

Hall, J. P. W., Ahrenholz, D. H. A new mimetic species of *Periplacis* (Lepidoptera: Riodinidae: Nymphidiini) from the eastern Andes of Ecuador. *Tropical Lepidoptera Research* 30(1): 52-55.

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Character list and data matrix for the phylogenetic analysis of *Periplacis* presented in Hall (2018), updated to include the new species *P. perisama* (see the Systematic placement and diagnosis section of the text for the few changes made). See Hall (2018) for illustrations of characters.

Wing shape and pattern:

1. *Hindwing tornus of male*: (0) rounded to weakly elongate; (1) markedly elongate. CI = 1; RI = 1.
2. *Iridescent scaling on both dorsal wings of male*: (0) consists of approximately a uniform hue; (1) consists of varying hues. CI = 1; RI = 1.
Periplacis apotheta is assigned a “?” for characters 2, 16, and 17 because both sexes have an entirely plain brown dorsal surface without any iridescent scales.
3. *Dark spotting on dorsal forewing of male*: (0) darker than ground color; (1) approximately same shade as ground color. CI = 0.5; RI = 0.83.
4. *A tuft of androconial setae at base of cell 2A on dorsal hindwing of male*: (0) absent; (1) present. CI = 1; RI = 1.
5. *If a tuft of androconial setae at base of cell 2A on dorsal hindwing of male present (4:1), a folded pouch for androconial setae*: (1) present; (2) absent. CI = 1; RI = 1.
6. *A large area of brown scaling across base of dorsal hindwing in male*: (0) present; (1) absent. CI = 0.33; RI = 0.71.
Character state (0) is typical for *P. hebrus*, but iridescent scaling does broadly extend to the base of the dorsal hindwing in some specimens from eastern Amazonia.
7. *Pale scaling extending into anal margin below middle of cell 2A on dorsal hindwing of male*: (0) present; (1) absent. CI = 0.5; RI = 0.8.
8. *A semicircular rufous-brown patch at costal margin of ventral hindwing in male*: (0) absent; (1) present. CI = 1; RI = 1.
9. *Forewing apex of female*: (0) rounded to weakly falcate; (1) markedly falcate. CI = 0.5; RI = 0.5.
Periplacis perisama and *P. thalassicus* are assigned a “?” for characters 9 to 15 because their females remain unknown.
10. *Widespread iridescent scaling on both dorsal wings of female*: (0) absent; (1) present. CI = 0.5; RI = 0.83.
Character state (0) is typical for *P. hebrus*, but widespread iridescent scaling is present in specimens from a small area of the far eastern Amazon.
11. *Ground color of dorsal forewing in female*: (0) plain brown; (1) rufous brown. CI = 1; RI = 1.
12. *Dark scaling around discal cell end on dorsal forewing of female*: (0) approximately same shade as ground color; (1) darker than ground color. CI = 1; RI = 1.
13. *Pale postdiscal spots at costal margin of dorsal forewing in female*: (0) present; (1) absent. CI = 0.33; RI = 0.67.
14. *If pale postdiscal spots at costal margin of dorsal forewing in female present (13:0), pale spots*: (0) whitish; (1) cream to pale yellow; (2) dark yellow to rufous brown. CI = 1; RI = 1.
15. *An isolated area of rufous-brown scaling in apex of dorsal forewing in female*: (0) absent; (1) present. CI = 1; RI = 1.
16. *Distal tip of iridescent dorsal scales in either sex*: (0) jagged; (1) smooth. CI = 0.33; RI = 0.67.
17. *Iridescent dorsal scales in either sex*: (0) flat; (1) convex. CI = 1; RI = 1.
18. *A white patch at distal margin of dorsal hindwing in either sex*: (0) present; (1) absent. CI = 1; RI = 1.
19. *Distal element of pale submarginal markings on dorsal hindwing in either sex*: (0) approximately straight; (1) prominently U-shaped. CI = 1; RI = 1.
20. *Dark spotting on both ventral wings in either sex*: (0) black; (1) rufous brown. CI = 0.5; RI = 0.8.
21. *Dark postdiscal markings in cells Cu₂ and Cu₁ on ventral forewing in either sex*: (0) form an approximately vertical to inwardly diagonal band; (1) form an outwardly semicircular band. CI = 1; RI = 1.
22. *A dark spot above vein Sc+R₁ at base of costal margin on ventral hindwing in either sex*: (0) absent; (1) present. CI = 1; RI = 1.

Body:

23. *Iridescent scaling on dorsal surface of thorax in male*: (0) absent; (1) present. CI = 0.5; RI = 0.83.
24. *Pale rings around abdomen of both sexes*: (0) present; (1) absent. CI = 1; RI = 1.

Periplacis thalassicus is assigned a “?” for character 24 because, although its male possesses pale abdominal rings, its female remains unknown.

25. *Concealed androconial scales at anterior margin of abdominal tergites six and/or seven of male:* (0) absent; (1) present. CI = 1; RI = 0.
26. *If concealed androconial scales at anterior margin of abdominal tergites six and/or seven of male present (25:1), androconial scales situated in:* (1) a band along anterior margin of tergite; (2) invaginated dorsolateral sacs anterior to anterior margin of tergite. CI = 1; RI = 1.
27. *If concealed androconial scales at anterior margin of abdominal tergites six and/or seven of male present (25:1), androconial scales present as:* (1) a single continuous area; (2) a pair of areas. CI = 1; RI = 1.
28. *If concealed androconial scales in a band along anterior margin of abdominal tergites six and/or seven of male present (26:1), a raised latticework of ribbing around tip of androconial scales:* (1) present; (2) absent. CI = 1; RI = 1.

Periplacis perisama is assigned a “?” for character 28 because a scanning electron microscope is needed to code it.

29. *An eighth abdominal tergite with a heavily sclerotized posterior projection from middle of posterior margin in female:* (0) absent; (1) present. CI = 1; RI = 1.

Periplacis perisama and *P. thalassicus* are assigned a “?” for character 29 because their females remain unknown.

Male genitalia:

30. *Serrations at ventral posterior corner of uncus:* (0) absent; (1) present. CI = 1; RI = 1.
It is noteworthy that the presence of serrations at the posterior margin of the male genital uncus correlates with the presence of a heavily sclerotized posterior projection from the posterior margin of the last female abdominal tergite (character 29), as these structures would appear likely to contact each other during copulation.
31. *Heavy sclerotization at ventral posterior corner of uncus:* (0) absent; (1) present. CI = 1; RI = 1.
32. *Falces:* (0) approximately straight; (1) bent inward at “elbow” and outward toward posterior tip. CI = 1; RI = 1.
33. *Posterior valve tips:* (0) relatively short; (1) relatively long. CI = 0.33; RI = 0.33.
34. *Posterior valve tips:* (0) relatively broad, with rounded tips in ventral view; (1) relatively narrow, with pointed tips in ventral view. CI = 0.5; RI = 0.5.
35. *Ventral margin of valvae:* (0) relatively smooth, without a concave medial notch; (1) markedly uneven, with a concave medial notch creating an anterior “elbow” to posterior valve tips. CI = 0.33; RI = 0.33.
36. *A large, angular, ventrally and slightly inwardly directed projection from middle of ventral margin of valvae:* (0) absent; (1) present. CI = 1; RI = 1.
37. *A large and abruptly rounded anteroventral “elbow” to posterior valve tips:* (0) absent; (1) present. CI = 1; RI = 1.
38. *A small and angular anteroventral “elbow” to posterior valve tips:* (0) absent; (1) present. CI = 1; RI = 1.
39. *A large square projection from “shoulder” of posterior valve tips in ventral view:* (0) absent; (1) present. CI = 1; RI = 1.
40. *Sclerotization dorsally connecting posterior valve tips:* (0) relatively heavy; (1) relatively light. CI = 0.5; RI = 0.5.
41. *Anterior margin of valvae:* (0) extends anteriorly beyond posterior margin of vinculum; (1) does not extend anteriorly beyond posterior margin of vinculum. CI = 1; RI = 1.
42. *Ductus ejaculatorius enters anterior tip of aedeagus:* (0) anteriorly; (1) to right. CI = 1; RI = 1.
43. *If ductus ejaculatorius enters anterior tip of aedeagus to right (42:1), opening of aedeagus:* (1) relatively large and elongate; (2) relatively small and round. CI = 1; RI = 1.
44. *An abruptly ventrally directed posterior tip to aedeagus with an upturned apex:* (0) absent; (1) present. CI = 1; RI = 1.
45. *A smoothly ventrally directed posterior tip to aedeagus without an upturned apex:* (0) absent; (1) present. CI = 1; RI = 1.
46. *An abruptly convex ventral margin to posterior tip of aedeagus, creating a short and symmetrical “saucer”-shaped profile to aedeagal opening in lateral view:* (0) absent; (1) present. CI = 1; RI = 1.
47. *An abruptly convex dorsal margin to posterior tip of aedeagus:* (0) absent; (1) present. CI = 1; RI = 1.
48. *A narrow, sclerotized cornutal bar at ventral base of everted aedeagal vesica:* (0) absent; (1) present. CI = 0.33; RI = 0.67.
49. *A small membranous protuberance before middle of dorsal margin of everted aedeagal vesica:* (0) absent; (1) present. CI = 1; RI = 1.

Female genitalia:

50. *Corpus bursae*: (0) roundly elongate (i.e., length substantially greater than width); (1) “apple” shaped (i.e., length and width similar); (2) “pear” shaped (i.e., width greater than length). CI = 1; RI = 1.
Periplacis perisama and *P. thalassicus* are assigned a “?” for characters 50 to 66 because their females remain unknown.
51. *Inner margin of signal invagination covered with*: (0) relatively small nodules; (1) relatively large serrations. CI = 1; RI = 1.
52. *Signal invagination*: (0) inwardly curved; (1) outwardly curved. CI = 1; RI = 1.
53. *Signal opening at surface of corpus bursae*: (0) directed outward and typically not visible in dorsal view of corpus bursae; (1) twisted inward and visible in dorsal view of corpus bursae. CI = 1; RI = 1.
54. *Signal invagination positioned at*: (0) middle to anterior tip of signal opening at surface of corpus bursae; (1) posterior tip of signal opening at surface of corpus bursae. CI = 1; RI = 1.
55. *If signal invagination positioned at posterior tip of signal opening (54:1), signal opening*: (1) entirely convex; (2) anteriorly convex and posteriorly concave. CI = 1; RI = 1.
56. *If signal invagination positioned at middle to anterior tip of signal opening (54:0), signa composed of*: (0) a very long opening and a short roundly triangular invagination; (1) a very short concave opening with lateral surface sclerotization and a long, narrow, slightly inwardly curved spine-like invagination; (2) a short oval opening and a long, narrow, posteriorly inwardly curved spine-like invagination; (3) a long opening and a long, somewhat broad, prominently inwardly curved spine-like invagination; (4) a short concave opening and a long, broad, slightly inwardly curved spine-like invagination. CI = 1; RI = 1.
57. *A ventral membranous protuberance immediately anterior to sclerotized section at posterior tip of ductus bursae*: (0) absent; (1) present. CI = 0.5; RI = 0.67.
It is noteworthy that the presence of a ventral membranous protuberance in the female genital ductus bursae correlates with the presence of long male genital posterior valve processes (character 33) that have a prominent anteroventral “elbow” (character 35), as these structures would seem likely to interact with each other during copulation.
58. *Ductus bursae immediately anterior to sclerotized section*: (0) approximately straight; (1) very markedly kinked to left. CI = 0.5; RI = 0.83.
59. *Dorsal half of ostium bursae*: (0) approximately semicircular; (1) triangular. CI = 1; RI = 1.
60. *A dorsally constricted opening to ostium bursae*: (0) absent; (1) present. CI = 1; RI = 1.
61. *Externally concave medial area in dorsal half of ostium bursae*: (0) relatively short (i.e., shorter than anterior membranous area); (1) relatively long (i.e., longer than anterior membranous area). CI = 0.33; RI = 0.5.
62. *One or two long and prominently jagged anterior protrusions from externally concave medial area into membranous area behind opening to ostium bursae*: (0) absent; (1) present. CI = 0.5; RI = 0.8.
63. *Two short and weakly jagged anterior protrusions from externally concave medial area into membranous area behind opening to ostium bursae, creating a W-shaped anterior margin*: (0) absent; (1) present. CI = 1; RI = 1.
64. *Extensive creasing across membranous area behind opening to ostium bursae*: (0) absent; (1) present. CI = 0.5; RI = 0.5.
65. *Large, round, and externally concave lateral sections to ostium bursae*: (0) absent; (1) present. CI = 1; RI = 1.
66. *A desclerotized ventral margin to ostium bursae*: (0) absent; (1) present. CI = 1; RI = 1.

Added characters:

67. *A proximally isolated pale postdiscal band extending between anal and costal margins of dorsal forewing in male*: (0) absent; (1) present. CI = 1; RI = 1.
68. *Setose eyes*: (0) absent; (1) present. CI = 1; RI = 1.

LITERATURE CITED

- Hall, J. P. W. 2018. *A Monograph of the Nymphidiina (Lepidoptera: Riodinidae: Nymphidiini): Phylogeny, Taxonomy, Biology, and Biogeography*. Washington, The Entomological Society of Washington. 990 pp.

