

setae extending up from the clypeus almost to the ocellar region (Figs. 10–13); mesoscutum usually with even vestiture of standing setae;  $SI > 0.588$ ; color variable.

## COMMENTS

I examined material of *A. aequilata* which included the two published syntype series and a third series from Juruá Miry (labeled “(Ule) 26” by Forel) which contained queens. Due to their being from the same site, and appearing nearly identical (and thus almost certainly conspecific), I have designated all three series paralectotypes to accompany the single lectotype worker. Including the third series serves to incorporate queens into the type material.

## MATERIAL EXAMINED

**COSTA RICA:** *Alajuela*: N side Laguna Arenal (Longino); *Guanacaste*: N side Laguna Arenal (Longino); Parque Nacional Santa Rosa (Longino); *Heredia*: Finca La Selva (Janzen); Carrillo, Parque Nacional Braulio Carrillo (Longino); 3–15 km S Pto. Viejo (Longino); *Limón*: Zent (Wheeler); Suerre (no collector, probably Alfaro); 6 km WNW Pto. Viejo (Longino); Reserva Biológica Hitoy Cerere (Longino).

**VENEZUELA:** *Barinas*: 8–10 km WNW Sta. Barbara (Longino, Ward); 17 km SSW Ciudad Bolívia (Longino).

**TRINIDAD:** Caroni (Wheeler); no specific locality (Urich).

**PERU:** *Madre de Dios*: Cocha Totora (Davidson); Colpa Quebrada, nr Cocha Cashu (Davidson); Estación Biológica Cocha Cashu (Davidson); Tayacome (Davidson); Reserva Tambopata (Davidson).

**BRAZIL:** *Amazonas*: upper Purus (Huber); lower Purus (Huber); Cachveira Juruá (Ule); Juruá Miry (Ule); *Ceará*: Ceará (Rocha); *Pará*: Pará (Göldi, Bequaert); Pará, Obidos (Göldi); Mexiana Island (Hagmann).

**BOLIVIA:** *Beni*: Estación Biológica Beni, 42 km E San Borja (Ward); *La Paz*: 13 km NNE Coroico (Ward).

## VARIATION OF *A. ALFARI* AND *A. OVATICEPS*

On *A. alfari* queens, the density of setae on the dorsum of the head and on the mesoscutum increases from north to south. The setae are very sparse on specimens from Mexico in particular. The position of the posterior row of setae on the second gastric tergite varies in distance from the posterior margin, being displaced anteriorly on many South American specimens. Some queens from Mexico are light brown rather than black.

In contrast to *A. alfari*, density of setae on *A. ovaticeps* queens is highly variable and decreases from north to south. In Costa Rica, most queens

have a uniform covering of an estimated 200 setae on the second gastric tergite and an even, dense vestiture of setae on the mesoscutum. Three Costa Rican queens exhibit a reduced GTC, between 10 and 40 (Fig. 1), but general abundance of setae elsewhere allies them with *A. ovaticeps*. The possibility of introgression or hybridization should be entertained. The head, in profile, usually exhibits abundant setae on the occiput, which spreads down the front bridging the gap between the occiput and the setae of the ocellar region.

In South American *A. ovaticeps*, general body pilosity is always less than the Costa Rican material, is highly variable, and can approach the state of *A. alfari*. GTC is always very reduced compared to Costa Rican material but is still usually 10 or more, distinguishing *A. ovaticeps* from *A. alfari*. Setae on the second gastric tergite are usually somewhat symmetrically arranged on the dorsal surface of the abdomen. The head, in profile, may or may not have setae bridging the gap between the occiput and the ocellar region.

The most reliable *A. ovaticeps* character throughout South America is a dense brush of setae on the clypeus, and the cuticle is always light brown beneath the brush, even if the rest of the body is black. To appreciate this character, it is best to have comparative material of *A. alfari*. Material of *A. alfari* and *A. ovaticeps* from two sites in Bolivia (Ward collection) was the most difficult to separate. Body color (black) and overall pilosity were very similar. GTC for four *A. alfari* queens was 0, 0, 0, and 3, whereas for three *A. ovaticeps* queens it was 2, 9, and 11. However, the seven queens clearly differed in the presence or absence of a clypeal brush.

Workers of *A. alfari* and *A. ovaticeps* are not always distinguishable. Earlier taxonomy of the *A. alfari* group relied heavily on worker head shape, a character which shows nearly continuous variation and is rarely used in this revision (Figs. 14–27). There is a tendency for *A. alfari* workers to have more triangular heads (Figs. 14, 18–20), but the significance of this needs to be evaluated in the context of allometric shape change related to worker size.

The two species are most distinguishable by degree of pilosity, particularly on the mesonotum (Figs. 28–36). When multiple samples are available from a locality where both species occur, they are usually easily separable into *A. alfari* and *A. ovaticeps*. The former have a “clean” look, with relatively few, long setae of somewhat regular length, whereas the latter have a “scruffy” look, with many setae of irregular lengths. Geographic variation obscures this difference when examining single collections from scattered localities. MSC values for the *A. alfari* group as a whole (Fig. 37) exhibit a pronounced bimodal distribution, but there is a zone of overlap between the two species. Species determinations for the zone of overlap in Figure 37 were made by association of workers with sexuals, or by “gestalt”