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## Chapter 58

# SYMPHYTOGNATHIDAE

1 genus, 1 species

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### Similar families —

Anapidae (p. 64), Mysmenidae (p. 175), Theridiosomatidae (p. 244).

### Diagnosis —

All instars of the Nearctic members of this orbicularian family can be distinguished by the possession of only four eyes (Fig. 58.1) and tiny size. Females lack pedipalps (Figs. 58.2-58.3). All similar families are larger, have pedipalps, and 6-8 eyes, although in anapids the pedipalps are reduced (see chapter 15). Males can be distinguished from similar groups by size and eye pattern. In the field, *Anapistula* spin small (2-4cm) flat orbs with central radii cut out, numerous accessory radii, and very numerous sticky spirals (Fig. 58.4).

### Characters —

**body size:** males ~ 0.4 mm; females ~ 0.5 mm.  
**color:** carapace, legs and abdomen yellowish, with slightly darker extremities.  
**carapace:** highest posterior to the fovea (Fig. 58.2).  
**sternum:** nearly square, broadly truncate behind.  
**eyes:** four, laterals contiguous, all median eyes lacking.  
**chelicerae:** fused together from base to half their length.  
**legs:** length order 1423, tarsi much longer than metatarsi.  
**abdomen:** much higher than long.  
**spinnerets:** six spinnerets with small, fleshy colulus.  
**respiratory system:** book lungs absent.  
**genitalia:** entelegyne.

### Distribution —

Symphytognathidae is apparently pan-tropical, but very poorly known. *Anapistula* has never been revised, so it is difficult to judge if the very large reported range is accurate (Australia, North America, South America, Africa, southeast Asia, and the Seychelles). The range of *Anapistula secreta* GERTSCH 1941a is the southern United States through the Greater Antilles to Colombia.

### Natural history —

At a fraction of a millimeter in adult size, Symphytognathidae includes the smallest known spiders (Baert & Jocqué 1993). As far as is known, web-building symphytognathids prefer to live in the interstices of leaf litter, hollow logs, and other small, extremely humid microhabitats, although under the right conditions they will spin webs at least a meter or two above the forest floor (pers. obs.). At least some *Curimagua* FORSTER & PLATNICK 1977 are commensals in the webs of much larger spiders (Vollrath 1978). To date, most new species have been collected by litter extraction methods, but the webs are not difficult to detect if clouds of cornstarch are gently wafted across likely patches of leaf litter, low-growing vegetation or moss. Animals seem to spend most of their time at the web hub, but if disturbed move slowly to the periphery. Like other symphytognathoid families (Theridiosomatidae, Anapidae, Mysmenidae), web construction (so far as is known) involves out-of-plane radii, but symphytognathids cut these radii during construction so that the final web is planar.

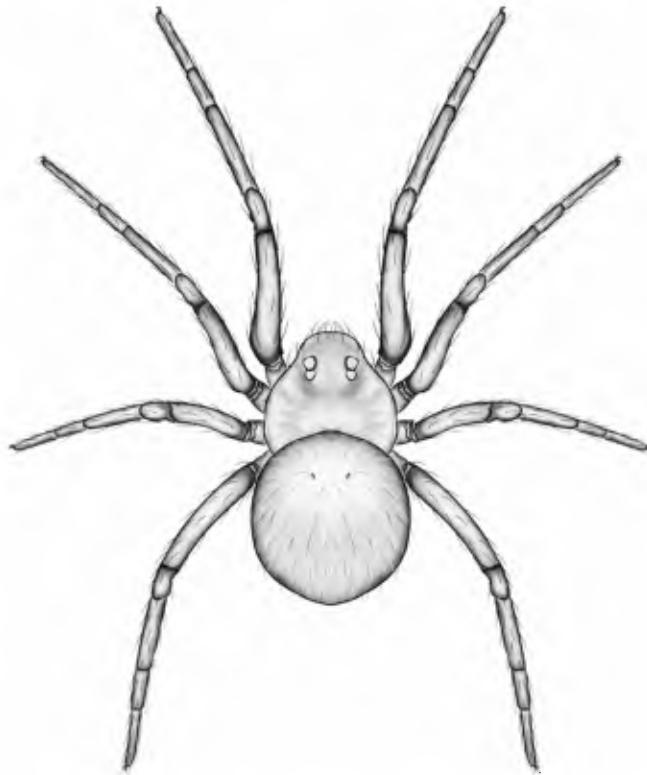


Fig. 58.1 *Anapistula secreta* GERTSCH 1941a

Finished webs appear to have hundreds of radii (Fig. 58.4) but almost all of these are actually “accessory” radii added to the underside of the orb after sticky spiral construction. True and accessory radii can be distinguished because the paths of sticky spirals bend sharply at true radii, but continue straight across accessory radii. After accessory radius construction, the hub area is rebuilt to reduce the number of radial lines reaching the hub (Eberhard 1986, pers. obs.). Egg sacs are guarded at the margin of the web (Griswold & Yang 2003). Their small size, fine-meshed webs, and cheliceral fusion, has led to speculations (Vollrath pers. comm.) that they are vegetarian and rely on the web to sieve spores and pollen from the air. Although plausible, no direct evidence supports this speculation as yet.

### Taxonomic history and notes —

Hickman (1931) described the first specimen of Symphytognathidae from Tasmania and immediately recognized it as a new family. Ten years later Gertsch (1941a) described the second, *Anapistula secreta*, from specimens from Barro Colorado Island, Panama, which still later was collected from the United States. Thereafter Forster (1951, 1958, 1959) expanded the concept of the family to include a

number of genera of small spiders with reduced eyes, respiratory systems, and pedipalps. Forster & Platnick (1977) reviewed the family and transferred several genera back to families such as Anapidae, Mysmenidae, and Micropholcommatidae. At present Symphytognathidae includes six genera and about 50 species of animals with fused chelicerae and pedipalps lost (in females and juveniles). The phylogenetic placement of the family has been studied by Coddington (1990), Griswold *et al.* (1998), and Schütt (2003). These authors generally agree on the symphyto-

gnathoid clade (Theridiosomatidae, Anapidae, Mysmenidae, and Symphytognathidae), but the included genera are so poorly known that the delimitation of the latter three families and Micropholcommatidae – and therefore the number of clades within symphytognathoids – have been questioned (Schütt 2003).

**Genus —**

*Anapistula* GERTSCH 1941a

