

in both the subcastes (Fig. 19C, E); petiole almost as long as postpetiole in both the subcastes (Fig. 19C, E).

Distribution Southern Malay Peninsula, Borneo, Sumatra and Mentawai Is.

Bionomics This species inhabits well-developed forests from lowlands to hill areas, probably not exceeding 1000 m alt.

Together with many workers of this species (Eg98-BOR-849), many adults, nymphs and egg-masses of *Neuroctenus* sp. (Heteroptera, Aradidae, Mezirinae; determined by Dr. Yoshinori Shono, 1998) were collected from spaces under barks of buttress roots of a tree stub and shelters which were made of soil and wood particles on the roots. The bugs are very probably a myrmecophile of *P. havilandi*, and antagonistic behavior of the ants to the bugs was not observed even when I strongly disturbed the colony. Usinger & Matsuda (1959), and Kormilev (1971) stated that many aradids are mycophagous, and feed on fungi under the bark of decaying trees or in the litter. The bugs possibly have a similar diet judging from the nesting habit of *P. havilandi*. Thus in this case it is not likely for the trophobiotic interaction through excreting drops of honeydew to occur between the bugs and ants. There is a possibility that the ants maintain the bugs as prey during severe food shortage as seen in the relationship between *Myrmecina* sp. and a myrmecophilous oribatid mite (Ito, 1994).

19. *Pheidole hortensis* Forel (Fig. 20)

Pheidole hortensis Forel, 1913: 31, major, minor, queen and male (MHNG). Type locality: Java. Nine syntypes (2 majors, 3 minors, 1 queen and 3 males) were examined.

Specimens examined BORNEO. Sabah, Malaysia: Danum Valley, 3 majors and 5 minors (Eg96-BOR-116); Gunong Rara, 14 majors and 21 minors (Eg96-BOR-316, 355, 365, 366); Kinabalu Park Headquarters area, 6 majors, 10 minors and 1 queen (Eg97-BOR-378, 379) / ca. 1500 m alt., 1 major, 2 minors and 1 male (15Q13B5), TK; nr. Kota Kinabalu, 12 majors, 18 minors, 1 queen and 2 males (Eg96-BOR-070, 095, 105, 106); Poring, 450-500 m alt., 4 majors, 7 minors and 16 males (Eg96-BOR-283) / 500-550 m alt., 1 major, 4 minors and 1 male (Eg96-BOR-305) / ca. 600 m alt., 36 majors, 49 minors, 1 queen and 2 males (734, 735A; 06Q31B5, 06Q32B3, 06Q32S5, 06Q36B5, 06Q42B5, 06Q45S5, 06Q52S6, 6X106-13-Da, 6X3006-11-Ae, 6X3006-11-Ca, 6X3006-11-Eb, 6X3006-12-2, 6X3006-12-6, 6XI0106-14-Ca, 6XI0106-14-Da, 6XI0106-14-Fb, 6XI016-14-Ba, 6XI1006-17-Ea, 6XI1006-18-1, 6XII2306-27-Ad, 6XII2306-27-Ae, 6XII2306-Aa), TK / ca. 900 m alt., 8 majors and 15 minors (B9; 09Q14B4, 09Q26S3; 7IV0210-4-Ad, 7IV05-7-2a, 7IV0510-7-Cb), TK; Sayap Kinabalu, 15 majors, 19 minors and 1 male (Eg96-BOR-045, 050, 062, 063) / 1 major (GC), SKY, 1996; Sepilok forest, 36 majors, 57 minors, 3 queens and 16 males (Eg97-BOR-438, 443, 444, 448, 461, 469, 470, 488, 494; Eg98-BOR-860, 862, 883); Tawau Hills Park, 8 majors, 8 minors, 2 queens and 1 male (Eg96-BOR-011, 036). Brunei: Belalong Forest Section, 2 majors and 2 minors (Eg99-BOR-233); Merimbun Heritage Park, 12 majors, 12 minors, 1 queen and 10 males (Eg99-BOR-514, 574, 578, 601, 604). MALAY PENINSULA. Malaysia: Ulu Gombak, 3 majors and 6 minors (FI96-548, FI98-172). SUMATRA, Indonesia. Sitiung, W. Sumatra, 1 major and 2 minors (FI93-256); Sukarami, nr. Padang, W. Sumatra, 2 majors, 4 minors and 1 queen (FI96-165). JAVA, Indonesia. Mt. Halimun, 2 majors and 3 minors (5-6e), MK, 1998; Kebun Raya, Bogor, 8 majors, 13 minors, 5 queens and 2 males (FI95-353, 381, 392, 398, 471, 472, 573, 751, 775) / 7 majors and 14 minors (44, 10/5a, 10/8a, 10/8e), MK, 1997 and 1999; Ujung Kulon, W. Java, 2 majors (FI97-169).

Major Measurements and indices (n=9): TL 1.8-2.6 mm, HL 0.87-1.15 mm, HW 0.77-1.05 mm, SL 0.38-0.48 mm, FL 0.46-0.62 mm, CI 85-95, SI 45-53, FI 55-63. Head broadest at about 3/5-2/3 distance of head (as measured from the mid-point of a transverse line spanning the anteriormost and posteriormost projecting points, respectively (cf. Fig. 2A)) (Fig. 20A), in profile weakly impressed on vertex (Fig. 20B). Hypostoma bearing a median process, which is sometimes much reduced compared with the process just mesal to each mandibular insertion (arrows in Fig. 20C). Clypeus without a