= Portia fimbriata =

Portia fimbriata , sometimes called the fringed jumping spider , is a jumping spider (family Salticidae) found in Australia and Southeast Asia . Adult females have bodies 6 @.@ 8 to 10 @.@ 5 millimetres long , while those of adult males are 5 @.@ 2 to 6 @.@ 5 millimetres long . Both sexes have a generally dark brown carapace , reddish brown chelicerae (" fangs ") , a brown underside , dark brown palps with white hairs , and dark brown abdomens with white spots on the upper side . Both sexes have fine , faint markings and soft fringes of hair , and the legs are spindly and fringed . However , specimens from New Guinea and Indonesia have orange @-@ brown carapaces and yellowish abdomens . In all species of the genus Portia , the abdomen distends when the spider is well fed or producing eggs .

The hunting tactics of Portia are versatile and adaptable . All members of Portia have instinctive hunting tactics for their most common prey , but can improvise by trial and error against unfamiliar prey or in unfamiliar situations , and then remember the new approach . There are differences in the hunting tactics of the regional populations of P. fimbriata . Those in Australia 's Northern Territory are poor at hunting jumping spiders and better against non @-@ salticid web @-@ building spiders and against insects . The Sri Lanka variant is fair against other jumping spiders , and good against web spiders and insects . P. fimbriata in Queensland is an outstanding predator of other jumping spiders and of web spiders , but poor against insects . The Queensland variant use a unique " cryptic stalking " technique which prevents most jumping spider prey from identifying this P. fimbriata as a predator , or even as an animal at all . Some jumping spider prey have partial defences against the cryptic stalking technique . All types of prey spiders occasionally counter @-@ attack , but all Portia species have very good defences , starting with especially tough skin .

When meeting another of the same species , P. fimbriata does not use cryptic stalking but displays by moving quickly and smoothly . In P. fimbriata from Queensland , contests between males usually are very brief and do no damage . Contests between Portia females are usually long and violent , and the victor may evict a loser and then eat the loser 's eggs ? but victorious females of P. fimbriata from Queensland do not kill and eat the losing female . If a P. fimbriata male from Queensland displays to a female , she may run away or she may charge at him . If the pair reach agreement after this , they will copulate if she is mature , and if she is sub @-@ adult he will cohabit in her nest until she finishes moulting , and then they copulate . P. fimbriata typically copulates much quicker than other jumping spiders . Unlike in other Portia species , females of P. fimbriata do not eat their mates during courting , nor during or after copulation .

= = Body structure and appearance = =

Females of the jumping spider Portia fimbriata have bodies 6 @.@ 8 to 10 @.@ 5 millimetres long , while those of adult males are 5 @.@ 2 to 6 @.@ 5 millimetres long . : 100 The Queensland variety is typically smaller than the Northern Territory variety . The cephalothorax is about 4 millimetres long and 3 millimetres wide , and the abdomen about 4 millimetres long and 2 @.@ 2 millimetres wide . The front of the cephalothorax is large and angular , and the face is broad , high and flat . In Australia and Taiwan , both sexes have a generally dark brown carapace , reddish brown chelicerae (" jaws ") , a brown underside , and dark brown palps with white hairs . Both sexes also have fine , faint markings and soft fringes of hair . : 6 However , the female has a white fringe just above the chelicerae , while the back half of the male 's cephalothorax has a white band round the bottom edge and a white groove down the back . While male spiders ' palps are larger than females ' , : 572 ? 573 the palps of P. fimbriata females have a fringe of hair that makes them look about as larger as males ' . The abdomens of both sexes are dark brown , with white spots on the upper side . Wanless ' female from New Guinea has an orange carapace and chelicerae with sooty markings , palps mainly light yellow , legs orange @-@ brown legs , and abdomen light yellow . Wanless also found a male from the Amboina area in Indonesia , showing an orange @-@ brown carapace and chelicerae , yellow @-@ brown to orange @-@ brown palps , orange @-@ brown legs and a light yellowish abdomen . : 99 ? 100

= = Movement = =

When not hunting for prey or a mate , Portia species adopt a special posture , called the " cryptic rest posture " , pulling their legs in close to the body and their palps back beside the chelicerae (" jaws ") , which obscures the outlines of these appendages . When walking , all Portia species have a slow , " choppy " gait that preserves their concealment : pausing often and at irregular intervals ; waving their legs continuously and their palps jerkily up and down ; and moving each appendage out of time with the others : 6 and continuously varying the speed and timing . : 418 Portia ? s walk is unlike that of any other spider , and this gait and the spider 's fringes gives the appearance of light flickering through the forest canopy and reflecting from a piece of detritus . : 6 In Queensland , P. fimbriata walks and waves more jerkily and about twice as slowly as other Portia species , including P. fimbriata in other areas . : 433

If disturbed , most Portia species leap upwards about 100 to 150 millimetres , often from the cryptic rest pose , and often over a wide trajectory . Usually Portia then either freezes or runs about 100 millimetres and then freezes . However , P. fimbriata in Queensland rarely runs or leaps . : 434

= = Senses = =

Although other spiders can also jump , salticids including Portia fimbriata have significantly better vision than other spiders , : 521 and their main eyes are more acute in daylight than a cat 's and 10 times more acute than a dragonfly 's . Jumping spiders have eight eyes , the two large ones in the center @-@ and @-@ front position (the anterior @-@ median eyes , also called " principal eyes " : 51) housed in tubes in the cephalothorax and providing acute vision . The other six are secondary eyes , positioned along the sides of the carapace and acting mainly as movement detectors . : 16 In most jumping spiders , the middle pair of secondary eyes are very small and have no known function , but those of Portia species are relatively large , and function as well as its other secondary eyes . : 424 : 232 The main eyes focus accurately on an object at distances from approximately 2 centimetres to infinity , : 51 and in practice can see up to about 75 centimetres . : 53 Like all jumping spiders , P. fimbriata can take in only a small visual field at one time , as the most acute part of a main eye can see all of a circle up to 12 millimeters wide at 20 centimeters away , or up to 18 millimeters wide at 30 centimeters away .

Generally the jumping spider subfamily Spartaeinae , which includes the genus Portia , cannot discriminate objects at such long distances as the members of subfamilies Salticinae or Lyssomaninae can . However , the main eyes of Portia have vision about as acute as the best of the jumping spiders : the salticine Mogrus neglectus can distinguish prey and conspecifics up to 320 millimetres away (42 times its own body length) , while P. fimbriata can distinguish these up to 280 millimetres (47 times its own body length) . The main eyes of P. fimbriata can also identify features of the scenery up to 85 times its own body length , which helps the spider to find detours . : 21

However , a Portia takes a relatively long time to see objects , possibly because getting a good image out of such tiny eyes is a complex process and needs a lot of scanning . This makes a Portia vulnerable to much larger predators such as birds , frogs and mantises , which a Portia often cannot identify because of the other predator 's size .

Spiders , like other arthropods , have sensors , often modified setae (bristles) , for smell , taste , touch and vibration , protruding through their cuticle (" skin ") . : 532 ? 533 A Portia can sense vibrations from surfaces , and use these for mating and for hunting other spiders in total darkness . It can use air- and surface " smells " to detect prey which it often meets , to identify members of the same species , to recognise familiar members , and to determine the sex of other member of the same species . : 13

= = Hunting and feeding = =

= = = Hunting tactics of the genus Portia = = =

Members of the genus Portia have been called " eight @-@ legged cats " , as their hunting tactics are as versatile and adaptable as a lion 's . All members of Portia have instinctive tactics for their most common prey , but can improvise by trial and error against unfamiliar prey or in unfamiliar situations , and then remember the new approach . They can also make detours to find the best attack angle against dangerous prey , even when the best detour takes a Portia out of visual contact with the prey , and sometimes the planned route leads to abseiling down a silk thread and biting the prey from behind . Such detours may take up to an hour , and a Portia usually picks the best route even if it needs to walk past an incorrect route . : 422

While most jumping spiders prey mainly on insects and by active hunting , : 340 females of Portia also build webs to catch prey directly . These " capture webs " are funnel @-@ shaped and widest at the top : 513 and are about 4 @,@ 000 cubic centimetres in volume . : 429 ? 431 A Portia often builds her own web on to one of a web @-@ based non @-@ salticid spider . When not joined to another spiders ' , a P. fimbriata female 's capture web is generally suspended from rigid foundations such as boughs and rocks . : 432 Males of Portia do not build capture webs . : 429

A Portia can pluck another spider 's web with a virtually unlimited range of signals , either to lure the prey out into the open or calming the prey by monotonously repeating the same signal while the Portia walks slowly close enough to bite it . : 340 ? 341 Such tactics enable Portia species to take web spiders from 10 % to 200 % of a Portia ? s size , and Portia species hunt in all types of webs . : 491 In contrast , other cursorial spiders generally have difficulty moving on webs , and web @-@ building spiders find it difficult to move in webs unlike those they build . When hunting in another spider 's web , a Portia ? s slow , choppy movements and the flaps on its legs make it resemble leaf detritus caught in the web and blown in a breeze . : 514 P. fimbriata and some other Portia species use breezes and other disturbances as " smokescreens " in which these predators can approach web spiders more quickly , and revert to a more cautious approach when the disturbance disappears . : 313 A few web spiders run far away when they sense the un @-@ rhythmical gait of a Portia entering the web ? a reaction Wilcox and Jackson call " Portia panic " . : 418

If a large insect is struggling in a web , Portia usually waits for up to a day until the insect stops struggling , even if the prey is thoroughly stuck . : 448 When an insect is stuck in a web owned by P. labiata , P. schultzi or any regional variant of P. fimbriata , and next to a web spider 's web , the web spider sometimes enters the Portia ? s web , and the Portia pursues and catches the web spider . : 440 ? 441 , 444

The webs of spiders on which Portia species prey sometimes contain dead insects and other arthropods which are uneaten or partly eaten . P. fimbriata (in Queensland) and some other Portia species such as P. labiata and P. schultzi sometimes scavenge these corpses if the corpses are not obviously decayed . : 448

When using its own web to catch other species of salticids , P. fimbriata conceals its conspicuous palps , which it does not do when stalking a web @-@ spider or occasionally a moving fly .

All Portia species eat eggs of other spiders , including eggs of their own species and of other cursorial spiders , and can extract eggs from cases ranging from the flimsy ones of Pholcus to the tough papery ones of Philoponella . While only P. fimbriata (in Queensland) captures cursorial spiders in their nests , all Portia species steal eggs from empty nests of cursorial spiders . : 448

The venom of Portia is unusually powerful against spiders . : 491 When a Portia stabs a small to medium spider (up to the Portia ? s weight : 428) , including another Portia , the prey usually runs away for about 100 to 200 millimetres , enters convulsions , becomes paralysed after 10 to 30 seconds , and continues convulsing for 10 seconds to 4 minutes . Portia slowly approaches the prey and takes it . : 441 ? 443 Portia usually needs to inflict up to 15 stabbings to completely immobilise a larger spider (1 @.@ 5 to 2 times to the Portia ? s weight : 428) , and then Portia may wait about 20 to 200 millimetres away for 15 to 30 minutes from seizing the prey . : 441 ? 443 Insects are usually not immobilised so quickly but continue to struggle , sometimes for several minutes . : 441 ? 443

Occasionally a Portia is killed or injured while pursuing prey up to twice Portia ? s size . In tests ,

Portia labiata is killed in 2 @.@ 1 % of pursuits and injured but not killed in 3 @.@ 9 % , while P. schultzi is killed in 1 @.@ 7 % and injured but not killed in 5 @.@ 3 % . In Queensland , P. fimbriata is killed in 0 @.@ 06 % of its pursuits and injured but not killed in another 0 @.@ 06 % . A Portia ? s especially tough skin often prevents injury , even when its body is caught in the other spider 's fangs . When injured , Portia bleeds and may sometimes lose one or more legs . Spiders ' palps and legs break off easily when attacked , Portia ? s palps and legs break off exceptionally easily , which may be a defence mechanism , and Portia species are often seen with missing legs or palps , while other salticids in the same habitat are not seen with missing legs or palps . : 450 A P. fimbriata specimen , now in the Australian Museum collection , regenerated a lost limb about 7 days after moulting .

= = = Hunting tactics of P. fimbriata = = =

All performance statistics summarise result of tests in a laboratory , using captive specimens . : 429 ? 430 Female P. fimbriatas ' tactics and performance show regional differences between the populations in Queensland , the Northern Territory and Sri Lanka . : 424 The table also includes females of P. africana around Lake Victoria , of P. schultzi elsewhere in Kenya and of P. labiata in Sri Lanka for comparison . : 424 , 432 , 434

P. fimbriata in all regions fix their own webs to solid surfaces such as rocks and tree trunks and boughs , while some other Portia species often fix their webs to pliant stems and leaves and on the lower branches of trees . : 432

A test in 2001 showed that four jumping species take nectar , either by sucking free nectar from the surface of flowers or biting the flowers with their fangs . The spiders fed in cycles of two to four minutes , then groomed their bodies and especially their chelicerae , before another cycle . A more formal part of the test showed that 90 juvenile jumping spiders , including P. fimbriata , generally prefer to suck from blotting soaked with a 30 % solution of sugar rather than paper soaked with distilled water . The authors suggest that , in the wild , nectar may be a frequent , convenient way to get some nutrients , as it would avoid the work , risks and costs (such as making venom) of predation . Jumping spiders may benefit from amino acids , lipids , vitamins and minerals normally found in nectar .

= = = = Tactics in Queensland = = = =

Portia fimbriata from Queensland is the most thoroughly studied araneophagic (spider @-@ eating) salticid . Robinson (2010) said that the Queensland P. fimbriata has the most varied prey capture techniques of any animal in the world except humans and other simians . When not using its own web , the Queensland P. fimbriata preys mainly on salticids of other genera , generally using against them a special tactic called " cryptic stalking " .

Adult males are less ready to pursue and less efficient at catching than adult females , especially against larger prey . Males are quite effective against small web spiders , and reluctant to tackle large ones although they catch them in about 50 % of attempts . Against other jumping spiders , males do not pursue large ones and pursue about 48 % of small ones , catching 84 % of those they pursue . : 438 Males of Portia do not build large webs for catching prey (" capture webs ") . : 429

A test in 1997 showed that P. fimbriata ? s preferences for different types of prey are in the order : web spiders ; jumping spiders ; and insects . : 337 ? 339 These preferences apply to both live prey and motionless lures , and to P. fimbriata specimens without prey for 7 days (" well @-@ fed " : 335) and without prey for 14 days (" starved " : 335) . P. fimbriata specimens without prey for 21 days (" extra @-@ starved ") showed no preference for different types of prey . : 339 The test included as prey several species of web spiders and jumping spiders , and the selection of the prey species showed no evidence of affecting the results . : 337 ? 339 Insects were represented by the house fly Musca domestica . : 335

When hunting most other salticids in Queensland , P. fimbriata exaggerates the slowness and " choppiness " of its normal gait (sometimes called " robotlike " : 6) and holds its palps retracted beside its fangs , as it also does in the cryptic rest pose . If the salticid prey faces P. fimbriata , P.

fimbriata freezes until the prey turns away . : 750 This " cryptic stalking " appears unique to Queensland , where most other jumping spiders fail to recognize a disguised stalking P. fimbriata as a predator , or even as an animal at all . : 447 P. fimbriata from Queensland uses cryptic stalking against both salticids native to Queensland and against imported salticids . : 445 Other salticids often defend themselves when stalked by other species of Portia or by P. fimbriata outside Queensland , and the Queensland P. fimbriata ? s cryptic stalking may be a regional adaptation to the abundant but dangerous salticid prey , especially Jacksonoides queenslandicus , in the local rainforest . : 750 ? 751 P. fimbriata uses cryptic stalking even against some oddly @-@ shaped salticids such as the flattened Holoplatys and the elongated , mantis @-@ like Mantisatta longicauda . : 455 All of P. fimbriata ? s salticid prey have a pair of large , forward @-@ facing principal eyes , a feature that arachnologists also use to distinguish salticids from all other spiders . : 455 ? 456

Euryattus , another jumping spider from Queensland , has a partly overlapping range with P. fimbriata ? s : 416 ? 417 and is abundant in their common range , and adult and large juvenile P. fimbriatas hunt Euryattus adopting specific tactics . Unlike most jumping spiders , Euryattus makes a nest by suspending a dead rolled @-@ up leaf by silk lines from vegetation . P. fimbriata catches Euryattus females by mimicking the vibrations made by Euryattus males as part of their courtship , and this deception lures Euryattus females out of their nests . In tests , a Euryattus from P. fimbriata ? s range recognises the predator and defends itself , while Euryattus specimens from outside P. fimbriata ? s range seldom recognise the threat . P. fimbriata finds it easier to catch a Euryattus from outside the predator 's home range than to capture the same species from P. fimbriata ? s range . : 416 ? 417 This may be an example of an evolutionary arms race .

P. fimbriata does not stalk at all species of the ant @-@ mimic jumping spider genus Myrmarachne , : 449 ? 450 , 455 and uses cryptic stalking only about 20 % of the time against other ant @-@ mimicking salticids and against beetle @-@ mimicking salticids . : 453 P. fimbriata also sometimes does not use cryptic stalking against females of the salticid subfamily Lyssomaninae . These females are unusually translucent , and the translucent cuticle makes the anterior @-@ median eyes (front @-@ and @-@ center) show light and dark regions that flicker in and out when viewed head on . Lyssomanine males are not translucent and do not produce this flickering , and P. fimbriata uses cryptic stalking consistently against the males . This suggests that the flickering anterior @-@ median eyes of lyssomanine females may reduce the ability of P. fimbriata to identify these females as jumping spiders .

When encountering J. queenlandicus , P. fimbriata often first notices chemical cues on J. queenlandicus ? silken safety lines and then looks for its prey . The smell makes P. fimbriata to quicker to see the prey , : 6 , 12 possibly by lowering thresholds in the visual system . : 36 ? 37 Sometimes P. fimbriata cannot see J. queenlandicus through the prey 's camouflage , and " hunts by speculation " , jumping high in the air , so that J. queenlandicus betrays itself by turning and looking for the disturbance . : 6 : 749 P. fimbriata then turns toward J. queenslandicus and waves its palps . : 1601 It appears that only P. fimbriatas from Queensland behaves this way while Portia species from other areas did not , that P. fimbriata from Queensland reacts this way only to J. queenslandicus , and that J. queenslandicus perceives no chemical warnings that P. fimbriata is around . : 749

When stalking any non @-@ salticid , P. fimbriata does not use cryptic stalking and does not consistently pull its palps back nor consistently freeze when faced by the prey . P. fimbriata adopts cryptic stalking only after recognizing prey as a jumping spider .

In Queensland , P. fimbriata is reluctant to jump into the webs of prey spiders , while other Portia species do this at any opportunity . : 515 The Queensland orb web spider Argiope appensa shakes it web violently to shake off intruders , and P. fimbriata finds a detour that allows it to abseil on to the prey . : 422 When the web spider Zosis genicularis is busy wrapping up its own prey and is less aware of other predators , P. fimbriata uses this activity as a type of smokescreen to approach the web spider . : 147

P. fimbriata uses non @-@ cryptic stalking against lycosid , clubionid , theridiid and desid spiders , and against flies , but does not stalk beetles or ants . : 453

Unlike other Portia species , P. fimbriata in Queensland readily invades the nests of cursorial spiders , plucking or cutting the nest . If the resident spider eventually leaves the nest , P. fimbriata stalks it . If the resident spider tries to counterattack and then retreats into the nest , P. fimbriata may attack the other spider as it re @-@ enters the nest , or may wait motionless until the prey exits . If a stabbed prey spider retreats into the nest , P. fimbriata in Queensland never enters the nest , but waits for the prey to move out , and then P. fimbriata kills it . : 444 ? 447

A test in a deliberately artificial environment explored the Queensland P. fimbriata ? s ability to solve a novel problem by trial and error . A little island was set up in the middle of a miniature atoll , and the space between with them was filled with water . The gap was too wide for the spiders to jump all the way , and the spiders ' options were to leap and then swim or to swim only . The testers encouraged some specimens by using a tiny scoop to make waves toward the atoll when the spiders chose the option the testers preferred (leap and then swim , or swim only) , and discouraged some specimens by making waves back toward the island when the spiders chose the option the testers did not want ? in other words , the testers " rewarded " one group for " successful " behaviour and " penalised " the other group for " unwanted " behaviour . : 284 ? 286 The Queensland P. fimbriata specimens generally repeated successful behaviour and switched if the first try was unsuccessful , irrespective of which option (leap and then swim or to swim only) the testers chose as " good " for each specimen . : 1215

= = = = Tactics in Northern Territory = = = =

In the Northern Territory , P. fimbriata has no special tactics against other jumping spiders and tries to treat them as if they were web spiders , and then either tries to jump on them or gives up . Hence this variant is poor at catching other jumping spiders . The Northern Territory variant of P. fimbriata is not as good as the Queensland one as catching web spiders , but better than the Sri Lanka variant and some other species of Portia . It is not enthusiastic about pursuing insects , but very good at catching those it pursues , as the performance table above shows : 424 , 432 , 434 While pursuits by the Queensland variant typically take 26 minutes , those of the Northern Territory variant typically take 3 to 5 minutes , like some other species of Portia . : 439 ? 440 , 449

= = = = Tactics in Sri Lanka = = = =

The Sri Lanka variant enthusiastically pursues other jumping spiders and is slightly better than most Portia species in tests , but about half as effective as the Queensland variant . In Sri Lanka , P. fimbriata is not a prolific hunter of web spiders or insects , but quite efficiently catches those it pursues . : 424 , 432 , 434 Like other Portia species , the Sri Lanka P. fimbriata typically take 3 to 5 minutes for a pursuit . : 439 ? 440 , 449

= = Reproduction and lifecycle = =

Before courtship , a male Portia spins a small web between boughs or twigs , and he hangs under that and ejaculates on to it . : 467 He then takes up the semen into reservoirs in the palpal bulbs on his pedipalps . : 581 ? 583

A laboratory test showed how males of P. fimbriata from Queensland minimise the risk of meeting each other , by recognising fresh pieces of blotting paper , some containing their own silk draglines and some containing another male 's draglines . Males also were attracted by fresh blotting paper containing females ' draglines , while females do not respond to fresh blotting paper containing males ' draglines . This suggested that the males usually search for females , rather than vice versa . Neither sex responded to one week @-@ old blotting paper , irrespective of whether it contained males ' or females ' draglines . A similar series of tests showed that P. labiata showed the same patterns of responses between the sexes .

When meeting another of the same species , P. fimbriata does not stalk but displays by moving quickly and smoothly , and displays at 4 to 27 centimetres away . It raises its legs , its body sways

from side to side , and the palps are lowered below the chelicerae (" fangs ") . This is very different from the stalking it uses when encountering another salticid of a different species , despite receiving the same visual stimulus , the sight of the other 's large anterior @-@ median eyes . Although P. fimbriata is influenced by pheromones much more than is usual among salticids , visual cues alone are enough to start displays and distinguish members of the same species from other salticids , even if neither partner moves . The spindly , fringed legs of Portia species may identify members of the same species , as well as concealing these spiders from other salticid species .

In P. fimbriata from Queensland and in some other species , contests between males usually last only 5 to 10 seconds , and only their legs make contact . : 466 Contests between Portia females are usually long and violent , : 518 and in P. fimbriata from Queensland these often including grappling that sometimes breaks a leg . : 466 A victor may evict a loser , and then eat the loser 's eggs and take over the loser 's web . : 518 : 466 Unlike in some other Portia species , victorious females of P. fimbriata from Queensland do not kill and eat the losers . : 466

A female that sees a male may approach slowly or wait . The male then walks erect and displays by waving his legs and palps . If the female does not run away , she gives a " propulsive display " first . If the male stands his ground and she does not run away or repeat the propulsive display , he approaches and , if she is mature , they copulate , the male inserting the tip of one of his palpal bulbs into the female 's copulatory opening , using the first palp that made scraping contact . : 459 ? 464 If the female is sub @-@ adult (one moult from maturity) , a male or sometimes a sub @-@ adult male of P. fimbriata may cohabit in the female 's capture web . : 467 Portia species usually mate on a web or on a dragline made by the female . : 518 P. fimbriata typically copulates for about 100 seconds , while other genera can take several minutes or even several hours . : 518 : 465 Unlike in some other Portia species , females of P. fimbriata from Queensland do not eat their mates during courting , nor during : 464 or after copulation .

When hunting , mature females of P. fimbriata , P. africana , P. fimbriata , P. labiata , and P. schultzi emit olfactory signals that reduce the risk that any other females , males or juveniles of the same species may contend for the same prey . The effect inhibits aggressive mimicry against a prey spider even if the prey spider is visible , and also if the prey is inhabiting any part of a web . If a female of one of these Portias smells a male of the same species , the female stimulates the males to court . These Portia species do not show this behaviour when they receive olfactory signals from members of other Portia species .

In laboratory tests , Portia species including P. fimbriata mate with other species , but the females then produce no eggs . : 466

P. fimbriata in Queensland prefers to lay eggs on dead , brown leaves about 20 millimetres long , suspended near the top of its capture web , and then cover the eggs with a sheet of silk . If there is no dead leaf available , the female will make a small horizontal silk platform in the capture web , lay the eggs on it , and then cover the eggs . In Northern Territory , P. fimbriata occasionally lays eggs in a dead leaf , but more usually in a silk egg sac on a small horizontal web suspended on the main web . : 434 ? 435 , 469

Like all arthropods , spiders moult and , after hatching , the life stage before each moult is called an " instar " . Specimens of P. fimbriata become mature at instar 7 , 8 or 9 . In an experiment using P. fimbriata spiderlings from Queensland , 64 % of those fed only on spiders survived to maturity , 37 % of those fed on a mixture of spiders and insects survived , and all those fed solely on insects died before reaching the 6th instar . For moulting , all Portia species spin a horizontal web whose diameter is about twice the spider 's body length and is suspended only 1 to 4 millimetres below a leaf . The spider lies head down , and often slides down 20 to 30 millimetres during moulting . : 496 Portia species spin a similar temporary web for resting . : 513 P. fimbriata in Queensland can be very sedentary , in some cases remaining in the same web for over 48 days during a series of moults . : 239

= = Ecology = =

P. fimbriata is found in the rain forests of India , Nepal , Sri Lanka , Hong Kong , Taiwan , New

Guinea , the Solomon Islands , Malaysia including Malacca , Indonesia , and in Australia 's Northern Territory and Queensland . : 424 : 302 : 99 ? 100 It lives on foliage , tree trunks , boulders , and rock walls . Throughout its range , this is the most common species of the genus Portia . Queensland specimens of P. fimbriata live near running water and where there is moderate light , while Northern Territory specimens live in caves where the light varies from rather dark at the back to much brighter around the mouths . Other populations of Portia also live with higher light levels than in Queensland , and some members of these other populations are found in webs exposed to direct sunlight for part of the day . : 431 In Queensland , P. fimbriata shares its environment with a common prey , the very abundant Jacksonoides queenslandicus , and with large populations of other non @-@ Portia salticids and non @-@ salticid web @-@ building spiders . : 432

Ants prey on P. fimbriata while P. fimbriata does not stalk ants , regarding them as poisonous or very unpleasant . : 454 ? 455 P. fimbriata is also preyed upon by birds , frogs , and mantises .

It is often difficult to find P. fimbriata in the wild , as its shape and movements are well disguised . The Queensland variety is quite easy to raise , while the Northern Territory variety is quite troublesome to maintain .

= = Taxonomy = =

P. fimbriata is one of 17 species in the genus Portia as of May 2016 . Wanless divided the genus Portia into two species groups : the schultzi group , in which males ' palps have a fixed tibial apophysis ; and the kenti group , in which the apophysis of each palp in the males has a joint separated by a membrane . : 87 ? 88 The schultzi group includes P. schultzi , P. africana , P. fimbriata , and P. labiata . : 93 ? 94 , 99 ? 100 , 102 ? 105

The species P. fimbriata was originally described by Carl Ludwig Doleschall as Salticus fimbriata in 1859 . The species has also been named Attus fimbriatus (Doleschall , 1859) , Sinis fimbriatus (Doleschall , 1859) , Linus fimbriatus (Doleschall , 1859) and Boethoportia ocellata (Hogg , 1915) , and Portia fimbriata (Doleschall , 1859) , and the last is now used . According to Jackson and Hallas , P. fimbriata , as currently defined , probably includes two or more distinct species . In particular , Queensland P. fimbriata are probably a distinct species from Sri Lankan P. fimbriata , as matings between the two groups are infertile . : 480

Portia is in the subfamily Spartaeinae , which is thought to be primitive . : 491 Molecular phylogeny , a technique that compares the DNA of organisms to reconstruct the tree of life , indicates that Portia is a member of the clade Spartaeinae , that Spartaeinae is basal (quite similar to the ancestors of all jumping spiders) , and that Portia ? s closest relatives are the genera Spartaeus , Phaeacius , and Holcolaetis . : 53