

Almost all of the sexually differentiated worms were metamorphosing by the first week in August, but some were much further advanced than others. The worms shrink as they metamorphose and so appear in the smaller size groups on the graphs. Some of the heteronereids may have spawned in the last week of August, but the main spawning periods were in September and October. Metamorphosis therefore took three to four months.

The heteronereids die after spawning and the population density decreased from 1180/m² in September to 760/m² in October (Table 1), then increased again in November and December as the immature worms appeared in the collections. The slow fall in the population density during the study period was perhaps due to increased pollution from the Heathcote River.

The specimens which were not large enough to metamorphose in time for the main spawnings grew rapidly through the spring (September and October) and formed the larger size group in the summer collections (December and January). Field observations of spawning suggested that these specimens metamorphosed and spawned in small numbers at least until May, and possibly right through to the next main breeding season. The presence of some small immature worms in all the collections supports this interpretation. The late spawning worms tended to grow to a larger size than the early spawners (14–16 centimetres against 10–12 centimetres) before beginning to metamorphose.

TABLE 1

Month	Number of Worms in each 0.01 sq. m. sample.	Mean	Standard Deviation.	Mean No. per sq. m.
1960 Dec.	16 13 22 25 20 25	19.8	4.5	1980 ± 450
1961 Jan.	16 19 19 19 21 12	17.7	3.2	1770 ± 320
Feb.	25 16 11	17.3	7.1	1730 ± 710
Mch.	20 21 23 15 18 15	18.6	3.3	1860 ± 330
Apl.	14 30 6 29 13	18.4		*1840
May	10 19 11 8 17 11 17 15	13.5	4.0	1350 ± 400
June	22 9 16 15 17 13 16 10	14.4	3.8	1440 ± 380
July	15 10 17 10 13 21 11 9	16.4	5.2	1640 ± 520
Aug.	14 12 9 10 14 12 8 6	10.6	2.9	1060 ± 290
Sep.	20 16 7 14 8 9 10 10	11.8	4.3	1180 ± 430
Oct.	11 6 8 5 10 6 7 8	7.6	2.6	760 ± 260
Nov.	9 8 16 10 6 10 7 9	9.4	3.1	940 ± 310
Dec.	14 6 10 9 15 13 16 11	11.8	3.4	1180 ± 340
1962 Jan.	12 11 14 10 7 10 8 11	10.4	2.2	1040 ± 220

*Two of the samples were merged in counting and the standard deviation was not meaningful.