Sternum subtriangular or wedge shaped, without anterior and posterior expansions. .................................................. Adaeini

7. Width of posterior expansion much less than length of sternum. ..................

.................................................. Triaenonychini

. Width of posterior expansion equal to or greater than the length of the sternum. ........................................ Trienobunini

**Distribution:** USA, Canada, Aleutian Islands (Umnak and Atka), Japan, Korea, Tasmania, continental Australia, New Zealand, subantarctic islands Crozet, Auckland, and Campbell, Madagascar, Chile, Argentina, and southern Brazil. Some triaenonychid genera are distributed across the Austral continents; the possibly nontriaenonychids of the Boreal temperate region also cross continents (Paranonychinae; see Shear, 1986).

**Relationships:** In Chapter 3 it is proposed to split Triaenonychidae, as traditionally conceived, into at least two different families. The Boreal genera should be grouped with Travuniidae, while the Austral genera represent Triaenonychidae *sensu stricto* and may include the strange Synthetonomychiidae (Kury, 2002).

**Main references:**
- **Systematics:** Pocock (1902b), Roewer (1915b, 1931), Hickman (1958), Briggs (1971a), Suzuki (1975b, 1976e).
- **Natural History:** Lawrence (1938), Hunt (1972), Maury (1988).

**Zalmoxidae Sørensen, 1886**

Adriano B. Kury and Abel Pérez-González

**Etymology:** Zalmoxis is the name of a Thracian Dacian god.

**Characterization:**
- Size: Small Laniatores.
- Dorsum and Venter: Dorsal scutum campaniform, tending to pyriform (see Figures 4.45a–c,g). Ocularium well developed, unarmed or with small tubercles, far removed from frontal margin of carapace (Figures 4.45a–g). Frontal hump of carapace absent. Scutal area I usually longer than the others. Mesotergal grooves often V shaped. Scutal areas unarmed or with transverse rows of setiferous tubercles (*Traiania*) and armed with paramedian spines; free tergites and sternites unarmed or with transverse row of pointed tubercles (or median spiniform apophyses, as in *Stygnoleptes analis*).
- Chelicerae (Figure 4.45e): Weakly developed, basichelicerite short, with bulla clearly marked, hand small.
- Pedipalps (Figure 4.45f): Segments short and stout, never elongate. Femur with two ventrobasal spines and a mesal subdistal spine. Patella with mesal subdistal spine. Tibia and tarsus with mesal ventral and ectal ventral rows of...
two to four spines. Some species with tibia incrassate in males and lanceolate setae, as in genus *Absonus* from Venezuela.

- **Legs:** Usually rather short, densely covered with minute granules. Leg IV with different manifestations of sexual dimorphism in all podomeres but coxa and tarsus. Coxa IV without dorsoapical spine. Tarsal formula: 3(2):6–8(3):5–6:6. Tarsal process present in a few species from Venezuela.

- **Genitalia (Figures 4.45h,k–m):** Capsula externa visible, well developed and modified into a *stragulum* (new name, from Latin *stragulum*, a spread, covering, bedspread), articulated to the truncus like a jackknife. Morphology of
the capsula interna unknown in most species, in some of them simple without
two laminar conductors. Lamina ventralis divided into two tagmata: (1) the
distal **rutrum** (from Latin *rutrum*, a spade, shovel), which is hammer shaped
or spade shaped, usually bearing two pairs of paramedian setae, and (2) the
basal **pergula** (from Latin *pergula*, a projection or shed in front of a house,
used as a booth, stall, shop), which is a girdle bearing two to four pairs of erect
setae, which may be very elongate (e.g., in *Minuides*). The stylus is exposed by
the bascule movement of the stragulum.

- **Color:** From dark brown to dark yellow background with varied darker mottling
to pale yellowish in small edaphic species.
- **Sexual dimorphism:** Some species such as *Soledadiella macrochelae* and *Phalangoduna granosa* show hypertelic sexually dimorphic chelicera. Leg IV with
stronger spines in male femur IV. Femur IV may be variedly curved and with
different parts thickened in males. Patella IV in a few species clavate with stout
spines in male. Tibia IV of male incrassate distally with two ventral parallel rows of spines. Metatarsus IV occasionally sinuous in male. Leg IV elongate in
males (*Pachylicus*, some *Ethobunus*), pedipalpal tibia swollen, basitarsus III
swollen, femur III incrassate, with porose (glandular?) area as in *Kimulidae*. 

Silhavý (1978) described a new type of stridulatory apparatus for a new Cuban species of *Minuides*; nevertheless, we have had the opportunity to study
Silhavý’s type and see that the “stridulatory apparatus” was in fact the porous
area that appears also in the ocularium of the species. These porous regions
are found in diverse Zalmoxoid/Samoid species (such as the *Baculigerus* group
in Escadabiidae and *Costabrimma* spp).

**Distribution:** Disjunct distribution. Many species in Neotropics, from Costa Rica to
Brazil. Southern limit is uncertain: on the Atlantic coast it appears to be northern
Rio de Janeiro State. In Australasia, from Papua New Guinea to Pacific islands and
Australia. Afrotropical: Seychelles and Mauritius, but the species from Madagascar
do not belong here. Not recorded from mainland Africa. In Indo-Malaya mostly in
the Philippines and Indonesia.

**Relationships:** Zalmoxidae are surely closely related to Fissiphalliidae and Icalep-
tidae (Figure 4.45) because of the presence of a stragulum. Fissiphalliidae (Figure
4.45i) clearly show the modification of the ventral plate into a pergula and a
rutrum, the main synapomorphic character of Zalmoxidae. The decision to keep Fis-
shipalliidae as a family was adopted because of the peculiar form of the enlarged fin-
gerlike stragulum, which is only an autapomorphy at that level. The recognition of
higher-level synapomorphies uniting Fissiphalliidae with Zalmoxidae, but no cur-
rently recognized synapomorphy for Zalmoxidae, only potentially threatens the
unity of this family. In order to detect monophyletic groups inside Zalmoxidae, it is
necessary to evaluate the importance of details of pergula + rutrum such as their
shape and position, as well as the form of the stragulum. If exclusive derived char-
acter states for Zalmoxidae are not found, the adequate decision would be to merge
Fissiphalliidae into Zalmoxidae. Meanwhile, hundreds of obscure species with tiny, complex, and hard-to-interpret male genitalia are waiting for study, one of the hardest challenges to opilionologists.

Main references:

- **Natural history**: González-Sponga (1987).

ACKNOWLEDGMENTS

The authors thank the anonymous reviewers and authors of each family for useful comments and suggestions on other families’ sections. The following people and institutions provided funding or resources or helped authors improve their sections: Leon Baert; Renner Baptista; H. Bürgis; CAPES; Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq); Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP); Fundação Universitária José Bonifácio (FJUB); Alessandro Giupponi; Randall Gutiérrez; Marcos Hara; Glenn S. Hunt; Peter Jäger; Laura Leibensperger; Christian Komposch; Jochen Martens; Juan Mata; Mt Albert Landcare Research (Auckland); National Science Foundation, USA (NSF); Norman Platnick; Maria Rambla; Seito Suzuki; Osvaldo Villareal; Carlos Viquez; Humberto Yamaguti; the Zoological Society of Japan.