

Appendix 2. Semantic statements of natural language phenotypes composed in Protégé 5.0 (http://protege.stanford.edu/) using the OWL Manchester syntax.

Entity	Value	Semantic Phenotype
2nd metasomal tergite length dorsal view / length of metasoma dorsal view	01/03/16	<p><u>has part</u> some (<u>third abdominal tergite</u> and (<u>has part</u> some (<u>dorsal</u> <u>surface</u> ((<u>has part</u> some <u>median anatomical line</u>) and (<u>bearer of</u> some (<u>length</u> <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>dorsal</u> <u>surface</u> and (<u>part of</u> some <u>abdomen</u>)))))) and (<u>has measurement value</u> some 0.333f])))))))</p>
2nd metasomal tergite length dorsal view / length of metasoma dorsal view	0.4	<p><u>has part</u> some (<u>third abdominal tergite</u> and (<u>has part</u> some (<u>dorsal</u> <u>surface</u> ((<u>has part</u> some <u>median anatomical line</u>) and (<u>bearer of</u> some (<u>length</u> <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>dorsal</u> <u>surface</u> and (<u>part of</u> some <u>abdomen</u>)))))) and (<u>has measurement value</u> some 0.4f)))))))))</p>
2nd metasomal tergite length dorsal view / length of metasoma dorsal view	01/02/16	<p><u>has part</u> some (<u>third abdominal tergite</u> and (<u>has part</u> some (<u>dorsal</u> <u>surface</u> ((<u>has part</u> some <u>median anatomical line</u>) and (<u>bearer of</u> some (<u>length</u> <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>dorsal</u> <u>surface</u> and (<u>part of</u> some <u>abdomen</u>)))))) and (<u>has measurement value</u> some 0.5f)))))))))</p>
Adnotaular setae	present	(<u>mesonotum</u> and (<u>has part</u> some (<u>posterior region</u> and (<u>has part</u> some <u>adnotaular setae</u>)))) and (<u>has part</u> some (<u>mesonotum</u> and (<u>has part</u> some <u>anterior region</u> and (<u>has part</u> some <u>adnotaular setae</u>))))
Adnotaular setae	present anteriorly	(<u>mesonotum</u> and (<u>has part</u> some (<u>posterior region</u> and (not (<u>has part</u> some <u>adnotaular setae</u>)))) and (<u>has part</u> some (<u>mesonotum</u> and (<u>has part</u> some <u>anterior region</u> and (<u>has part</u> some <u>adnotaular setae</u>))))
Adnotaular setae	absent	not (<u>has part</u> some <u>adnotaular setae</u>)
Antenna length / body length	< 1	<u>has part</u> some (<u>antenna</u> and (<u>has part</u> some (<u>proximodistal anatomical</u> <u>region</u> and (<u>bearer of</u> some (<u>length</u> and (<u>decreased in magnitude relative to</u> some (<u>length</u> and (<u>inheres in</u> some <u>median anatomical line</u>))))))))
Anterior pits on foveal septum	absent	<u>has part</u> some (<u>median septum of scutellum</u> and (not (<u>has part</u> some (<u>region</u> and (<u>has part</u> some <u>impression</u>)))))
Anterior tentorial pit	small, indistinct	<u>has part</u> some (<u>anterior tentorial pit</u> and (<u>bearer of</u> some <u>inconspicuous</u> <u>bearer of</u> some <u>decreased diameter</u>))
Anterior tentorial pit	small, distinct	<u>has part</u> some (<u>anterior tentorial pit</u> and (<u>bearer of</u> some <u>conspicuous</u> <u>bearer of</u> some <u>decreased diameter</u>))

Entity	Value	Semantic Phenotype
Anterior tentorial pit	large, distinct	<u>has part</u> some (<u>anterior tentorial pit</u> and (<u>bearer of</u> some <u>conspicuous bearer of</u> some <u>increased diameter</u>))
Anterior tentorial pit size male	large, distinct	<u>has part</u> some (<u>anterior tentorial pit</u> and (<u>bearer of</u> some <u>conspicuous bearer of</u> some <u>increased diameter</u>))
Antero-admedian line length / mesoscutum median length	0.25	<u>has part</u> some (<u>anteroadmedian line</u> and (<u>has part</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>anatomical line</u>)))) and (<u>has measurement value</u> some <u>float</u> [$\geq 0.25f$])))))
Antero-admedian line length / mesoscutum median length	0.2	<u>has part</u> some (<u>anteroadmedian line</u> and (<u>has part</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>anatomical line</u>)))) and (<u>has measurement value</u> some <u>float</u> [$\geq 0.2f$])))))
Anteroadmedian line	absent	not (<u>has part</u> some <u>anteroadmedian line</u>)
Anteroadmedian line	present	<u>has part</u> some <u>anteroadmedian line</u>
Areolet	large, triangular, conspicuous	<u>has part</u> some (<u>areolet</u> and (<u>bearer of</u> some <u>conspicuous</u>) and (<u>bearer of</u> some <u>increased length</u>) and (<u>bearer of</u> some <u>triangular</u>))
Areolet	absent	not (<u>has part</u> some <u>areolet</u>)
Basal lobe on metatarsal claw	present	<u>has part</u> some <u>subapical tooth</u>
Basal lobe on metatarsal claw	absent	not (<u>has part</u> some <u>subapical tooth</u>)
Basal lobe on tarsal claw shape	blunt	<u>has part</u> some (<u>subapical tooth</u> and (<u>bearer of</u> some <u>blunt</u>))
Body length	2.80-3.10mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label value</u> <u>millimeter</u>) and <u>measurement value</u> some (<u>float</u> [$\geq 2.8f$] and <u>float</u> [$\leq 3.1f$]))))))
Body length	2.10-2.20 mm	<u>has part</u> some (<u>ventral spine of hypopygium</u> and (<u>has part</u> some (<u>ven</u> and (<u>has part</u> some (<u>median anatomical line</u> and (((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some and (<u>part of</u> some <u>ventral spine of hypopygium</u>)))))) and (<u>has measurement value</u> some (<u>float</u> [$\geq 2.2f$] and <u>float</u> [$\leq 2.1f$])))) and (<u>bearer of</u> some <u>length</u>))))))
Body length	2.60-2.80 mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label value</u> <u>millimeter</u>) and

Entity	Value	Semantic Phenotype
Body length	2.10 mm	<u>measurement value</u> some (<u>float</u> [>= 2.6f] and <u>float</u> [<= 2.8f]))))))
Body length	2.30 mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label</u> value <u>millimeter</u>) and <u>measurement value</u> some <u>float</u> [>= 2.1f]))))))
Body length	1.90-2.10 mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label</u> value <u>millimeter</u>) and <u>measurement value</u> some <u>float</u> [>= 2.3f]))))))
Body length	2.20-2.40 mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label</u> value <u>millimeter</u>) and <u>measurement value</u> some (<u>float</u> [>= 1.9f] and <u>float</u> [<= 2.1f]))))))
Body length	2.60 mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label</u> value <u>millimeter</u>) and <u>measurement value</u> some <u>float</u> [<= 2.6f]))))))
Body length	1.80-2.10 mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label</u> value <u>millimeter</u>) and <u>measurement value</u> some (<u>float</u> [>= 1.8f] and <u>float</u> [<= 2.1f]))))))
Body length	2.10-2.30 mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label</u> value <u>millimeter</u>) and <u>measurement value</u> some (<u>float</u> [>= 2.1f] and <u>float</u> [<= 2.3f]))))))
Body length	2.45 mm	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label</u> value <u>millimeter</u>) and <u>measurement value</u> some <u>float</u> [<= 2.45f]))))))
Central propodeal area reflectivity	matte	<u>has part</u> some (<u>metasomal depression</u> and (<u>bearer of</u> some (not (<u>glistening</u>))))
Central propodeal area reflectivity	glossy	<u>has part</u> some (<u>metasomal depression</u> and (<u>bearer of</u> some <u>glistening</u>))
Central propodeal area sculpture	smooth with longitudinal rugae	<u>has part</u> some (<u>metasomal depression</u> and (not (<u>has part</u> some <u>scute</u>)) <u>has part</u> some (<u>rugae</u> and (<u>bearer of</u> some <u>vertical</u>))))
Central propodeal area sculpture	smooth, with two distinct submedial longitudinal rugae	<u>has part</u> some (<u>metasomal depression</u> and (not (<u>has part</u> some <u>scute</u>)) <u>has part</u> some (<u>lateral region</u> and (<u>has part</u> exactly 2 (<u>carina</u> and (<u>bear some</u> <u>conspicuous</u>) and (<u>bearer of</u> some <u>vertical</u>)))))

Entity	Value	Semantic Phenotype
Central propodeal area sculpture	smooth with 1–2 delicate longitudinal lateral rugae	<u>has part</u> some (<u>metasomal depression</u> and (not (<u>has part</u> some <u>scute</u>)) <u>has part</u> some <u>ruga</u>))
Central propodeal area sculpture	coriaceous with few irregular rugae	<u>has part</u> some (<u>metasomal depression</u> and (<u>has part</u> some <u>ruga</u>) and (<u>of</u> some <u>coriaceous</u>))
Central propodeal area sculpture	smooth, with transverse carina in dorsal 1/3rd and with longitudinal paralell rugae between transverse carina and nucha	<u>has part</u> some (<u>metasomal depression</u> and (not (<u>has part</u> some <u>scute</u>)) <u>has part</u> some (<u>dorsal region</u> and (<u>has part</u> exactly 1 (<u>carina</u> and (<u>be</u> some <u>horizontal</u>)))) and (<u>has part</u> some (<u>ruga</u> and (<u>dorsal_to</u> some <u>vertical</u>)) and (<u>ventral_to</u> some (<u>carina</u> and (<u>bearer_of</u> some <u>horizontal</u>)) and (<u>of</u> some <u>vertical</u>))))
Central propodeal area sculpture	rugose	<u>has part</u> some (<u>metasomal depression</u> and (<u>bearer_of</u> some <u>rugose</u>))
Central propodeal area sculpture	smooth with irregular rugae	<u>has part</u> some (<u>metasomal depression</u> and (not (<u>has part</u> some <u>scute</u>)) <u>has part</u> some <u>ruga</u>))
Clypeo-pleurostomal line	distinct	<u>has part</u> some (<u>clypeo-pleurostomal line</u> and (<u>bearer_of</u> some <u>conspic</u>))
Clypeo-pleurostomal line	indistinct	<u>has part</u> some (<u>clypeo-pleurostomal line</u> and (<u>bearer_of</u> some <u>incons</u>))
Clypeus convexity	convex	<u>has part</u> some (<u>clypeus</u> and (<u>bearer_of</u> some <u>convex</u>))
Clypeus convexity	flat	<u>has part</u> some (<u>clypeus</u> and (<u>bearer_of</u> some <u>flat</u>))
Clypeus pilosity	absent	<u>has part</u> some (<u>clypeus</u> and (not (<u>has part</u> some <u>pilosity</u>)))
Clypeus pilosity	present	<u>has part</u> some (<u>clypeus</u> and (<u>has part</u> some <u>pilosity</u>))
Clypeus pilosity color	white	<u>has part</u> some (<u>clypeus</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer_of</u> some <u>white</u>))))
Clypeus pilosity density	dense	<u>has part</u> some (<u>clypeus</u> and (<u>has part</u> some <u>pilosity</u>))
Clypeus reflectivity	matte	<u>has part</u> some (<u>clypeus</u> and (<u>bearer_of</u> some (not (<u>glistening</u>))))
Clypeus reflectivity	glossy	<u>has part</u> some (<u>clypeus</u> and (<u>bearer_of</u> some <u>glistening</u>))

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Clypeus sculpture	coriaceous	<u>has part</u> some (<u>clypeus</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Clypeus sculpture	smooth	<u>has part</u> some (<u>clypeus</u> and (<u>bearer of</u> some <u>smooth</u>))
Clypeus shape anterior view	pentagonal	<u>has part</u> some (<u>clypeus</u> and ((<u>has part</u> some <u>anterior side</u>) and (<u>bearer of</u> some <u>pentagonal</u>)))
Clypeus shape anterior view	rectangular	<u>has part</u> some (<u>clypeus</u> and ((<u>has part</u> some <u>anterior side</u>) and (<u>bearer of</u> some <u>rectangular</u>)))
Clypeus shape anterior view	trapezoid	<u>has part</u> some (<u>clypeus</u> and ((<u>has part</u> some <u>anterior side</u>) and (<u>bearer of</u> some <u>trapezoid</u>)))
Clypeus ventral margin shape	straight	<u>has part</u> some (<u>clypeus</u> and (<u>has part</u> some (<u>ventral margin</u> and (<u>bearer of</u> some <u>straight</u>)))
Combined length of scape and pedicel / first flagellomere length	>1	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>length</u> and (<u>inheres_in</u> some (<u>proximodistal anatomical line</u> and (<u>part_of</u> some <u>pedicel</u>))))) and (<u>length</u> (<u>inheres_in</u> some (<u>proximodistal anatomical line</u> and (<u>part_of</u> some <u>scape</u>)))))))))
diameter of lateral ocellus / diameter of median ocellus	1	<u>has part</u> some (<u>lateral ocellus</u> and (<u>bearer of</u> some (<u>diameter</u> and (<u>similar_in_magnitude_relative_to</u> some (<u>diameter</u> and (<u>inheres_in</u> some (<u>median ocellus</u>))))))
diameter of lateral ocellus / diameter of median ocellus	>1	<u>has part</u> some (<u>lateral ocellus</u> and (<u>bearer of</u> some (<u>diameter</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>diameter</u> and (<u>inheres_in</u> some (<u>median ocellus</u>))))))
Diameter of male lateral ocellus vs diameter of female lateral ocellus	1.3	<u>has part</u> some (<u>male organism</u> and (<u>has part</u> some (<u>lateral ocellus</u> and (<u>of</u> some (<u>diameter</u> and (<u>is quality measured as</u> some (<u>has measurement label</u> some (<u>length</u> and (<u>inheres_in</u> some (<u>diameter</u> and (<u>part_of</u> some (<u>lateral ocellus</u> and (<u>part_of</u> some <u>female organism</u>)))))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.3f]))))))
Diameter of male lateral ocellus vs diameter of female lateral ocellus	1.4	<u>has part</u> some (<u>male organism</u> and (<u>has part</u> some (<u>lateral ocellus</u> and (<u>of</u> some (<u>diameter</u> and (<u>is quality measured as</u> some (<u>has measurement label</u> some (<u>length</u> and (<u>inheres_in</u> some (<u>diameter</u> and (<u>part_of</u> some (<u>lateral ocellus</u> and (<u>part_of</u> some <u>female organism</u>)))))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.4f]))))))
Diameter of male lateral ocellus vs diameter of female lateral ocellus	1.76	<u>has part</u> some (<u>male organism</u> and (<u>has part</u> some (<u>lateral ocellus</u> and (<u>of</u> some (<u>diameter</u> and (<u>is quality measured as</u> some (<u>has measurement label</u> some (<u>length</u> and (<u>inheres_in</u> some (<u>diameter</u> and (<u>part_of</u> some (<u>lateral ocellus</u> and (<u>part_of</u> some <u>female organism</u>)))))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.76f]))))))

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Diameter of male lateral ocellus vs diameter of female lateral ocellus	1.48	<u>measurement value</u> some <u>float</u> [>= 1.76f]))))))
diameter of torulus / intertorular distance	1.8	<u>has part</u> some (<u>male organism</u> and (<u>has part</u> some (<u>lateral ocellus</u> and (<u>of</u> some (<u>diameter</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>diameter</u> and (<u>part of</u> some (<u>lateral ocellus</u> and (<u>part of</u> some <u>female organism</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.48f]))))))
diameter of torulus / intertorular distance	2	<u>has part</u> some (<u>torulus</u> and (<u>bearer of</u> some (<u>diameter</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>width</u> and (<u>part of</u> some <u>torular space</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.8f])))
diameter of torulus / intertorular distance	1.7	<u>has part</u> some (<u>torulus</u> and (<u>bearer of</u> some (<u>diameter</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>width</u> and (<u>part of</u> some <u>torular space</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 2.0f])))
diameter of torulus / intertorular distance	1.2	<u>has part</u> some (<u>torulus</u> and (<u>bearer of</u> some (<u>diameter</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>width</u> and (<u>part of</u> some <u>torular space</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.7f])))
diameter of torulus / intertorular distance	1.4	<u>has part</u> some (<u>torulus</u> and (<u>bearer of</u> some (<u>diameter</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>width</u> and (<u>part of</u> some <u>torular space</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.2f])))
diameter of torulus / intertorular distance	1.72	<u>has part</u> some (<u>torulus</u> and (<u>bearer of</u> some (<u>diameter</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>width</u> and (<u>part of</u> some <u>torular space</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.4f])))
diameter of torulus / intertorular distance	1.1	<u>has part</u> some (<u>torulus</u> and ((<u>has part</u> some <u>diameter</u>) and (<u>bearer of</u> <u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>width</u> and (<u>part of</u> some <u>torular space</u>) (<u>has measurement value</u> some <u>float</u> [>= 1.1f])))
diameter of torulus / intertorular distance	1	<u>has part</u> some (<u>torulus</u> and (<u>bearer of</u> some (<u>diameter</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>width</u> and (<u>part of</u> some <u>torular space</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.0f])))

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diameter of torulus / intertorular distance	0.8	<u>has part</u> some (<u>torulus</u> and (<u>bearer of</u> some (<u>diameter</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some</u> (<u>width</u> and (<u>part of</u> some <u>torular space</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 0.8f])))))
Disc of mesoscutellum maximum width	in posterior 1/4th	<u>has part</u> some (<u>mesoscutellum</u> and (<u>has part</u> some (<u>posterior region</u> and (<u>has part</u> some <u>median anatomical line</u>) and (<u>bearer of</u> some (<u>length</u> and (<u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>mesoscutellum</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 0.25] and (<u>has part</u> some (<u>maximum width</u> and (<u>part of</u> some <u>mesoscutellum</u>)))))
Disc of mesoscutellum maximum width	in posterior 1/3	<u>has part</u> some (<u>mesoscutellum</u> and (<u>has part</u> some (<u>posterior region</u> and (<u>has part</u> some <u>median anatomical line</u>) and (<u>bearer of</u> some (<u>length</u> and (<u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>mesoscutellum</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 0.33] and (<u>has part</u> some (<u>maximum width</u> and (<u>part of</u> some <u>mesoscutellum</u>)))))
Disc of mesoscutellum sculpture	smooth	<u>has part</u> some (<u>scutellar disc</u> and (<u>bearer of</u> some <u>smooth</u>))
Disc of mesoscutellum sculpture	smooth anteriorly rugose posteriorly	<u>has part</u> some (<u>scutellar disc</u> and (<u>has part</u> some (<u>anterior region</u> and (<u>of</u> some <u>smooth</u>)) and (<u>has part</u> some (<u>posterior region</u> and (<u>bearer of</u> <u>rugose</u>))))
Disc of mesoscutellum sculpture	rugose	<u>has part</u> some (<u>scutellar disc</u> and (<u>bearer of</u> some <u>rugose</u>))
Dorsoaxillar area pilosity color	white	<u>has part</u> some (<u>dorsal axillar area</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>some</u> <u>white</u>))))
Dorsoaxillar area pilosity density	rare	<u>has part</u> some (<u>dorsal axillar area</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>some</u> <u>sparse</u>))))
Dorsoaxillar area reflectivity	glossy	<u>has part</u> some (<u>dorsal axillar area</u> and (<u>bearer of</u> some <u>glistening</u>))
Dorsoaxillar area reflectivity	matte	<u>has part</u> some (<u>dorsal axillar area</u> and (<u>bearer of</u> some (not (<u>glistening</u>)))))
Dorsoaxillar area sculpture	smooth	<u>has part</u> some (<u>dorsal axillar area</u> and (not (<u>has part</u> some <u>scute</u>)))
Dorsoaxillar area sculpture	smooth with few rugae	<u>has part</u> some (<u>dorsal axillar area</u> and (not (<u>has part</u> some <u>scute</u>)) and (<u>has part</u> some <u>rugae</u>)))

Entity	Value	Semantic Phenotype
Dorsoaxillar area sculpture	alutaceous with few rugae	has part some (dorsal axillar area and (has part some ruga) and (bearer of some alutaceous))
Dorsomedian area of mesoscutellar-axillar complex (disc of mesoscutellum+axillar foveae) pilosity color	white	has part some (dorsomedian area of the mesoscutellar-axillar complex and (has part some (pilosity and (has part some (pilosity and (bearer of some white))))))
Dorsomedian area of mesoscutellar-axillar complex (disc of mesoscutellum+axillar foveae) pilosity density	dense	has part some (dorsomedian area of the mesoscutellar-axillar complex and (has part some (pilosity and (has part some (pilosity and (bearer of some dense))))))
Dorsomedian area of mesoscutellar-axillar complex (disc of mesoscutellum+axillar foveae) pilosity density	rare	has part some (dorsomedian area of the mesoscutellar-axillar complex and (has part some (pilosity and (has part some (pilosity and (bearer of some sparse))))))
Dorsomedian area of mesoscutellar-axillar complex (disc of mesoscutellum+axillar foveae) sculpture	smooth anteromedially, rugose posteromedially, foveolate laterally and posteriorly	has part some (dorsomedian area of the mesoscutellar-axillar complex and (has part some (anterior region and (has part some (medial region and (of some smooth)))) and (has part some (posterior region and (has part some (medial region and (bearer of some rugose)))) and (has part some (posterior region and (bearer of some foveate)) and (has part some (region and (bearer of some foveate)))))
Dorsomedian area of mesoscutellar-axillar complex (disc of mesoscutellum+axillar foveae) sculpture	rugose medially, foveolate laterally and posteriorly	has part some (dorsomedian area of the mesoscutellar-axillar complex and (has part some (anterior region and (bearer of some rugose)) and (has part some (posterior region and (bearer of some foveate)) and (has part some (lateral region and (bearer of some foveate)) and (has part some (medial region and (bearer of some rugose)))))
Dorsomedian area of mesoscutellar-axillar complex (disc of mesoscutellum+axillar foveae) sculpture	alutaceous, smooth, foveolate laterally and posteriorly	has part some (dorsomedian area of the mesoscutellar-axillar complex and (has part some (anterior region and (bearer of some alutaceous))) and (has part some (posterior region and (bearer of some foveate))) and (has part some (lateral region and (bearer of some foveate))) and (has part some (medial region and (bearer of some alutaceous)))))
Dorsomedian area of mesoscutellar-axillar complex (disc of mesoscutellum+axillar foveae) sculpture	coriaceous, foveolate laterally and posteriorly	has part some (dorsomedian area of the mesoscutellar-axillar complex and (has part some (anterior region and (bearer of some coriaceous))) and (has part some (posterior region and (bearer of some foveate))) and (has part some (lateral region and (bearer of some foveate))) and (has part some (medial region and (bearer of some coriaceous)))))
Dorsomedian area of mesoscutellar-axillar complex (disc of	smooth medially, foveolate laterally and posteriorly	has part some (dorsomedian area of the mesoscutellar-axillar complex and (has part some (anterior region and (not (has part some scute))) and (has part some (posterior region and (bearer of some foveate))) and (has part some (lateral region and (bearer of some foveate))) and (has part some (medial region and (bearer of some scute)))))

Entity	Value	Semantic Phenotype
mesoscutellum+axillar foveae) sculpture		<u>lateral region</u> and (<u>bearer of</u> some <u>foveate</u>))) and (<u>has part</u> some (<u>region</u> and (not (<u>has part</u> some <u>scute</u>)))))
Dorsomedian area of mesoscutellar-axillar complex (disc of mesoscutellum+axillar foveae) shape	trapezoid	<u>has part</u> some (<u>dorsomedian area of the mesoscutellar-axillar complex</u> <u>bearer of</u> some <u>trapezoid</u>))
Epistomal sulcus	indistinct	<u>has part</u> some (<u>epistomal sulcus</u> and (<u>bearer of</u> some <u>inconspicuous</u>))
Epistomal sulcus	distinct	<u>has part</u> some (<u>epistomal sulcus</u> and (<u>bearer of</u> some <u>conspicuous</u>))
Eye height / malar distance	2.85	<u>has part</u> some (<u>eye height</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some malar line</u>)))) and (<u>has measurement value</u> some <u>float</u> [≥ 2.85]))
Eye height / malar distance	2.5	<u>has part</u> some (<u>eye height</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some malar line</u>)))) and (<u>has measurement value</u> some <u>float</u> [≥ 2.5f]))
Eye height / malar distance	2	<u>has part</u> some (<u>eye height</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some malar line</u>)))) and (<u>has measurement value</u> some <u>float</u> [≥ 2.0f]))
Eye height / malar distance	3.84	<u>has part</u> some (<u>eye height</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some malar line</u>)))) and (<u>has measurement value</u> some <u>float</u> [≥ 3.84]))
Eye height / malar distance	4.54	<u>has part</u> some (<u>eye height</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some malar line</u>)))) and (<u>has measurement value</u> some <u>float</u> [≥ 4.54]))
Eye height / malar distance	2.77	<u>has part</u> some (<u>eye height</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some malar line</u>)))) and (<u>has measurement value</u> some <u>float</u> [≥ 2.77]))
Eye height / malar distance	3.33	<u>has part</u> some (<u>eye height</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some malar line</u>)))) and (<u>has measurement value</u> some <u>float</u> [≥ 3.33]))
Eye height / malar distance	2.32	<u>has part</u> some (<u>eye height</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in some malar line</u>)))) and (<u>has measurement value</u> some <u>float</u> [≥ 2.32))))
Eye size vs female eye size	eye larger in male	<u>has part</u> some (<u>male organism</u> and (<u>has part</u> some (<u>compound eye</u> and (<u>part</u> some (<u>maximum height</u> and (<u>bearer of</u> some (<u>length</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>length</u> and (<u>inheres_in</u> some (<u>female eye</u>))))))))

Entity	Value	Semantic Phenotype
Eye-torulus distance / diameter of torulus	1.28	compound eye and (part_of some female organism))))))))))
Eye-torulus distance / diameter of torulus	1.47	has part some (eye-torulus distance and (bearer_of some (length and quality measured as some (has measurement unit label some (length inheres in some (diameter and (part_of some torulus))))) and (has measurement value some float [>= 1.28f]))))
Eye-torulus distance / diameter of torulus	1.1	has part some (eye-torulus distance and (bearer_of some (length and quality measured as some (has measurement unit label some (length inheres in some (diameter and (part_of some torulus))))) and (has measurement value some float [>= 1.47f]))))
Eye-torulus distance / diameter of torulus	1.25	has part some (eye-torulus distance and (bearer_of some (length and quality measured as some (has measurement unit label some (length inheres in some (diameter and (part_of some torulus))))) and (has measurement value some float [>= 1.1f]))))
Eye-torulus distance / diameter of torulus	1.5	has part some (eye-torulus distance and (bearer_of some (length and quality measured as some (has measurement unit label some (length inheres in some (diameter and (part_of some torulus))))) and (has measurement value some float [>= 1.25f]))))
Eye-torulus distance / diameter of torulus	1.4	has part some (eye-torulus distance and (bearer_of some (length and quality measured as some (has measurement unit label some (length inheres in some (diameter and (part_of some torulus))))) and (has measurement value some float [>= 1.5f]))))
Eye-torulus distance / diameter of torulus	1.05	has part some (eye-torulus distance and (bearer_of some (length and quality measured as some (has measurement unit label some (length inheres in some (diameter and (part_of some torulus))))) and (has measurement value some float [>= 1.4f]))))
Eye-torulus distance / diameter of torulus	1.08	has part some (eye-torulus distance and (bearer_of some (length and quality measured as some (has measurement unit label some (length inheres in some (diameter and (part_of some torulus))))) and (has measurement value some float [>= 1.05f]))))
Eye-torulus distance / diameter of torulus	1.2	has part some (eye-torulus distance and (bearer_of some (length and quality measured as some (has measurement unit label some (length inheres in some (diameter and (part_of some torulus))))) and (has measurement value some float [>= 1.08f]))))

Entity	Value	Semantic Phenotype
F1 length / F2 length	1.18	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 1.18f]))))))))
F1 length / F2 length	1.16	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 1.16f]))))))))
F1 length / F2 length	1.1	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 1.1f]))))))))
F1 length / F2 length	1	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 1.0f]))))))))
F1 length / F2 length	0.82	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 0.82f]))))))))
F1 length / F2 length	1.25	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 1.25f]))))))))
F1 length / F2 length	0.8	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 0.8f]))))))))
F1 length / F2 length	0.75	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 0.75f]))))))))

Entity	Value	Semantic Phenotype
F1 length / F3 length	1	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>third flagellomere</u>)) <u>has measurement value</u> some <u>float</u> [>= 1.0f]))))))))
F1 length / pedicel length	2	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 2.0f]))))))
F1 length / pedicel length	1.7	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.7f]))))))
F1 length / pedicel length	1.9	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.9f]))))))
F1 length / pedicel length	1.4	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.4f]))))))
F1 length / pedicel length	2.25	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 2.25f]))))))
F1 length / pedicel length	1.75	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.75f]))))))
F1 length / pedicel length	2.1	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 2.1f]))))))

Entity	Value	Semantic Phenotype
F1 length / pedicel length	2.7	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [$\geq 2.7f$]))))))
F1 length / pedicel length	1.6	<u>has part</u> some (<u>first flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>pedicel</u>)))))) and (<u>has measurement value</u> some <u>float</u> [$\geq 1.6f$]))))))
F10 length / F11 length	1	<u>has part</u> some (<u>tenth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>similar in magnitude relative to</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u>)))))))))
F10 length / F9 length	>1	<u>has part</u> some (<u>tenth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>increased in magnitude relative to</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u>)))))))))
F12 length / F11 length	1.5	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.5f$]))))))
F12 length / F11 length	1.67	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.67f$]))))))
F12 length / F11 length	0.9	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 0.9f$]))))))
F12 length / F11 length	1.6	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.6f$]))))))

Entity	Value	Semantic Phenotype
F12 length / F11 length	1.76	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.76f$]))))))))
F12 length / F11 length	1.9	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.9f$]))))))))
F12 length / F11 length	1.63	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>eleventh flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.63f$]))))))))
F13 length / F12 length	2	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>twelfth flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 2.0f$]))))))))
F13 length / F12 length	1.36	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>twelfth flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.36f$]))))))))
F13 length / F12 length	1	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>twelfth flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.0f$]))))))))
F3 length / F4 length	1.1	<u>has part</u> some (<u>third flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>fourth flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 1.1f$]))))))))
F3 length/F2 length	0.85	<u>has part</u> some (<u>third flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>second flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [$\geq 0.85f$]))))))))

Entity	Value	Semantic Phenotype
F4â€“F7 relative length	F4>F5>F6>F7	<u>has part</u> some (<u>fourth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>fifth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>sixth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some <u>seventh flagellomere</u>))))))
F8 length / F7 length	1.4	<u>has part</u> some (<u>eighth flagellomere</u> and (<u>has_part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_quality_measure</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>inheres_in</u> some <u>proximodistal anatomical line</u> and (<u>part_of</u> some <u>seventh flagellomere</u> and (<u>has_measurement_value</u> some <u>float</u> [$\geq 1.4f$]))))))
F9 length /F8 length	1.3	<u>has part</u> some (<u>ninth flagellomere</u> and (<u>has_part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_quality_measure</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>inheres_in</u> some <u>proximodistal anatomical line</u> and (<u>part_of</u> some <u>eighth flagellomere</u> (<u>has_measurement_value</u> some <u>float</u> [$\geq 1.3f$]))))))
F9â€“F11 relative length	F9 < F10 < F11	<u>has part</u> some (<u>eleventh flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>tenth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>ninth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some <u>seventh flagellomere</u>))))))
Flagellomeres relative length	F3>F4>F5>F6>F7>F8>F9>F10>F11>F12	<u>has part</u> some (<u>third flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>fourth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>fifth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>sixth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>seventh flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>eighth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>ninth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>tenth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>eleventh flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some <u>twelfth flagellomere</u>)))))))))))))))))
Flagellomeres relative length	F2-F8 progressively shorter	<u>has part</u> some (<u>second flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>third flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>fourth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>sixth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>seventh flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>eight eighth flagellomere</u>))))))))))))
Flagellomeres relative length	F3>F4>F5>F6>F7>F8>F9>F10>F11	<u>has part</u> some (<u>third flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>fourth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>fifth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>sixth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>seventh flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>eight eighth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>ninth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>tenth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some <u>eleventh</u>

Entity	Value	Semantic Phenotype
		<u>flagellomere</u>)))))))))))))))))
Foveal septum	absent	not (<u>has part</u> some <u>median septum of scutellum</u>)
Foveal septum	narrow	<u>has part</u> some (<u>median septum of scutellum</u> and (<u>bearer of</u> some <u>decreas-</u> <u>width</u>))
Foveal septum	narrow, triangular	<u>has part</u> some (<u>median septum of scutellum</u> and (<u>bearer of</u> some <u>decreas-</u> <u>width</u>) and (<u>bearer of</u> some <u>triangular</u>))
Frons pilosity color	white	<u>has part</u> some (<u>frons</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>white</u>))))
Frons pilosity density	dense	<u>has part</u> some (<u>frons</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>dense</u>))))
Frons pilosity density	rare	<u>has part</u> some (<u>frons</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>sparse</u>))))
Frons pilosity density	glabrous	<u>has part</u> some (<u>frons</u> and (not (<u>has part</u> some <u>pilosity</u>)))
Frons reflectivity	matte	<u>has part</u> some (<u>frons</u> and (<u>bearer of</u> some (not (<u>glistening</u>))))
Frons reflectivity	glossy	<u>has part</u> some (<u>frons</u> and (<u>bearer of</u> some <u>glistening</u>))
Frons sculpture	alutaceous	<u>has part</u> some (<u>frons</u> and (<u>bearer of</u> some <u>alutaceous</u>))
Frons sculpture	smooth	(not (<u>has part</u> some <u>scute</u>)) and (<u>has part</u> some <u>frons</u>)
Frons sculpture	alutaceous, impressed above torulus	<u>has part</u> some (<u>frons</u> and (<u>has part</u> some (<u>region</u> and (<u>dorsal_to</u> some <u>torulus</u>) and (<u>bearer of</u> some <u>concave</u>))) and (<u>bearer of</u> some <u>alutace-</u>
Frons sculpture	coriaceous	<u>has part</u> some (<u>frons</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Frons sculpture	coriaceous with transverse striae dorsal to toruli	<u>has part</u> some (<u>frons</u> and (<u>has part</u> some (<u>region</u> and ((<u>has part</u> some and (<u>bearer of</u> some <u>transverse orientation</u>)) and (<u>dorsal_to</u> some <u>tor-</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Frons sculpture	coriaceous with irregular rugae between lateral ocellus and compound eye	(<u>has part</u> some (<u>region</u> and (<u>has part</u> some <u>rupa</u>) and (<u>lateral_to</u> some <u>ocellus</u>) and (<u>medial_to</u> some <u>inner orbit</u>))) and (<u>has part</u> some (<u>fro-</u> <u>bearer of</u> some <u>coriaceous</u>)))
Gena length / eye width	0.4	<u>has part</u> some (<u>gena</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality me-</u> <u>as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> so-

Entity	Value	Semantic Phenotype
Gena length / eye width	0.83	<u>width</u> and (<u>part_of</u> some <u>compound eye</u>)))))) and (<u>has measurement</u> some <u>float</u> [>= 0.4f]))))
Gena length / eye width	0.71	<u>has_part</u> some (<u>gena</u> and (<u>bearer_of</u> some (<u>length</u> and ((<u>is_quality</u> me as some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>inheres_in</u> so <u>width</u> and (<u>part_of</u> some <u>compound eye</u>)))))) and (<u>has_measurement</u> some <u>float</u> [>= 0.83f])))
Gena length / eye width	0.94	<u>has_part</u> some (<u>gena</u> and (<u>bearer_of</u> some (<u>length</u> and ((<u>is_quality</u> me as some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>inheres_in</u> so <u>width</u> and (<u>part_of</u> some <u>compound eye</u>)))))) and (<u>has_measurement</u> some <u>float</u> [>= 0.94f])))
Gena length / eye width	0.82	<u>has_part</u> some (<u>gena</u> and (<u>bearer_of</u> some (<u>length</u> and ((<u>is_quality</u> me as some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>inheres_in</u> so <u>width</u> and (<u>part_of</u> some <u>compound eye</u>)))))) and (<u>has_measurement</u> some <u>float</u> [>= 0.82f])))
Gena length / eye width	0.28	<u>has_part</u> some (<u>gena</u> and (<u>bearer_of</u> some (<u>length</u> and ((<u>is_quality</u> me as some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>inheres_in</u> so <u>width</u> and (<u>part_of</u> some <u>compound eye</u>)))))) and (<u>has_measurement</u> some <u>float</u> [>= 0.28f])))
Gena length / eye width	0.5	<u>has_part</u> some (<u>gena</u> and (<u>bearer_of</u> some (<u>length</u> and ((<u>is_quality</u> me as some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>inheres_in</u> so <u>width</u> and (<u>part_of</u> some <u>compound eye</u>)))))) and (<u>has_measurement</u> some <u>float</u> [>= 0.5f])))
Gena reflectivity	matte	<u>has_part</u> some (<u>gena</u> and (not (<u>bearer_of</u> some <u>glistening</u>)))
Gena reflectivity	glossy	<u>has_part</u> some (<u>gena</u> and (<u>bearer_of</u> some <u>glistening</u>))
Gena sculpture	coriaceous	<u>has_part</u> some (<u>gena</u> and (<u>bearer_of</u> some <u>coriaceous</u>))
Gena sculpture	smooth	<u>has_part</u> some (<u>gena</u> and (not (<u>has_part</u> some <u>scute</u>)))
Gena sculpture	alutaceous	<u>has_part</u> some (<u>gena</u> and (<u>bearer_of</u> some <u>alutaceous</u>))
Gena shape	broadened posterior to eye, visible in frontal view	<u>has_part</u> some (<u>gena</u> and (<u>has_part</u> some <u>anterior side</u>))

Entity	Value	Semantic Phenotype
Gena shape	not boradened posterior to eye, not visible in frontal view	<u>has part</u> some (<u>gena</u> and (not (<u>has part</u> some <u>anterior side</u>)))
Head color	black, except for mandibles, maxillary and labial palps yellowish; scape, pedicel and F1 dark brown, F2–F12 darker	<u>has part</u> some (<u>head</u> and (not (<u>mandible</u> and (((not (<u>antenna</u>)) and (<u>of</u> some <u>black</u>)) and (not (<u>labial palp</u>))) and (not (<u>maxillary palp</u>)))) <u>has part</u> some (<u>labial palp</u> and (<u>bearer of</u> some <u>yellow</u>)) and (<u>has part</u> (<u>mandible</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>maxillary palp</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>pedicel</u> and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>scape</u> and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>first flagellomere</u> and ((<u>bearer of</u> some <u>brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u>) and (<u>inheres_in</u> some <u>second flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>second flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>third flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>fifth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>sixth flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>third flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>fourth flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>fourth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>fifth flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>sixth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>seventh flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>seventh flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>eighth flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>eighth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>ninth flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>ninth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>tenth flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>eleventh flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>twelfth flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>twelfth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>thirteenth flagellomere</u>)))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>thirteenth flagellomere</u> and (<u>of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>flagellomere 14</u>)))) and (<u>bearer of</u> some <u>dark brown</u>))))

Entity	Value	Semantic Phenotype
Head color	dark brown except for lighter lower face and clypeus, mandibles, maxillary and labial palps yellowish; scape and pedicel yellow, subsequent flagellomeres progressively darker	<u>has_part</u> some (<u>head</u> and ((not (<u>clypeus</u>)) and (not (<u>mandible</u> and (((<u>antenna</u>)) and (<u>bearer_of</u> some <u>dark_brown</u>)) and (not (<u>labial_palm</u>)) (<u>maxillary_palm</u>))))) and (<u>has_part</u> some (<u>clypeus</u> and (<u>bearer_of</u> some <u>brown</u>))) and (<u>has_part</u> some (<u>labial_palm</u> and (<u>bearer_of</u> some <u>yellow</u> (<u>has_part</u> some (<u>lower_face</u> and ((<u>has_part</u> some <u>medial_region</u>) and (<u>of</u> some <u>light_brown</u>))))) and (<u>has_part</u> some (<u>mandible</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>maxillary_palm</u> and (<u>bearer_of</u> some <u>yellow</u>)) and (<u>has_part</u> some (<u>pedicel</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>scape</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>first_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>second_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>part</u> some (<u>second_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u> <u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>third_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>some</u> (<u>fifth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>sixth_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>some</u> (<u>third_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>fourth_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>part</u> some (<u>fourth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u> <u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>fifth_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>some</u> (<u>sixth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>seventh_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>part</u> some (<u>seventh_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u> <u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>eighth_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>part</u> some (<u>eighth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u> <u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>ninth_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>some</u> (<u>ninth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>tenth_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>some</u> (<u>eleventh_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>twelfth_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>part</u> some (<u>twelfth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u> <u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>thirteenth_flagellomere</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))) and (<u>part</u> some (<u>thirteenth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u> (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inhabited</u> some <u>flagellomere_14</u>)))) and (<u>bearer_of</u> some (<u>light_brown</u>))))
Head color	Head black, except for light brown clypeus; mandibles, maxillary and labial	<u>has_part</u> some (<u>head</u> and (not (<u>antenna</u>)) and (not (<u>clypeus</u>)) and (not (<u>palp</u>)) and (not (<u>mandible</u>)) and (not (<u>maxillary_palm</u>)) and (<u>has_part</u> <u>clypeus</u> and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>labial_palm</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>mandible</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>maxillary_palm</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>antenna</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>pedicel</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>scape</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>lower_face</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>medial_region</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>second_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>third_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>fourth_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>fifth_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>sixth_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>seventh_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>eighth_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>ninth_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>tenth_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>eleventh_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>twelfth_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>thirteenth_flagellomere</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>flagellomere_14</u> and (<u>bearer_of</u> some <u>yellow</u>))))

Entity	Value	Semantic Phenotype
		<p>some <u>yellow</u>))) and (<u>has part</u> some (<u>maxillary palp</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>pedicel</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>scape</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>first flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>second flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>fifth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>sixth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>third flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>fourth flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>sixth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>seventh flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>seventh flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>eighth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>eight eighth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>ninth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>ninth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>tenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>eleventh flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>twelfth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>thirteenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>thirteenth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>flagellomere 14</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>bearer of</u> some <u>black</u>)))</p>
Head color	orange-yellow, except for darker mandibles, scape, pedicel, F1â€“F5 yellowish brown, subsequent flagellomeres progressively darker	<p><u>has part</u> some (<u>head</u> and (not (<u>mandible</u> and ((not (<u>antenna</u>)) and (<u>bearer of</u> some <u>orange</u>)))) and (<u>has part</u> some (<u>mandible</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>pedicel</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>scape</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>first flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>second flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>fifth flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>third flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>fourth flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>sixth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>seventh flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>seventh flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>eighth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>eight eighth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>)) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inherent</u> some <u>black</u>))))</p>

Entity	Value	Semantic Phenotype
		some <u>ninth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (some (<u>ninth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>tenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (some (<u>eleventh flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>twelfth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>part</u> some (<u>twelfth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>thirteenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>part</u> some (<u>thirteenth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>flagellomere_14</u>)))) and (<u>bearer of</u> some <u>light brown</u>))))
Head color	black or dark brown, except for lighter clypeus; mandibles, maxillary and labial palps yellowish; scape and pedicel yellowish or light brown, flagellomeres progressively darker till last one	((<u>has_part</u> some (<u>maxillary palp</u> and (<u>bearer of</u> some <u>yellow</u>))) and (some (<u>pedicel</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has_part</u> some (<u>first flagellomere</u> and (<u>bearer of</u> some (<u>color brightness</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>second flagellomere</u>)))))) and (<u>has_part</u> some (<u>second flagellomere</u> and (<u>bearer of</u> some (<u>color brightness</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>third flagellomere</u>)))))) and (<u>has_part</u> some (<u>fifth flagellomere</u> and (<u>bearer of</u> some (<u>color brightness</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>sixth flagellomere</u>)))))) and (<u>has_part</u> some (<u>third flagellomere</u> and (<u>bearer of</u> some (<u>color brightness</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>fourth flagellomere</u>)))))) and (<u>has_part</u> some (<u>fourth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>fifth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>) and (<u>has_part</u> some (<u>sixth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>seventh flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>) and (<u>has_part</u> some (<u>seventh flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>eighth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>) and (<u>has_part</u> some (<u>eighth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>ninth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>) and (<u>has_part</u> some (<u>ninth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>tenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>) and (<u>has_part</u> some (<u>eleventh flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>twelfth flagellomere</u>)))) and (<u>has_part</u> some (<u>clypeus</u> and (<u>bearer of</u> some <u>brown</u>)) and (<u>has_part</u> some (<u>head</u> and (<u>antenna</u>)) and (not (<u>clypeus</u>)) and (not (<u>labial palp</u>)) and (not (<u>mandible</u>) and (not (<u>maxillary palp</u>)) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>bearer of</u> some (<u>labial palp</u> and (<u>bearer of</u> some <u>yellow</u>)) and (<u>has_part</u> some (<u>mandible</u> and (<u>bearer of</u> some <u>yellow</u>)) and (<u>has_part</u> some (<u>twelfth flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))))

Entity	Value	Semantic Phenotype
Head color	black to dark brown, clypeus lighter; mandibles, maxillary and labial palps yellowish; scape, pedicel and F1 light brown, subsequent flagellomeres progressively darker	<p>has part some (<u>head</u> and ((not (<u>clypeus</u>)) and (not (<u>mandible</u> and (((<u>antenna</u>)) and (<u>bearer_of</u> some <u>dark_brown</u>)) and (not (<u>labial_palp</u>))))) and (<u>has_part</u> some (<u>clypeus</u> and (<u>bearer_of</u> some <u>brown</u>))) and (<u>has_part</u> some (<u>labial_palp</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>mandible</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>maxillary_palp</u> and (<u>bearer_of</u> some <u>yellow</u>))) and (<u>has_part</u> some (<u>pedicel</u> and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>scape</u> and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>first_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some <u>brightness</u> and (<u>inheres_in</u> some <u>second_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>second_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>third_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>fifth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>sixth_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>third_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>fourth_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>fourth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>fifth_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>sixth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>seventh_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>seventh_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>eighth_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>eighth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>ninth_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>ninth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>tenth_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>eleventh_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>twelfth_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>twelfth_flagellomere</u> and ((<u>bearer_of</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>thirteenth_flagellomere</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>))) and (<u>has_part</u> some (<u>thirteenth_flagellomere</u> and (<u>inheres_in</u> some <u>color_brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color_brightness</u> and (<u>inheres_in</u> some <u>flagellomere_14</u>)))) and (<u>bearer_of</u> some <u>light_brown</u>)))</p>

Entity	Value	Semantic Phenotype
	mandibles, maxillary and labial palps yellowish; scape and pedicel yellow, flagellomeres progressively darker	part some <u>medial region</u>))))) and (<u>has part</u> some (<u>clypeus</u> and (<u>bearer of some dark brown</u>))) and (<u>has part</u> some (<u>labial palp</u> and (<u>bearer of some yellow</u>))) and (<u>has part</u> some (<u>lower face</u> and ((<u>has part</u> some <u>medial</u> and (<u>bearer of some dark brown</u>)))) and (<u>has part</u> some (<u>mandible</u> and (<u>bearer of some yellow</u>))) and (<u>has part</u> some (<u>maxillary palp</u> and (<u>bearer of some yellow</u>))) and (<u>has part</u> some (<u>pedicel</u> and (<u>bearer of some yellow</u>))) and (<u>has part</u> some (<u>scape</u> and (<u>bearer of some yellow</u>))) and (<u>has part</u> some (<u>first flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some second flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>has part</u> some (<u>frons</u> and ((<u>has part</u> some <u>medial region</u>) and (<u>adjacent_to</u> <u>torulus</u> and (<u>bearer of some dark brown</u>))))) and (<u>has part</u> some (<u>second flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some third flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>has part</u> some (<u>fifth flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some sixth flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>has part</u> some (<u>third flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some fourth flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>part</u> some (<u>fourth flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some fifth flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>part</u> some (<u>sixth flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some seventh flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>part</u> some (<u>seventh flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some eighth flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>part</u> some (<u>eighth flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some ninth flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>part</u> some (<u>ninth flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some tenth flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>part</u> some (<u>eleventh flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some twelfth flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>part</u> some (<u>twelfth flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some thirteenth flagellomere</u>)))) and (<u>bearer of some light brown</u>))) and (<u>part</u> some (<u>thirteenth flagellomere</u> and ((<u>bearer of some color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inhabited_by some flagellomere 14</u>)))) and (<u>bearer of some light brown</u>))))
Head color	dark brown, except for lighter clypeus; mandibles, maxillary and labial	<u>has part</u> some (<u>head</u> and ((not (<u>clypeus</u>)) and (not (<u>mandible</u> and (((<u>antenna</u>)) and (<u>bearer of some dark brown</u>)) and (not (<u>labial palp</u>))))) and (<u>has part</u> some (<u>clypeus</u> and (<u>bearer of some brown</u>))) and (<u>has part</u> some (<u>labial palp</u> and (<u>bearer of some yellow</u>)))

Entity	Value	Semantic Phenotype
	palps yellowish; scape and pedicel yellow, flagellomeres progressively darker	(<u>has part</u> some (<u>mandible</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>maxillary palp</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>first flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>second flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>second flagellomere</u> and (<u>bearer of</u> color brightness) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>third flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>fifth flagellomere</u> and (<u>bearer of</u> color brightness) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>sixth flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>third flagellomere</u> and (<u>bearer of</u> color brightness) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>fourth flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>fourth flagellomere</u> and (<u>bearer of</u> color brightness) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>fifth flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>sixth flagellomere</u> and (<u>bearer of</u> color brightness) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>seventh flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>seventh flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>eighth flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>eighth flagellomere</u> and (<u>bearer of</u> color brightness) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>ninth flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>ninth flagellomere</u> and (<u>bearer of</u> color brightness) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>tenth flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>eleventh flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>twelfth flagellomere</u>)))) and (<u>bearer of</u> light brown)) and (<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>bearer of</u> color brightness) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>thirteenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>)) and (<u>has part</u> some (<u>thirteenth flagellomere</u> and (<u>bearer of</u> some <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>flagellomere 14</u>)))) and (<u>bearer of</u> some <u>light brown</u>)))
Head color	reddish brown, except for dark brown to black postgena, occiput, vertex; mandibles, maxillary and labial palps yellowish; scape, pedicel, F1 and F2 yellow,	<u>has part</u> some (<u>head</u> and ((not (<u>clypeus</u>)) and (not (<u>mandible</u> and (((<u>antenna</u>)) and (<u>bearer of</u> some <u>red</u>)) and (not (<u>labial palp</u>)))) and (not (<u>maxillary palp</u>))))) and (<u>has part</u> some (<u>labial palp</u> and (<u>bearer of</u> some <u>yellow</u>)) and (<u>has part</u> some (<u>mandible</u> and (<u>bearer of</u> some <u>yellow</u>)) and (<u>has part</u> some (<u>maxillary palp</u> and (<u>bearer of</u> some <u>yellow</u>)))) and (<u>has part</u> some (<u>occiput</u> and (<u>bearer of</u> some <u>dark brown</u>)))) and (<u>has part</u> some (<u>pedicel</u> and (<u>bearer of</u> some <u>yellow</u>)))) and (<u>has part</u> some (<u>postgena</u> and (<u>bearer of</u> some <u>dark brown</u>)))) and (<u>has part</u> some (<u>scape</u> and (<u>bearer of</u> some <u>yellow</u>)))) and (<u>has part</u> some (<u>vertex</u> and (<u>bearer of</u> some <u>dark brown</u>))))

Entity	Value	Semantic Phenotype
	subsequent flagellomeres progressively darker	(<u>has part</u> some (<u>first flagellomere</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>part</u> some (<u>second flagellomere</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>some</u> (<u>fifth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>sixth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>some</u> (<u>third flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>fourth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>part</u> some (<u>fourth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>fifth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>some</u> (<u>sixth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>seventh flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>part</u> some (<u>seventh flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>eighth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>part</u> some (<u>eighth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>ninth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>some</u> (<u>ninth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>tenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>some</u> (<u>eleventh flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>twelfth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>part</u> some (<u>twelfth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>thirteenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>part</u> some (<u>thirteenth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>flagellomere 14</u>)))) and (<u>bearer of</u> some <u>light brown</u>))))
Head color	Head black, except for lighter clypeus; mandibles, maxillary and labial palps yellowish brown; scape and pedicel yellow, flagellomeres progressively darker till last one	<u>has part</u> some (<u>head</u> and ((not (<u>clypeus</u>)) and (not (<u>mandible</u> and (((<u>antenna</u>)) and (<u>bearer of</u> some <u>black</u>)) and (not (<u>labial palp</u>)))) and (<u>maxillary palp</u>))))) and (<u>has part</u> some (<u>clypeus</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>labial palp</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>mandible</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>part</u> some (<u>maxillary palp</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>pedicel</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>scape</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>first flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>second flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>fifth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>sixth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>third flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>fourth flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>sixth flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>color brightness</u> and (<u>inheres_in</u> some <u>seventh flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>)))

Entity	Value	Semantic Phenotype
		<u>light brown</u>))) and (<u>has part</u> some (<u>seventh flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some <u>brightness</u> and (<u>inheres in</u> some <u>eighth flagellomere</u>)))) and (<u>bearer of</u> <u>light brown</u>))) and (<u>has part</u> some (<u>eighth flagellomere</u> and ((<u>bearer of</u> <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>ninth flagellomere</u>)))) and (<u>bearer of</u> <u>light brown</u>))) and (<u>has part</u> some (<u>ninth flagellomere</u> and ((<u>bearer of</u> <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>tenth flagellomere</u>)))) and (<u>bearer of</u> <u>light brown</u>))) and (<u>has part</u> some (<u>eleventh flagellomere</u> and ((<u>bearer of</u> some <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>brightness</u> and (<u>inheres in</u> some <u>twelfth flagellomere</u>)))) and (<u>bearer of</u> <u>light brown</u>))) and (<u>has part</u> some (<u>twelfth flagellomere</u> and ((<u>bearer of</u> <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>thirteenth flagellomere</u>)))) and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>thirteenth flagellomere</u> and (<u>of some</u> <u>color brightness</u>) and (<u>increased in magnitude relative to</u> some (<u>color brightness</u> and (<u>inheres in</u> some <u>flagellomere 14</u>)))) and (<u>bearer of</u> some <u>light brown</u>))))
Head sculpture	smooth, glossy	<u>has part</u> some (<u>cranium</u> and (not (<u>has part</u> some <u>scute</u>)) and (<u>bearer of</u> <u>glistening</u>))
Head sculpture	coriaceous	<u>has part</u> some (<u>cranium</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Head shape anterior view	rounded	<u>has part</u> some (<u>head</u> and (<u>bearer of</u> some <u>circular</u>))
Head width / head height	1.1	<u>has part</u> some (<u>head width</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>median anatomical line</u> and (<u>part of</u> some (<u>anterior side</u> and (<u>some head</u>)))))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.1f]))))
Head width / head height	1.3	<u>has part</u> some (<u>head width</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>median anatomical line</u> and (<u>part of</u> some (<u>anterior side</u> and (<u>some head</u>)))))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.3f]))))
Head width / head height	1.17	<u>has part</u> some (<u>head width</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>median anatomical line</u> and (<u>part of</u> some (<u>anterior side</u> and (<u>some head</u>)))))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.17f]))))
Head width / head height	1.15	<u>has part</u> some (<u>head width</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>median anatomical line</u> and (<u>part of</u> some (<u>anterior side</u> and (<u>some head</u>)))))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.15f]))))
Head width / head height	1.2	<u>has part</u> some (<u>head width</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is qual</u>

Entity	Value	Semantic Phenotype
height		<u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some (<u>median_anatomical_line</u> and (<u>part_of</u> some (<u>anterior_side</u> and (some <u>head</u>)))))) and (<u>has_measurement_value</u> some <u>float</u> [>= 1.2f]))
Head width / head height	1.25	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> <u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some (<u>median_anatomical_line</u> and (<u>part_of</u> some (<u>anterior_side</u> and (some <u>head</u>)))))) and (<u>has_measurement_value</u> some <u>float</u> [>= 1.25f]))
Head width / head length	1.86	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> <u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some <u>head_length</u>)))) and (<u>has_measurement_value</u> some <u>float</u> [>= 1.86f]))
Head width / head length	2.1	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> <u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some <u>head_length</u>)))) and (<u>has_measurement_value</u> some <u>float</u> [>= 2.1f]))
Head width / head length	1.9	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> <u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some <u>head_length</u>)))) and (<u>has_measurement_value</u> some <u>float</u> [>= 1.9f]))
Head width / head length	1.7	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> <u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some <u>head_length</u>)))) and (<u>has_measurement_value</u> some <u>float</u> [>= 1.7f]))
Head width / head length	2.2	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> <u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some <u>head_length</u>)))) and (<u>has_measurement_value</u> some <u>float</u> [>= 2.2f]))
Head width / head length	2	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> <u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some <u>head_length</u>)))) and (<u>has_measurement_value</u> some <u>float</u> [>= 2.0f]))
Head width / maximum mesosoma width	< 1	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> <u>measured_as</u> some (<u>has_measurement_unit_label</u> some (<u>length</u> and (<u>in</u> some (<u>dorsal_side</u> and (<u>part_of</u> some <u>mesosoma</u>)))) and (<u>inheres_in</u> some <u>maximum_width</u>)))) and (<u>has_measurement_value</u> some <u>float</u> [=< 1.0f]))
Head width / maximum mesosoma width	1	<u>has_part</u> some (<u>head_width</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>similar_in_magnitude_relative_to</u> some (<u>length</u> and (<u>in</u> some (<u>side</u> and (<u>part_of</u> some <u>mesosoma</u>)))) and (<u>inheres_in</u> some <u>maximum_width</u>)))))
Hypopygial setae apical end	extending beyond posterior end of ventral spine of hypopygium	<u>has_part</u> some (<u>seta</u> and (<u>part_of</u> some <u>hypopygium</u>) and (<u>posterior</u> (<u>posterior_margin</u> and (<u>part_of</u> some <u>ventral_spine_of_hypopygium</u>)))

Entity	Value	Semantic Phenotype
Hypopygial setae apical end	not extending beyond posterior end of ventral spine of hypopygium	<u>has part</u> some (<u>seta</u> and (<u>not</u> (<u>posterior_to</u> some (<u>posterior margin</u> and (<u>part_of</u> some <u>ventral spine of hypopygium</u>)))) and (<u>part_of</u> some <u>hypopygium</u>))
Impression abjacent ventrally to posterior tentorial pit	present	<u>has part</u> some (<u>occiput</u> and (<u>has part</u> some (<u>impression</u> and (<u>ventral posterior tentorial pit</u>))))
Impression abjacent ventrally to posterior tentorial pit	absent	not (<u>has part</u> some (<u>occiput</u> and (<u>has part</u> some (<u>impression</u> and (<u>ventral posterior tentorial pit</u>))))
Impression around central ocellus	present	(<u>has part</u> some <u>vertex</u>) and (<u>has part</u> some (<u>impression</u> and (<u>adjacent</u> some <u>median ocellus</u>)))
Inner margins of eyes	converging ventrally	<u>has part</u> some (<u>interocular distance</u> and (<u>dorsal_to</u> some <u>torulus</u>) and (<u>increased_in_magnitude_relative_to</u> some (<u>interocular distance</u> and (<u>ventral_to</u> some <u>torulus</u>))))
Intercellar area pilosity color	white	<u>has part</u> some (<u>intercellular space</u> and (<u>has part</u> some <u>pilosity</u>))
Intercellar area pilosity density	dense	<u>has part</u> some (<u>intercellular space</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>some</u> <u>dense</u>))))
Intercellar area pilosity density	rare	<u>has part</u> some (<u>intercellular space</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>some</u> <u>sparse</u>))))
Intercellar area reflectivity	matte	<u>has part</u> some (<u>intercellular space</u> and (<u>bearer_of</u> some (not (<u>glistening</u>)))
Intercellar area reflectivity	glossy	<u>has part</u> some (<u>intercellular space</u> and (<u>bearer_of</u> some <u>glistening</u>))
Intercellar area sculpture	coriaceous	<u>has part</u> some (<u>intercellular space</u> and (<u>bearer_of</u> some <u>coriaceous</u>))
Intercellar area sculpture	alutaceous	<u>has part</u> some (<u>intercellular space</u> and (<u>bearer_of</u> some <u>alutaceous</u>))
Intercellar area sculpture	smooth	<u>has part</u> some (<u>intercellular space</u> and (not (<u>has part</u> some <u>scute</u>)))
Intertorular distance / eye torulus distance	0.4	<u>has part</u> some (<u>torular space</u> and (<u>bearer_of</u> some (<u>length</u> and ((<u>is quantity</u> measured as some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye-torulus distance</u>)))) and (<u>has measurement value</u> some <u>float</u>)))

Entity	Value	Semantic Phenotype
		0.4f]))))
Lateral ocellus shape	ovate	<u>has part</u> some (<u>lateral ocellus</u> and (<u>bearer of</u> some <u>ovate</u>))
Lateral ocellus shape	spherical	<u>has part</u> some (<u>lateral ocellus</u> and (<u>bearer of</u> some <u>spherical</u>))
Lateral propodeal area pilosity	absent	<u>has part</u> some (<u>lateral propodeal area</u> and (not (<u>has part</u> some <u>pilosity</u>)))
Lateral propodeal area pilosity	present	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>has part</u> some <u>pilosity</u>))
Lateral propodeal area pilosity color	white	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>has part</u> some (<u>pilosity</u> and <u>bearer of</u> some <u>white</u>))))
Lateral propodeal area pilosity density	rare	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>has part</u> some (<u>pilosity</u> and <u>bearer of</u> some <u>sparse</u>))))
Lateral propodeal area pilosity density	dense	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>has part</u> some (<u>pilosity</u> and <u>bearer of</u> some <u>dense</u>))))
Lateral propodeal area sculpture	smooth with transverse rugae	<u>has part</u> some (<u>lateral propodeal area</u> and ((<u>has part</u> some <u>rupa</u>) and (<u>of</u> some <u>transverse orientation</u>)) and (not (<u>has part</u> some <u>scute</u>))))
Lateral propodeal area sculpture	coriaceous with irregular rugae	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>has part</u> some <u>rupa</u>) and (<u>of</u> some <u>coriaceous</u>))
Lateral propodeal area sculpture	rugose	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>bearer of</u> some <u>rugose</u>))
Lateral propodeal area sculpture	smooth	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>bearer of</u> some <u>smooth</u>))
Lateral propodeal area sculpture	lateral propodeal area alutaceous, with some piliferous punctures	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>has part</u> some <u>setal pit</u>) and <u>bearer of</u> some <u>alutaceous</u>))
Lateral propodeal area sculpture	smooth with irregular rugae	<u>has part</u> some (<u>lateral propodeal area</u> and (not (<u>has part</u> some <u>scute</u>)) <u>has part</u> some <u>rupa</u>))
Lateral propodeal area sculpture	lateral propodeal area alutaceous	<u>has part</u> some (<u>lateral propodeal area</u> and (<u>bearer of</u> some <u>alutaceous</u>))
Lateral propodeal carina shape	broad, high, strongly curved laterally in mid-	<u>has part</u> some (<u>lateral propodeal carina</u> and (<u>bearer of</u> some <u>increased</u> and (<u>bearer of</u> some <u>increased width</u>) and (<u>bearer of</u> some <u>increased</u>

Entity	Value	Semantic Phenotype
	height	<u>curvature</u>))
Lateral propodeal carina shape	broad, high, lyre-shaped	(<u>has part</u> some (<u>lateral propodeal carina</u> and (<u>bearer of</u> some <u>increased width</u>) and (<u>bearer of</u> some <u>increased width</u>))) and (<u>has part</u> some (<u>metasomal depression</u> and (<u>bearer of</u> some <u>lyre-shaped</u>)))
Lateral propodeal carina shape	broad, high, slightly curved laterally in mid-height	<u>has part</u> some (<u>lateral propodeal carina</u> and (<u>bearer of</u> some <u>increased width</u>) and (<u>bearer of</u> some <u>decreased curvature</u>))
Lateroaxillar area pilosity color	white	<u>has part</u> some (<u>lateral axillar area</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>color</u> some <u>white</u>))))
Lateroaxillar area pilosity density	rare	<u>has part</u> some (<u>lateral axillar area</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>density</u> some <u>sparse</u>))))
Lateroaxillar area reflectivity	matte	<u>has part</u> some (<u>lateral axillar area</u> and (<u>bearer of</u> some (not (<u>glistening</u> and (<u>reflective</u>))))
Lateroaxillar area reflectivity	glossy	<u>has part</u> some (<u>lateral axillar area</u> and (<u>bearer of</u> some <u>glistening</u>))
Lateroaxillar area sculpture	rugose	<u>has part</u> some (<u>lateral axillar area</u> and (<u>bearer of</u> some <u>rugose</u>))
Lateroaxillar area sculpture	smooth with few rugae	<u>has part</u> some (<u>lateral axillar area</u> and (not (<u>has part</u> some <u>scute</u>)) and (<u>has part</u> some <u>rugae</u>))
Lateroaxillar area sculpture	alutaceous with few rugae	<u>has part</u> some (<u>lateral axillar area</u> and (<u>has part</u> some <u>rugae</u>) and (<u>bearer of</u> some <u>alutaceous</u>))
Lateroaxillar area sculpture	smooth	<u>has part</u> some (<u>lateral axillar area</u> and (<u>bearer of</u> some <u>smooth</u>))
Lower face pilosity color	white	<u>has part</u> some (<u>lower face</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>white</u>))))
Lower face pilosity density	rare	<u>has part</u> some (<u>lower face</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>sparse</u>))))
Lower face pilosity density	dense	<u>has part</u> some (<u>lower face</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>dense</u>))))
Lower face sculpture	coriaceous	<u>has part</u> some (<u>lower face</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Lower face sculpture	alutaceous	<u>has part</u> some (<u>lower face</u> and (<u>bearer of</u> some <u>alutaceous</u>))

Entity	Value	Semantic Phenotype
Lower face sculpture	alutaceous except median elevated area coriaceous	<u>has_part</u> some (<u>lower_face</u> and (<u>has_part</u> some (<u>region</u> and (not (<u>med_region</u> and (<u>bearer_of</u> some <u>coriaceous</u>)))) and (<u>bearer_of</u> some <u>alutaceous</u>))
Malar area	alutaceous	<u>has_part</u> some (<u>malar_area</u> and (<u>bearer_of</u> some <u>alutaceous</u>))
Malar striae count	present	<u>has_part</u> some <u>malar_striae</u>
Malar striae dorsal limit	torulus-eye line on lower face and lower eye margin on malar area	<u>has_part</u> some (<u>malar_striae</u> and (<u>has_part</u> some (<u>dorsal_region</u> and (<u>adjacent_to</u> some (<u>eye-torulus_distance</u>) and (<u>adjacent_to</u> some (<u>ventral_margin</u> part_of some <u>compound_eye</u>))))))
Malar sulcus	absent	not (<u>has_part</u> some <u>malar_sulcus</u>)
Male antenna length / body length	1	<u>has_part</u> some (<u>antenna</u> and (<u>has_part</u> some (<u>proximodistal_anatomical</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>similar_in_magnitude_relative_to</u> <u>length</u> and (<u>inheres_in</u> some <u>median_anatomical_line</u>))))))
Male antenna length / body length	>1	<u>has_part</u> some (<u>antenna</u> and (<u>has_part</u> some (<u>proximodistal_anatomical</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>increased_in_magnitude_relative_to</u> <u>length</u> and (<u>inheres_in</u> some <u>median_anatomical_line</u>))))))
Male body length	1.8â€“1.9 mm (n5)	<u>has_part</u> some (<u>body_length</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> measured as some ((<u>has_measurement_unit_label</u> value <u>millimeter</u>) and <u>measurement_value</u> some (<u>float</u> [>= 1.8f] and <u>float</u> [<= 1.9f])))))
Male body length	2.6â€“2.8 mm (n4)	<u>has_part</u> some (<u>body_length</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> measured as some ((<u>has_measurement_unit_label</u> value <u>millimeter</u>) and <u>measurement_value</u> some (<u>float</u> [>= 2.6f] and <u>float</u> [<= 2.8f])))))
Male body length	2.2 mm (n1)	<u>has_part</u> some (<u>body_length</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> measured as some ((<u>has_measurement_unit_label</u> value <u>millimeter</u>) and <u>measurement_value</u> some <u>float</u> [<= 2.2f])))))
Male body length	1.5â€“1.7 mm (n2)	<u>has_part</u> some (<u>body_length</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> measured as some ((<u>has_measurement_unit_label</u> value <u>millimeter</u>) and <u>measurement_value</u> some (<u>float</u> [>= 1.5f] and <u>float</u> [<= 1.7f])))))
Male body length	2.1 mm (n1)	<u>has_part</u> some (<u>body_length</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> measured as some ((<u>has_measurement_unit_label</u> value <u>millimeter</u>) and <u>measurement_value</u> some <u>float</u> [<= 2.1f])))))
Male body length	1.9 mm (n1)	<u>has_part</u> some (<u>body_length</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>is_qual</u> measured as some ((<u>has_measurement_unit_label</u> value <u>millimeter</u>) and <u>measurement_value</u> some <u>float</u> [<= 1.9f])))))

Entity	Value	Semantic Phenotype
Male body length	2.7â€“2.9 mm (n5)	<u>has part</u> some (<u>body length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qual measured as</u> some ((<u>has measurement unit label</u> value <u>millimeter</u>) and <u>measurement value</u> some (<u>float</u> [>= 2.7f] and <u>float</u> [<= 2.9f]))))))
Male color	Head, mesosoma and metasoma dark brown; antenna brown; legs yellowish brown	(<u>has part</u> some (<u>antenna</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> <u>head</u> and (not (<u>antenna</u>)) and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>leg</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>mesosoma</u> and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>metasoma</u> and (some <u>dark brown</u>)))
Male color	Head and mesosoma black, metasoma dark brown, antenna light brown to dark brown	(<u>has part</u> some (<u>antenna</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>head</u> and (not (<u>antenna</u>)) and (<u>bearer of</u> some <u>black</u>))) and (<u>has part</u> some (<u>mesosoma</u> and (<u>bearer of</u> some <u>black</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>bearer of</u> some <u>dark brown</u>)))
Male color	Head, mesosoma and metasoma dark brown; antenna brown	(<u>has part</u> some (<u>antenna</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> <u>head</u> and (not (<u>antenna</u>)) and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>mesosoma</u> and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>bearer of</u> some <u>dark brown</u>)))
Male color	Head and mesosoma dark brown, with lighter lower face and mouth parts; metasoma dark brown; antenna light brown.	(<u>has part</u> some (<u>antenna</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>head</u> and (not (<u>antenna</u>)) and (not (<u>lower face</u>)) and (not (<u>mesosoma</u>)) and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>lower face</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>mesosoma</u> and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>mouthparts</u> and (<u>bearer of</u> some <u>brown</u>)))
Male color	Head, mesosoma and metasoma dark brown; antenna light brown	(<u>has part</u> some (<u>antenna</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>head</u> and (not (<u>antenna</u>)) and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>mesosoma</u> and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>bearer of</u> some <u>dark brown</u>)))
Male color	Head, mesosoma and metasoma black; antenna brown; scape, pedicel and F1 light brown; F2â€“F13 dark brown	(<u>has part</u> some (<u>flagellum</u> and (not (<u>first flagellomere</u>)) and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>head</u> and (not (<u>antenna</u>)) and (<u>bearer of</u> some <u>black</u>))) and (<u>has part</u> some (<u>mesosoma</u> and (<u>bearer of</u> some <u>black</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>bearer of</u> some <u>black</u>))) and (<u>has part</u> some (<u>pedicel</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>pedicel</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>first flagellomere</u> and (<u>bearer of</u> some <u>light brown</u>)))
Male color	Head and mesosoma orange-yellow; metasoma dark brown; antenna light brown	(<u>has part</u> some (<u>medial margin</u> and (<u>part of</u> some <u>lateral ocellus</u>) and (<u>bearer of</u> some <u>orange</u>))) and (<u>has part</u> some (<u>antenna</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>head</u> and (not (<u>antenna</u>)) and (not (<u>medial margin</u> and (<u>part of</u> some <u>lateral ocellus</u>) and (<u>bearer of</u> some <u>orange</u>))) and (<u>has part</u> some (<u>mesosoma</u> and (<u>bearer of</u> some <u>orange</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>bearer of</u> some <u>orange</u>)))

Entity	Value	Semantic Phenotype
	to dark brown; inner margins of lateral ocelli dark brown	some (metasoma and (bearer of some dark brown)))
Male diameter of torulus / intertorular distance	3	has part some (body length and (bearer of some (length and (is quality measured as some (has measurement unit label value millimeter) and measurement value some float [<= 3.0f])))))
Male F1 length / F2 length	1.3	has part some (first flagellomere and (has part some (proximodistal anatomical line and (bearer of some (length and (is quality measure some (has measurement unit label some (length and (inheres in some proximodistal anatomical line and (part of some second flagellomere and (has measurement value some float [>= 1.3f]))))))
Male F1 length / F2 length	1	has part some (first flagellomere and (has part some (proximodistal anatomical line and (bearer of some (length and (is quality measure some (has measurement unit label some (length and (inheres in some proximodistal anatomical line and (part of some second flagellomere and (has measurement value some float [>= 1.0f]))))))
Male F1 length / F2 length	1.07	has part some (first flagellomere and (has part some (proximodistal anatomical line and (bearer of some (length and (is quality measure some (has measurement unit label some (length and (inheres in some proximodistal anatomical line and (part of some second flagellomere and (has measurement value some float [>= 1.07f]))))))
Male F1 length / F2 length	0.94	has part some (first flagellomere and (has part some (proximodistal anatomical line and (bearer of some (length and (is quality measure some (has measurement unit label some (length and (inheres in some proximodistal anatomical line and (part of some second flagellomere and (has measurement value some float [>= 0.94f]))))))
Male F1 shape	F1 curved and broadened apically	has part some (first flagellomere and (has part some (distal region and bearer of some curved) and (bearer of some increased width)))
Male F13 length / F12 length	1.2	has part some (twelfth flagellomere and (has part some (proximodistal anatomical line and (bearer of some (length and (is quality measure some (has measurement unit label some (length and (inheres in some proximodistal anatomical line and (part of some twelfth flagellomere and (has measurement value some float [>= 1.2f]))))))
Male F13 length / F12 length	1.17	has part some (twelfth flagellomere and (has part some (proximodistal anatomical line and (bearer of some (length and (is quality measure some (has measurement unit label some (length and (inheres in some proximodistal anatomical line and (part of some twelfth flagellomere and (has measurement value some float [>= 1.17f]))))))

Entity	Value	Semantic Phenotype
Male F13 length / F12 length	1.08	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>twelfth flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 1.08f]))))))))
Male F13 length / F12 length	>1	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>twelfth flagellomere</u>
Male F13 length / F12 length	1.15	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>twelfth flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 1.15f]))))))))
Male F13 length / F12 length	1.13	<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and ((<u>is quality measure</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some <u>proximodistal anatomical line</u> and (<u>part of</u> some <u>twelfth flagellomere</u> and (<u>has measurement value</u> some <u>float</u> [>= 1.13f]))))))))
Male flagellomeres count	13	<u>has part</u> exactly 13 <u>flagellomere</u>
Male flagellomeres relative length	F2>F3>F4>F5>F6> F9>F10>F11>F12	<u>has part</u> some (<u>second flagellomere</u> and (<u>increased_in_magnitude_re</u> some (<u>third flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>fourth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>sixth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>seventh flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>eighth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>ninth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>tenth flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>eleven flagellomere</u> and (<u>increased_in_magnitude_relative_to</u> some <u>twelfth flagellomere</u>)))))))))))))))))))))
Marginal cilia	long	<u>has part</u> some (<u>marginal cilia</u> and (<u>bearer of</u> some <u>increased length</u>))
Median impression of postocciput dorsal to occipital foramen	present	<u>has part</u> some (<u>postocciput</u> and (<u>has part</u> some (<u>medial region</u> and ((<u>some</u> (<u>impression</u> and (<u>dorsal_to</u> some <u>occipital foramen</u>))))))
Median mesoscutal line	present	<u>has part</u> some <u>median mesoscutal line</u>
Median mesoscutal	absent	not (<u>has part</u> some <u>median mesoscutal line</u>)

Entity	Value	Semantic Phenotype
line		
Median mesoscutal line shape	triangular	<u>has part</u> some (<u>mesonotum</u> and (<u>has part</u> some (<u>posterior region</u> and <u>part</u> some <u>median mesoscutal line</u>))))
Median ocellus shape	ovate	<u>has part</u> some (<u>median ocellus</u> and (<u>bearer of</u> some <u>ovate</u>))
Median ocellus shape	spherical	<u>has part</u> some (<u>median ocellus</u> and (<u>bearer of</u> some <u>spherical</u>))
Mesopleural triangle pilosity	present	<u>has part</u> some (<u>mesopleural triangle</u> and (<u>has part</u> some <u>pilosity</u>))
Mesopleural triangle pilosity	absent	not (<u>has part</u> some (<u>mesopleural triangle</u> and (<u>has part</u> some <u>pilosity</u>)))
Mesopleural triangle pilosity color	white	<u>has part</u> some (<u>mesopleural triangle</u> and (<u>has part</u> some (<u>pilosity</u> and <u>of</u> some <u>white</u>))))
Mesopleural triangle reflectivity	matte	<u>has part</u> some (<u>mesopleural triangle</u> and (not (<u>bearer of</u> some <u>glistening</u>)))
Mesopleural triangle reflectivity	glossy	<u>has part</u> some (<u>mesopleural triangle</u> and (<u>bearer of</u> some <u>glistening</u>))
Mesopleural triangle sculpture	coriaceous	<u>has part</u> some (<u>mesopleural triangle</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Mesopleural triangle sculpture	rugose	<u>has part</u> some (<u>mesopleural triangle</u> and (<u>bearer of</u> some <u>rugose</u>))
Mesopleural triangle sculpture	alutaceous	<u>has part</u> some (<u>mesopleural triangle</u> and (<u>bearer of</u> some <u>alutaceous</u>))
Mesopleural triangle sculpture	smooth	<u>has part</u> some (<u>mesopleural triangle</u> and (<u>bearer of</u> some <u>smooth</u>))
Mesopleural triangle pilosity density	rare	<u>has part</u> some (<u>mesopleural triangle</u> and (<u>has part</u> some (<u>pilosity</u> and <u>of</u> some <u>sparse</u>))))
Mesopleuron pilosity	dense setae present just ventral to transepisternal line	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and ((<u>has</u> some (<u>anatomical region</u> and (not (<u>has part</u> some <u>pilosity</u>)) and (<u>dor</u> some <u>transepisternal line</u>))) and (<u>has part</u> some (<u>anatomical region</u> and <u>part</u> some <u>pilosity</u>) and (<u>ventral to</u> some <u>transepisternal line</u>))))))))
Mesopleuron pilosity	few setae present along margin of lateral mesopleural	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and ((<u>has</u> some (<u>anatomical region</u> and (<u>has part</u> some <u>pilosity</u>) and (<u>adjacent ventral margin</u>))) and (<u>has part</u> some (<u>dorsal region</u> and (not (<u>has</u> part some (<u>anatomical region</u> and (<u>adjacent ventral margin</u>)))))))))

Entity	Value	Semantic Phenotype
	face	<u>pilosity</u>))))))))
Mesopleuron pilosity	glabrous	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>be</u> some <u>glabrous</u>))))
Mesopleuron reflectivity	glossy	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>be</u> some <u>glistening</u>))))
Mesopleuron reflectivity	matte	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and (not <u>of</u> some <u>glistening</u>))))
Mesopleuron sculpture	smooth transepisternal line is marked by few delicate sulci, area dorsal to transepisternal line smooth except few short transverse anterior striae	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and (not <u>part</u> some <u>scute</u>)) and (<u>has part</u> some (<u>dorsal region</u> and (((not (<u>has</u> some <u>rupa</u>)) and (<u>has part</u> some <u>dorsal region</u>)) and (<u>has part</u> some (<u>region</u> and (<u>has part</u> some (<u>rupa</u> and (<u>bearer of</u> some <u>transverse orientation</u>)))) and (<u>dorsal_to</u> some <u>transepisternal line</u>)))) and (<u>has</u> some (<u>rupa</u> and (<u>adjacent to</u> some <u>transepisternal line</u>)))))
Mesopleuron sculpture	smooth, transepisternal line is marked by few delicate sulci, area dorsal to transepisternal line smooth	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and ((<u>ha</u> some <u>rupa</u>) and (<u>adjacent to</u> some <u>transepisternal line</u>)) and (not (<u>ha</u> some <u>scute</u>)) and (<u>has part</u> some (<u>dorsal region</u> and (<u>dorsal_to</u> some <u>transepisternal line</u>) and (<u>bearer of</u> some <u>glabrous</u>)))))
Mesopleuron sculpture	smooth, striae corresponding to transepisternal line extending 0.5 of mesopleural length, area dorsal to transepisternal line transversely striate	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and (not <u>part</u> some <u>scute</u>)) and (<u>has part</u> some (<u>dorsal region</u> and (<u>has part</u> some <u>rupa</u> and (<u>bearer of</u> some <u>transverse orientation</u>)))) and (<u>dorsal_to</u> some <u>transepisternal line</u>)))) and (<u>has part</u> some (<u>rupa</u> and (not (<u>part_of</u> some <u>posterior region</u> and (<u>part_of</u> some (<u>lateral side</u> and (<u>part_of</u> some <u>mesopectus</u>))))) and (<u>adjacent to</u> some <u>transepisternal line</u>)))))
Mesopleuron sculpture	smooth striae corresponding to transepisternal line extending to mesocoaxal foramen, area dorsal to transepisternal line transversely striate	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and ((<u>ha</u> some (<u>dorsal region</u> and (<u>has part</u> some (<u>rupa</u> and (<u>bearer of</u> some <u>transverse orientation</u>)))) and (<u>dorsal_to</u> some <u>transepisternal line</u>)))) and (<u>has part</u> (<u>rupa</u> and (<u>adjacent to</u> some <u>transepisternal line</u>) and (<u>adjacent to</u> some <u>mesocoaxal foramen</u>)))) and (not (<u>has part</u> some <u>scute</u>)))))
Mesopleuron sculpture	smooth, striae marking	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and (not <u>part</u> some <u>rupa</u>) and (<u>adjacent to</u> some <u>transepisternal line</u>)))) and (no

Entity	Value	Semantic Phenotype
	transepisternal line absent	<u>part</u> some (<u>scute</u>)))))
Mesopleuron sculpture	coriaceous, striae marking transepisternal line absent	<u>has part</u> some (<u>mesopectus</u> and (<u>has part</u> some (<u>lateral side</u> and (not <u>part</u> some <u>rupa</u>) and (<u>adjacent to</u> some <u>transepisternal line</u>))) and (<u>be</u> some <u>coriaceous</u>))))
Mesoscutal suprahumeral sulcus anterior end vs notaulus anterior end	adjacent	<u>has part</u> some (<u>mesoscutal suprahumeral sulcus</u> and (<u>has part</u> some (<u>margin</u> and (<u>adjacent to</u> some (<u>anterior margin</u> and (<u>part of</u> some <u>notaulus</u>))))))
Mesoscutal suprahumeral sulcus sculpture	foveolate	<u>has part</u> some (<u>mesoscutal suprahumeral sulcus</u> and (<u>bearer of</u> some <u>scalloped</u>))
Mesoscutellar axillar complex posterior margin vs metanotum	overhanging	<u>has part</u> some (<u>mesoscutellar-axillar complex</u> and (<u>has part</u> some (<u>po</u> <u>margin</u> and (<u>posterior to</u> some (<u>posterior margin</u> and (<u>part of</u> some <u>metanotum</u>))))))
Mesoscutellar-axillar complex length / mesoscutellar disc width	smaller than one	<u>has part</u> some (<u>mesoscutellar-axillar complex</u> and (<u>has part</u> some (<u>m</u> <u>anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>decreased in magnitude relative to</u> some (<u>length</u> and (<u>inheres in</u> so <u>width</u> and (<u>part of</u> some <u>scutellar disc</u>)))))))))
Mesoscutellar-axillar complex length / mesoscutellar disc width	>1	<u>has part</u> some (<u>mesoscutellar-axillar complex</u> and (<u>has part</u> some (<u>m</u> <u>anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>increased in magnitude relative to</u> some (<u>length</u> and (<u>inheres in</u> so <u>width</u> and (<u>part of</u> some <u>scutellar disc</u>)))))))))
Mesoscutum length / transscutal line	1.03	<u>has part</u> some (<u>mesoscutum length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>posterior mesoscutal width</u>)))) and (<u>has measuremen</u> some <u>float</u> [>= 1.03f])))))
Mesoscutum length / transscutal line	1.2	<u>has part</u> some (<u>mesoscutum length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>posterior mesoscutal width</u>)))) and (<u>has measuremen</u> some <u>float</u> [>= 1.2f])))))
Mesoscutum length / transscutal line	1	<u>has part</u> some (<u>mesoscutum length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>posterior mesoscutal width</u>)))) and (<u>has measuremen</u> some <u>float</u> [>= 1.0f])))))
Mesoscutum length / transscutal line	1.14	<u>has part</u> some (<u>mesoscutum length</u> and (<u>bearer of</u> some (<u>length</u> and (<u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u>

Entity	Value	Semantic Phenotype
metasoma color	yellow, except for legs yellowish, except tibia and first tarsomere dark brown, metasoma dark brown	some (<u>leg</u> and (not (<u>basitarsus</u>)) and (not (<u>tibia</u>)) and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>mesosoma</u> and (not (<u>leg</u>)) and (<u>bearer of</u> some <u>orange</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>tibia</u> and (<u>bearer of</u> some <u>dark brown</u>)))
Mesosoma and metasoma color	mesosoma dark brown to black, except for lighter tegula; metasoma dark brown; legs uniformly brown	((not (<u>leg</u>)) and (not (<u>mesopleuron</u>)) and (not (<u>propleuron</u>)) and (not (<u>tegula</u>)) and (not (<u>propodeum</u>)) and (<u>has part</u> some (not (<u>head</u>))) and (<u>bearer of</u> some <u>black</u>)) and (<u>has part</u> some (<u>leg</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>propleuron</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>tegula</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>propodeum</u> and (<u>bearer of</u> some <u>brown</u>)))
Mesosoma and metasoma color	dark brown to black, except for lighter tegula, propleuron, propodeum; legs yellowish.	((not (<u>leg</u>)) and (not (<u>mesopleuron</u>)) and (not (<u>propleuron</u>)) and (not (<u>tegula</u>)) and (not (<u>propodeum</u>)) and (<u>has part</u> some (not (<u>head</u>))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>leg</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>propleuron</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>tegula</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>propodeum</u> and (<u>bearer of</u> some <u>brown</u>)))
Mesosoma and metasoma color	dark brown, except for lighter tegula and propodeum, legs yellowish	((not (<u>leg</u>)) and (not (<u>tegula</u>)) and (not (<u>propodeum</u>)) and (<u>has part</u> some (not (<u>head</u>))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>leg</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>tegula</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>propodeum</u> and (<u>bearer of</u> some <u>brown</u>)))
Mesosoma and metasoma color	mesosoma black, except for lighter tegula; metasoma dark brown; legs yellowish.	((not (<u>leg</u>)) and (not (<u>metasoma</u>)) and (not (<u>tegula</u>)) and (<u>has part</u> some (not (<u>head</u>))) and (<u>bearer of</u> some <u>black</u>)) and (<u>has part</u> some (<u>leg</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>bearer of</u> some <u>brown</u>))) and (<u>has part</u> some (<u>tegula</u> and (<u>bearer of</u> some <u>brown</u>)))
Mesosoma and metasoma color	dark brown, except for lighter tegula, propodeum and posterior half of metasoma, legs yellowish	((not (<u>leg</u>)) and (not (<u>mesopleuron</u>)) and (not (<u>propleuron</u>)) and (not (<u>tegula</u>)) and (not (<u>propodeum</u>)) and (<u>has part</u> some (not (<u>head</u>))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>leg</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>metasoma</u> and (<u>has part</u> some (<u>posterior region</u> and (<u>bearer of</u> some <u>light brown</u>))))) and (<u>has part</u> some (<u>tegula</u> and (<u>bearer of</u> some <u>light brown</u>))) and (<u>has part</u> some (<u>propodeum</u> and (<u>has part</u> some <u>light brown</u>)))
Mesosoma and metasoma color	black, except for lighter tegula; legs yellowish.	((not (<u>leg</u>)) and (not (<u>tegula</u>)) and (<u>has part</u> some (not (<u>head</u>))) and (<u>bearer of</u> some <u>black</u>)) and (<u>has part</u> some (<u>leg</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>tegula</u> and (<u>bearer of</u> some <u>brown</u>)))
Mesosoma and metasoma color	dark brown, except lighter tegula; legs yellow.	((not (<u>leg</u>)) and (not (<u>tegula</u>)) and (<u>has part</u> some (not (<u>head</u>))) and (<u>bearer of</u> some <u>dark brown</u>)) and (<u>has part</u> some (<u>leg</u> and (<u>bearer of</u> some <u>yellow</u>))) and (<u>has part</u> some (<u>tegula</u> and (<u>bearer of</u> some <u>brown</u>)))
Mesosoma length	1.1	<u>has part</u> some (<u>mesosoma</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>has part</u> some (<u>length</u> and (<u>bearer of</u> some <u>metasoma</u>))))))

Entity	Value	Semantic Phenotype
lateral view / mesosoma height lateral view		some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>height</u> <u>inheres in</u> some (<u>lateral side</u> and (<u>part of</u> some <u>mesosoma</u>)))))) and (<u>measurement value</u> some <u>float</u> [>= 1.1f]))))))))
Mesosoma length lateral view / mesosoma height lateral view	1.03	<u>has part</u> some (<u>mesosoma</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>has</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>height</u> <u>inheres in</u> some (<u>lateral side</u> and (<u>part of</u> some <u>mesosoma</u>)))))) and (<u>measurement value</u> some <u>float</u> [>= 1.03f]))))))))
Mesosoma length lateral view / mesosoma height lateral view	1.16	<u>has part</u> some (<u>mesosoma</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>has</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>height</u> <u>inheres in</u> some (<u>lateral side</u> and (<u>part of</u> some <u>mesosoma</u>)))))) and (<u>measurement value</u> some <u>float</u> [>= 1.16f]))))))))
Mesosoma length lateral view / mesosoma height lateral view	1.15	<u>has part</u> some (<u>mesosoma</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>has</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>height</u> <u>inheres in</u> some (<u>lateral side</u> and (<u>part of</u> some <u>mesosoma</u>)))))) and (<u>measurement value</u> some <u>float</u> [>= 1.15f]))))))))
Mesosoma length lateral view / mesosoma height lateral view	1.26	<u>has part</u> some (<u>mesosoma</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>has</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>height</u> <u>inheres in</u> some (<u>lateral side</u> and (<u>part of</u> some <u>mesosoma</u>)))))) and (<u>measurement value</u> some <u>float</u> [>= 1.26f]))))))))
Mesosoma length lateral view / mesosoma height lateral view	1.14	<u>has part</u> some (<u>mesosoma</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>has</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>height</u> <u>inheres in</u> some (<u>lateral side</u> and (<u>part of</u> some <u>mesosoma</u>)))))) and (<u>measurement value</u> some <u>float</u> [>= 1.14f]))))))))
Mesosoma length lateral view / mesosoma height lateral view	1.2	<u>has part</u> some (<u>mesosoma</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>has</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>height</u> <u>inheres in</u> some (<u>lateral side</u> and (<u>part of</u> some <u>mesosoma</u>)))))) and (<u>measurement value</u> some <u>float</u> [>= 1.2f]))))))))
Mesosoma length lateral view / mesosoma height lateral view	1.17	<u>has part</u> some (<u>mesosoma</u> and (<u>has part</u> some (<u>lateral side</u> and (<u>has</u> some (<u>anteroposterior anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some (<u>has measurement unit label</u> some (<u>height</u> <u>inheres in</u> some (<u>lateral side</u> and (<u>part of</u> some <u>mesosoma</u>)))))) and (<u>measurement value</u> some <u>float</u> [>= 1.17f]))))))))

Entity	Value	Semantic Phenotype
Metanotal trough pilosity	absent	<u>has part</u> some (<u>metanotal trough</u> and (not (<u>has part</u> some <u>pilosity</u>)))
Metanotal trough pilosity	present	<u>has part</u> some (<u>metanotal trough</u> and (<u>has part</u> some <u>pilosity</u>))
Metanotal trough pilosity density	rare	<u>has part</u> some (<u>metanotal trough</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>b</u> some <u>sparse</u>))))
Metanotal trough reflectivity	glossy	<u>has part</u> some (<u>metanotal trough</u> and (<u>bearer of</u> some <u>glistening</u>))
Metanotal trough reflectivity	matte	<u>has part</u> some (<u>metanotal trough</u> and (not (<u>bearer of</u> some <u>glistening</u>)))
Metanotal trough sculpture	smooth	<u>has part</u> some (<u>metanotal trough</u> and (<u>bearer of</u> some <u>smooth</u>))
Metapleural sulcus anterior end	reaches mesometapleural suture in its mid-height.	<u>has part</u> some (<u>mesometapleural suture</u> and (<u>has part</u> some (<u>medial r</u> and (<u>adjacent to</u> some <u>metapleural sulcus</u>))))
Metapleural sulcus anterior end	reaches mesometapleural suture slightly ventrally of its mid-height.	<u>has part</u> some (<u>mesometapleural suture</u> and (<u>has part</u> some (<u>ventral r</u> and (<u>adjacent to</u> some <u>metapleural sulcus</u>))))
Metapleural sulcus anterior end	reaches mesometapleural suture in upper â...“ of its length	<u>has part</u> some (<u>mesometapleural suture</u> and (<u>has part</u> some (<u>dorsal r</u> “ (<u>adjacent to</u> some <u>metapleural sulcus</u>))))
Metapleural sulcus anterior end	reaches mesometapleural suture slightly dorsally of its mid-height.	<u>has part</u> some (<u>mesometapleural suture</u> and (<u>has part</u> some (<u>dorsal r</u> (<u>adjacent to</u> some <u>metapleural sulcus</u>))))
Metapleural sulcus anterior end	reaches mesometapleural suture in upper 1/4 of its length	<u>has part</u> some (<u>mesometapleural suture</u> and (<u>has part</u> some (<u>dorsal r</u> (<u>adjacent to</u> some <u>metapleural sulcus</u>))))
Metascutellum height / 2 ventral impressed area of metanotum height		<u>has part</u> some (<u>metascutellum</u> and (<u>has part</u> some (<u>posterior side</u> and <u>part</u> some (<u>maximum height</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is qua</u> measured as some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u>)))

Entity	Value	Semantic Phenotype
Metasomal tergites 3-6 pilosity	absent	(abdominal tergum 7 and (has part some pilosity))
Metasomal tergites 3-6 reflectivity	glossy	(has part some (abdominal tergum 4 and (bearer of some glistening)) has part some (abdominal tergum 5 and (bearer of some glistening)) has part some (abdominal tergum 6 and (bearer of some glistening)) has part some (abdominal tergum 7 and (bearer of some glistening)))
Metasomal tergites 3-6 reflectivity	matte	(has part some (abdominal tergum 4 and (bearer of some (not (glistening)))) and (has part some (abdominal tergum 5 and (bearer (not (glistening)))) and (has part some (abdominal tergum 6 and (bearer (not (glistening)))) and (has part some (abdominal tergum 7 and (bearer (not (glistening)))))
Metasomal tergites 3-6 sculpture	smooth, no micropunctures	(has part some (abdominal tergum 4 and (not (has part some setal pit (not (has part some scute)))) and (has part some (abdominal tergum 5 and (not (has part some setal pit)) and (not (has part some scute))) and (has part some (abdominal tergum 6 and (not (has part some setal pit)) and (not (has part some scute))) and (has part some (abdominal tergum 7 and (not (has part some setal pit)) and (not (has part some scute))))
Metasomal tergites 3-6 sculpture	smooth, micropunctate	(has part some (abdominal tergum 4 and (not (has part some scute)) has part some setal pit)) and (has part some (abdominal tergum 5 and (not (has part some scute)) has part some setal pit)) and (has part some (abdominal tergum 6 and (not (has part some scute)) and (has part some setal pit)) and (has part some (abdominal tergum 7 and (not (has part some scute)) and (has part some setal pit)))
Notaulus limits	well-impressed, posterior end adjacent to posterior margin of mesoscutum, anterior end adjacent to anterior margin of mesoscutum	has part some (notaulus and (has part some (anterior margin and (adheres to some (anterior margin and (part of some mesoscutum)))) and (bearer of some conspicuous))
Notaulus posterior region width / anterior region width	5	(has part some notaulus) and (has part some (anterior region and (has width some width) and (bearer of some (length and (is quality measured at some has measurement unit label some (length and (inheres in some (width part of some (posterior region and (part of some notaulus)))))) and (measurement value some float [>= 5.0f])))))
Notaulus posterior	1	(has part some notaulus) and (has part some (anterior region and (has width some width) and (bearer of some (length and (is quality measured at some has measurement unit label some (length and (inheres in some (width part of some (posterior region and (part of some notaulus)))))) and (measurement value some float [>= 5.0f])))))

Entity	Value	Semantic Phenotype
region width / anterior region width		some <u>width</u>) and (<u>bearer of</u> some (<u>length</u> and (<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> <u>part of</u> some (<u>posterior region</u> and (<u>part of</u> some <u>notaulus</u>)))))) and (<u>measurement value</u> some <u>float</u> [$\geq 1.0f$]))))))
Notaulus sculpture	smooth	<u>has part</u> some (<u>notaulus</u> and (<u>bearer of</u> some <u>smooth</u>))
Notaulus sculpture	crenulate	<u>has part</u> some (<u>notaulus</u> and (<u>bearer of</u> some <u>scalloped</u>))
Nucha sculpture	with delicate longitudinal rugae dorsally and laterally	<u>has part</u> some (<u>nucha</u> and (<u>has part</u> some (<u>dorsal region</u> and (<u>has part</u> <u>rupa</u> and (<u>bearer of</u> some <u>inconspicuous</u>) and (<u>bearer of</u> some <u>anterior orientation</u>)))) and (<u>has part</u> some (<u>lateral region</u> and (<u>has part</u> some (<u>bearer of</u> some <u>inconspicuous</u>) and (<u>bearer of</u> some <u>anterior orientation</u>)))))
Number of flagellomeres (female)	13	<u>has part</u> exactly 13 <u>flagellomere</u>
Number of flagellomeres (female)	12	<u>has part</u> exactly 12 <u>flagellomere</u>
Occiput pilosity color	white	<u>has part</u> some (<u>occiput</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>white</u>))))
Occiput pilosity density	rare	<u>has part</u> some (<u>occiput</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>sparse</u>))))
Occiput pilosity density	dense	<u>has part</u> some (<u>occiput</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>dense</u>))))
Occiput reflectivity	matte	<u>has part</u> some (<u>occiput</u> and (<u>bearer of</u> some (not (<u>glistening</u>))))
Occiput reflectivity	glossy	<u>has part</u> some (<u>occiput</u> and (<u>bearer of</u> some <u>glistening</u>))
Occiput sculpture	coriaceous	<u>has part</u> some (<u>occiput</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Occiput sculpture	smooth	<u>has part</u> some (<u>occiput</u> and (<u>bearer of</u> some <u>smooth</u>))
Occiput sculpture	alutaceous	<u>has part</u> some (<u>occiput</u> and (<u>bearer of</u> some <u>alutaceous</u>))
OOL / diameter of lateral ocellus	2.3	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>diameter</u> and (<u>part of</u> some <u>lateral ocellus</u>)))))) and (<u>has measured value</u> some <u>float</u> [$\geq 2.3f$])))))
OOL / diameter of lateral ocellus	2.1	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u>

Entity	Value	Semantic Phenotype
OOL / diameter of lateral ocellus	1.4	some (<u>diameter</u> and (<u>part_of</u> some <u>lateral ocellus</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 2.1f]))))
OOL / diameter of lateral ocellus	2	has <u>part</u> some (<u>ocular ocellar line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>measured_as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>diameter</u> and (<u>part_of</u> some <u>lateral ocellus</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.4f]))))))
OOL / diameter of lateral ocellus	1.58	has <u>part</u> some (<u>ocular ocellar line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>measured_as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>diameter</u> and (<u>part_of</u> some <u>lateral ocellus</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 2.0f]))))))
OOL / diameter of lateral ocellus	2.6	has <u>part</u> some (<u>ocular ocellar line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>measured_as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>diameter</u> and (<u>part_of</u> some <u>lateral ocellus</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.58f]))))))
OOL / diameter of lateral ocellus	2.45	has <u>part</u> some (<u>ocular ocellar line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>measured_as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>diameter</u> and (<u>part_of</u> some <u>lateral ocellus</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 2.45f]))))))
OOL / diameter of lateral ocellus	1.8	has <u>part</u> some (<u>ocular ocellar line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>measured_as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>diameter</u> and (<u>part_of</u> some <u>lateral ocellus</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.8f]))))))
OOL / diameter of lateral ocellus	1.36	has <u>part</u> some (<u>ocular ocellar line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>measured_as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some (<u>diameter</u> and (<u>part_of</u> some <u>lateral ocellus</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.36f]))))))
OOL / LOL	1.36	has <u>part</u> some (<u>ocular ocellar line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>measured_as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [>= 1.36f]))))))
OOL / LOL	2.1	has <u>part</u> some (<u>ocular ocellar line</u> and (<u>bearer_of</u> some (<u>length</u> and (<u>measured_as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [>= 2.1f]))))))

Entity	Value	Semantic Phenotype
OOL / LOL	2	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 2.0f]))))))
OOL / LOL	1.9	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 1.9f]))))))
OOL / LOL	1.45	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 1.45f]))))))
OOL / LOL	1.7	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 1.7f]))))))
OOL / LOL	1.6	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 1.6f]))))))
OOL / LOL	1.97	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 1.97f]))))))
OOL / LOL	2.05	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 2.05f]))))))
OOL / LOL	1.4	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 1.4f]))))))
OOL / LOL	1.37	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥ 1.37f]))))))
OOL / LOL	3.1	<u>has part</u> some (<u>ocular ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>lateral ocellar line</u>))) and (<u>has measurement value</u> some <u>float</u> [≥

Entity	Value	Semantic Phenotype
		3.1f]))))))
Parapsidal line	absent	not (<u>has part</u> some <u>parapsidal line</u>)
Parapsidal line	present	<u>has part</u> some <u>parapsidal line</u>
Parapsidal line distinctness	distinct	<u>has part</u> some (<u>parapsidal line</u> and (<u>bearer of</u> some <u>conspicuous</u>))
Parapsidal line distinctness	indistinct	<u>has part</u> some (<u>parapsidal line</u> and (<u>bearer of</u> some <u>inconspicuous</u>))
Pedicel length / length of broadened part of scape	1.08	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and ((<u>part of</u> some (<u>distal region</u> and (<u>part of pedicel</u>))) and (<u>inheres in</u> some <u>proximodistal anatomical line</u>))) and (<u>measurement value</u> some <u>float</u> [>= 1.08f]))))))
Pedicel length / length of broadened part of scape	0.83	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and ((<u>part of</u> some (<u>distal region</u> and (<u>part of pedicel</u>))) and (<u>inheres in</u> some <u>proximodistal anatomical line</u>))) and (<u>measurement value</u> some <u>float</u> [>= 0.83f]))))))
Pedicel length / length of broadened part of scape	1	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and ((<u>part of</u> some (<u>distal region</u> and (<u>part of pedicel</u>))) and (<u>inheres in</u> some <u>proximodistal anatomical line</u>))) and (<u>measurement value</u> some <u>float</u> [>= 1.0f]))))))
Pedicel length / length of broadened part of scape	0.68	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and ((<u>part of</u> some (<u>distal region</u> and (<u>part of pedicel</u>))) and (<u>inheres in</u> some <u>proximodistal anatomical line</u>))) and (<u>measurement value</u> some <u>float</u> [>= 0.68f]))))))
Pedicel length / pedicel width	1.6	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and ((<u>inheres in</u> some (<u>width</u> and (<u>part of</u> some (<u>pedicel</u>))) and (<u>has measurement value</u> some <u>float</u> [>= 1.6f]))))))
Pedicel length / pedicel width	2	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> and ((<u>inheres in</u> some (<u>width</u> and (<u>part of</u> some (<u>pedicel</u>))) and (<u>has measurement value</u> some <u>float</u> [>= 2.0f]))))))
Pedicel length / pedicel width < 1.0		<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical line</u> and (<u>bearer of</u> some (<u>length</u> and (<u>decreased_in_magnitude_relative_to</u> some (<u>width</u> and (<u>pedicel</u>))))))))

Entity	Value	Semantic Phenotype
Pedicel length / pedicel width	1.3	<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>pedicel</u>)))))))) <u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical</u> (<u>bearer_of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement value</u> some (<u>unit_label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>pedicel</u>))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.3f]))))))))
Pedicel length / pedicel width	1.4	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical</u> (<u>bearer_of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement value</u> some (<u>unit_label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>pedicel</u>))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.4f]))))))))
Pedicel length / pedicel width	1.7	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical</u> (<u>bearer_of</u> some (<u>length</u> and (<u>is quality measured as</u> some ((<u>has measurement value</u> some (<u>unit_label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>pedicel</u>))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.7f]))))))))
Pedicel length / pedicel width	longer than wide	<u>has part</u> some (<u>pedicel</u> and (<u>has part</u> some (<u>proximodistal anatomical</u> (<u>bearer_of</u> some (<u>length</u> and (<u>increased_in_magnitude_relative_to</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>pedicel</u>)))))))) and (<u>has part</u> some (<u>second flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>tenth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>fifth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>third flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>fourth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>sixth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>seventh flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>eighth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>ninth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>eleventh flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>thirteenth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))
Placoid sensilla present on	F2–F13	(<u>has part</u> some (<u>tenth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>fifth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>third flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>fourth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>sixth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>seventh flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>eighth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>ninth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>eleventh flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>thirteenth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))
Placoid sensilla present on	F3–F13	(<u>has part</u> some (<u>tenth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>fifth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>third flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>fourth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>sixth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>seventh flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>eighth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>ninth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>eleventh flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))) and (<u>has part</u> some (<u>thirteenth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))

Entity	Value	Semantic Phenotype
Placoid sensilla present on	F4–F12	(flagellomere and (has part some longitudinal sensillum)))
Placoid sensilla present on	F1–F12	(has part some (tenth flagellomere and (has part some longitudinal sensillum))) and (has part some (fifth flagellomere and (has part some longitudinal sensillum))) and (has part some (fourth flagellomere and (has part some longitudinal sensillum))) and (has part some (sixth flagellomere and (has part some longitudinal sensillum))) and (has part some (seventh flagellomere and (has part some longitudinal sensillum))) and (has part some (eighth flagellomere and (has part some longitudinal sensillum))) and (has part some (ninth flagellomere and (has part some longitudinal sensillum))) and (has part some (eleventh flagellomere and (has part some longitudinal sensillum))) and (has part some (twelfth flagellomere and (has part some longitudinal sensillum))) and (has part some (thirteenth flagellomere and (has part some longitudinal sensillum))))
Placoid sensilla present on	F2–F12	(has part some (first flagellomere and (has part some longitudinal sensillum))) and (has part some (second flagellomere and (has part some longitudinal sensillum))) and (has part some (tenth flagellomere and (has part some longitudinal sensillum))) and (has part some (fifth flagellomere and (has part some longitudinal sensillum))) and (has part some (third flagellomere and (has part some longitudinal sensillum))) and (has part some (fourth flagellomere and (has part some longitudinal sensillum))) and (has part some (sixth flagellomere and (has part some longitudinal sensillum))) and (has part some (seventh flagellomere and (has part some longitudinal sensillum))) and (has part some (eighth flagellomere and (has part some longitudinal sensillum))) and (has part some (ninth flagellomere and (has part some longitudinal sensillum))) and (has part some (eleventh flagellomere and (has part some longitudinal sensillum))) and (has part some (twelfth flagellomere and (has part some longitudinal sensillum))))
Placoid sensilla present on male	F2–F13	(has part some (second flagellomere and (has part some longitudinal sensillum))) and (has part some (tenth flagellomere and (has part some longitudinal sensillum))) and (has part some (fifth flagellomere and (has part some longitudinal sensillum))) and (has part some (third flagellomere and (has part some longitudinal sensillum))) and (has part some (fourth flagellomere and (has part some longitudinal sensillum))))

Entity	Value	Semantic Phenotype
POL / OOL	1.3	<u>flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))) and (<u>has part</u> some (<u>sixth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))) and (<u>part</u> some (<u>seventh flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)) and (<u>has part</u> some (<u>eighth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))) and (<u>has part</u> some (<u>ninth flagellomere</u> and (<u>has part</u> some (<u>longitudinal sensillum</u>)))) and (<u>has part</u> some (<u>tenth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))) and (<u>has part</u> some (<u>eleventh flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))) and (<u>has part</u> some (<u>twelfth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>)))) and (<u>has part</u> some (<u>thirteenth flagellomere</u> and (<u>has part</u> some <u>longitudinal sensillum</u>))))
POL / OOL	1.1	<u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>ocular ocellar line</u>)))) and (<u>has measurement value</u> some ([>= 1.3f]))))))
POL / OOL	1.4	<u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>ocular ocellar line</u>)))) and (<u>has measurement value</u> some ([>= 1.4f]))))))
POL / OOL	1.06	<u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>ocular ocellar line</u>)))) and (<u>has measurement value</u> some ([>= 1.06f]))))))
POL / OOL	1.05	<u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>ocular ocellar line</u>)))) and (<u>has measurement value</u> some ([>= 1.05f]))))))
POL / OOL	1.6	<u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>ocular ocellar line</u>)))) and (<u>has measurement value</u> some ([>= 1.6f]))))))
POL / OOL	1.2	<u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>ocular ocellar line</u>)))) and (<u>has measurement value</u> some ([>= 1.2f]))))))
POL / OOL	1.5	<u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length</u> <u>inheres in</u> some <u>ocular ocellar line</u>)))) and (<u>has measurement value</u> some ([>= 1.5f]))))))

Entity	Value	Semantic Phenotype
POL / OOL	0.84	[>= 1.5f])))))) <u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length inheres in</u> some <u>ocular ocellar line</u>))) and (<u>has measurement value</u> some [>= 0.84f])))))))
POL / OOL	1	 <u>has part</u> some (<u>posterior ocellar line</u> and (<u>bearer of</u> some (<u>length</u> and <u>quality measured as</u> some ((<u>has measurement unit label</u> some (<u>length inheres in</u> some <u>ocular ocellar line</u>))) and (<u>has measurement value</u> some [>= 1.0f])))))))
Postacetabular sulcus count	present	 <u>has part</u> some <u>postacetabular sulcus</u>
Postacetabular sulcus count	absent	 not (<u>has part</u> some <u>postacetabular sulcus</u>)
Posterior height of subaxillular bar / height of metanotal trough	0.25	 <u>has part</u> some (<u>posterior carina of subaxillular bar</u> and (<u>bearer of</u> some <u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>metanotal trough</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 0.25] and (<u>bearer of</u> some <u>length</u>)))))
Posterior height of subaxillular bar / height of metanotal trough	1.27	 <u>has part</u> some (<u>posterior carina of subaxillular bar</u> and (<u>bearer of</u> some <u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>metanotal trough</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.27] and (<u>bearer of</u> some <u>length</u>)))))
Posterior height of subaxillular bar / height of metanotal trough	1.25	 <u>has part</u> some (<u>posterior carina of subaxillular bar</u> and (<u>bearer of</u> some <u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>metanotal trough</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.25] and (<u>bearer of</u> some <u>length</u>)))))
Posterior height of subaxillular bar / height of metanotal trough	1.2	 <u>has part</u> some (<u>posterior carina of subaxillular bar</u> and (<u>bearer of</u> some <u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>metanotal trough</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.2] and (<u>bearer of</u> some <u>length</u>)))))
Posterior height of subaxillular bar / height of metanotal trough	1	 <u>has part</u> some (<u>posterior carina of subaxillular bar</u> and (<u>bearer of</u> some <u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of</u> some <u>metanotal trough</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1] and (<u>bearer of</u> some <u>length</u>)))))

Entity	Value	Semantic Phenotype
Posterior height of subaxillular bar / height of metanotal trough	>1	<u>has part</u> some (<u>posterior carina of subaxillular bar</u> and (<u>bearer of some length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label length</u> and (<u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of some metanotal trough</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1. (<u>bearer of some length</u>))))
Posterior height of subaxillular bar / height of metanotal trough	0.5	<u>has part</u> some (<u>posterior carina of subaxillular bar</u> and (<u>bearer of some length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label length</u> and (<u>inheres in</u> some (<u>median anatomical line</u> and (<u>part of some metanotal trough</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 0. (<u>bearer of some length</u>))))
Posterior tentorial pit	large, deep, distinct	<u>has part</u> some (<u>posterior tentorial pit</u> and (<u>bearer of some conspicuous</u> <u>bearer of some increased depth</u>) and (<u>bearer of some increased diameter</u>))
Posterior tentorial pit	distinct, ovate, deep	<u>has part</u> some (<u>posterior tentorial pit</u> and (<u>bearer of some conspicuous</u> <u>bearer of some increased depth</u>) and (<u>bearer of some ovate</u>))
Posterior tentorial pit	distinct, elongated	<u>has part</u> some (<u>posterior tentorial pit</u> and (<u>bearer of some conspicuous</u> <u>bearer of some increased length</u>))
Posterior tentorial pit	small, distinct	<u>has part</u> some (<u>posterior tentorial pit</u> and (<u>bearer of some conspicuous</u> <u>bearer of some decreased diameter</u>))
Postgena pilosity color	white	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of white</u>))))
Postgena pilosity count	absent medially, present laterally	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some (<u>lateral region</u> and (<u>has some pilosity</u>)) and (<u>has part</u> some (<u>medial region</u> and (<u>bearer of some glabrous</u>))))
Postgena pilosity count	present	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some <u>pilosity</u>))
Postgena pilosity density	dense	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of dense</u>))))
Postgena pilosity density	rare	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of sparse</u>))))
Postgena reflectivity	glossy	<u>has part</u> some (<u>postgena</u> and (<u>bearer of some glistening</u>))
Postgena reflectivity	glossy medially	<u>has part</u> some (<u>postgena</u> and ((<u>has part</u> some (<u>lateral region</u> and (<u>not of some glistening</u>))) and (<u>has part</u> some (<u>medial region</u> and (<u>bearer of some glistening</u>)))))
Postgena reflectivity	matte	<u>has part</u> some (<u>postgena</u> and (<u>not (bearer of some glistening)</u>))

Entity	Value	Semantic Phenotype
Postgena sculpture	alutaceous with delicate rugae along oral foramen.	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some (<u>medial region</u> and (<u>has part</u> some (<u>rugae</u> and (<u>bearer of</u> some <u>inconspicuous</u>))))) and (<u>bearer of</u> some <u>alutaceous</u>))
Postgena sculpture	smooth with delicate rugae medially	<u>has part</u> some (<u>postgena</u> and (not (<u>has part</u> some <u>scute</u>)) and (<u>has part</u> some (<u>medial region</u> and (<u>has part</u> some (<u>rugae</u> and (<u>bearer of</u> some <u>inconspicuous</u>)))))
Postgena sculpture	coriaceous	<u>has part</u> some (<u>postgena</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Postgena sculpture	smooth	<u>has part</u> some (<u>postgena</u> and (<u>bearer of</u> some <u>smooth</u>))
Postgena sculpture	alutaceous with few delicate rugae medially	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some (<u>medial region</u> and (<u>has part</u> some (<u>rugae</u> and (<u>bearer of</u> some <u>inconspicuous</u>))))) and (<u>bearer of</u> some <u>alutaceous</u>))
Postgena sculpture	alutaceous in outer area, smooth in inner area	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some (<u>lateral region</u> and (<u>bearer of</u> some <u>alutaceous</u>))) and (<u>has part</u> some (<u>medial region</u> and (<u>bearer of</u> some <u>smooth</u>))))
Postgena sculpture	alutaceous with some sub-parallel delicate longitudinal wrinkles	<u>has part</u> some (<u>postgena</u> and (<u>has part</u> some (<u>rugae</u> and (<u>bearer of</u> some <u>inconspicuous</u>))) and (<u>bearer of</u> some <u>alutaceous</u>))
Postgena sculpture	alutaceous	<u>has part</u> some (<u>postgena</u> and (<u>bearer of</u> some <u>alutaceous</u>))
Postgenal bridge / height of occipital foramen	1	<u>has part</u> some (<u>postgenal bridge</u> and (<u>has part</u> some (<u>posterior side</u> and (<u>part</u> some <u>median anatomical line</u>) and (<u>bearer of</u> some <u>length</u>) and (<u>decreased_in_magnitude_relative_to</u> some (<u>length</u> and (<u>inheres in</u> some <u>median anatomical line</u> and (<u>part_of</u> some (<u>posterior side</u> and (<u>part_of</u> some <u>occipital foramen</u>)))))))))
Postgenal bridge / height of occipital foramen	< 1	<u>has part</u> some (<u>postgenal bridge</u> and (<u>has part</u> some (<u>posterior side</u> and (<u>part</u> some <u>median anatomical line</u>) and (<u>bearer of</u> some <u>length</u>) and (<u>decreased_in_magnitude_relative_to</u> some (<u>length</u> and (<u>inheres in</u> some <u>median anatomical line</u> and (<u>part_of</u> some (<u>posterior side</u> and (<u>part_of</u> some <u>occipital foramen</u>)))))))))
Postgenal bridge / length of oral foramen	< 1	<u>has part</u> some (<u>postgenal bridge</u> and (<u>has part</u> some (<u>posterior side</u> and (<u>part</u> some <u>median anatomical line</u>) and (<u>bearer of</u> some <u>length</u>) and (<u>decreased_in_magnitude_relative_to</u> some (<u>length</u> and (<u>inheres in</u> some <u>median anatomical line</u> and (<u>part_of</u> some (<u>posterior side</u> and (<u>part_of</u> some <u>oral foramen</u>)))))))))
Postgenal bridge sculpture	coriaceous medially	<u>has part</u> some (<u>postgenal bridge</u> and (<u>has part</u> some (<u>medial region</u> and (<u>has part</u> some (<u>rugae</u> and (<u>bearer of</u> some <u>inconspicuous</u>)))))

Entity	Value	Semantic Phenotype
Postocciput pilosity	present	<u>bearer_of</u> some (<u>coriaceous</u>))))
Postocciput pilosity	absent	<u>has_part</u> some (<u>postocciput</u> and (<u>not</u> (<u>has_part</u> some <u>pilosity</u>)))
Postocciput pilosity color	white	<u>has_part</u> some (<u>postocciput</u> and (<u>has_part</u> some (<u>pilosity</u> and (<u>bearer</u> <u>white</u>))))
Postocciput pilosity density	rare	<u>has_part</u> some (<u>postocciput</u> and (<u>has_part</u> some (<u>pilosity</u> and (<u>bearer</u> <u>sparse</u>))))
Postocciput pilosity density	dense	<u>has_part</u> some (<u>postocciput</u> and (<u>has_part</u> some (<u>pilosity</u> and (<u>bearer</u> <u>dense</u>))))
Postocciput reflectivity	glossy	<u>has_part</u> some (<u>postocciput</u> and (<u>bearer_of</u> some <u>glistening</u>))
Postocciput reflectivity	matte	<u>has_part</u> some (<u>postocciput</u> and (<u>bearer_of</u> some (<u>not</u> (<u>glistening</u>))))
Postocciput sculpture	alutaceous, smooth	<u>has_part</u> some (<u>postocciput</u> and (<u>bearer_of</u> some <u>alutaceous</u>))
Postocciput sculpture	coriaceous	<u>has_part</u> some (<u>postocciput</u> and (<u>bearer_of</u> some <u>coriaceous</u>))
Postocciput sculpture	smooth	<u>has_part</u> some (<u>postocciput</u> and (<u>not</u> (<u>has_part</u> some <u>scute</u>))))
Prominent part of ventral spine of hypopygium length ventral view / Prominent part of ventral spine of hypopygium width ventral view	3.1	<u>has_part</u> some (<u>ventral spine of hypopygium</u> and (<u>has_part</u> some (<u>ven</u> and (<u>has_part</u> some (<u>median anatomical line</u> and (<u>bearer_of</u> some (<u>le</u> ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>le</u> (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>ventral spine of</u> <u>hypopygium</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 3.1f]))
Prominent part of ventral spine of hypopygium length ventral view / Prominent part of ventral spine of hypopygium width ventral view	1.3	<u>has_part</u> some (<u>ventral spine of hypopygium</u> and (<u>has_part</u> some (<u>ven</u> and (<u>has_part</u> some (<u>median anatomical line</u> and (<u>bearer_of</u> some (<u>le</u> ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>le</u> (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>ventral spine of</u> <u>hypopygium</u>)))))) and (<u>has measurement value</u> some <u>float</u> [>= 1.3f]))
Prominent part of ventral spine of hypopygium length ventral view /	2.10-2.30	<u>has_part</u> some (<u>ventral spine of hypopygium</u> and (<u>has_part</u> some (<u>ven</u> and (<u>has_part</u> some (<u>median anatomical line</u> and (<u>bearer_of</u> some (<u>le</u> ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>le</u> (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>ventral spine of</u>

Entity	Value	Semantic Phenotype
Prominent part of ventral spine of hypopygium width ventral view		<u>hypopygium)))))) and (has measurement value some (float [>= 2.1f]</u> <u>float [<= 2.3f]))))))))</u>
Prominent part of ventral spine of hypopygium length ventral view / Prominent part of ventral spine of hypopygium width ventral view	1.16	<u>has part some (ventral spine of hypopygium and (has part some (ven</u> <u>and (has part some (median anatomical line and (bearer of some (le</u> <u>((is quality measured as some (has measurement unit label some (len</u> <u>(inheres in some (width and (part_of some ventral spine of</u> <u>hypopygium)))))) and (has measurement value some float [>= 1.16f])</u>
Prominent part of ventral spine of hypopygium length ventral view / Prominent part of ventral spine of hypopygium width ventral view	2.1	<u>has part some (ventral spine of hypopygium and (has part some (ven</u> <u>and (has part some (median anatomical line and (bearer of some (le</u> <u>((is quality measured as some (has measurement unit label some (len</u> <u>(inheres in some (width and (part_of some ventral spine of</u> <u>hypopygium)))))) and (has measurement value some float [>= 2.1f])</u>
Prominent part of ventral spine of hypopygium length ventral view / Prominent part of ventral spine of hypopygium width ventral view	1.7	<u>has part some (ventral spine of hypopygium and (has part some (ven</u> <u>and (has part some (median anatomical line and (bearer of some (le</u> <u>((is quality measured as some (has measurement unit label some (len</u> <u>(inheres in some (width and (part_of some ventral spine of</u> <u>hypopygium)))))) and (has measurement value some float [>= 1.7f])</u>
Prominent part of ventral spine of hypopygium length ventral view / Prominent part of ventral spine of hypopygium width ventral view	1.2	<u>has part some (ventral spine of hypopygium and (has part some (ven</u> <u>and (has part some (median anatomical line and (bearer of some (le</u> <u>((is quality measured as some (has measurement unit label some (len</u> <u>(inheres in some (width and (part_of some ventral spine of</u> <u>hypopygium)))))) and (has measurement value some float [>= 1.2f])</u>
Prominent part of ventral spine of hypopygium length ventral view / Prominent part of ventral spine of hypopygium width	1.4	<u>has part some (ventral spine of hypopygium and (has part some (ven</u> <u>and (has part some (median anatomical line and (bearer of some (le</u> <u>((is quality measured as some (has measurement unit label some (len</u> <u>(inheres in some (width and (part_of some ventral spine of</u> <u>hypopygium)))))) and (has measurement value some float [>= 1.4f])</u>

Entity	Value	Semantic Phenotype
ventral view		
Pronotal dorsal row of setae count	present	<u>has part</u> some (<u>pronotum</u> and (<u>has part</u> some (<u>dorsal region</u> and (<u>has some</u> (<u>row of setae</u> and (<u>bearer of</u> some <u>transverse orientation</u>))))))
Pronotal dorsal row of setae count	absent	<u>has part</u> some (<u>pronotum</u> and (<u>has part</u> some (<u>dorsal region</u> and (not <u>part</u> some (<u>row of setae</u> and (<u>bearer of</u> some <u>transverse orientation</u>)))))
Pronotum sculpture	smooth with some rugae laterally	<u>has part</u> some (<u>pronotum</u> and (not (<u>has part</u> some <u>scute</u>)) and (<u>has part</u> (<u>lateral region</u> and (<u>has part</u> some <u>raga</u>))))
Pronotum sculpture	alutaceous with some rugae laterally	<u>has part</u> some (<u>pronotum</u> and (<u>has part</u> some (<u>lateral region</u> and (<u>has part</u> some <u>raga</u>))) and (<u>bearer of</u> some <u>alutaceous</u>))
Pronotum sculpture	alutaceous medially, smooth laterally, with some rugae laterally	<u>has part</u> some (<u>pronotum</u> and (<u>has part</u> some (<u>lateral region</u> and (not <u>part</u> some <u>scute</u>)) and (<u>has part</u> some <u>raga</u>)) and (<u>has part</u> some (<u>medial region</u> and (<u>bearer of</u> some <u>alutaceous</u>))))
R1 distal end vs wing margin	adjacent to wing margin	<u>has part</u> some (<u>vein</u> and (<u>adjacent to</u> some (<u>margin</u> and (<u>part_of</u> some (<u>wing</u>)))))
Radial cell length / radial cell width	5	<u>has part</u> some (<u>wing cell</u> and (<u>has part</u> some (<u>proximodistal anatomical region</u> and (<u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>wing cell</u>)))))) and (<u>has measurement value</u> some <u>float</u> 5.0f])) and (<u>bearer of</u> some <u>length</u>))))))
Radial cell length / radial cell width	4.4	<u>has part</u> some (<u>wing cell</u> and (<u>has part</u> some (<u>proximodistal anatomical region</u> and (<u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>wing cell</u>)))))) and (<u>has measurement value</u> some <u>float</u> 4.4f])) and (<u>bearer of</u> some <u>length</u>))))))
Radial cell length / radial cell width	4.78	<u>has part</u> some (<u>wing cell</u> and (<u>has part</u> some (<u>proximodistal anatomical region</u> and (<u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>wing cell</u>)))))) and (<u>has measurement value</u> some <u>float</u> 4.78f])) and (<u>bearer of</u> some <u>length</u>))))))
Radial cell length / radial cell width	4.75	<u>has part</u> some (<u>wing cell</u> and (<u>has part</u> some (<u>proximodistal anatomical region</u> and (<u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>wing cell</u>)))))) and (<u>has measurement value</u> some <u>float</u> 4.75f))) and (<u>bearer of</u> some <u>length</u>))))))
Radial cell length / radial cell width	4.1	<u>has part</u> some (<u>wing cell</u> and (<u>has part</u> some (<u>proximodistal anatomical region</u> and (<u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and (<u>part_of</u> some <u>wing cell</u>)))))) and (<u>has measurement value</u> some <u>float</u> 4.1f))) and (<u>bearer of</u> some <u>length</u>))))))

Entity	Value	Semantic Phenotype
Radial cell length / radial cell width	3.6	<u>measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and <u>part of</u> some <u>wing cell</u>))))) and (<u>has measurement value</u> some <u>float</u> 4.1f]) and (<u>bearer of</u> some <u>length</u>))))))
Radial cell length / radial cell width	3.7	<u>has part</u> some (<u>wing cell</u> and (<u>has part</u> some (<u>proximodistal anatomical region</u> and (<u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and <u>part of</u> some <u>wing cell</u>))))) and (<u>has measurement value</u> some <u>float</u> 3.6f]) and (<u>bearer of</u> some <u>length</u>))))))
Radial cell length / radial cell width	5.3	<u>has part</u> some (<u>wing cell</u> and (<u>has part</u> some (<u>proximodistal anatomical region</u> and (<u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and <u>part of</u> some <u>wing cell</u>))))) and (<u>has measurement value</u> some <u>float</u> 5.3f]) and (<u>bearer of</u> some <u>length</u>))))))
Radial cell length / radial cell width	4.5	<u>has part</u> some (<u>wing cell</u> and (<u>has part</u> some (<u>proximodistal anatomical region</u> and (<u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and <u>part of</u> some <u>wing cell</u>))))) and (<u>has measurement value</u> some <u>float</u> 4.5f]) and (<u>bearer of</u> some <u>length</u>))))))
Rs distal end vs wing margin	adjacent to wing margin	<u>has part</u> some (<u>vein</u> and (<u>adjacent to</u> some (<u>margin</u> and (<u>part of</u> some <u>wing</u>))))
Rs+M color	dark brown	<u>has part</u> some (<u>vein</u> and (<u>bearer of</u> some <u>brown</u>))
Rs+M color	dark brown proximally, lighter distally	<u>has part</u> some (<u>vein</u> and (<u>has part</u> some (<u>proximal region</u> and (<u>bearer of</u> some <u>dark brown</u>))) and (<u>has part</u> some (<u>distal region</u> and (<u>bearer of</u> some <u>light brown</u>))))
Rs+M vs basalis	reaches basalis at half of its height.	<u>has part</u> some (<u>vein</u> and (<u>has part</u> some (<u>medial region</u> and (<u>adjacent to</u> some <u>vein</u>))))
Rs+M vs basalis	reaches basalis in lower half of its height	<u>has part</u> some (<u>vein</u> and (<u>has part</u> some (<u>proximal region</u> and (<u>adjacent to</u> some <u>vein</u>))))
Scutellar fovea maximum diameter / scutellar fovea minimum diameter	2	<u>has part</u> some (<u>scutellar fovea</u> and (<u>has part</u> some (<u>maximum diameter</u> and <u>bearer of</u> some (<u>length</u> and (((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>minimum diameter</u> and <u>part of</u> some <u>scutellar fovea</u>))))) and (<u>has measurement value</u> some <u>float</u> 2.0f]) and (<u>bearer of</u> some <u>length</u>))))))

Entity	Value	Semantic Phenotype
Scutellar fovea maximum diameter / scutellar fovea minimum diameter	2.25	<p>2.0f]))))))</p> <p><u>has part</u> some (<u>scutellar fovea</u> and (<u>has part</u> some (<u>maximum diameter</u> <u>bearer of</u> some (<u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>minimum diameter</u> and <u>part of</u> some <u>scutellar fovea</u>))))) and (<u>has measurement value</u> some 2.25f)))))))</p>
Scutellar fovea maximum diameter / scutellar fovea minimum diameter	2.5	<p><u>has part</u> some (<u>scutellar fovea</u> and (<u>has part</u> some (<u>maximum diameter</u> <u>bearer of</u> some (<u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>minimum diameter</u> and <u>part of</u> some <u>scutellar fovea</u>))))) and (<u>has measurement value</u> some 2.5f)))))))</p>
Scutellar fovea maximum diameter / scutellar fovea minimum diameter	1.8	<p><u>has part</u> some (<u>scutellar fovea</u> and (<u>has part</u> some (<u>maximum diameter</u> <u>bearer of</u> some (<u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>minimum diameter</u> and <u>part of</u> some <u>scutellar fovea</u>))))) and (<u>has measurement value</u> some 1.8f)))))))</p>
Scutellar fovea maximum diameter / scutellar fovea minimum diameter	2.75	<p><u>has part</u> some (<u>scutellar fovea</u> and (<u>has part</u> some (<u>maximum diameter</u> <u>bearer of</u> some (<u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>minimum diameter</u> and <u>part of</u> some <u>scutellar fovea</u>))))) and (<u>has measurement value</u> some 2.75f)))))))</p>
Scutellar fovea maximum diameter / scutellar fovea minimum diameter	1.7	<p><u>has part</u> some (<u>scutellar fovea</u> and (<u>has part</u> some (<u>maximum diameter</u> <u>bearer of</u> some (<u>length</u> and ((<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>minimum diameter</u> and <u>part of</u> some <u>scutellar fovea</u>))))) and (<u>has measurement value</u> some 1.7f)))))))</p>
Scutellar fovea minimum diameter / foveal septum width	6-10	<p><u>has part</u> some (<u>scutellar fovea</u> and (<u>has part</u> some (<u>has part</u> some (<u>minimum diameter</u>) and (<u>bearer of</u> some (<u>length</u> and (<u>is quality measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>inheres in</u> some (<u>width</u> and <u>part of</u> some <u>median septum of scutellum</u>))))) and (<u>has measurement value</u> some (<u>float</u> [>= 6.0f] and <u>float</u> [<= 10.0f]))))))</p>
Scutellar fovea reflectivity	glossy	<p><u>has part</u> some (<u>scutellar fovea</u> and (<u>bearer of</u> some <u>glistening</u>))</p>
Scutellar fovea sculpture	smooth with some rugae	<p><u>has part</u> some (<u>scutellar fovea</u> and (not (<u>has part</u> some <u>scute</u>)) and (<u>bearer of</u> some <u>rupa</u>)))</p>
Scutellar fovea sculpture	smooth without longitudinal rugae	<p><u>has part</u> some (<u>scutellar fovea</u> and (not (<u>has part</u> some <u>scute</u>)) and (<u>bearer of</u> some (<u>rupa</u> and (<u>bearer of</u> some <u>anterior orientation</u>)))))</p>
Scutellar fovea	smooth with	<p><u>has part</u> some (<u>scutellar fovea</u> and (not (<u>has part</u> some <u>scute</u>)) and (<u>bearer of</u> some (<u>rupa</u> and (<u>bearer of</u> some (<u>anterior orientation</u> and <u>posterior orientation</u>)))))</p>

Entity	Value	Semantic Phenotype
sculpture	longitudinal, parallel rugae	some (<u>rupa</u> and (<u>bearer of</u> some <u>anterior orientation</u>)))
Scutellar fovea shape	semilunar	<u>has part</u> some (<u>scutellar fovea</u> and (<u>bearer of</u> some <u>crescent-shaped</u>))
Scutellar fovea shape	transversely ovate	<u>has part</u> some (<u>scutellar fovea</u> and (<u>bearer of</u> some <u>ovate</u>) and (<u>bearer of</u> some <u>transverse orientation</u>))
Second metasomal tergite pilosity	present laterally	<u>has part</u> some (<u>third abdominal tergite</u> and (<u>has part</u> some (<u>lateral region</u> and (not (<u>has part</u> some <u>pilosity</u>)))) and (<u>has part</u> some (<u>lateral region</u> and (<u>has part</u> some <u>pilosity</u>))))
Second metasomal tergite pilosity	present mediolaterally	<u>has part</u> some (<u>third abdominal tergite</u> and (<u>has part</u> some (<u>lateral region</u> and (<u>has part</u> some <u>pilosity</u>))) and (<u>has part</u> some (<u>lateral region</u> and (<u>has part</u> some (<u>medial region</u> and (not (<u>has part</u> some <u>pilosity</u>))))))
Second metasomal tergite pilosity density	rare	<u>has part</u> some (<u>third abdominal tergite</u> and ((<u>has part</u> some <u>pilosity</u>) and (<u>bearer of</u> some <u>sparse</u>)))
Second metasomal tergite reflectivity	matte	<u>has part</u> some (<u>third abdominal tergite</u> and (<u>bearer of</u> some (not (<u>glistening</u>))))
Second metasomal tergite reflectivity	glossy	<u>has part</u> some (<u>third abdominal tergite</u> and (<u>bearer of</u> some <u>glistening</u>))
Second metasomal tergite sculpture	smooth	<u>has part</u> some (<u>third abdominal tergite</u> and (<u>bearer of</u> some <u>smooth</u>))
Speculum reflectivity	matte	<u>has part</u> some (<u>speculum</u> and (<u>bearer of</u> some (not (<u>glistening</u>))))
Speculum reflectivity	glossy	<u>has part</u> some (<u>speculum</u> and (<u>bearer of</u> some <u>glistening</u>))
Speculum sculpture	coriaceous	<u>has part</u> some (<u>speculum</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Speculum sculpture	striate dorsally	<u>has part</u> some (<u>speculum</u> and (<u>has part</u> some (<u>dorsal region</u> and (<u>bearer of</u> some <u>wrinkled</u>))) and (<u>has part</u> some (<u>ventral region</u> and (<u>bearer of</u> some <u>smooth</u>))))
Speculum sculpture	smooth	<u>has part</u> some (<u>speculum</u> and (<u>bearer of</u> some <u>smooth</u>))
Speculum sculpture	wrinkled	<u>has part</u> some (<u>speculum</u> and (<u>bearer of</u> some <u>wrinkled</u>))
Subaxillular bar reflectivity	glossy	<u>has part</u> some (<u>subaxillular bar</u> and (<u>bearer of</u> some <u>glistening</u>))

Entity	Value	Semantic Phenotype
Subaxillular bar sculpture	smooth	<u>has part</u> some (<u>subaxillular bar</u> and (<u>bearer of</u> some <u>smooth</u>))
Transfacial distance / eye height	1.16	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.16f]))
Transfacial distance / eye height	1	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.0f]))
Transfacial distance / eye height	1.25	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.25f]))
Transfacial distance / eye height	1.2	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.2f]))
Transfacial distance / eye height	1.44	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.44f]))
Transfacial distance / eye height	1.3	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.3f]))
Transfacial distance / eye height	0.9	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 0.9f]))
Transfacial distance / eye height	1.37	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.37f]))
Transfacial distance / eye height	1.1	<u>has part</u> some (<u>interorbital space</u> and (<u>has part</u> some (<u>length</u> and (<u>is measured as</u> some (<u>has measurement unit label</u> some (<u>length</u> and (<u>in</u> some <u>eye height</u>)))) and (<u>has measurement value</u> some <u>float</u> [>= 1.1f]))
Transverse pronotal sulcus depth	deep	<u>has part</u> some (<u>transverse pronotal sulcus</u> and (<u>bearer of</u> some <u>increased depth</u>))
Transverse pronotal sulcus sculpture	foevolate	<u>has part</u> some (<u>transverse pronotal sulcus</u> and (<u>bearer of</u> some <u>foevo</u>))
Transverse pronotal sulcus sculpture	smooth	<u>has part</u> some (<u>transverse pronotal sulcus</u> and (<u>bearer of</u> some <u>smooth</u>))

Entity	Value	Semantic Phenotype
Ventral impressed area of metanotum sculpture	smooth with some striae	<u>has part</u> some (<u>ventral impressed area of metanotum</u> and ((not (<u>scute</u>)) and (<u>has part</u> some <u>rugae</u>)))
Ventral impressed area of metanotum sculpture	coriaceous	<u>has part</u> some (<u>ventral impressed area of metanotum</u> and (<u>bearer of</u> <u>coriaceous</u>))
Ventral impressed area of metanotum sculpture	smooth without striae	<u>has part</u> some (<u>ventral impressed area of metanotum</u> and ((not (<u>rugae</u>)) and (not (<u>has part</u> some <u>scute</u>))))
Vertex pilosity color	white	<u>has part</u> some (<u>vertex</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>white</u>))))
Vertex pilosity density	rare	<u>has part</u> some (<u>vertex</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>sparse</u>))))
Vertex pilosity density	dense	<u>has part</u> some (<u>vertex</u> and (<u>has part</u> some (<u>pilosity</u> and (<u>bearer of</u> some <u>dense</u>))))
Vertex reflectivity	matte	<u>has part</u> some (<u>vertex</u> and (<u>bearer of</u> some (not (<u>glistening</u>))))
Vertex reflectivity	glossy	<u>has part</u> some (<u>vertex</u> and (<u>bearer of</u> some <u>glistening</u>))
Vertex sculpture	coriaceous	<u>has part</u> some (<u>vertex</u> and (<u>bearer of</u> some <u>coriaceous</u>))
Vertex sculpture	smooth	<u>has part</u> some (<u>vertex</u> and (<u>bearer of</u> some <u>smooth</u>))
Vertex sculpture	alutaceous	<u>has part</u> some (<u>vertex</u> and (<u>bearer of</u> some <u>alutaceous</u>))