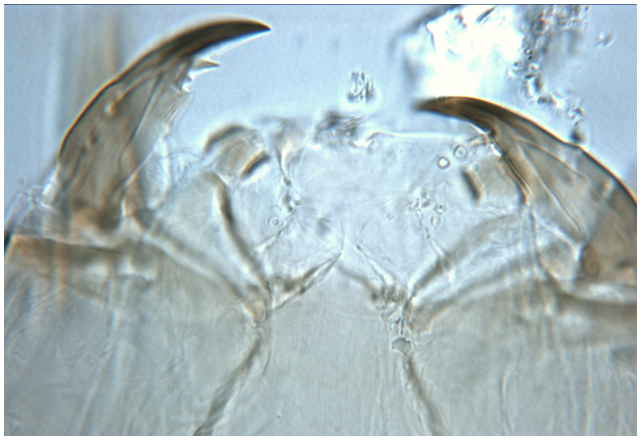
Organism: Boothroyd and Forsyth recognize one *Ablabesymia* species, *A. mala*; two possible species of *Apsectrotanypus, ?A. cana* and *?quadricinta*; four species of *Macropelopia, M. apicincta, M. apicinella, M. flavipes, M. quinquepunctata*; and two *Gressittius* species, the endemic *G. antarcticus*, and *G. umbrosu*s.

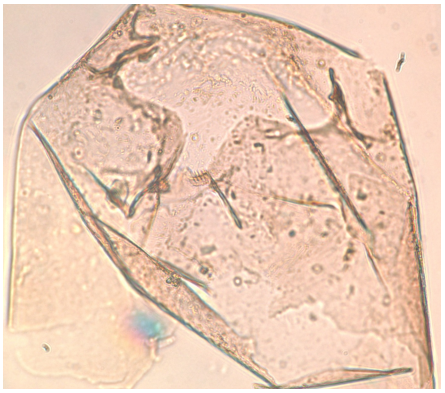
Boubee (1983), who reared then dissected larvae, provided the following information about Tanypodinae. The larvae do not build tubes. Rather, they are free living and move about pushing their heads among organic debris to find food. Tanypodinae are generally regarded as predators, but Boubee commonly found detritus, filamentous algae, sand, and desmids in their guts. Only occasionally were remains of animals found. These included chydoric cladocerans, copepods, oligochaete worms and eggs, and chironomid larvae and eggs. Tanypodinae are capable of swallowing smaller chironomid larvae, sometimes whole, sometimes sucking in the guts but discarding the hard parts. They also eat mites and the cast skins of chironomid larvae.

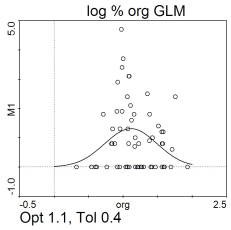
Forsyth (1983) found *Macropelopia umbrosa* in geothermal waters with pH as low as 4.3 and temperature as high as 25 °C.

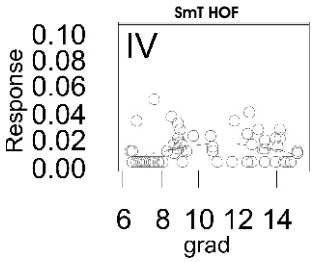
Macropelopini type 1











Diagnostic characters:
3-4 pointed dorsomental teeth present with an onion shaped (peaked) ventromental apex, quite small and fine. Small heads. Setation is generally difficult to see, but tends to be L-shaped and indistinguishable from Macropelopini types 2 and 3. Ligula 4 toothed.

Similar taxa: Pentaneurini types, including *Ablabesmyia*, lack dorsomental teeth, and heads tend to be more elongate with recessed antennae. See also Macropelopini type 2, which is bigger with more teeth.

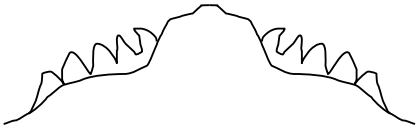
Ecology:

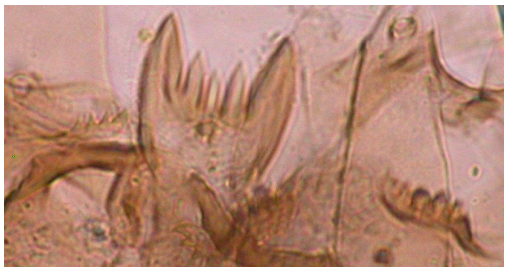
Subfossil: Ubiquitous.

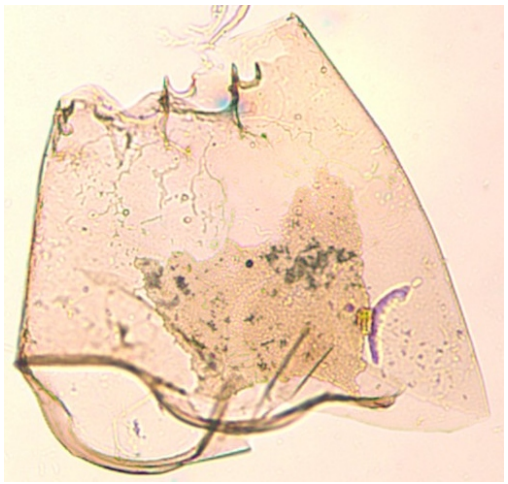
Taxonomic references:
This appears to be the Tanypodinae sp. I of Schakau (1993), who speculated it might be an early instar. We agree that it is very likely an early instar of Macropelopini types 2 and 3. In a CCA of all chironomid types and the five most important environmental variables (Dieffenbacher-Krall et al. 2007), both Macropelopini types 1 and 2 clustered with Macropelopini type 3.

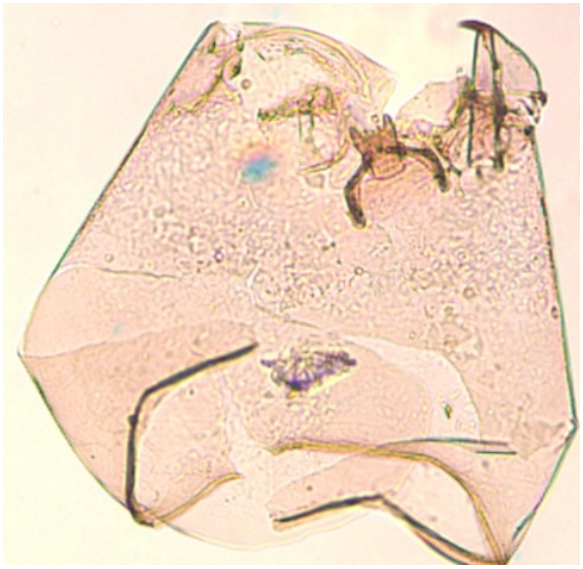
Lakes containing taxon: Found in 43 Dieffenbacher-Krall et al. (2007) sites and 6 of 15 recounted Woodward and Shulmeister (2006) sites.

Macropelopini type 2









Diagnostic characters:
4-5 dorsomental teeth present with a wide onion shaped (peaked) ventromental apex. Small heads. Setation is generally difficult to see, but tends to be L-shaped and indistinguishable from setation of Macropelopini types 1 and 3. Ligula 5 toothed.

Similar taxa: Pentaneurini types, including *Ablabesmyia*, lack dorsomental teeth, and heads tend to be more elongate with recessed antennae. See also Macropelopini type 1, which is smaller with fewer teeth, a narrower dome, and a 4-toothed ligula.

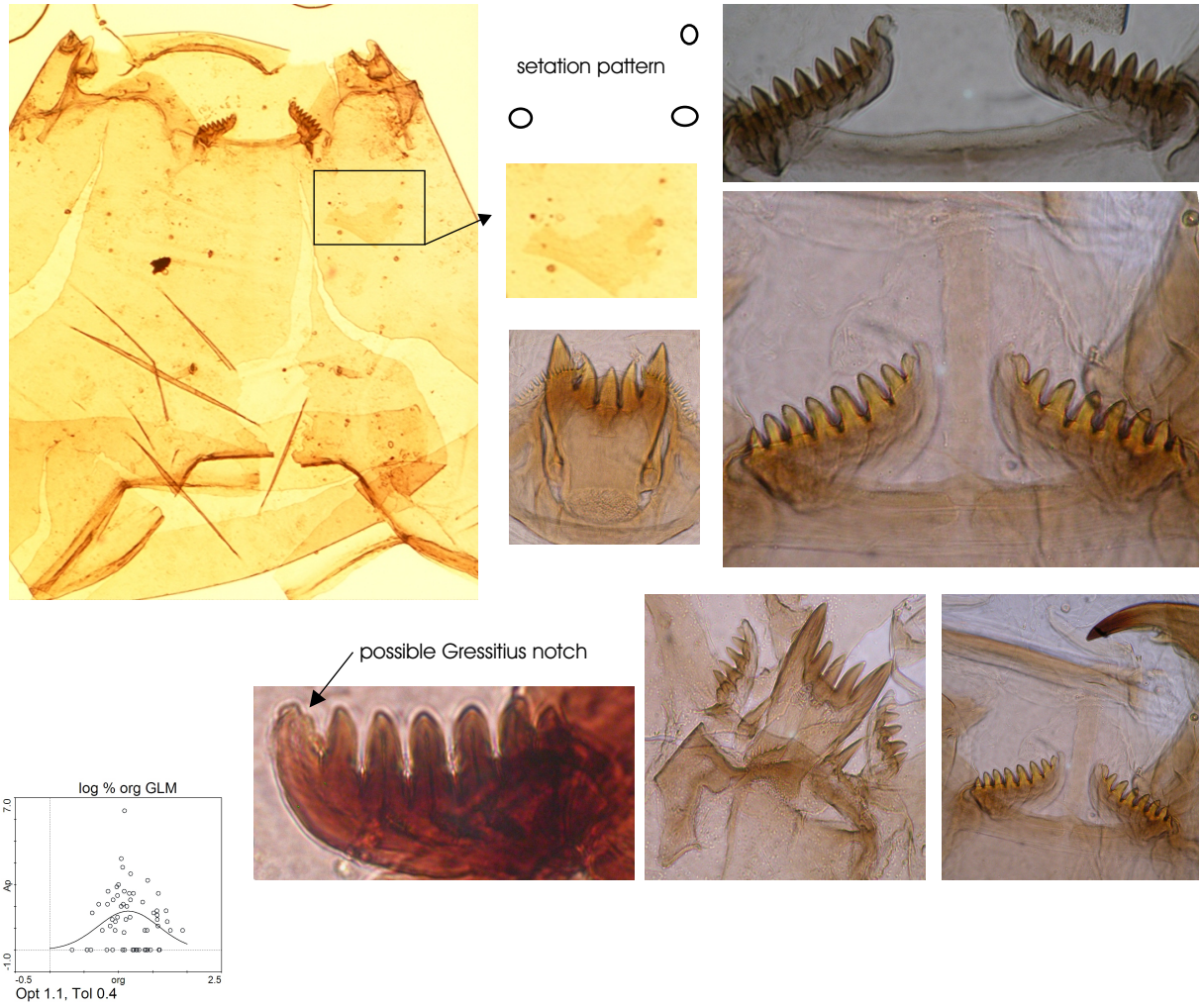
Ecology:

Subfossil: Ubiquitous.

Taxonomic references:
We strongly suspect these are early instar Macropelopini type 3. In a CCA of all chironomid types and the five most important environmental variables (Dieffenbacher-Krall et al. 2007), both Macropelopini types 1 and 2 clustered with Macropelopini type 3.

Lakes containing taxon: Found in 46 Dieffenbacher-Krall et al. (2007) sites and 8 of 15 recounted Woodward and Shulmeister (2006) sites.

Macropelopini type 3



Diagnostic characters:
Dorsomental teeth present. We classify all Macropelopini types having more than 4 or 5 teeth as Macropelopini type 3. These tend to be fairly large heads. Setation is generally difficult to see, but tends to be L-shaped.

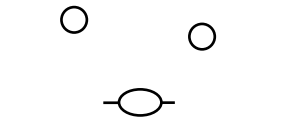
Similar taxa: Pentaneurini types, including *Ablabesmyia*, lack dorsomental teeth, and heads tend to be more elongate with recessed antennae. See also Macropelopini types 1 and 2, which are very likely early instars.

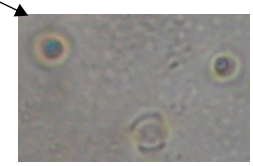
Ecology:

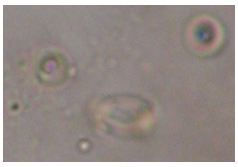
Subfossil: Ubiquitous.

Taxonomic references: Referred to as *Apsectrotanypus*-type by Dieffenbacher-Krall et al. (2007).

Lakes containing taxon: Found in 50 Dieffenbacher-Krall et al. (2007) sites and 13 of 15 recounted Woodward and Shulmeister (2006) sites.







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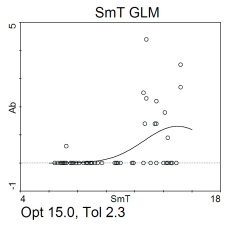
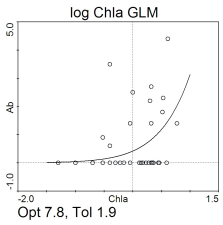
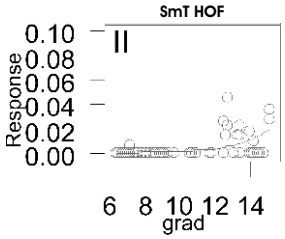






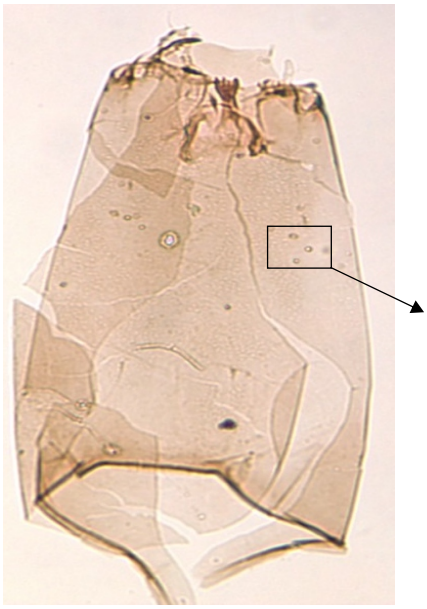
Diagnostic characters:
Head more elongate than Macropelopini types. No dorsomentum teeth. Antennae bases generally recessed. Ventral setation is quite distinctive - pore is beneath two setae bases which are on nearly the same plane as each other with outer base sitting just a bit lower than inner. Setation is often quite visible at 100x and is the chief diagnostic characteristic.

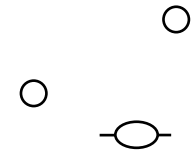
Similar taxa: Pentaneurini 1 heads are more elongate and one setae base is almost directly above the ventral pore.

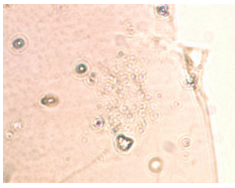
Ecology:

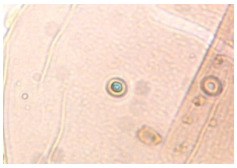
Subfossil: A chironomid of warmer sites

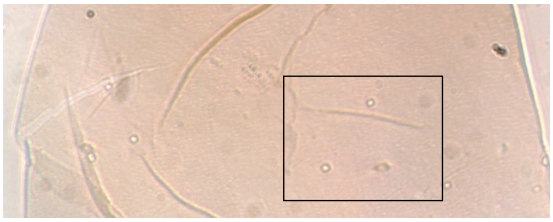
Lakes containing taxon: Found in Dieffenbacher-Krall et al. (2007) sites 202, 208, 210, 211, 218, 301-303, 311, 312, 318, 319, 323, 404, 423, 501, and in recounted Woodward and Shulmeister (2006) sites Harris, Sylvan, Emma, Little Sylvester, Sedgemere, Mackenzie.

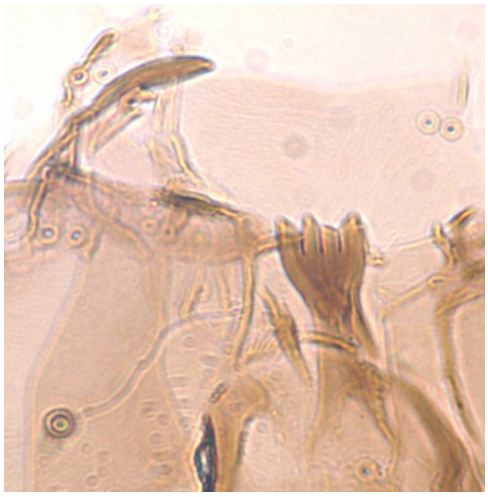












Diagnostic characters:
No dorsomentum teeth. Head elongate. Antennae bases generally recessed. Ventral setation is distinctive - inner base is almost directly above ventral pore and is higher than inner pore.

Similar taxa: *Ablabesymia* heads are not as elongate and setae bases are on nearly the same plane as each other, ventral pore is beneath and between setae bases. Might be *Larsia*.

Ecology:
Subfossil: Insufficient data.

Lakes containing taxon: Found only in late-glacial age sediment from Galway Tarn (Vandergoes and Dieffenbacher-Krall unpub.).