An Identification Guide to the Spider Families of Trinidad and Tobago, West Indies

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Spiders are in the order Araneae in the arthropod class Arachnida. There are about 35,000 known species worldwide (Levi and Levi 2002). They are diverse, adaptable and found on all the continents except Antarctica.

Spiders have two body sections; a cephalothorax and an abdomen. They possess four pairs of legs, all attached to the cephalothorax. Spiders also possess a pair of pedipalps, which resemble small legs, anterior to the forelegs. In females the tips of the pedipalps are simple, while in the male they have a complex structure.

Spiders are placed in two major groups, Mygalomorphae and Araneomorphae, according to the range of motion of the chelicerae. In Mygalomorphae the chelicerae are parallel to each other and exhibit an up-and-down action; tarantulas (Theraphosidae) are the most familiar.

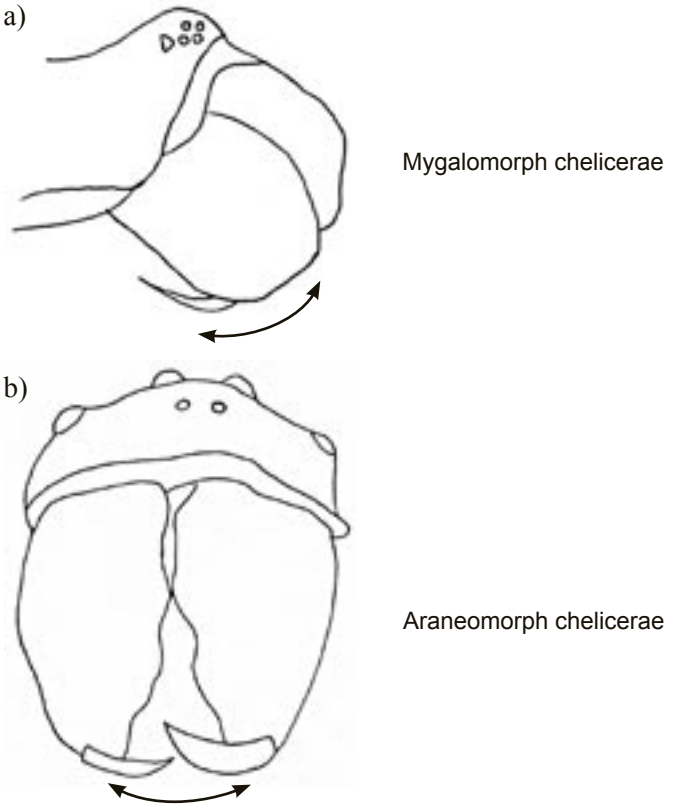

Fig. 1. Diagram of the chelicerae for (a) *Ischnothele caudata* – representative of mygalomorph spiders and (b) *Nephila clavipes* – representative of araneomorph spiders. Arrows show the range of motion of the chelicerae for both spider groups.

However, if they oppose each other and exhibit an open-and-close action, they are placed in Araneomorphae (Fig. 1). Body lengths given refer to adult females: minute <3 mm; small 3-6 mm; medium 6-12 mm; large 12-25 mm; very large >25 mm.

Legs are numbered with roman numerals to indicate the exact pair of legs being referred to in the description, starting with those closest to the head (Fig. 2). For example, tarsus IV refers to the tarsus of the hind legs. Another characteristic used to identify families is the number and shape of the spinnerets or silk producing organs (Fig. 3).

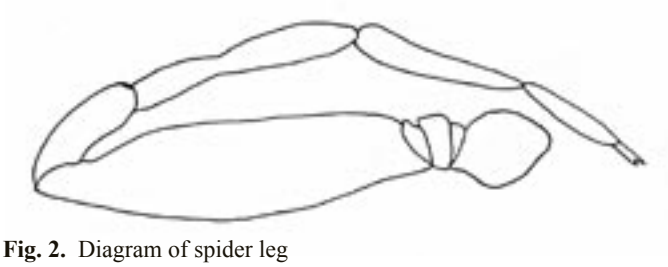

Fig. 2. Diagram of spider leg

Fig. 3. Diagram of general placement of anterior, median and posterior spinnerets of spider (ventral view of abdomen).

Sewlal and Cutler (2003) and Cutler (2005) listed a total of 42 spider families known to occur in Trinidad and Tobago and an additional 12 that might be found based on their presence in nearby South America. The Table in this paper lists many of the defining characteristics for each family known to occur in these islands compiled from Levi and Levi (2002); Nentwig (1993) and Kaston (1972), some of which can be seen with relative ease using a hand lens

(X10), for example, eye patterns. But not all eye patterns can be used as a defining characteristic since some are repeatedly found throughout many families. Therefore, I have included in the Appendix only the eye patterns of families for which they are characteristic.

Most of the defining characteristics of a family can only be seen under a high magnification (X40). In the following Table these characteristics are marked with an asterisk for example claws and claw tufts (Fig. 4). So it should also be understood that the user will not be able to obtain definite identifications in the field for some families. Also, field identifications should be confirmed by microscopic identifications at a later time. Some of the more common families found in Trinidad and Tobago are illustrated in the Plate.

Fig. 4. Enlarged portion of tip of tarsus showing, (a) two claws and (b) three claws.

GLOSSARY

Physical structures:

Anal tubercle – appendage located above posterior spinnerets.

Bipartite – refers to a form of the cribellum which has a parting in the middle.

Calamistrum – a dense row of curved spines on the dorsal side of metatarsus IV.

Cribellum – a spinning plate placed in front of the spinnerets and covered with thousands of silk spigots.

Colulus – slender and pointed appendage found between and in front of anterior spinnerets.

Epigastric furrow – groove joining lung slits on ventral side of abdomen; the epigynum on female spiders is located towards the middle of the epigastric furrow.

Epigynum – a sclerite associated with the reproductive openings of female spiders.

Kleptoparasite – a spider that lives in the webs of other spiders (host) and gets its food by stealing or scavenging from the host spider.

Labium (lower lip) – found under the mouth opening.

Procurved – refers to eye pattern where the eyes at either end of a row are further forward than those in the middle.

Rebordered – possess a thickened edge.

Recurved – refers to eye pattern where the eyes at either end of a row are further back than those in the middle.

Spigot – an opening through which liquid silk is forced through. Each spigot has a valve which controls the thickness and speed of the silk.

Scutum (plural: scuta) – a hard, sclerotized, often shiny plate usually located on the abdomen.

Trichobothrium (plural: trichobothria) – very fine, long hair extending out at right angles from leg which is also sensitive to airborne vibrations.

Web types:

Trapdoor – burrow with a moveable, flat silken lid.

Orb – flat circular web. Silk woven to form a series of concentric circles and divided into sectors.

Space or tangle – consists of a network of silk threads which form no discernable pattern.

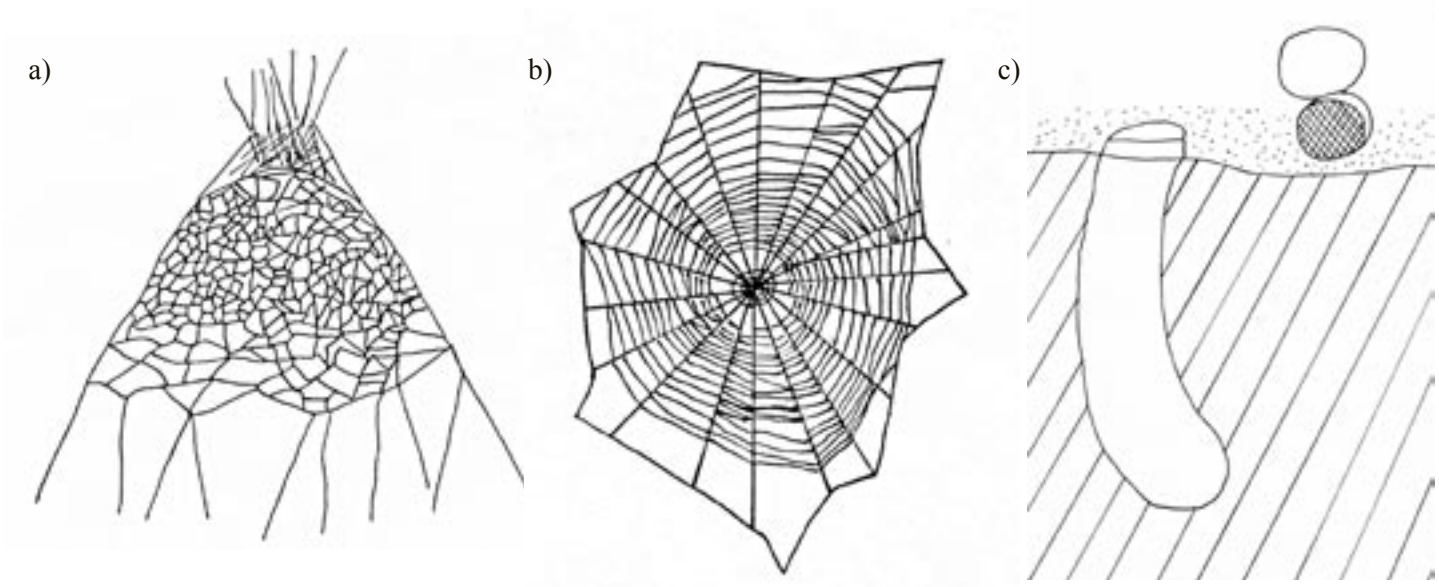

Fig. 5. Diagram of representative web types: (a) domed tangle web of *Physocyclus globosus*, (b) Orb web, and (c) burrow of a trapdoor spider.

Sheet – a mesh of silk threads woven into a flat sheet, the shape of which can vary.
Tube – a cylindrical sheet web.
Funnel – a conical sheet web held in place by numerous silk support threads.
Retreat – this is a web feature but used in this context to aid in identification. It is a silken tunnel sometimes covered with leaves or debris.

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Table 1.

MYGALOMORPHAE

Family	Body Length	No. of Eyes	Spinnerets	No. of Claws	Cribellum/ Calamistrum	Web Type	Distinctive Features
Actinopodidae	Large	8	4 short and blunt	3	No	burrow	Very large bulbous chelicerae. Eyes occupy >50% of head width (Appendix 1).
Cyrtaucheniidae	Large	8	4 long	3	No	burrow	Eye pattern (Appendix 1).
Dipluridae	Minute to very large	8	4	3	No	funnel	Posterior spinnerets are long, may be more than $^1/_2$ length of abdomen.
Theraphosidae	Large to very large	8	4	2	No	Burrow, sheet in some species	Very heavy. Distinct maxillary lobe.

ARANEOMORPHAE

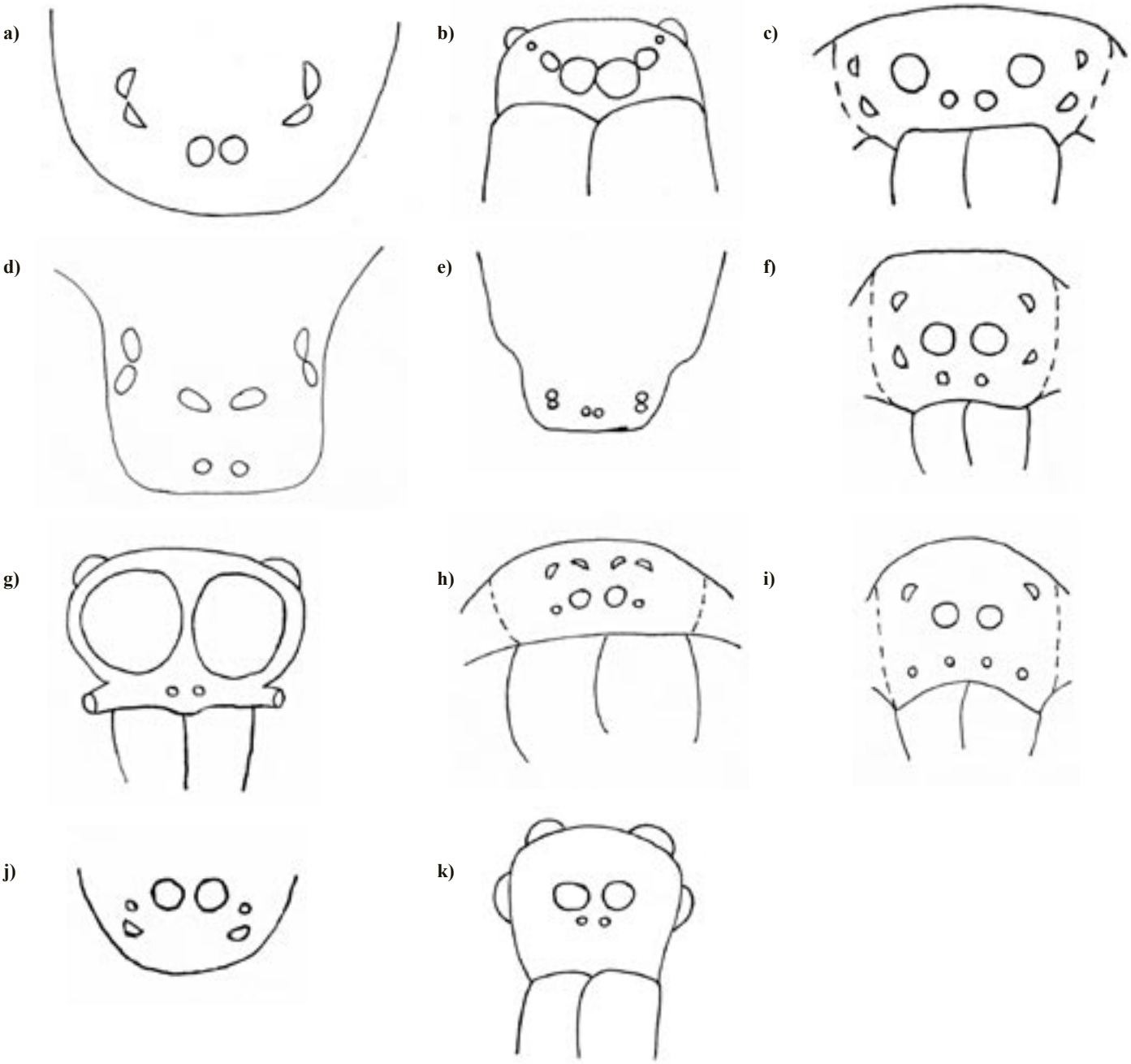
Family	Body Length	No. of Eyes	Spinnerets	No. of Claws	Cribellum/ Calamistrum	Web Type	Distinctive features
Agelenidae	Medium to large	8	6 posterior ones long	3	No	funnel	Webs. *Tarsi with single row of trichobothria that decrease in length towards the end of the tarsus.
Anapidae	Minute	6	6	3	No	orb	In females the last segment of the pedipalps is absent. Possesses armour plates
Anyphaenidae	Medium	8	6	2	No	retreat	Tracheal spiracle between spinnerets and epigastric furrow.
Araneidae	Small to very large	8	6	3	No	orb	*Femora without trichobothria.
Caponiidae	Small to medium	2, 4, 6 rarely 8	6	2	No	retreat	Cephalothorax is orange to pale tan. Abdomen is grey with distinct bluish or greenish tinge.

Clubionidae	Medium	8	6	2	No	retreat	Anterior spinnerets are conical and contiguous. Pale bodied grey to yellow.
Corinnidae	Medium to large	8	6	2	No	none	Many species resemble ants and multillid wasps.
Ctenidae	Medium to very large	8	6	2	No	none	Eye pattern (Appendix 1).
Deinopidae	Medium to large	8	6	3	Yes	orb	Eye pattern (Appendix 1).
Gnaphosidae	Small to large	6	6	2	No	tube	Anterior spinnerets are the longest, cylindrical and well spaced. Eye pattern (Appendix 1).
Linyphiidae	Small to medium	8	6	3	No	sheet	*Femoral spines present.
Lycosidae	Small to large	8	6	3	No	tube in some	Eye pattern (Appendix 1). *Median claw smooth or with single tooth.
Mimetidae	Small to medium	8	6	3	No	none, but occupy webs of prey	*Diagonal rows of spines on metatarsus and tibia I and II.
Miturgidae	Medium	8	6	2	No	retreat	*Leg claws 2 or 3. Legs I longer than IV.
Mysmenidae	Minute	8	6	3	No	orb but can be klepto-parasite	Males have spur on metatarsus. *Females have ventral spot on femur I.
Nesticidae	Small to medium	8	6	3	No	space	*Comb of hairs on last segment of legs IV. *Rebordered labium.
Ochyroceratidae	Minute to small	6	6	3	No	space	Resemble Pholcidae. Mottled purple colouration.
Oecobiidae	Minute	8	6	3	Yes	space	Large hairy anal tubercle.
Oonopidae	Minute	6	6	2	No	none	Eye pattern (Appendix 1). Some species have prominent dorsal and ventral scuta.
Oxyopidae	Small to large	8	6	3	No	none	Eye pattern (Appendix 1). Very prominent spines on legs.
Palpimanidae	Small to medium	8	6 only 2 visible	2	No	none	Legs I thick and held up when walking.
Philodromidae	Small to medium	8	6	2	No	none	Body flattened or elongate. Legs II longest.
Pholcidae	Minute to large	6-8	6	2	No	space	Eye pattern (Appendix 1 shows the eye pattern commonly encountered in this family although other patterns occur). Very long thin legs.

Pisauridae	Medium to large	8	6	3	No	large sheet or dome webs	Some species associated with water surface. Eyes of equal size.
Prodidomidae	Medium	8	6	2	No	none	Chelicerae held far apart.
Salticidae	Minute to large	8	6	2	No	retreat	Eye pattern (Appendix 1).
Scytodidae	Small to medium	6	6	3	No	space	Strongly elevated spherical cephalothorax.
Selenopidae	Medium to large	8	6	2	No	none	Eye pattern (Appendix 1). Flat body.
Senoculidae	Medium to large	8	6	3	No	not known	Eye pattern (Appendix 1).
Sicariidae	Medium to large	6	6	2	No	a few strands of silk which may accumulate with time (not used for hunting)	Eye pattern (Appendix 1).
Sparassidae	Medium to very large	8	6	2	No	none	Colulus absent. *Trilobed membrane at end of metatarsus.
Symphytognathidae	Minute	4 or 6	6	3	No	orb or klepto-parasite	Chelicerae fused. Females have no pedipalps or just basal segment.
Synotaxidae	Small to medium	usually 8	6	3	No	sheet	Elongate body. Long thin spineless legs. Sheet web pattern resembles "chicken wire".
Tetragnathidae	Small to very large	8	6	3	No	orb	Large chelicerae. Epigastric furrow procurved. Femora with trichobothria.
Theridiidae	Minute to medium	usually 8	6	3	No	space	Comb of hairs on last segment leg IV (often reduced in males). *Labium not rebordered.
Thomisidae	Small to medium	8	6	2	No	none	Colulus present. Hold legs crablike and walk sideways.
Theridiosomatidae	Minute	8	6	3	No	orb up at centre to form a cone	Femur I is 3 times thicker than IV. No spines on legs.
Uloboridae	Medium	6 or 8	6	3	Yes	orb	Legs I and II longer than others.
Zodariidae	Small to large	8	>2	3	No	none	Anterior spinnerets are the longest, others may be minute.

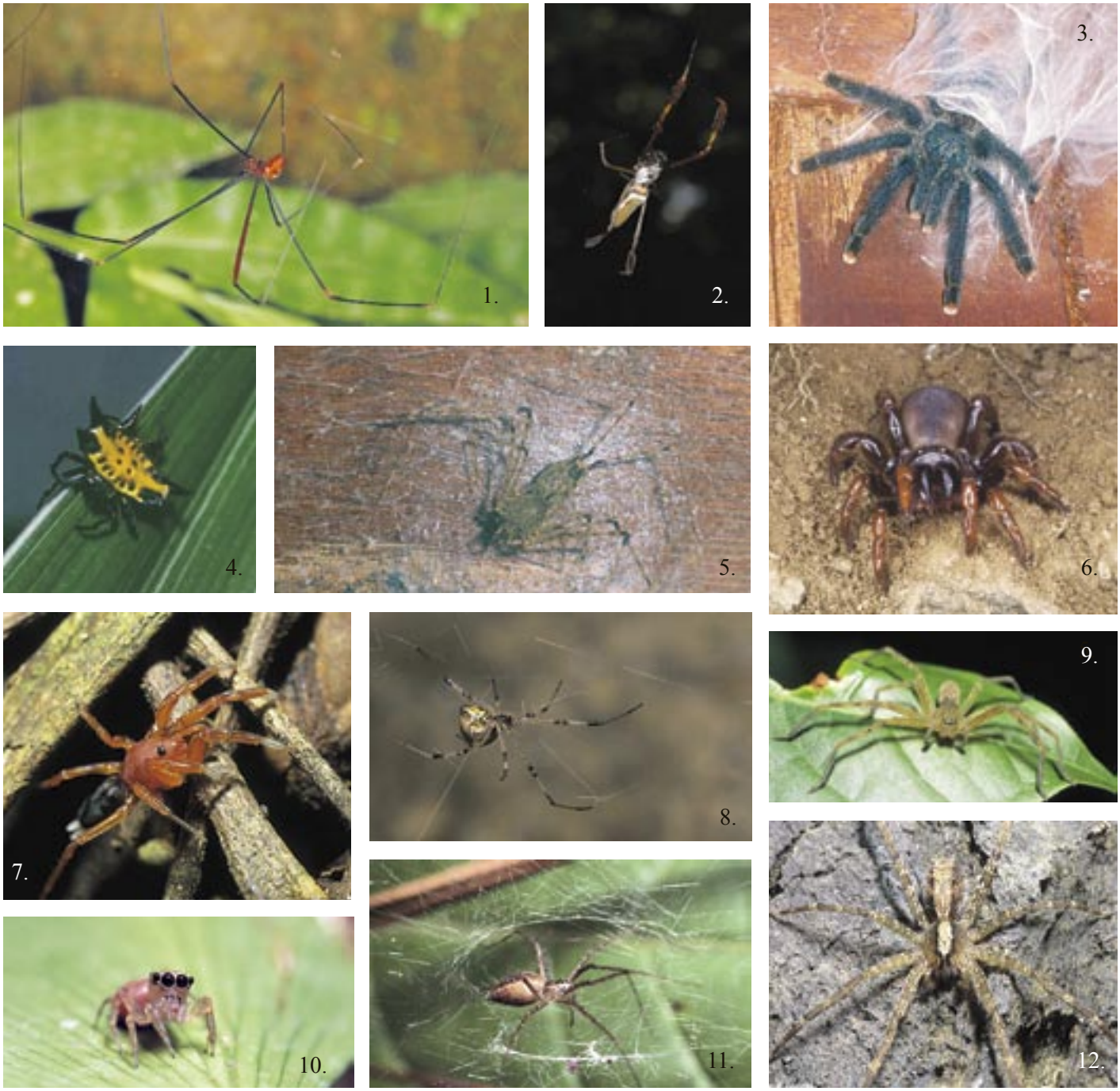
Appendix – Eye patterns of spider families for which they are distinctive features.

Mygalomorphae: (a) Actinopodidae (top view) and (b) Cyrtaucheniidae (top view).



Araneomorphae: (a) Pholcidae (top view), (b) Salticidae (front view), (c) Selenopidae (front view), (d) Senoculidae (top view), (e) Sicariidae (top view), (f) Ctenidae (front view), (g) Deinopidae (front view), (h) Gnaphosidae (front view), (i) Lycosidae (front view), (j) Oonopidae (front view) and (k) Oxyopidae (front view).

Plate – Photographs of representatives of some of the most common families found in Trinidad and Tobago.



1. *Mesabolivar aurantiacus* – Pholcidae (Photo: A. W. Hook)
2. *Nephila clavipes* – Tetragnathidae (Photo: J. Abbott)
3. *Avicularia avicularia* – Theraphosidae (Photo: C. K. Starr)
4. *Gasteracanta craniformis* – Araneidae (Photo: C. K. Starr)
5. *Scytodes longipes* – Scytodidae (Photo: C. K. Starr)
6. *Actinopus* sp. – Actinopodidae (Photo: M. Kuntner)
7. Caponnid – Caponnidae (Photo: B. Reynolds)
8. *Latrodectus geometricus* – Theridiidae (Photo: B. Reynolds)
9. *Olios* sp. (Photo: B. Reynolds)
10. Amycus – Salticidae (Photo: B. Reynolds)
11. Pisaurid in web – Pisauridae (Photo: B. Reynolds)
12. Wandering spider – Ctenidae (Photo: B. Reynolds)