

## Far Eastern Drummers

In June 1998, about 1000 eggs of both *Pteronarcys reticulata* and *P. sachalina* were obtained north of Vladivostok from females extruding the remaining eggs, after they had apparently laid the main batch. The eggs were incubated at various constant temperatures in my laboratory at Schlitz. Hatching began only after the fully developed embryos had been exposed to 4°C for several weeks. Hatching success was very high between 4 and 22 °C. Because of various tests performed with the eggs, hatching date of the siblings in my experiments differed up to 6 months.

First instar *Pteronarcys* larvae do not feed; it was therefore easy to obtain the second instar. I played around trying to raise the larvae further but losses were high. However, once an appropriate rearing method was developed it was easy to maintain the remaining larvae. They were exclusively fed conditioned alder leaves. The combination of my laboratory observations with various field data eventually allowed us to interpret the life history of the Far East Russian *Pteronarcys* species. VALENTINA TESLENKO and I estimate that in the area near Vladivostok normally five years elapse from oviposition to adult emergence (see Arch. Hydrobiol. 153, 2002).

In the laboratory, development was much faster, because of the benign regime. Temperature was over 8°C except for about 2 months when specimens were intentionally exposed to as low as 4°C. In the field, temperatures are below 8°C for about 4.5 months. Young larvae opportunistically exploited the favourable conditions and grew, except during the short artificial winter. I keep records of every moult during the second half of larval life for the 12 specimens that attained the last instar. The moult to the penultimate instar occurred at different times during the year. Specimens spent from 45 to 318 days in this particular instar, until the moult to last instar occurred. This happened very synchronously, in autumn, when temperature and daylength decreased quickly. Only one specimen moulted already in late August – and then spent 224 days in the last instar before the adult emerged. 10 specimens eventually developed to adulthood; 4 that had hatched from eggs in December, 1998 emerged 9-11 April, 2001 (but were lost through an accident). Five that had hatched from eggs in April, 1999 emerged 13-17 March 2002. They are 1 female *sachalina* and 2 pairs of *P. reticulata*; another *sachalina* female has not yet made it.

Prof. Rupprecht at Mainz was interested to record drumming signals of my *Pteronarcys*. As it happened he could not be present but kindly lent me his equipment. However, during 8 days of repeated efforts I recorded only two signals and gave up. In order to be able to preserve a pair in copula I then kept each male in a spacious gauze cage with water and honey water (which they love!) together with a virgin female. However, nothing happened. Clearly, my only-alder-diet during larval upbringing had done no good!

Eventually, Prof. Rupprecht mentioned on the phone that males sometimes only drum after a flight to an area away from their emergence site. After about 5 minutes of fluttering and walking my two males decided that was enough exercise and moved no more. They were returned to their cages with the females, and I carried on with my desk work. Five minutes later I thought I heard somebody hammering a nail into wood! At that moment, the other pair already mated. I did not have my equipment ready and left the pair alone but hastily recovered the remaining virgin female. The next day, while the males had to record drumming I observed her drumming spontaneously, 5-6 heavy beats, much like the males, perhaps a little slower.

This was three days ago. The mated female has not extruded eggs. The males (15 and 22 days old, respectively) keep drumming and attacking each other but run away from the female, or over her, without taking notice. She is 19 days old and seems to be weak. She once tried to drum again but did not touch the cage wall properly. Yesterday, she and one male sat very close and apparently watched each other; finally, each briefly vibrated the entire body but things got no further. Therefore, although while I type this, the Far Eastern drumming continues on my window sill in the afternoon sun, this is certainly the last part of my 4-year-long story about Russian *Pteronarcys*!

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