



Figure 2: Distribution of the Cv scores for base samples 1, 2 and 3 and three new groups of 20 *M. scabrinodis* (1a), 20 *M. sabuleti* (2a), and 19 *M. hirsuta* (3a). The ellipses are the 95% confidence limits. Note that the scores for Cv2 have been 'flipped' compared to Figure 1; this is arbitrary and has no significance.

This convinced us that we were truly dealing with a fourth species that differed morphologically from the original 3 by at least the same amount as these differ from each other. The final step was to confirm the name. The type specimens of *M. vandeli* were then obtained and measured, and their Cv scores were found to be indistinguishable from our unknown species (Fig. 4, groups 4 and 4b), confirming our original visual impression that we were dealing with *M. vandeli*.

If we wish to use these measurements to identify a specimen between *M. scabrinodis* and *M. vandeli*, then a Cv analysis on just these 2 groups gives only one Cv. If the average of the 2 group mean scores, weighted for the actual within-group SD, is used to discriminate between them, then there is only a 1 in 10,000 chance of misidentifying an individual. If the variables that are measured are reduced from 11 to 3, then the odds of misidentification rise only slightly to 3 in 10,000; this is adequate for most purposes. The 3 best variables for discrimination between queens of these species are headwidth (W), post-petiole width (PPW) and petiole hair number (H). In order to calculate the Cv score, the measurements in mm. are put in the following equation: