

Two new peacock spiders of the *calcitrans* group from southern Queensland (Araneae: Salticidae: Euophryinae: *Maratus*)

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Abstract: Two new species (*M. jactatus*, *M. sceletus*) are described and assigned to a clade (the *calcitrans* group) of five distinct species contained within the genus *Maratus*. General features of the courtship display of male *M. jactatus* and *M. sceletus*, and characteristics of the *calcitrans* group are also described

We recently described the *calcitrans* group as a clade comprised of three species within the endemic Australian genus *Maratus*: *M. calcitrans* Otto & Hill 2012, *M. digitatus* Otto & Hill 2012, and *M. plumosus* Otto & Hill 2013. Members of this clade are quite distinct from each other but all share many unique characters that will be discussed here. Unlike the other two species in this group, *M. plumosus* males do not inflate their spinnerets during display, but rather display specialized setae or plumes that appear to serve the same role as the inflated setae associated with the other species. Here we describe two more species in this group from southern Queensland. Each of these species is also quite distinct from the previously known members of this group, and males of both species also inflate their spinnerets during courtship display.

Maratus jactatus, new species

Type specimens. The holotype male (♂ #1) and one paratype female (♀ #1) were collected at Wondul Range National Park in southern Queensland (S 28.04862°, E 151.04878°, 13 SEP 2013, M. Girard & E. A. King coll.). The paratype female produced eggs and three of her offspring were reared to maturity (paratype ♂ #2-4). One additional paratype female (♀ #2) was reared from an immature collected with *M. sceletus* in the same area (S 28.04841°, E 151.04669°, 438 m, 27 JUL 2014, J. Otto coll.). All types will be deposited in the Queensland Museum in Brisbane.

Etymology. The species group name (*jactatus*, noun, Latin) means *rocking* or *jolting*, a reference to the very rapid lateral rocking that punctuates the courtship display of males of this species.

Diagnosis. Male *M. jactatus* can be readily identified by their unique colour pattern. They are most similar to *M. calcitrans* and *M. digitatus* in general appearance, but can be separated from these by the presence of narrow lateral opisthosomal flaps that can be extended to expand the background cover of iridescent blue scales of the opisthosomal plate. *M. calcitrans* has no flaps at all, and *M. digitatus* has a larger pair of semicircular, iridescent, dull-green flaps. Males of all three species inflate their black posterior opisthosoma and two pairs of spinnerets (median and posterior) when they display to females.

Description of male (Figures 1-5). The holotype and two paratype males (♂ #1, 2, 4; N=3) range from 4.5 to 4.6 mm in body length, not including the spinnerets.



Figure 1. Holotype (1-4, ♂ #1) and paratype (5-9, ♂ #2) male *Maratus jactatus*. **2**, Although normally retracted, the fringed median and posterior spinnerets are greatly extended when the posterior opisthosoma is inflated during courtship. **4**, White tarsi are offset by black distal metatarsi on legs III. The legs are densely covered with long white setae, giving these spiders a soft appearance.



Figure 2. Paratype (1-6, ♂ #3; 7-9, ♂ #4) male *Maratus jactatus*. 2-3, Views of opisthosoma with lateral flaps retracted (2) and expanded (3). 5, The PME are nearly equidistant between the ALE and the PLE. 6, Posterior view of carapace. An indistinct median tract of light brown scales extends half-way from the posterior eye row to the posterior margin of the carapace. Note the presence of red setae on the front of the chelicerae (4, 8).

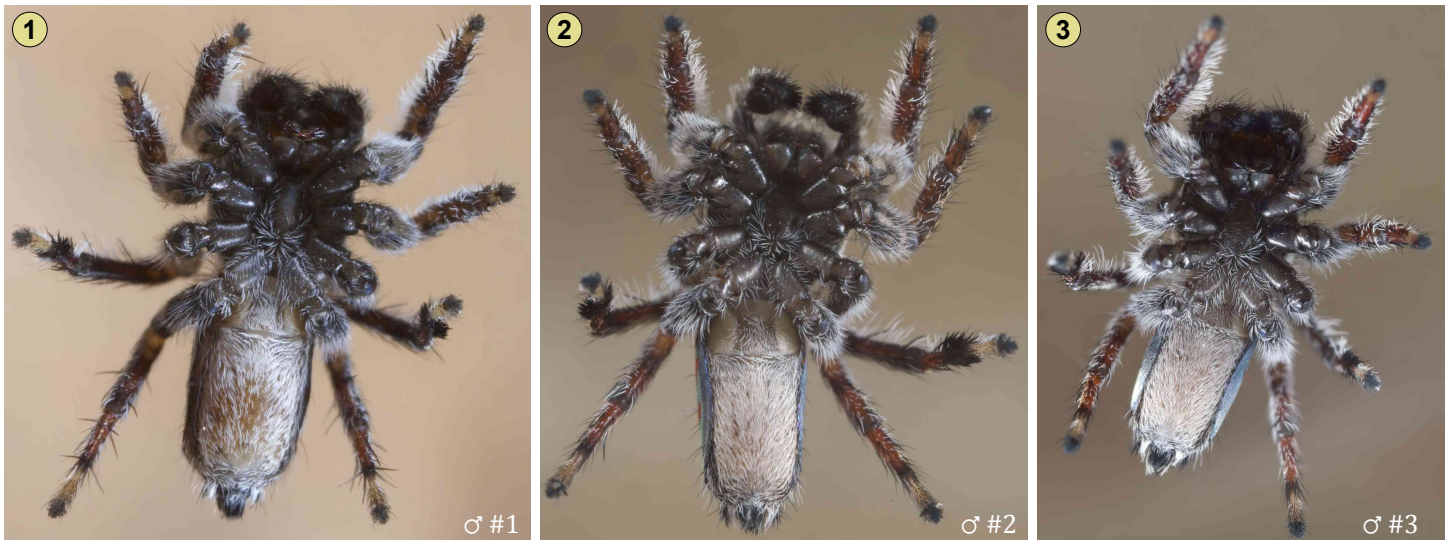


Figure 3. Underside of three male *Maratus jactatus*.

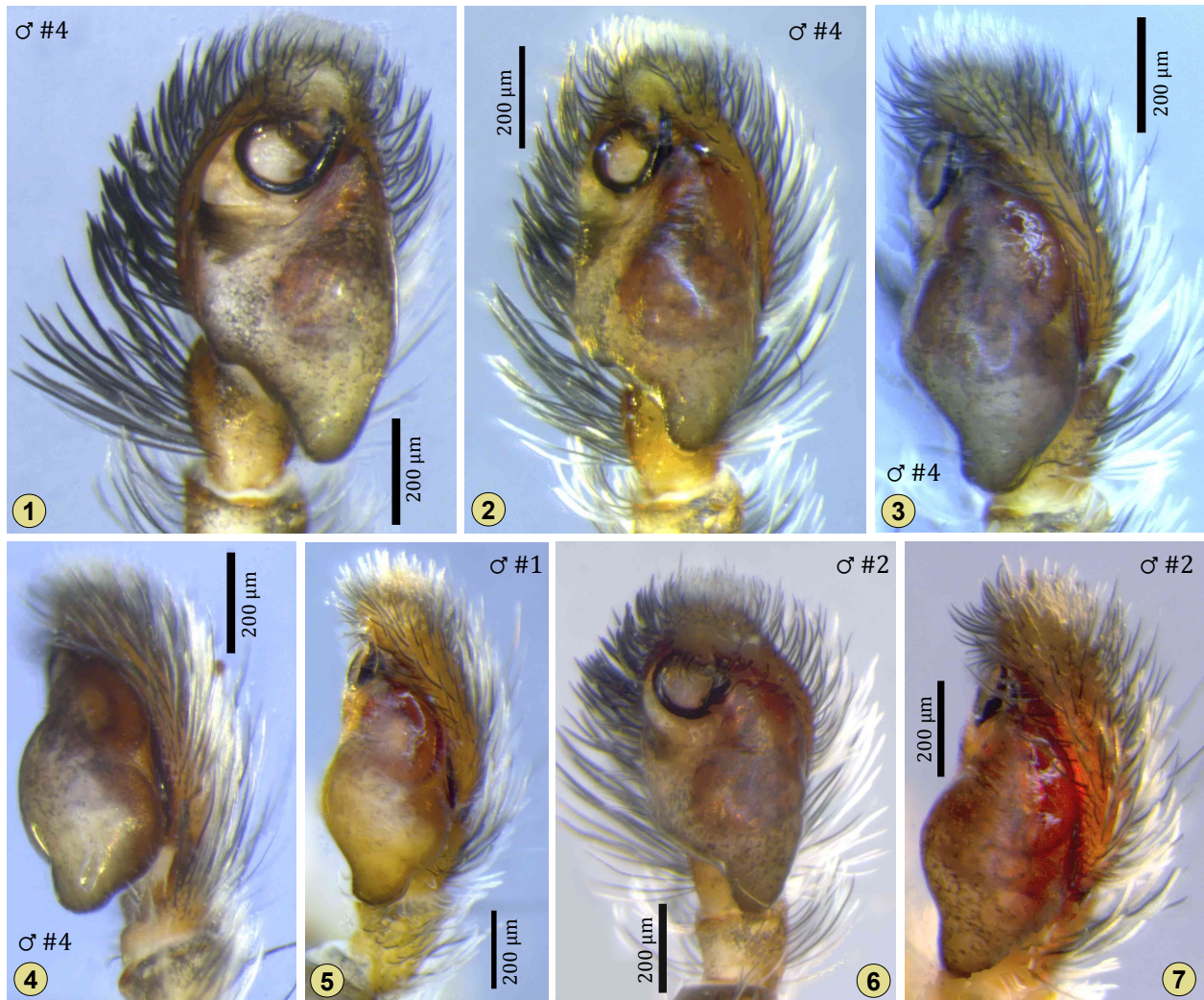


Figure 4. Views of the left pedipalp of three male *Maratus jactatus*. Separation of the inner and outer apices of the embolus can be observed in lateral views (3, 5, 7). In all respects these resemble the pedipalps of most other male *Maratus*.

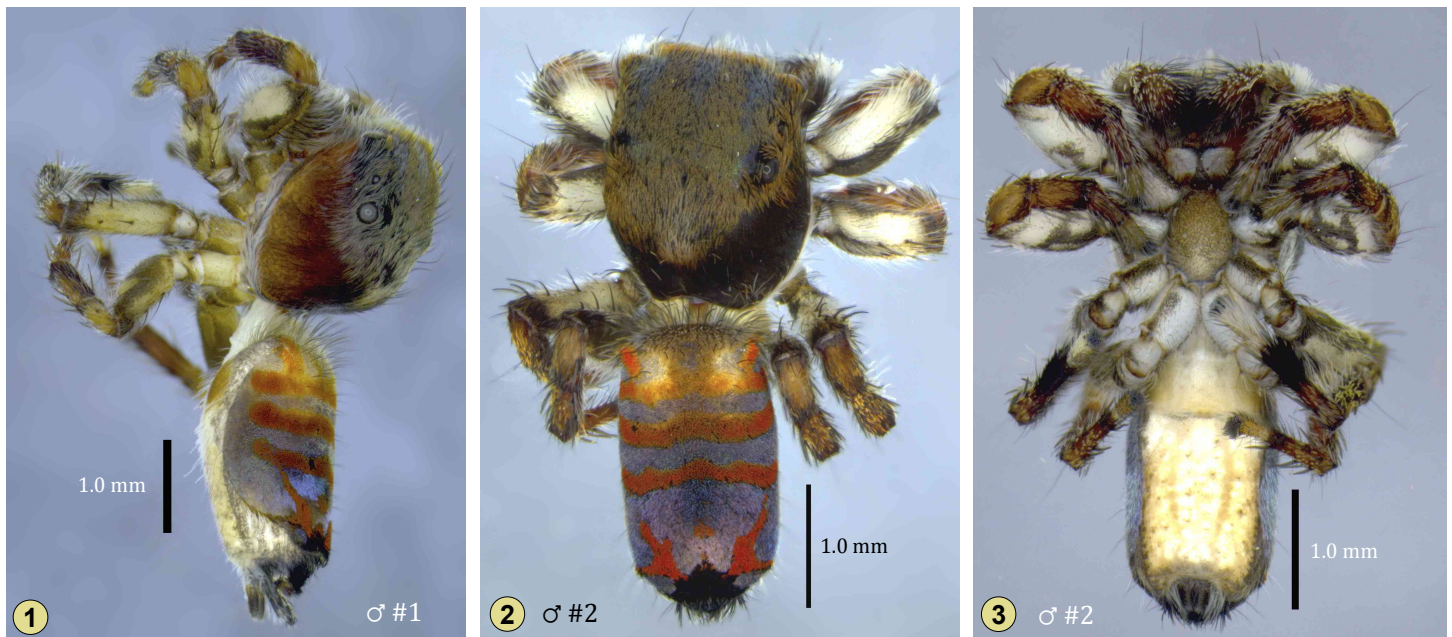


Figure 5. Views of two male *Maratus jactatus* (specimens in alcohol).

The carapace and chelicerae are black, faded to brown or dark brown in preserved specimens. Red scales are present on the front of the chelicerae. The anterior eyes are bordered with red-brown scales above, white to grey scales below. Scattered white setae are present on the clypeus. A band of red-brown scales extends into the eye region behind each of the four anterior eyes, merging into a uniform field of red-brown scales in front of the posterior eye row. Three bands of grey scales separate these bands in the anterior half of the eye region. The field of red-brown scales extends around the lateral eyes on either side, and extends medially to form an indistinct dorsomedian thoracic tract extending half-way from the posterior eye row to the posterior margin of the carapace. Laterally and to the rear the carapace is mostly black and glabrous, except for a prominent marginal band of white setae on either side. The PME are nearly equidistant from the ALE and PLE.

The sides of the opisthosoma are nearly parallel when the narrow lateral flaps of the fan (dorsal opisthosomal plate) are retracted, but the fan is oval in shape when these flaps are extended. The fan is covered with uniform blue-green to blue iridescent scales, interrupted by three bold transverse bands of red-orange to orange pigmented scales. Behind these bands lies a single median spot of red-orange scales behind a small darker area. Toward the anterior and posterior margins of the fan are additional figures comprised of the same red-orange scales, and there is an anterior marginal band of orange scales. The posterior opisthosoma and spinnerets are generally black and considerably inflated during courtship display. The median and posterior spinnerets are fringed with white and black setae, and several tufts of these setae can also be observed on the black inflated (expanded) part of the opisthosoma that carries the spinnerets, when they are extended. The ventral opisthosoma is tan in living spiders, yellow to white in specimens preserved in ethanol. Coxae, sternum, labium, and endites are dark, fading to white in ethanol.

Legs I and II are about the same length, much shorter than legs III and IV. Legs III are by far the longest. All legs, and legs I-II in particular, bear a dense cover of long white to grey setae. The pedipalps also have this dense cover of long white to grey setae. Legs III have bright white tarsi, offset by a black distal half of each metatarsus. Dark banding at the distal end of each leg segment is most evident on legs IV. When viewed from below, each pedipalp is typical for this genus, with apices of the inner and outer rings of the embolus in close contact to form a single heavy apex (Figure 4).

Description of female (Figures 6-8). The paratype females (N=2) range from 5.0 to 5.3 mm in body length, not including the spinnerets.



Figure 6. Views of a paratype female *Maratus jactatus*, with one of her recently emerged second instar offspring (3).

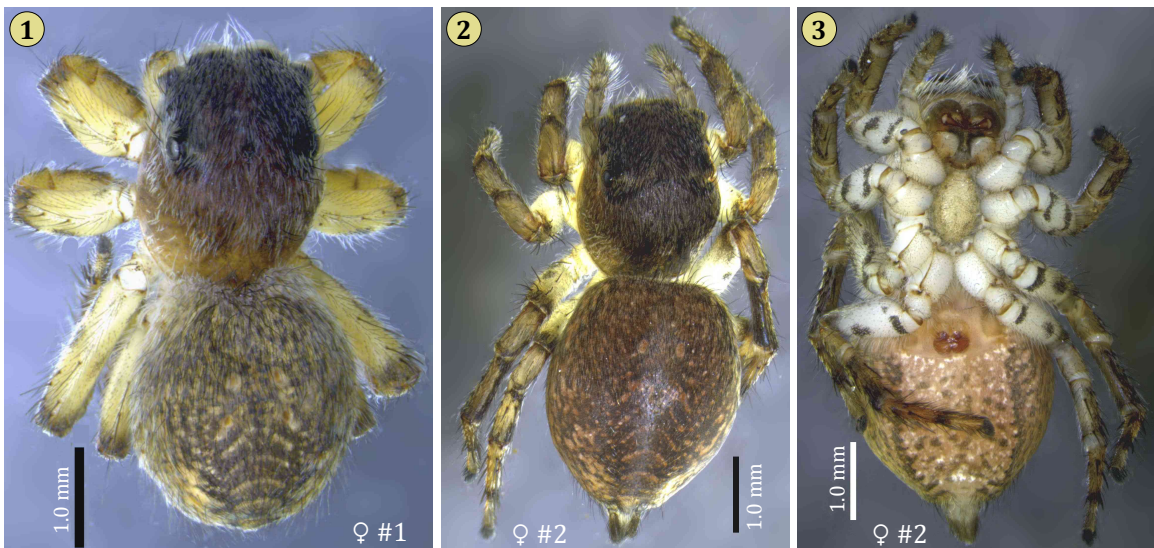


Figure 7. The two paratype female *Maratus jactatus* (1, 2-3) in ethanol.

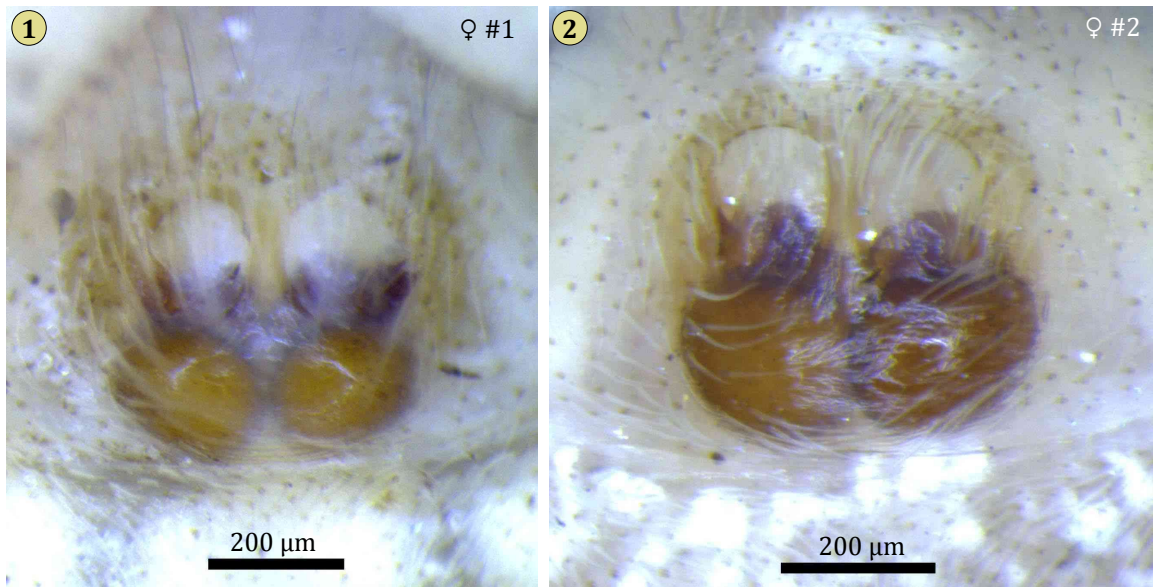


Figure 8. Ventral view of epigynum of the two paratype female *Maratus jactatus*. In (1), the posterior spermathecae are similar in size to the fossae, whereas in (2) the spermathecae are much larger. Conspecificity of female #2 was confirmed through mating.

The carapace and chelicerae are dark brown. The chelicerae are glabrous. Anterior eyes are bordered above and below with white to grey scales. Longer white to grey setae project forward over the chelicerae at the median. The entire body (prosoma and opisthosoma) is generally brown, darker above, and covered with white to grey or light brown setae without distinctive markings. The carapace is glabrous and translucent at the sides and toward the rear, lacking lateral marginal bands. The PME are mid-way between the ALE and the PLE. The coxae, sternum, labium, and endites are relatively glabrous and translucent brown.

Legs I and II are about the same length, much shorter than legs III and IV, and legs III are the longest. The legs are mostly translucent, light brown and only weakly banded.

Dark, sclerotized ductwork of the epigynum occupies less than the posterior half of each fossa, and the prominent posterior spermathecae vary in size from close to the diameter of the fossae to about 1.5 times their diameter (Figure 8).

Immatures. Immature stages of males that were reared are shown in Figure 9. These had relatively bold markings when compared to those of females. In penultimate males (Figure 9: 10-12) three dark transverse bands, apparently corresponding to the bright red-orange bands of the adult, can be seen on the dorsal opisthosoma.



Figure 9. Reared immature *Maratus jactatus*. As a convention, we consider the first free-living forms to emerge from the egg-sac to be instar 2.

Male courtship display (Figures 10-16). Male *Maratus jactatus* display by tilting the expanded fan (with inflated spinnerets) to one side or the other, and then moving the extended ipsilateral leg III, mostly behind the fan. At cycles of $\sim 1\text{-}3\text{Hz}$, the extended leg that is positioned behind the fan is first lowered over $\sim 0.2\text{-}0.4\text{s}$, then rapidly raised (or returned to its position behind the fan) to trigger a very rapid jolting or rocking movement of the whole body that lasts for only 20-30msec (Figure 16). This rocking involves rapid ipsilateral (in the direction of the extended leg and tilted fan) rotation, followed by a return to the original position.

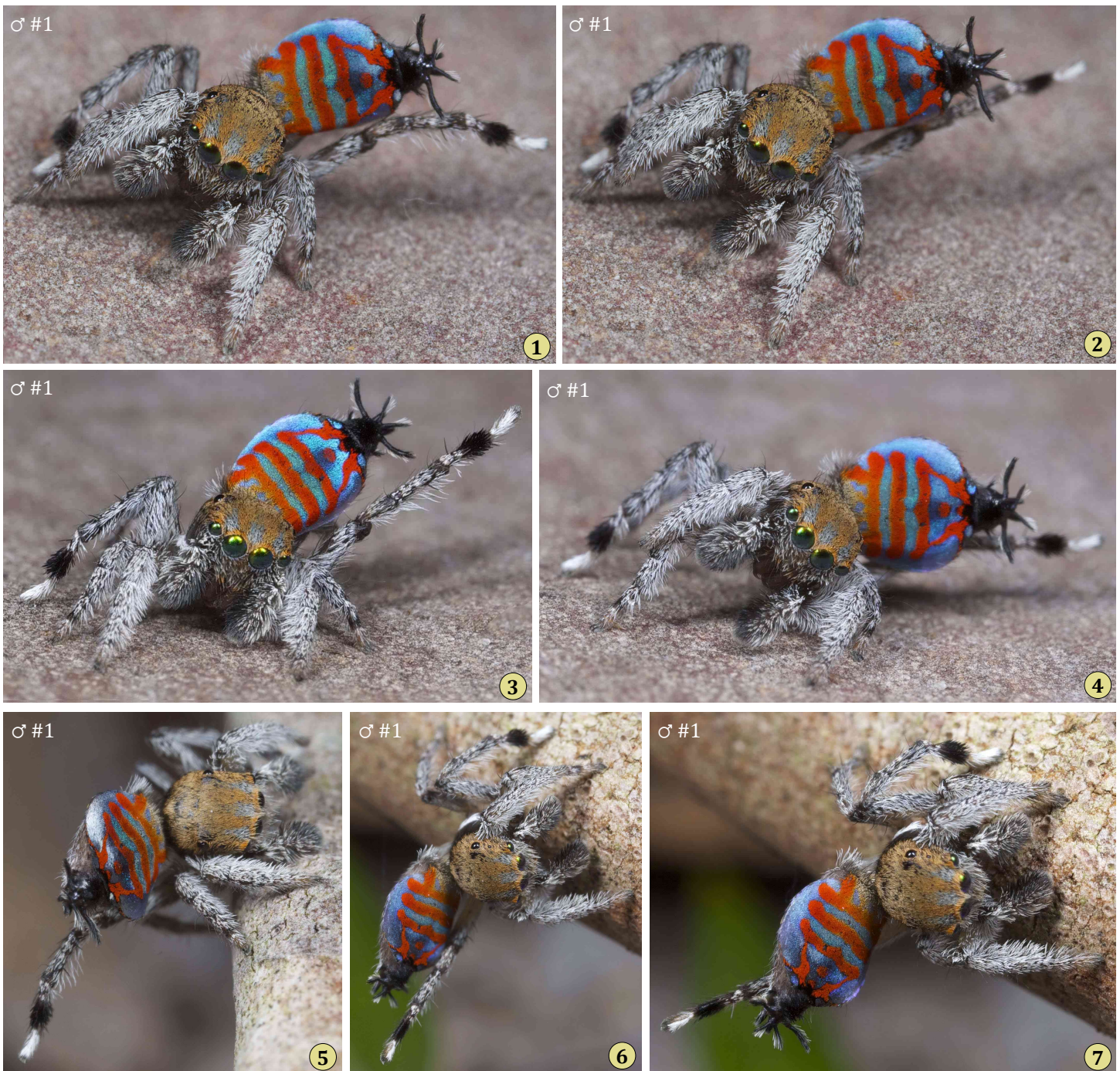


Figure 10. Positions assumed during the fan dance of a male *Maratus jactatus* facing a female. As with other members of the *calcitrans* group, this display is assymmetric, involving rotation of the expanded fan and spinnerets toward one side, and movement of the extended ipsilateral leg III, usually behind the fan. The inflated spinnerets are moved little during the display, but the pedipalps may be moved up and down in unison from time to time.

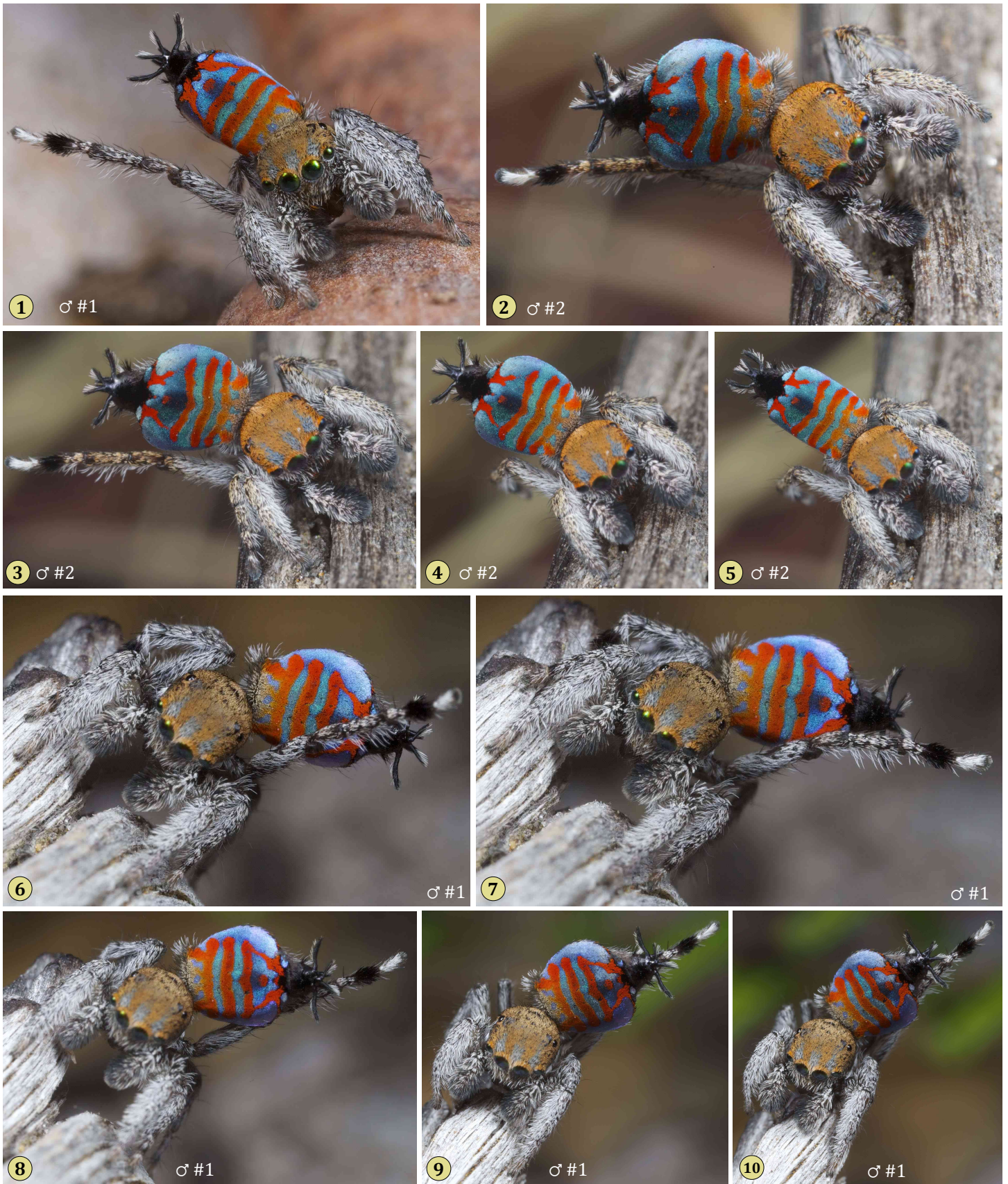


Figure 11. Positions assumed by male *Maratus jactatus* during their courtship display, facing a female. 1, Signalling with one leg III extended, without an expanded fan. 4-5, Expanded (4) and retracted (5) fan.

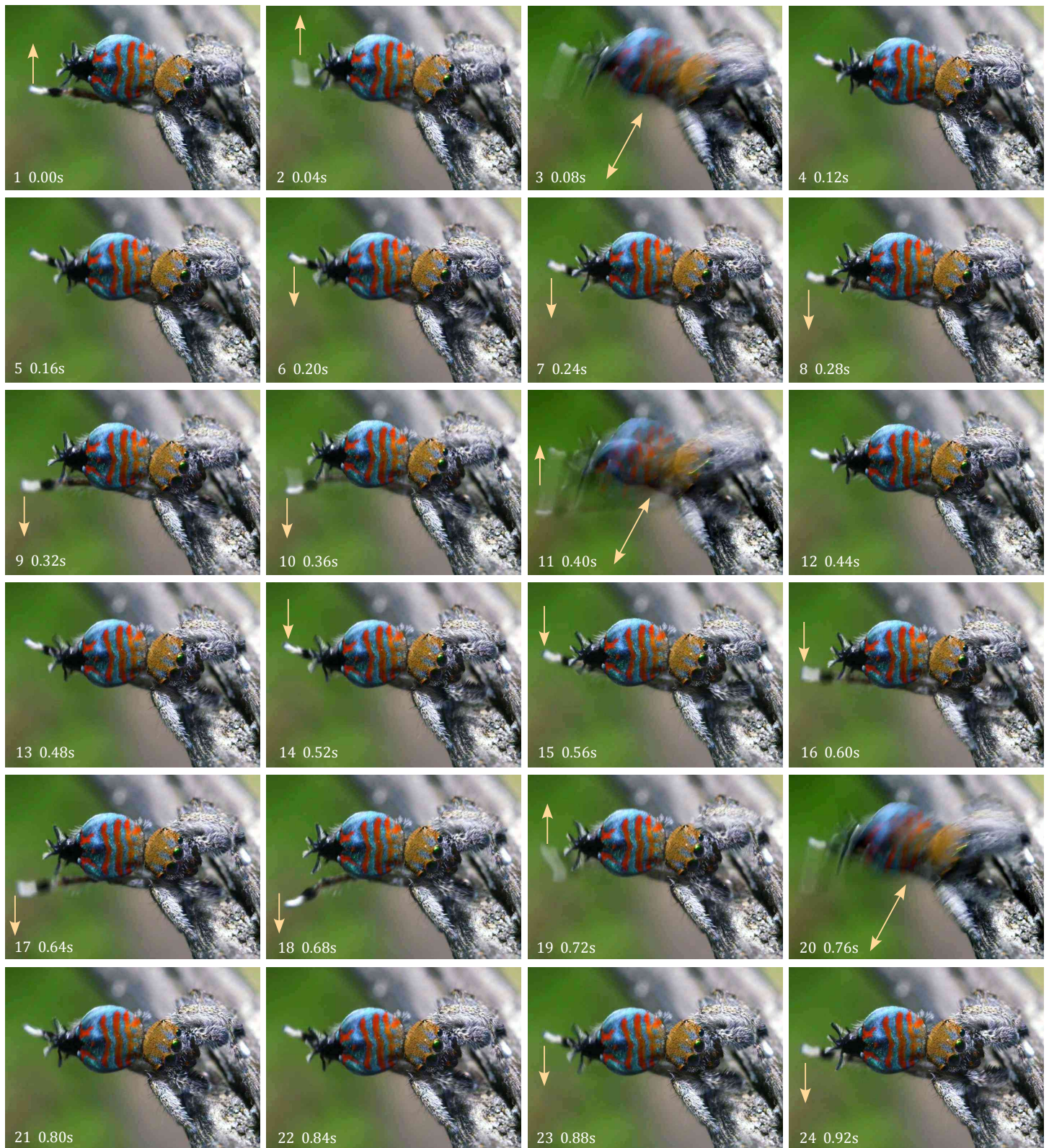


Figure 12. Consecutive video frames (1-24, 25fps, exposure/frame 20msec, ~1s total duration) depicting the fan dance of a male *Maratus jactatus* facing a female. Vertical arrows identify movement of the extended ipsilateral (right, same direction as tilt of the fan) leg III, behind the fan. Double arrows in frames 3, 11, and 20 indicate rapid (blurred images) lateral rocking movement of the body and fan that took place at a rate of 3/s (3Hz) in this sequence. During each cycle, the extended leg III was moved laterally (down in this example) in ~0.2-0.3s, then moved medially more rapidly in less than 0.1s just before the onset of rocking movement.

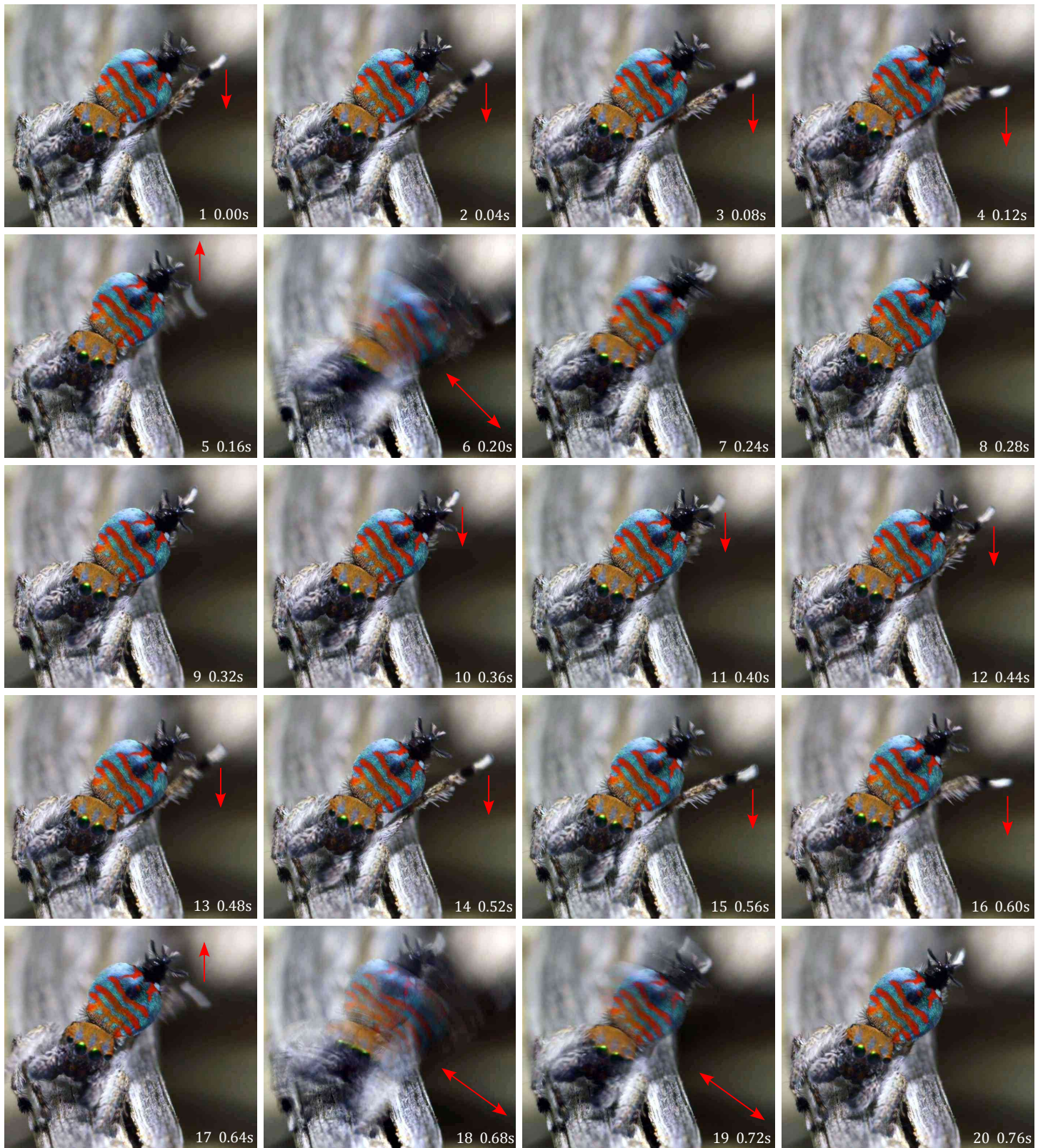


Figure 13. Consecutive video frames (1-24, 25fps, exposure/frame 20msec, ~0.8s total duration) depicting the fan dance of a male *Maratus jactatus* facing a female. Vertical arrows identify movement of the extended ipsilateral (left) leg III, behind the fan. Double arrows in frames 6 and 18-19 indicate rapid rocking movement of the entire body, occurring at ~2Hz in this sequence.



Figure 14. Consecutive video frames (1-24, 25fps, exposure/frame 20msec, ~1s total duration) depicting the fan dance of a male *Maratus jactatus* facing a female. Vertical arrows identify movement of the extended ipsilateral (right) leg III, behind the fan. Double arrows in frames 3 and 23 indicate rapid rocking movement of the entire body, occurring at ~1Hz in this sequence.

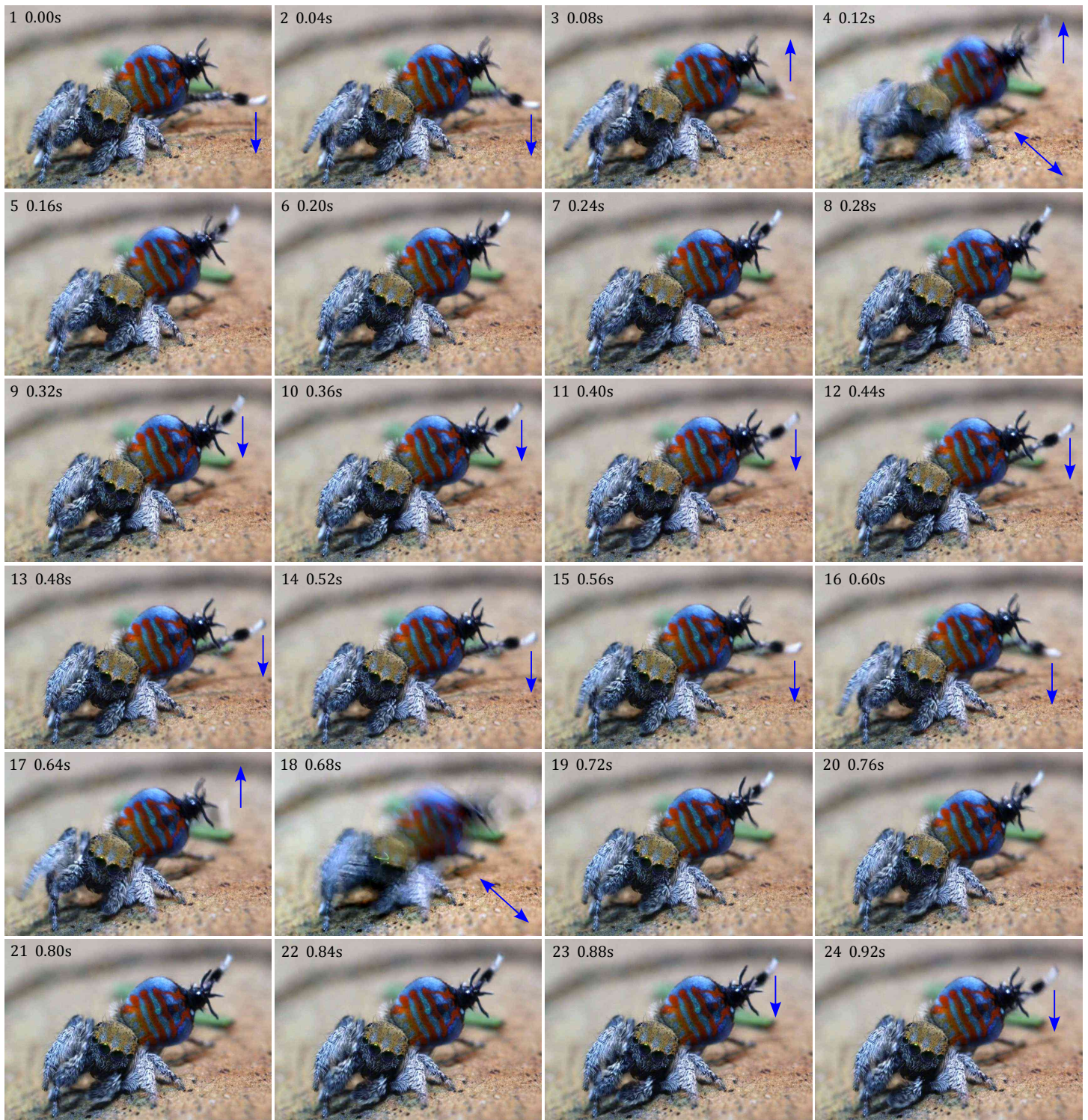


Figure 15. Consecutive video frames (1-24, 25fps, exposure/frame 20msec, ~1s total duration) depicting the fan dance of a male *Maratus jactatus* facing a female. Vertical arrows identify movement of the extended ipsilateral (left) leg III, behind the fan. Double arrows in frames 4 and 18 indicate rapid rocking movement of the entire body, occurring at ~1.4 Hz in this sequence.

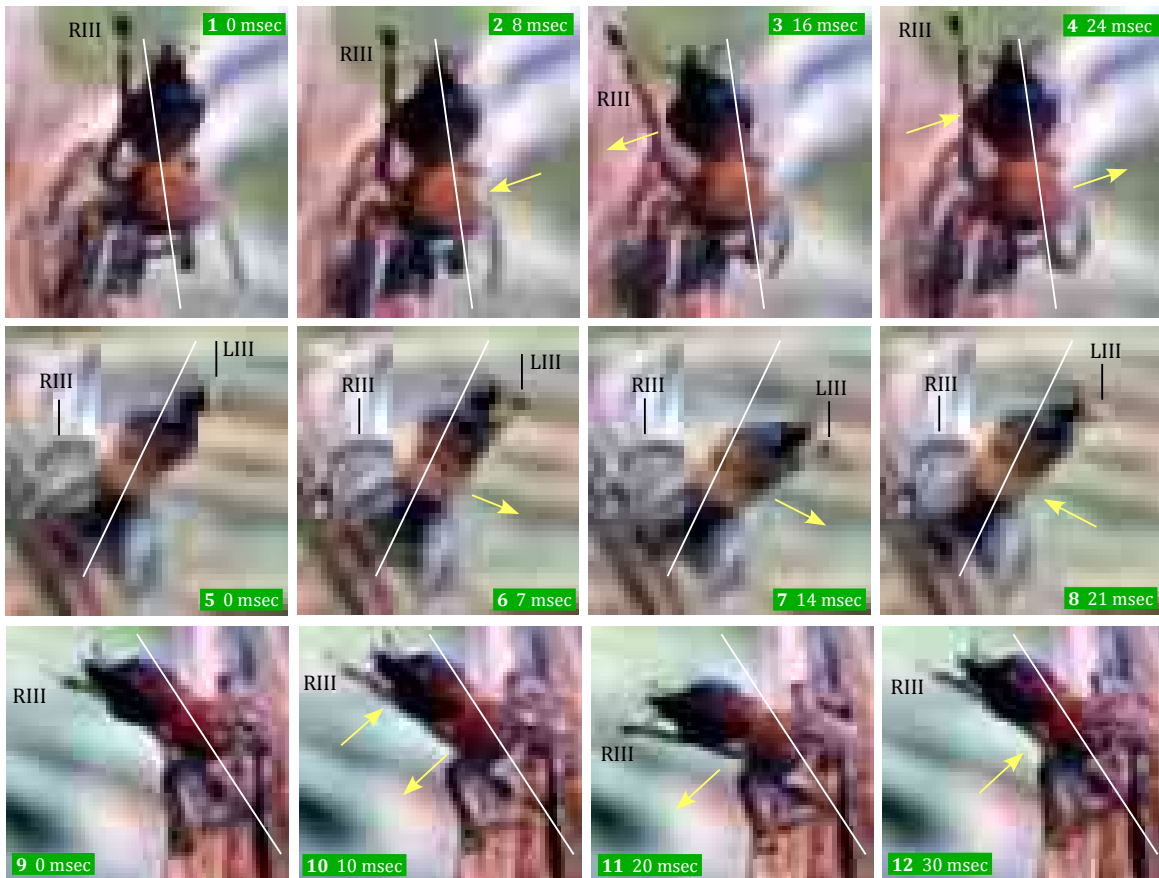


Figure 16. Three sets (1-4, 5-8, 9-12) of sequential video frames (not consecutive, from 1000fps clips) depicting rapid sideways rocking movement during the fan dance of a male *Maratus jactatus* facing a female. White diagonal lines indicate the approximate position of the prosomal sagittal plane at the beginning of each cycle of rocking movement, which is similar to its position at the end of that cycle. Yellow arrows identify the direction of movement of the body relative to its position in the previous frame. Each cycle, comprised of rapid ipsilateral movement followed by a return to the original position, was completed in ~20-30msec. At slower frame rates (Figures 12-15; 25fps and exposure/frame 20msec), this movement is blurred and cannot be resolved.

Mating (Figure 17). As in other *Maratus*, the flexible pedicel of the female *M. jactatus* permits rotation of the opisthosoma by 180° during mating.



Figure 17. Mating pair of *Maratus jactatus*.

***Maratus sceletus*, new species**

Type specimens. The holotype male (♂ #13) was collected at Wondul Range National Park in southern Queensland (S 28.04862°, E 151.04878°, 13 SEP 2013 M. Girard & E. A. King coll.). Paratypes (♂ #1-12, ♀ #1-4, ♀ #5-6 collected as immatures and raised to maturity) were found nearby (S 28.04841°, E 151.04669°, 438 m, 27, 29 JUL 2014, J. Otto coll.). All types will be deposited in the Queensland Museum in Brisbane.

Etymology. The species group name (*sceletus*, noun, Latin) means *skeleton*, a reference to the bold, skeleton-like appearance of the male spider.

Diagnosis. Male *Maratus sceletus* resemble other members of the *calcitrans* group in their general pattern, but have little colouration and are mostly black and white. They also have a distinct tuft of long, white setae extending toward the front between the AME. Legs III are never extended during their fan dance, but are unilaterally elevated in a flexed position.

Description of male (Figures 18-23). Males (N=8) ranged from 3.7 to 4.2 mm in body length, not including the spinnerets.

The carapace and chelicerae are black. The clypeus is solid black, but interrupted by a prominent tuft of long white setae extending to the front between the AME. From the front, the pedipalps are black with a prominent line of bright white setae on their anterior margins. Since the pedipalps are normally rotated to meet at the median, these white setae comprise an uninterrupted horizontal band separating the black clypeus from the black dorsal cymbia. The eye region is black, with connected anterior and lateral bands of bright white setae, and a separate transverse band of white setae across the middle. There is a wider transverse white band behind the PLE, separated into two bands on either side that extend toward the margin of the carapace. There is no marginal band of the carapace, however, and the sides and rear are black.

The opisthosoma is oval in shape but without lateral flaps. The dorsal pattern is unique and skeleton-like, with a pattern of dark red to black scales arranged in four longitudinal bands toward the front, and five larger transverse bands behind these, on a background of iridescent blue scales. This pattern is punctuated by bright white setae comprising an anterior marginal band, a narrow anterior median band, and four tufts of longer white setae on either side. One more tuft of long white setae is present on either side of the spinnerets, which are black with tufts of white distal setae, more visible when these are extended during courtship display. The underside of the opisthosoma and the coxa of legs III and IV are light brown with bright lateral bands of white setae, and otherwise scattered white setae, fading to yellow or white in ethanol. The sternum, coxae of legs I and II, labium, and endites are dark brown in living spiders.

Legs I and II are about the same length, much shorter than legs III and IV. Legs III are by far the longest. All legs are generally black, with dorsal stripes comprised of white setae. Femora and tibia of legs III also bear a ventral fringe of white setae, demarcating an anterior black stripe that is visible from the front when the male displays to a female. The tarsi of legs III are not prominently marked as in most other *Maratus*, and figure little in display as these legs are only raised and flexed but not extended.

The outer and inner apices of the embolus of the pedipalp are prominent and well-separated. The outer apex is large and blunt, whereas the inner apex is smaller and pointed at the tip.



Figure 18. Views of four different male *Maratus sceletus*. Colours are primarily black and white. In one male (♂ #3, 6-9) bands of the dorsal opisthosoma were dark red rather than black. Note the prominent black stripes on the front of legs III (8). The prominent anteromedian tuft between the AME (3, 4) has not been observed in any other *Maratus*. As might be expected, up and down movements of the pedipalps play an important role in the display of male *M. sceletus*.



Figure 19. Views of four additional male *Maratus sceletus*.



Figure 20. Views of five additional male *Maratus sceletus*. **7**, When the grey posterior opisthosoma and spinnerets (median and posterior pairs) are inflated during display, prominent black proximal and white distal fringes of the spinnerets may be seen clearly. Note the tuft of long white setae at either side of the spinnerets. The inflated portion of the posterior opisthosoma is not as large or prominent as in some other members of the *calcitrans* group (e.g., *M. jactatus*), but the spinnerets of *M. sceletus* are very rapidly, and separately (like fingers) waved during display. **8**, Detail of the prominent white median setae that project forward between the AME and from the clypeus, offset by black setae and black cuticle on either side.



Figure 21. Underside of three different male *Maratus scéletus*. White setae are more prominent on the coxae of legs III and IV. Dark bands separate the white lateral bands of the opisthosoma from the light-brown (or splotched, 2) venter.

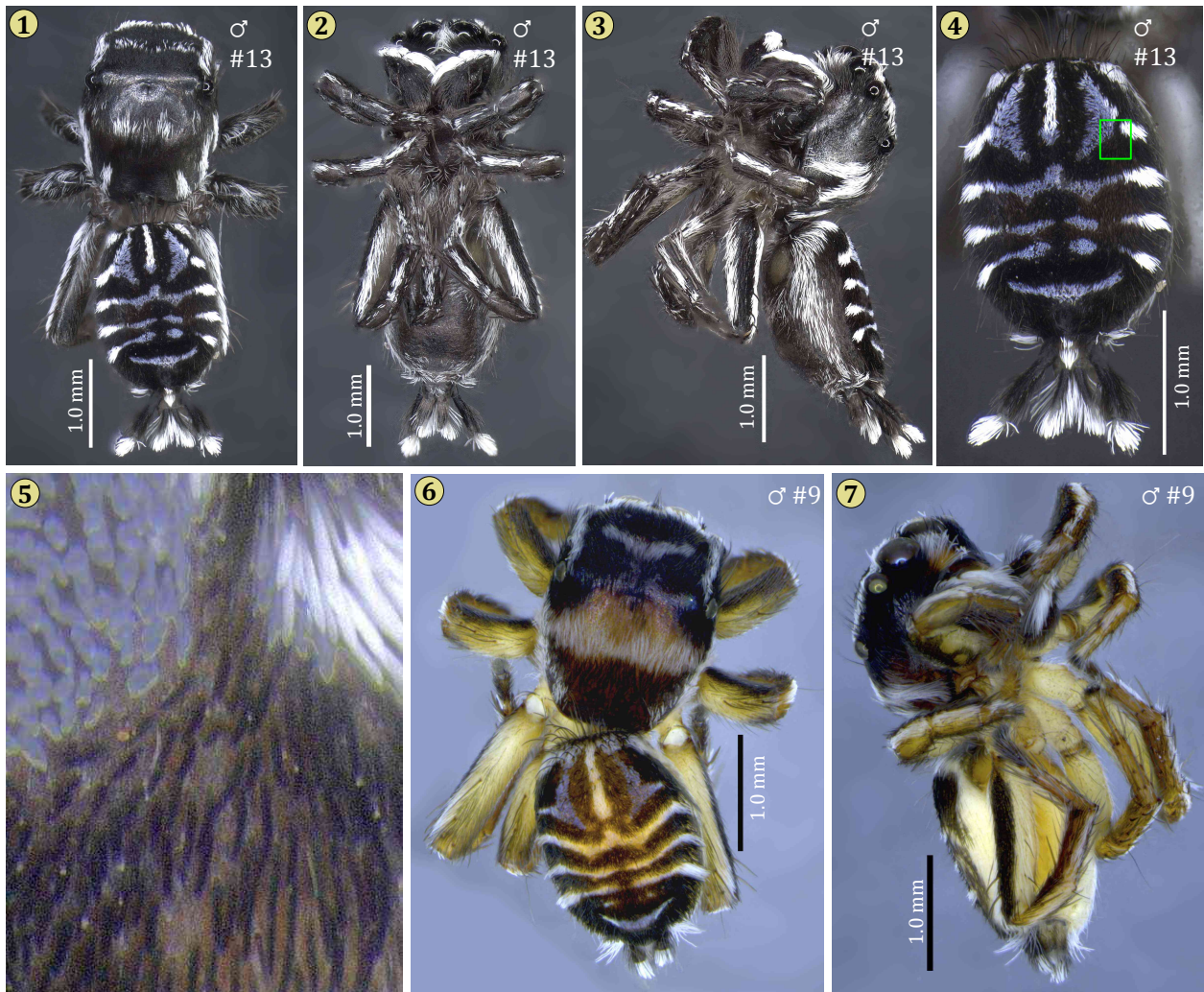


Figure 22. Views of male *Maratus scéletus* in alcohol. **5**, Detail of scales from the fan corresponding to the inset rectangle in (4), showing iridescent light-blue scales at upper left, longer bright white scales at upper right, and narrower black scales elsewhere.

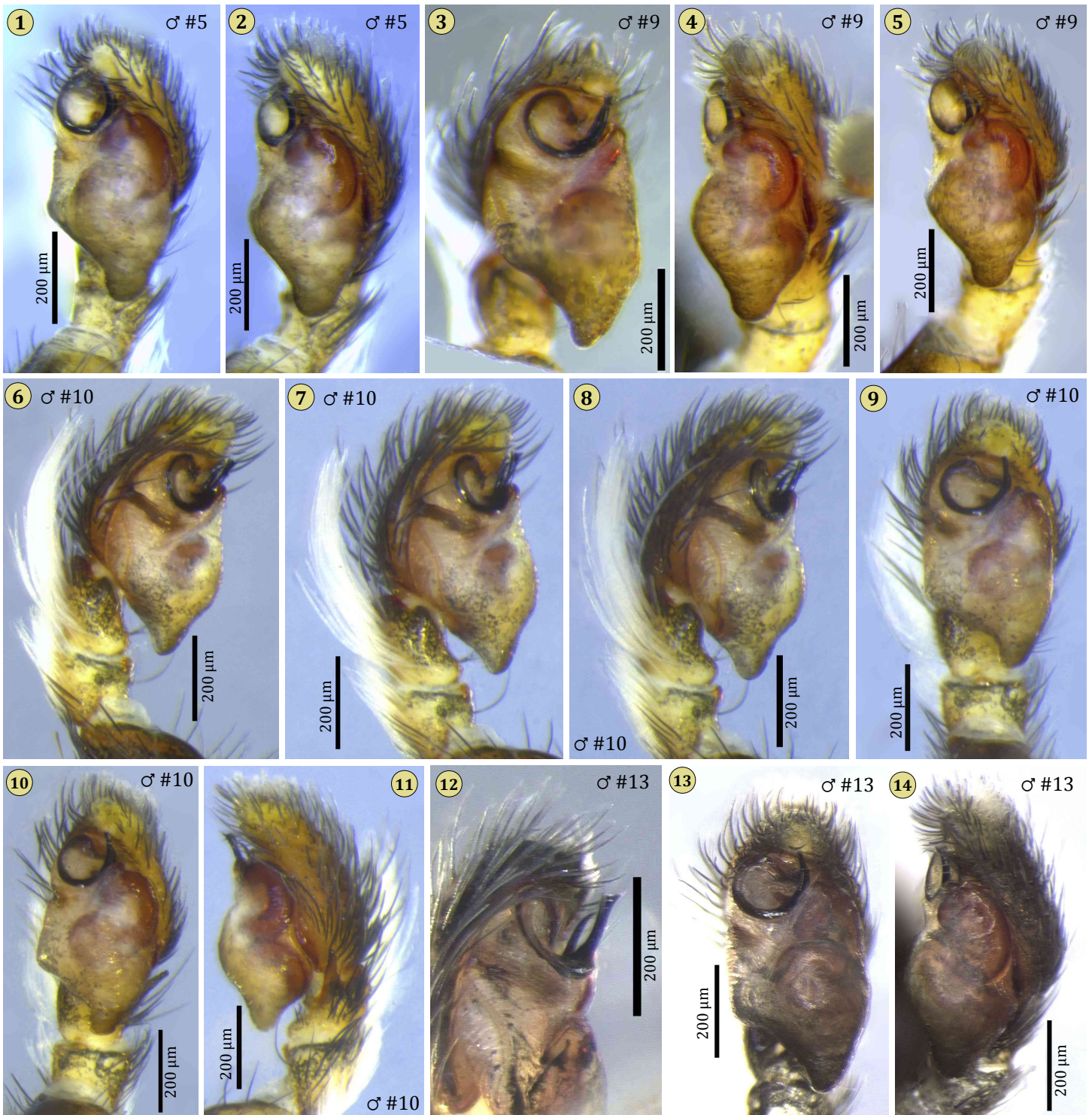


Figure 23. Views of the left pedipalp of four different male *Maratus sceletus*. **12**, Detailed view of holotype, showing clear separation between the large, blunt outer apex and the smaller, pointed inner apex of the embolus.

Description of female (Figures 24-27). Paratype females (N=2) ranged from 5.0-5.3 mm in body length, not including the spinnerets.

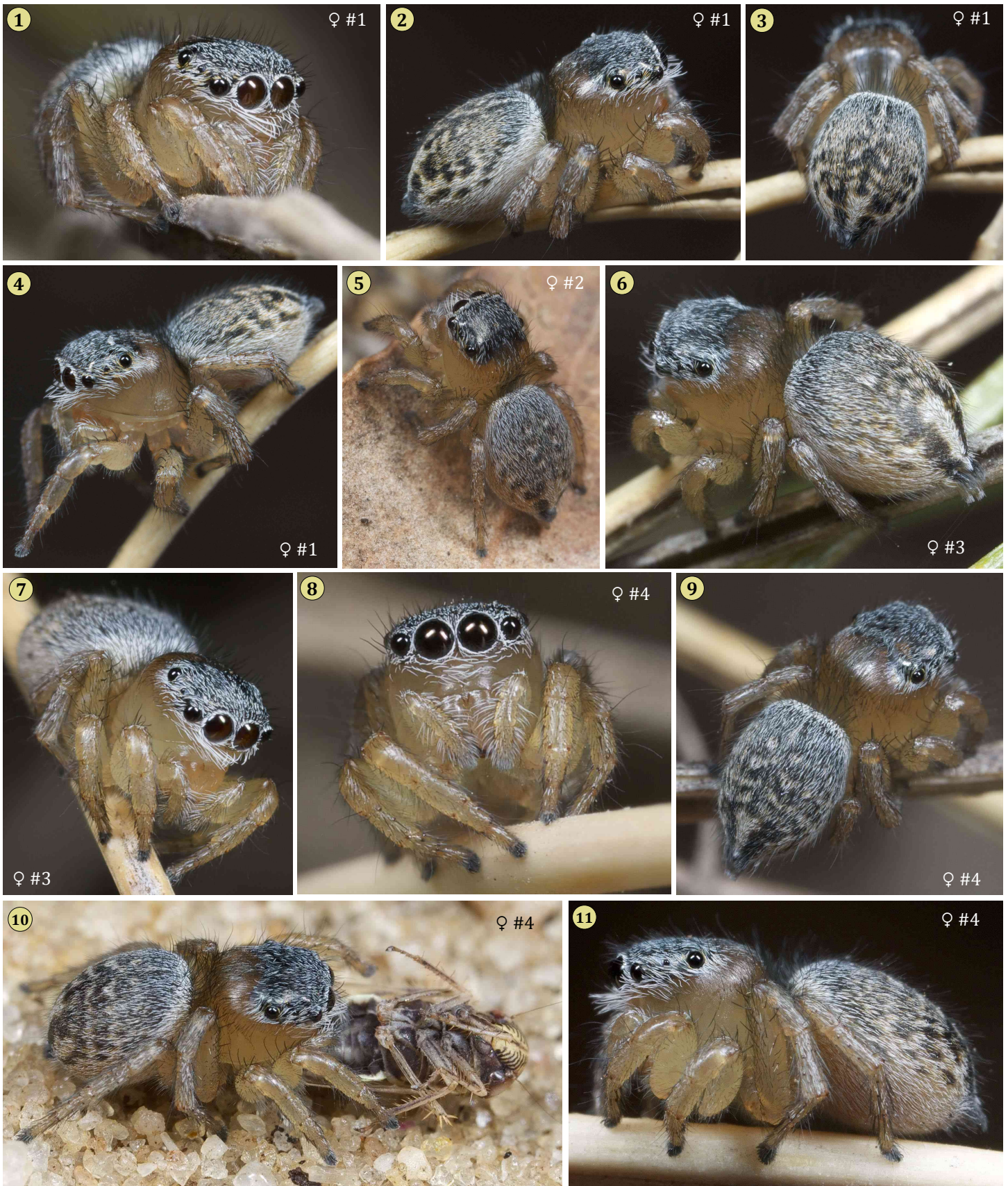


Figure 24. Views of four different female *Maratus sceletus*. Pedipalps, chelicerae, the sides of the carapace, and legs I and II are primarily light-brown, translucent, and glabrous. Cuticle of the eye region and complex dorsal patterns of the opisthosoma are dark. Note the bold V-shaped pattern toward the rear of the opisthosoma (3, 6, 9). Otherwise the white to grey setation is fairly uniform.



Figure 25. Underside of two female *Maratus sceletus*, showing uniform light-brown, translucent colouration, with scattered grey to white setae on the underside of the opisthosoma.

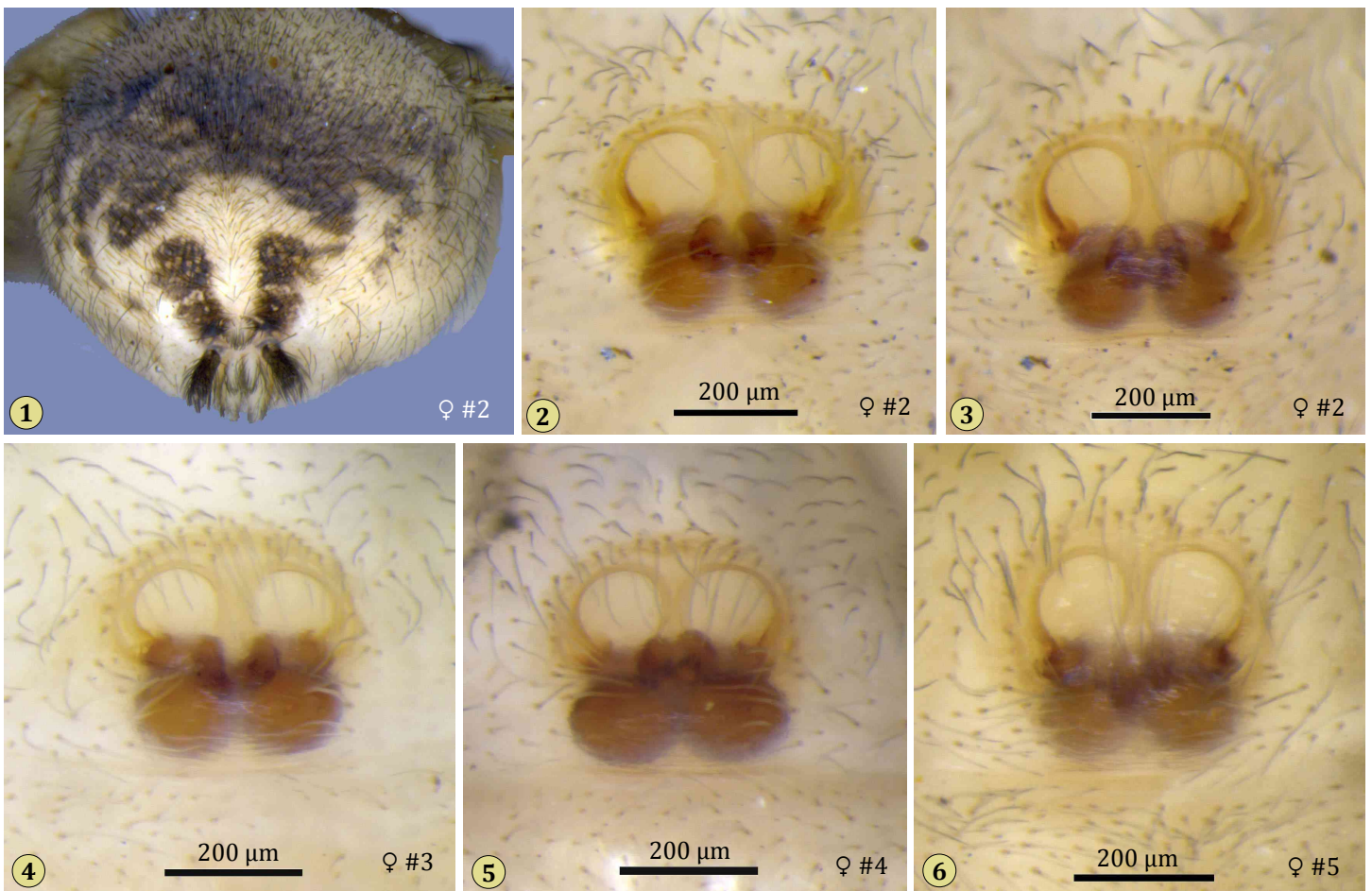


Figure 26. Rear view of opisthosoma and ventral view of epigyna of four different female *Maratus sceletus*. **1**, Note the prominent V-shaped area of dark pigment toward the rear, and the longer, dark pair of posterior spinnerets surrounding the median spinnerets. **2-6**, The posterior spermathecae range in size from slightly smaller to slightly larger than the fossae. Note the narrower bridge between the fossae in (6).

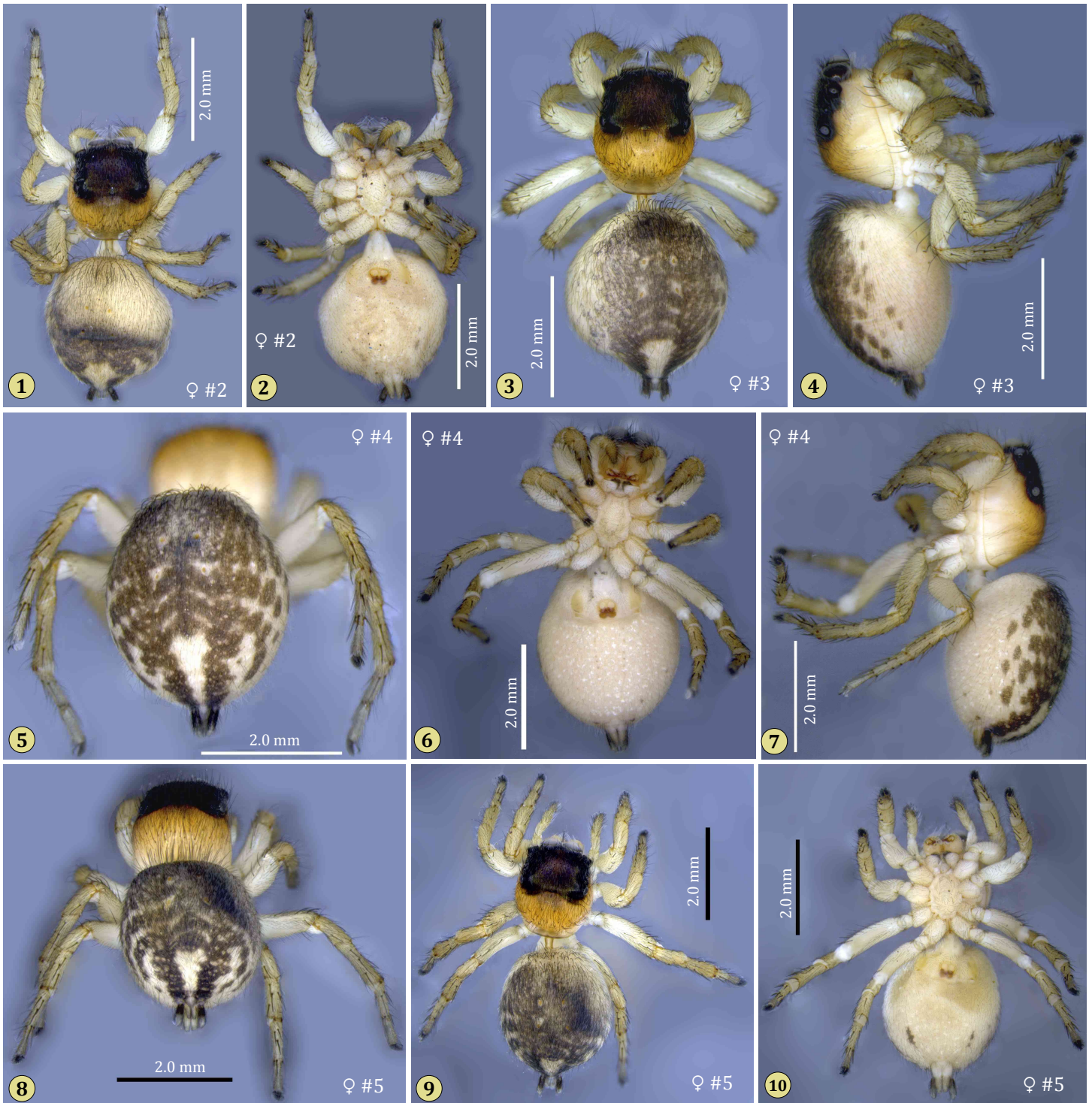


Figure 27. Four different female *Maratus sceletus* in ethanol. The dark pigmentation of the eye region, lighter orange colour of the posterior carapace, and the dark patterns of the opisthosoma stand out in these specimens. Other areas of the cuticle, normally translucent brown, faded to white in ethanol.

The eye region, including the lateral margins surrounding the lateral eyes, is darkly pigmented but otherwise covered uniformly with grey to white setae. Longer grey to white setae project forward on the clypeus below the AME. Otherwise, the clypeus, chelicerae, and sides of the carapace are light-brown, translucent, and glabrous. The PME are almost equidistant between the ALE and the PLE.

The dorsal opisthosoma bears a distinct pattern of transverse pigmented areas beneath a uniform covering of grey to white setae. At the median these are somewhat chevron-shaped, terminating in a bold and distinctive 'V' shaped pattern just in front of the spinnerets. Below, the entire body, including the legs, sternum, labium, and endites, is relatively glabrous (except for scattered white to grey setae of the ventral opisthosoma), light-brown, and translucent. Under ethanol, this colour fades to solid white.

Legs I and II are about the same length, much shorter than legs III and IV, and legs III are by far the longest. The legs are mostly translucent, light-brown and glabrous, except for scattered white setae on legs III and IV. Posterior spermathecae of the epigynum are close to the fossae in diameter (Figure 26). Sclerotized ducts barely enter the posterior fossae, and separate medial (bean-shaped) and lateral areas of sclerotization can be seen.

Immatures (Figure 28). Emergent instars have a dark pigmented eye region like that of adult females. Penultimate females resemble adults with respect to the presence of bold markings on the dorsal opisthosoma and white setae on legs III and IV.



Figure 28. Views of emergent second instar (1-3) and two different penultimate female *Maratus sceletus* (4-8). The dark eye region and a small pigmented area at the base of the spinnerets (3) can be seen in second instars. Penultimate females closely resemble adults.

Male display (Figures 29-34). Male *Maratus sceletus* generally approach the female from the opposite side of a stem or blade of grass. If the female is on top, the male approaches from below, in a hanging position. If the female is positioned belly-up beneath a stem, the male approaches from above. The fan dance of the male rapidly alternates from one side of a stem to the opposite side (Figure 32). Positions may be switched 10 times in a 20s interval, with only ~1s or less of display in a single position. The fan is prominently elevated and often waggled from side to side during this display, but the greatest and most rapid movement is that of the extended spinnerets, separately twitched from side to side. During display, the pedipalps are often moved up and down in front of the clypeus and chelicerae. One leg III is elevated but also flexed, displaying a prominent black stripe with little significant movement.

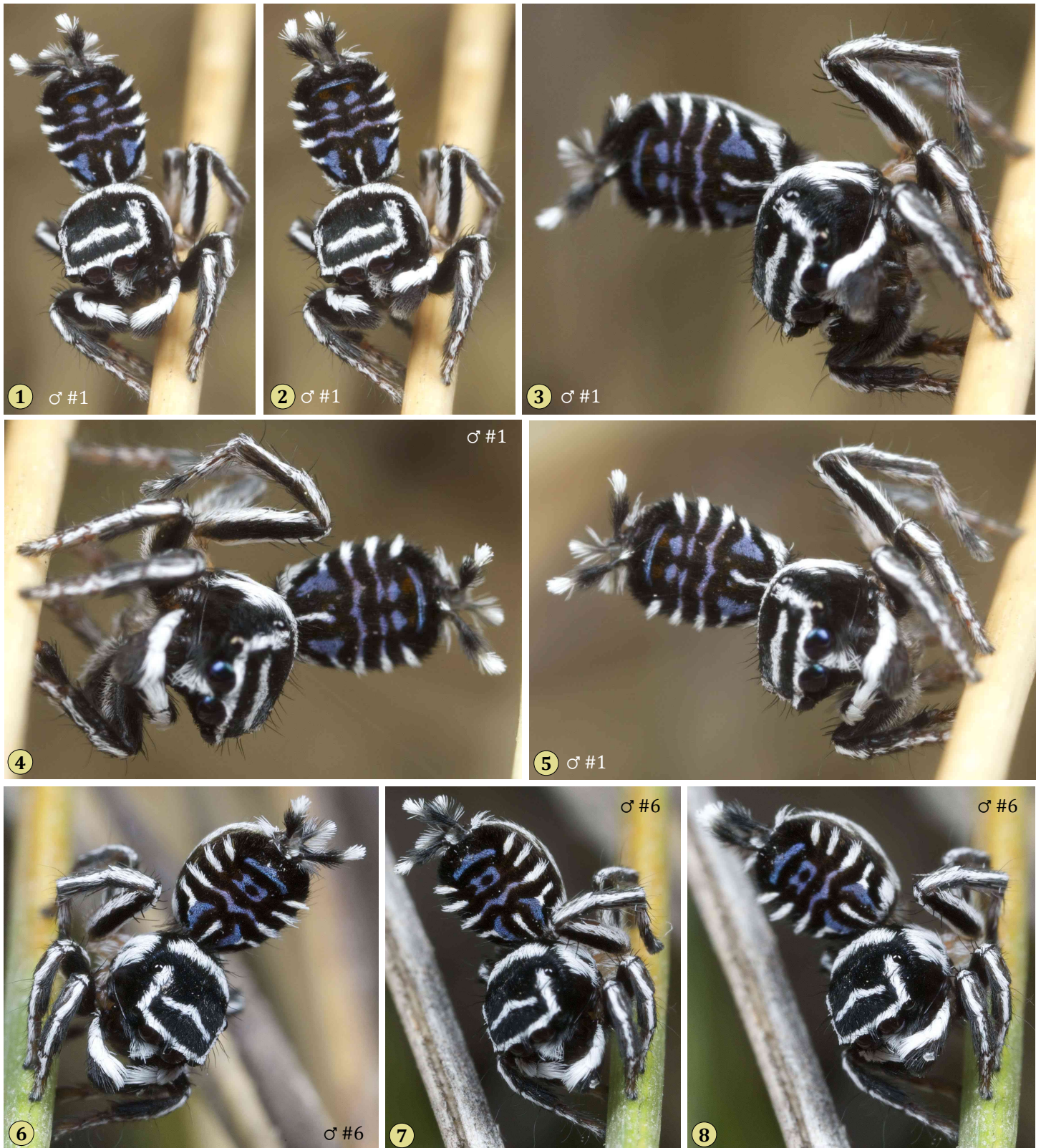


Figure 29. Positions assumed during the fan dance of male *Maratus sceleus*. During this display, one leg III is flexed and raised, but not extended as in most *Maratus* and as in all other members of the *calcitrans* group, displaying a prominent anterior black strip running from the femur to the tarsus. With the fan elevated, the extended spinnerets are raised and moved rapidly, and separately, like a set of flailing fingers. 1-2, Up and down movement of the boldly marked pedipalps also plays an important role in this display.



Figure 30. More views of positions assumed during display by male *Maratus sceletus*. **2,** Signalling with a single, flexed and slightly elevated leg III.

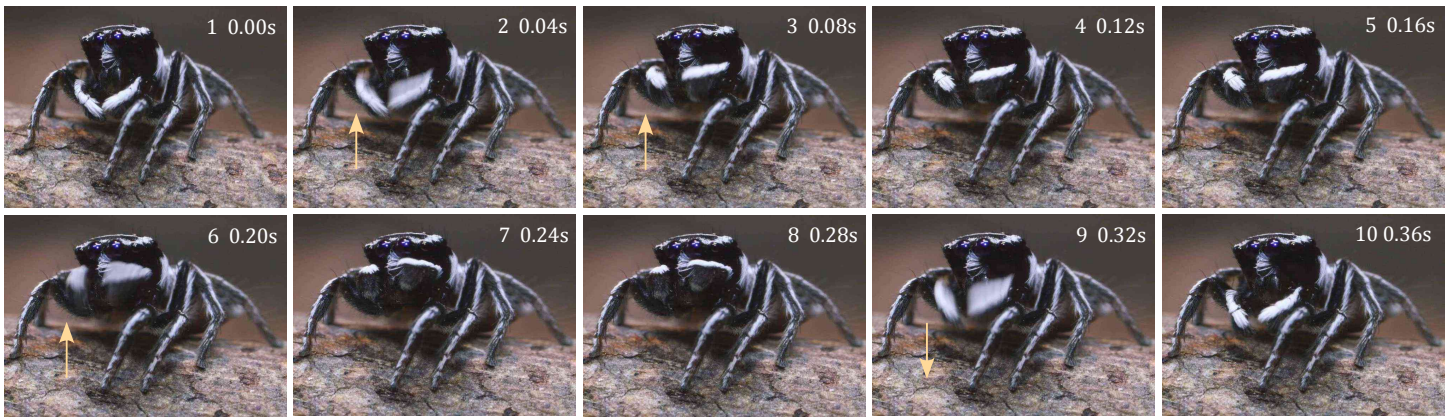


Figure 31. Consecutive video frames (1-10, 25fps, exposure/frame 20msec) showing one cycle of up and down movement (~ 2.5 Hz flicker) of the pedipalps of a male *Maratus sceletus*. Pedipalp movement relative to the preceding frame is indicated with arrows. Movement of the pedipalps is generally synchronous and bilaterally symmetric. They are often raised in more than one step (in this example in two steps shown in frames 2-3 and 6), then rapidly lowered (frame 9). This display may occur in the absence of a female, as shown here, or as a component of the fan dance. As in other salticids, this frequent flicker appears to advertise the presence of the male even when he is stationary.

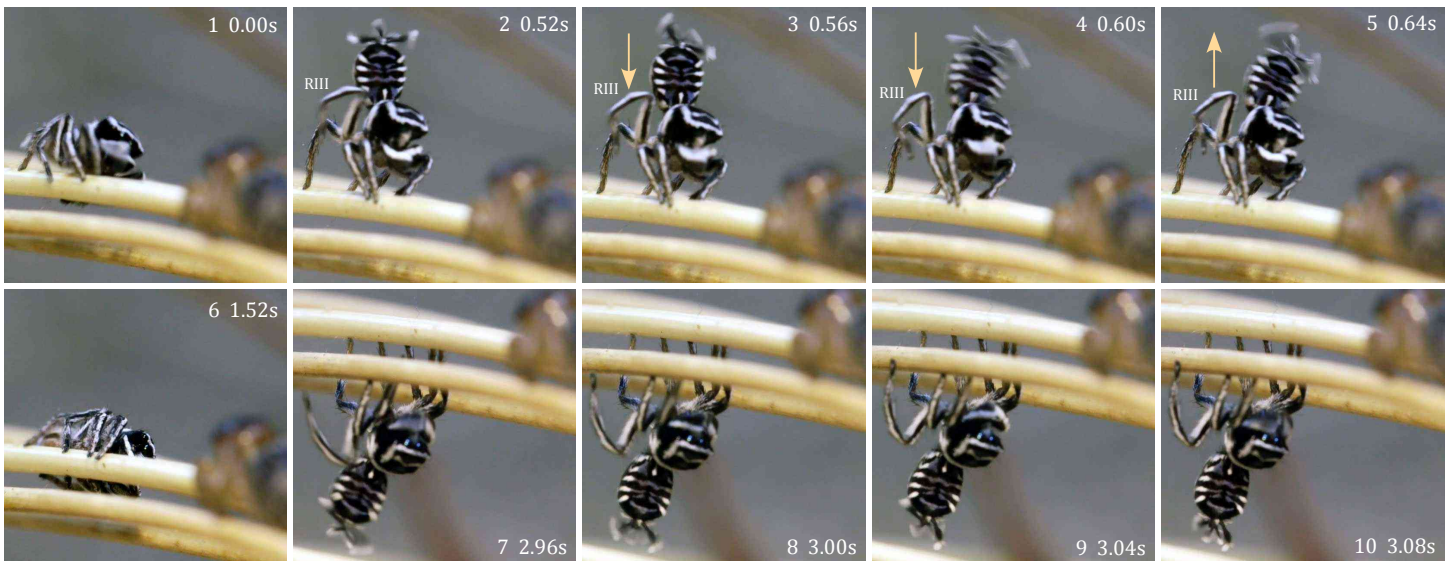


Figure 32. Sequential but not consecutive video frames (1-10, 25fps, exposure/frame 20msec) showing a male *Maratus sceletus* displaying first to a female (at lower right in frames 1-6) on top of a narrow grass stem, then moving to display from the other side of the stem. Slight movements of the elevated and flexed right leg III are indicated with arrows (3-5). Display in either position involved very rapid movement of the spinnerets, and sometimes rapid lateral vibration of the elevated fan (frames 4-5). Between each brief episode of display (~ 0.6 s above the stem as shown here), the male crouched low on the stem. Alternation between positions occurs many times throughout the courtship display, with ~ 1 change of position every 2s (0.5Hz).

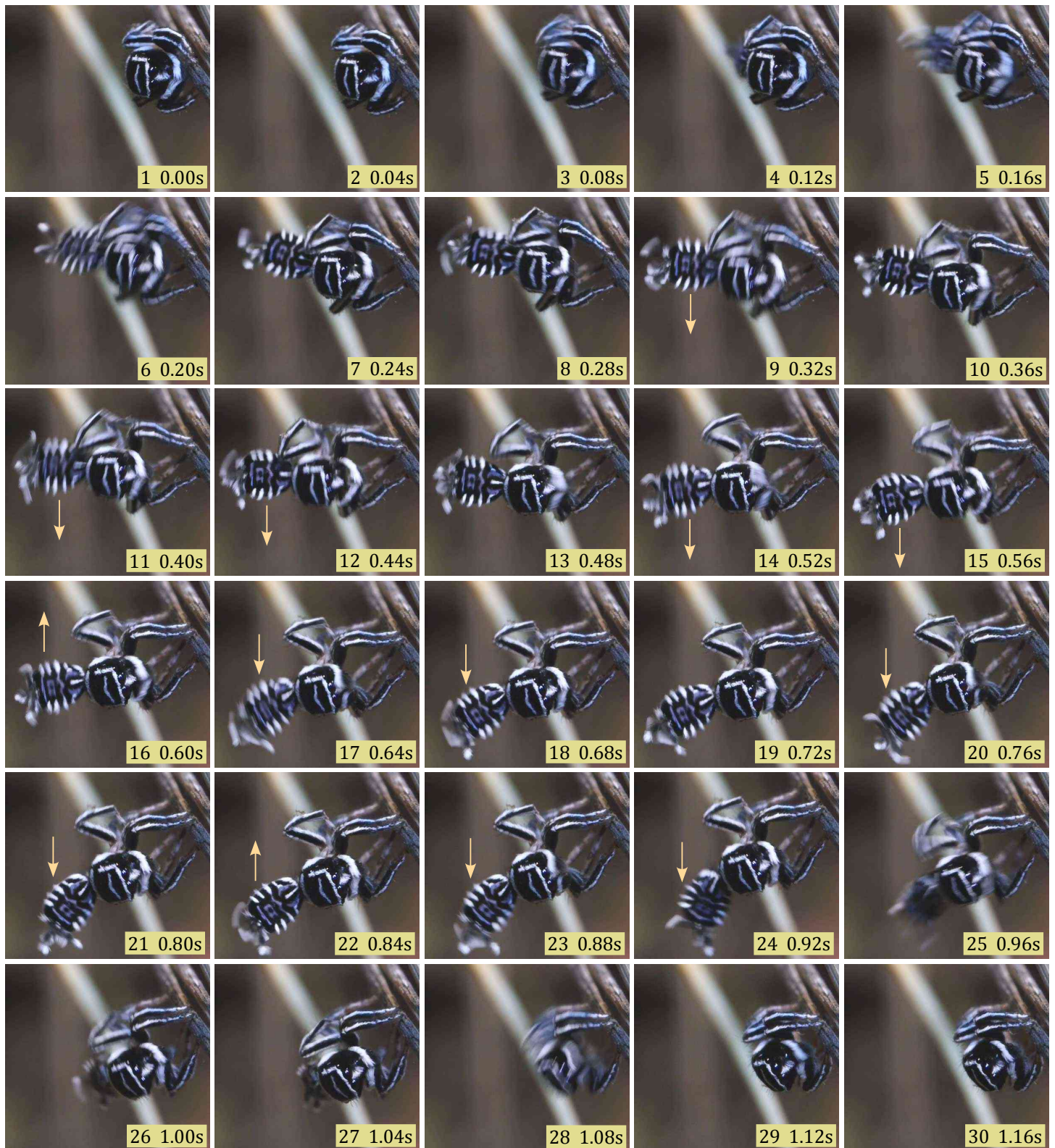


Figure 33. Consecutive video frames (1-30, 25fps, exposure/frame 20msec, ~1.16s elapsed time) showing a complete display sequence by a male *Maratus sceletus* facing a female. Arrows identify lateral movement of the fan during this display. Movement of the spinnerets was far too fast to capture at this frame rate, but contributed greatly to the appearance of rapid movement. The complete cycle of rapid movement (frames 5-26) lasted for about 0.8s.

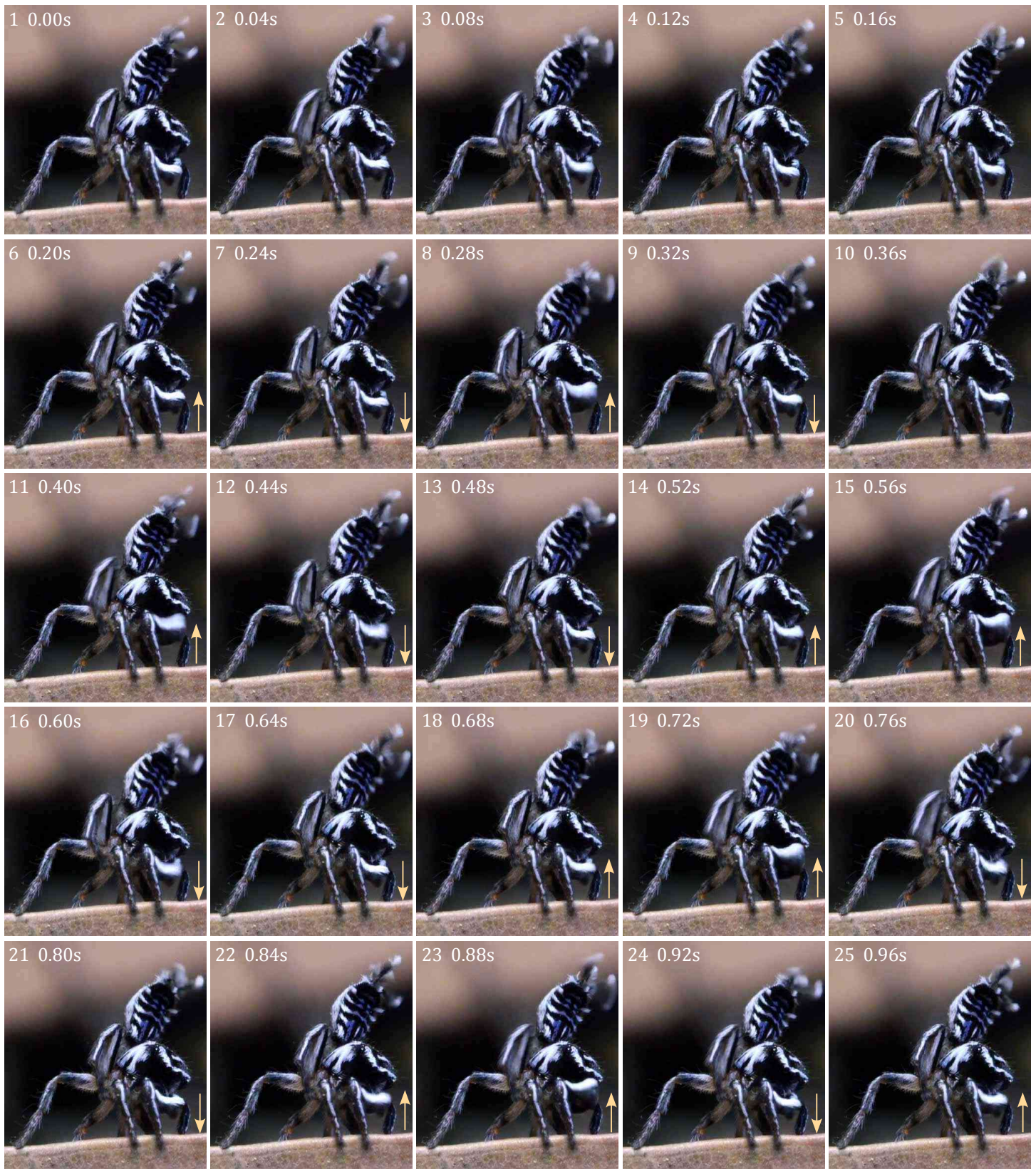


Figure 34. Consecutive video frames (1-25, 25fps, exposure/frame 20msec, ~0.96s elapsed time) showing part of a display sequence by a male *Maratus sceletus* facing a female. This male crept over the edge of the leaf on which it is perched to face the female. During this display, the spinnerets were in continuous motion. The elevated and flexed right leg III was not moved appreciably during this sequence, although in some cases (Figure 33) it is moved. Movement of the pedipalps up and down is identified with arrows.

Mating (Figure 35). The final approach and mating of *Maratus sceletus* is similar to that of other *Maratus* species that have been observed.



Figure 35. Final approach of a male *Maratus sceletus* with legs III extended laterally and legs I extended to the front to touch the carapace of a female (1), and mating positions (2-4). As in other *Maratus*, the female can rotate her opisthosoma by 180°. Note the distinctive 'V' pattern at the rear of the female opisthosoma.

Habitat (Figure 36). *Maratus sceletus* was found in clumped or bunched grass at Wondul Range National Park. *M. jactatus* was found nearby, in leaf litter.

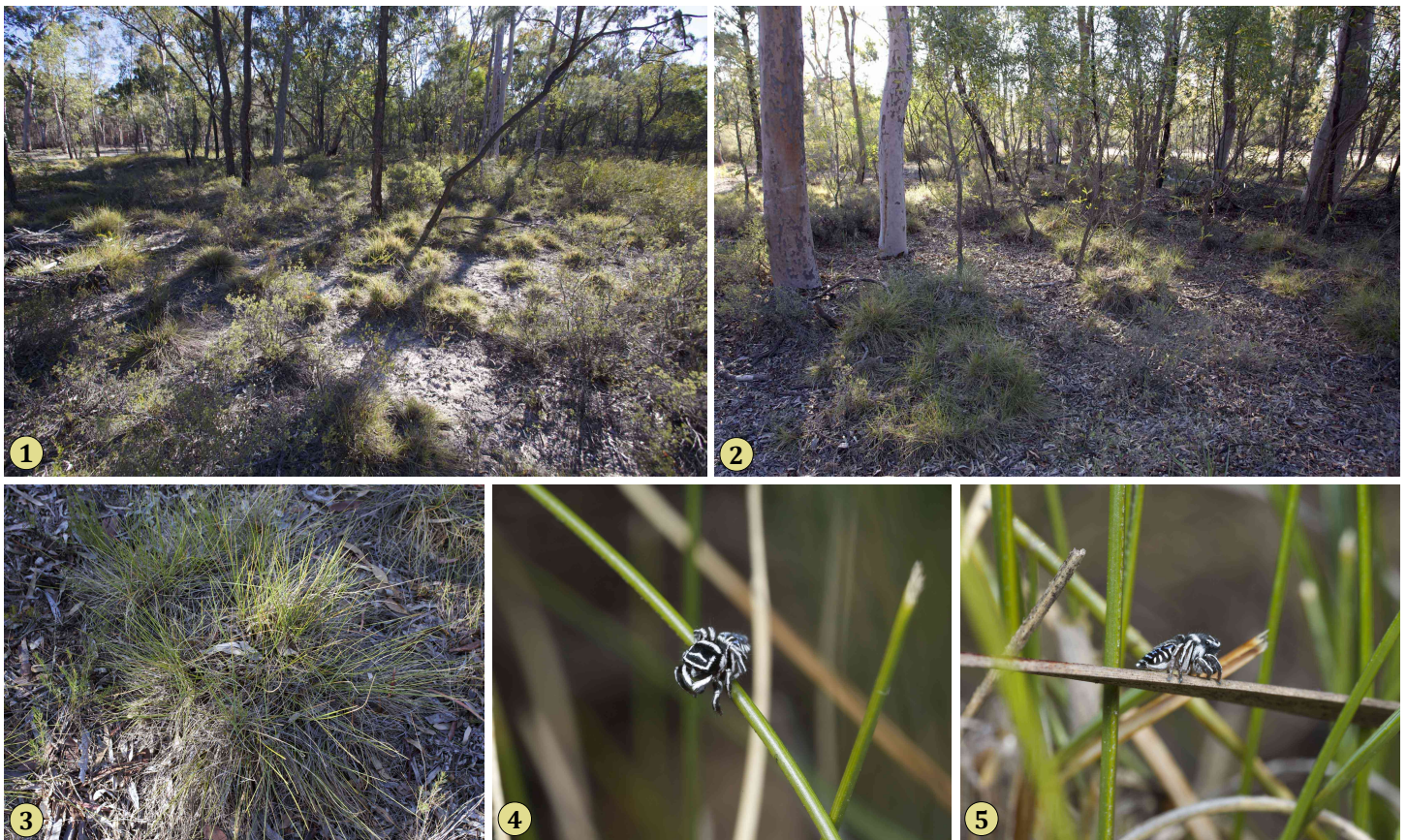


Figure 36. Habitat of *Maratus sceletus* in grass clumps (3, detail) associated with open woodland at Wondul Range National Park. 4-5, Male *M. sceletus* climbing on narrow grass stem.

The *calcitrans* group of the genus *Maratus*

The five known members of the *calcitrans* group, all from eastern Australia, are quite distinct (Figures 37-38). Males of all species in this group display a fan bearing a pattern of bold transverse stripes, and all display a single leg III to the female during the fan dance. In *M. plumosus* the elevated and extended leg III is contralateral to the direction that the fan is rotated during display, and in *M. sceletus* the elevated leg III is held in a flexed position. The anterior surface of leg III of *M. plumosus* (iridescent blue) and *M. sceletus* (prominent black stripe) appears to figure prominently in their displays, whereas the movement of leg III appears to be of more importance in the other three species. All except *M. plumosus* inflate the posterior opisthosoma and two pairs (median and posterior) of spinnerets during this display. The extent to which these inflated spinnerets are moved during display varies from very rapid in *M. sceletus* to almost no movement at all in *M. jactatus*. *M. plumosus* has ordinary spinnerets, but special plume-like extensions at the posterior end of the fan have the appearance of spinnerets (Otto & Hill 2012, 2013).

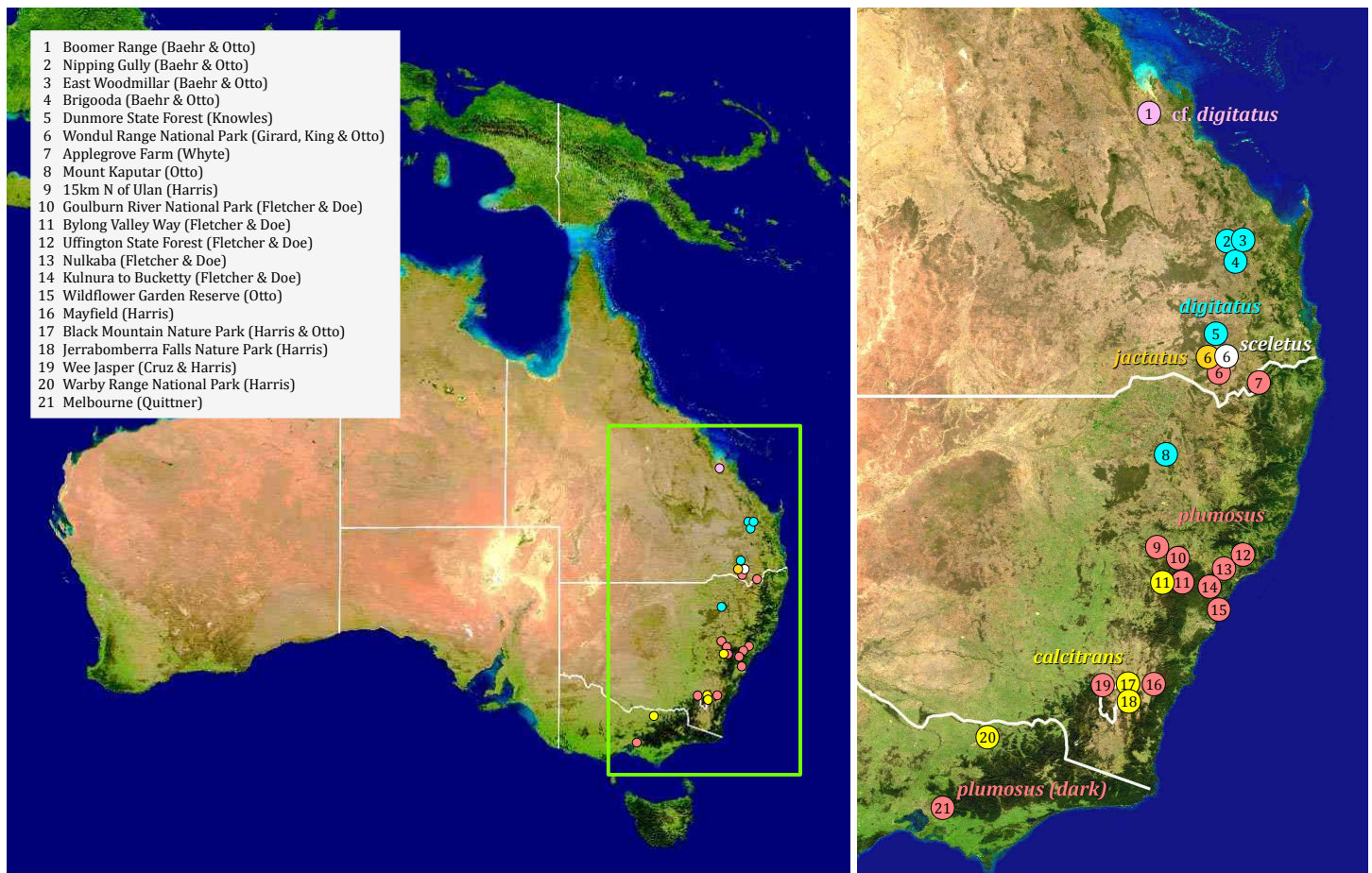


Figure 37. Localities where the five members of the *calcitrans* group have been found, including records reported by Otto & Hill (2012, 2013) and other records recently communicated to us. The spider associated with the most northerly record shown here (locality 1, *cf. digitatus*) is similar to southern representatives of *Maratus digitatus* but differs from these in several characters and could be considered a separate species, subspecies, or variety.



Figure 38. Displaying males of the *calcitrans* group. 1-2, *M. calcitrans*. 3-5, *M. digitatus*. 6-7, *M. jactatus*. 8-9, *M. plumosus*. 10-11, *M. sceletus*.

Three of the species in this group have lateral opisthosomal flaps that can be used to extend the width of the fan during display, but these are quite different from each other. The flaps of *M. jactatus* are narrow and represent simple extensions of the fan. Those of *M. digitatus* are semicircular with dull-green iridescent scales that contrast with those of the dorsal plate, and do not appear to play a major role in the fan dance itself, when they remain folded or retracted (Otto & Hill 2012). *M. plumosus* males have more complex flaps, including an eye-like, circular posterior portion, and the flaps on each side are usually extended only when the flaps of the opposite side are retracted. The appearance and use of the pedipalps by *M. sceletus* in display is unique. The fan dance of all species in this group is asymmetrical, alternating between display to the left or to the right side.

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