

Supplementary material for the manuscript ‘Introduced spiders in Panama: species distributions and new records’

Table S1. Results of searches carried in Web of Sciences. The term ‘Search’ indicates the initial general search, and all the searches were refined with the term ‘Panama’.

	Terms			
	Invasive species	Invasive spider	Especie invasora	Especie exotica
<i>Refined search</i>	Panama	Panama	Panama	Panama
<i># of documents</i>	271	1	1	1
<i># of documents about spiders</i>	1	0	0	0
<i># of documents reporting new invasive spiders</i>	0	0	0	0

Table S2. Coordinates of collected individuals of invasive spiders in Panama.

species	latitude	longitude
<i>Cyrtophora citricola</i>	8.983662	-79.530094
<i>Cyrtophora citricola</i>	8.9943897	-79.543258
<i>Cyrtophora citricola</i>	8.886773	-78.289506
<i>Cyrtophora citricola</i>	8.26568534	-82.291723
<i>Cyrtophora citricola</i>	8.25801375	-82.317095
<i>Cyrtophora citricola</i>	9.27305352	-82.1434
<i>Cyrtophora citricola</i>	7.45116	-80.08122
<i>Cyrtophora citricola</i>	7.803063	-80.258949
<i>Cyrtophora citricola</i>	7.5344815	-80.02606
<i>Cyrtophora citricola</i>	8.5812721	-80.399286
<i>Cyrtophora citricola</i>	7.496501	-81.221415
<i>Cyrtophora citricola</i>	7.634114	-81.258222
<i>Cyrtophora citricola</i>	9.117138	-79.700164
<i>Labahitha marginata</i>	8.3986691	-80.26309
<i>Labahitha marginata</i>	7.75575	-77.68414
<i>Labahitha marginata</i>	8.252926	-78.164657
<i>Labahitha marginata</i>	8.836209	-78.267144
<i>Labahitha marginata</i>	8.25801375	-82.317095
<i>Labahitha marginata</i>	7.415291	-80.172314
<i>Labahitha marginata</i>	9.119082	-79.693755
<i>Labahitha marginata</i>	7.63778	-81.703812
<i>Labahitha marginata</i>	9.1513019	-79.077962
<i>Labahitha marginata</i>	9.1088068	-79.45504
<i>Physocyclus globosus</i>	8.9861377	-79.532633
<i>Physocyclus globosus</i>	8.96238	-79.54379
<i>Physocyclus globosus</i>	8.252926	-78.164657
<i>Physocyclus globosus</i>	9.0017097	-79.583493
<i>Physocyclus globosus</i>	9.1513019	-79.077962
<i>Theridion melanostictum</i>	8.960801	-79.544377
<i>Theridion melanostictum</i>	9.117126	-79.692759
<i>Theridion melanostictum</i>	9.0017097	-79.583493

<i>Micropholcus fauroti</i>	8.99392	-79.53542
<i>Micropholcus fauroti</i>	7.777057	-80.270994
<i>Micropholcus fauroti</i>	9.1066778	-79.296873
<i>Micropholcus fauroti</i>	8.659255	-79.874349
<i>Cithaeron praedonius</i>	7.777057	-80.270994
<i>Latrodectus geometricus</i>	8.9861377	-79.532633
<i>Hasarius adansoni</i>	8.9861377	-79.532633
<i>Neoscona nautica</i>	9.066345	-79.388674
<i>Crossopriza lyoni</i>	9.066345	-79.388674

Table S3. Summary of presence / absence (1 and 0, respectively) of invasive spider species per regions of Panama. BC: Bocas del Toro, CH: Chiriquí, C: Colón, CO: Coclé, D: Darién, H: Herrera, GY: Guna Yala (indigenous territory), LS: Los Santos, PA: Panamá, PO: Panamá Oeste, V: Veraguas. Lit: Literature review, Inat: Inaturalist, sampled: sampled in the field by this study, museum: revision of museum collection. Bold X indicates new reports found by this study. See Table 1 in main document for details on species authorities.

Species														This study			
	BC	CH	C	CO	D	H	GY	LS	PA	PO	V	Total	Lit	Inat	Gbif	sampled	museum
<i>Cyrtophora citricola</i>	1	1	1	1	1	1	1	1	1	1	1	11	x	x			
<i>Heteropoda venatoria</i>	0	1	1	1	1	0	1	0	1	1	1	8	x	x			
<i>Labahitha marginata</i>	0	1	1	1	1	0	0	1	1	0	1	7	x			x	
<i>Physocyclus globosus</i>	0	1	1	1	1	0	0	0	1	1	1	7	x			x	
<i>Neoscona nautica</i>	1	1	0	0	0	0	0	0	1	1	1	5	x				
<i>Triaeris stenaspis</i>	1	1	1	0	0	0	0	0	1	1	0	5	x				
<i>Hasarius adansoni</i>	0	1	1	1	0	0	0	0	1	0	1	5	x	x		x	x
<i>Tetragnatha nitens</i>	0	1	1	1	0	0	0	0	1	1	0	5	x				x
<i>Ischnothyreus peltifer</i>	0	0	1	0	0	0	0	1	1	1	0	4	x				x
<i>Menemerus bivittatus</i>	0	1	0	1	0	0	0	0	1	1	0	4	x	x		x	x
<i>Plexippus paykulli</i>	0	0	1	0	0	0	0	0	1	1	1	4	x	x		x	x
<i>Meotipa pulcherrima</i>	0	1	1	0	0	0	0	0	0	1	1	4	x				
<i>Cithaeron praedonius</i>	0	0	0	0	0	0	0	1	1	0	1	3	x	x		x	
<i>Brignolia parumpunctata</i>	0	0	1	0	0	0	0	0	1	1	0	3	x				
<i>Opopaea apicalis</i>	0	0	1	0	0	0	0	0	1	1	0	3	x				
<i>Opopaea deserticola</i>	0	0	1	0	0	0	0	0	1	1	0	3	x				x
<i>Micropholcus fauroti</i>	0	0	0	0	0	0	0	1	1	1	0	3	x			x	
<i>Latrodectus mactans</i>	0	1	0	0	0	0	0	0	0	1	1	3	x				
<i>Steatoda erigoniformis</i>	0	0	1	0	0	0	0	0	1	0	1	3	x				
<i>Theridion melanostictum</i>	0	0	1	0	0	0	0	0	1	1	0	3			x	x	
<i>Gea heptagon</i>	0	0	0	0	0	0	0	0	1	1	0	2	x				x
<i>Ischnothyreus velox</i>	0	0	1	0	0	0	0	0	1	0	0	2	x				
<i>Xestaspis parmata</i>	0	0	0	0	0	0	0	0	1	1	0	2	x		x		
<i>Latrodectus geometricus</i>	0	0	1	0	0	0	0	0	1	0	0	2	x			x	x
<i>Steatoda grossa</i>	0	1	0	0	0	0	0	0	0	0	1	2		x			
<i>Neoscona adianta</i>	0	1	0	0	0	0	0	0	0	0	0	1			x		
<i>Theotima minutissima</i>	0	0	0	0	0	0	0	0	0	1	0	1	x				
<i>Artema atlanta</i>	0	0	1	0	0	0	0	0	0	0	0	1	x				
<i>Crossopriza lyoni</i>	0	0	0	0	0	0	0	0	1	0	0	1				x	
<i>Tetragnatha vermiformis</i>	0	0	0	0	0	0	0	0	0	1	0	1	x				
<i>Parasteatoda tepidariorum</i>	0	1	0	0	0	0	0	0	0	0	0	1		x	x		
	3	14	18	7	4	1	2	5	23	20	12						

Table S4. Details on some unconfirmed exotic spider species in Panama.

Species	Details
<i>Neoscona adianta</i> (Walckenaer, 1802)	Although there is a specimen identified as coming from Panama and deposited in the Field Museum of Natural History [78], this species has not been reported as cosmopolitan or introduced in other countries, remaining within its natural range. Although it has shown an expansion in recent years [12,31,115], it is possible that this record corresponds to a misidentification, which will be confirmed after a detailed review of the specimen.