



Fig. 11. Worker lateral mesosoma, showing dorsal pilosity. *beltii* (drawn from type. JTL-003 is similar). B. *pittieri* complex from Pacific slope near Monteverde (*longiceps* and JTL-007 are similar). C. *pittieri* complex from La Selva. D. JTL-002. E. JTL-001.

phenetic clouds of points drift around geographically. When a queen from a distant locality falls within one of the Costa Rican phenetic clouds, it is uncertain whether this is due to shared ancestry or convergence on that morphometric point. For example, *A. pittieri* complex queens from above 500m near Monteverde are very similar to the type of *A. patruelis* from Mexico. However, the ventral setae on the petiole are not exactly the same. Perhaps molecular markers or newly discovered morphological traits will reveal that the Monteverde population of *A. pittieri* and Mexican *A. patruelis* form a monophyletic group. However, I think it just as likely that there is a complex mosaic of species between Costa Rica and Mexico, and the similarity is purely coincidental (or parallel response to similar selection). In other words, even though Monteverde *A. pittieri* and Mexican *A. patruelis* are phenetically very similar, there are no well-supported synapomorphies uniting them. For these reasons, I have often relied on unavailable code names for locally-defined species,

pending larger character sets and placement in a global context.

Further understanding of Costa Rican *Azteca* will require population samples from additional localities within the country. To understand the stem-nesting *Azteca* at a global level will require similarly thorough sampling throughout the Neotropics. The lack of similar specimen coverage from other parts of the Neotropics is a severe impediment to global definitions of species.

Possible Determinants of Character Distribution in *A. pittieri* Complex

What mechanisms might produce the patterns of character variation seen in the *A. pittieri* complex? Possibilities include contemporary selection pressures and secondary contact following anthropogenic landscape changes.

Stabilizing selection may vary geographically, producing geographic variation in the presence of gene flow (Endler 1977). Selection may be strong, for the reasons noted above, increasing the likeli-