University of Florida Book of Insect Records
Chapter 13 *Most Instars*

B.R. SOJACK

Department of Entomology & Nematology
University of Florida, Gainesville, Florida 32611-0620

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If instar *refers to any stage between molts, then the fire brat,* Thermobia domestica *(Pack) (Thysanura: Lepismatidae), holds this record with 60 molts. If the larval stage is defined as the only stage that contains instars, then the mayfly,* Stenacron interpunctatum canadense *(Walker) (Ephemeroptera: Heptageniidae), would be our champion with 45 molts.*

The first objective was to determine a definition for instar. After asking professors and fellow graduate students, I found there were two ideas of what an instar is. One definition for instar is the stage of the insect between successive molts (Chapman 1982; Borror et al. 1989). This definition does not state anything about immatures or adults. The other definition states that an instar is the stage between molts of the immature insect (de la Torre-Bueno 1989). Therefore I looked for record holders using both these definitions.

Methods

The first method employed was to ask professors and graduate students in the University of Florida Entomology and Nema-tology Department to nominate candidates for this record. At this time the discrepancy as to how instar should be defined was noted. Therefore, general entomology text books were studied to try an arrive at a usable definition of the word for this chapter. Because two definitions seemed established, both were used. Insects that were nominated were then searched using standard library methods (i.e., *CAB*, *AGRICOLA*, and secondary literature).

Results

The record for most instars is dependent on which definition is used for instars. If the definition is used that restricts the term to immatures, then the mayfly, *Stenacron interpunctatum canadense* (Walker), holds the record with 45 larval molts observed by Ide (1935). If we use the definition that any insect stage between molts is an instar then the fire brat, *Thermobia domestica* (Pack), is the overall champion with 60 molts (Sweetman & Whittemore 1937). Thysanura molt through-out their life, so no definite number can be assigned. The number of instars is dependent on age.

Discussion

It seems as though entomologists have done little research on the number of molts an insect has. Very little information is available, and the information that is available is old. Nymphal and larval size seem to be of more interest to researchers than the actual number of times an insect molts. The number of molts a particular insect experiences is affected by temperature, humidity, and food quality (Sweetman 1934; Sweetman & Whittemore 1937; Clifford et al. 1979; Brittian 1982; Berner & Pascador 1988; Brittian 1990; Mallis 1990). Laboratory conditions may also have an impact on insect molting (Clifford et al. 1979). Many insects have a variable number of molts, and it is not known whether laboratory conditions significantly increase or decrease this number from the natural population.

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