



Fig. 3: Discriminant analysis (DA) of *Tetramorium pacificum* (blue), *T. scabrum* (green) and *T. manobo* (red) (n = 150), using eight selected worker morphometric characters (CL, CW, ClyNoD, FCHL, PEW, PPW, PosSPL, PreOcLa). Each worker is represented by a thin vertical bar, which is partitioned into shaded segments that represent the probabilities of its species membership as calculated by DA.

classified the *T. manobo* type. With a $P = 0.997$ our initial hypothesis was confirmed. Subsequently, the optimal character combination was sought using the combination procedure of MODER & al. (in press). Eight characters were selected, which resulted in discrimination without error: CL, CW, ClyNoD, FCHL, PEW, PPW, PosSPL, PreOcLa. Figure 3 illustrates the classification probabilities for the 150 analysed workers.

The molecular and the morphometric results thus confirm the existence of three entities among the analysed ant specimens. For taxonomic decisions, however, two sets of questions have to be solved: (1) are the three entities of species status and, if so, (2) what are their correct names?

Tackling the first set of questions requires biogeographical reasoning. The currently known distributions are: *T. pacificum* is very widespread over the Oriental and Indo-Australian regions (cf. BOLTON 1977; here samples analysed from southern China, Thailand, Singapore, Malaysia, Indonesia, Philippines, Samoa, and French Polynesia). However, it may not be possible to exactly delimit its native range due to frequent anthropogenic transfers (MCGLYNN 1999). *Tetramorium scabrum* is distributed on the south-east Asian mainland and on the islands of the Sunda Shelf, eastwards not crossing Wallace's and Dickerson's Lines. *Tetramorium manobo* is endemic to the southern parts of the Philippines. *Tetramorium pacificum* occurs in sympatry with *T. scabrum* as well as with *T. manobo* and hence can be regarded as reproductively isolated from the other two ants, under application of the biological species concept (reviewed by COYNES & ORR 2004). *Tetramorium scabrum* and *T. manobo*, however, are geographically vicariant, hindering evaluating whether the biological species concept really applies to these two ants. While we agree that the sympatry-argument is a very strong argument in favour of separated species status (cf. MALLETT 1995), it is clearly often not applicable to endemic taxa, especially on islands. We confide in the well-supported morphometric differentiation of the two ants (Tab. 1, Fig. 3) and in the

high value of uncorrected sequence divergence in *COI* of 6.3 % between *T. manobo* and *T. scabrum* (cf. Fig. 1), and therefore regard the two ants as separate species.

To answer the second set of questions, i.e., to allocate correct species names to the three separate species, we argue as follows. *Tetramorium pacificum* is the oldest name available for any of the considered ant species. Classification of morphometric data of the type of *T. pacificum* via DA confirmed the allocation of the name as initially hypothesized. *Tetramorium scabrum* is the next younger available name. DA of the type of *T. scabrum* also confirmed the allocation of this name as initially hypothesized. As the type of *T. manobo* could not be included in this study, caution should be exercised with this ant. Samples initially hypothesized to represent *Tetramorium manobo* key out as "*T. pacificum*" when applying the key of BOLTON (1977). In the frame of this study we explicitly accept the list of synonymies as given by BOLTON (1977). Hence, only the names "*scabrum*" and "*subscabrum*" have to be considered as potential senior synonyms of "*manobo*". *Tetramorium scabrum* has been confirmed as specifically separated. We could not confirm the status of *T. pacificum* var. *subscabrum* EMERY, 1893 by types. Unfortunately, the syntype workers examined by B. Bolton (BOLTON 1977) could not be found in MHNG at present (B. Mertz, pers. comm. 2006) and we were unable to receive specimens from the Museo Civico di Storia Naturale "G. Doria" in Genoa. However, we studied a non-type specimen from MHNG originating from Samar, Philippines (# 991) and identified by Emery, which bears a "Cotypus"-label. This worker was clearly classified as *T. pacificum* by DA, thus supporting the synonymy as established by BOLTON (1977). Overall, the theoretical possibility that *T. manobo* is a junior synonym of *T. pacificum* var. *subscabrum* is undermined by the current biogeographical picture, because *T. manobo* is endemic to the southern Philippines but the syntype workers of "*subscabrum*" originate from Sri Lanka (EMERY 1893).