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The Exceptionally Low Chromosome Number n=2 in an Australian Bulldog Ant, *Myrmecia piliventris* Smith (Hymenoptera: Formicidae)

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The Australian bulldog ants of the species rich genus *Myrmecia* are among the most primitive of all extant Formicidae. *Myrmecia* is characterized by the exceptionally wide range of chromosome numbers among its species. Known number include n=5, 6, 11, 16, 19, 25, 30, 33 and 42 (Imai, Crozier and Taylor 1977, *Chromosoma* **59**: 341). Also, it is clear that morphologically very similar species may differ greatly in chromosome number. We report here two karyotypically very different but morphologically very similar species, either of which would previously have been identified as *Myrmecia piliventris* Smith on the conventional basis of worker morphological characteristics.

During recent studies in southeastern New South Wales and near Canberra we observed the chromosomes of two *M. piliventris* colonies from Black Mountain, Canberra (35°17′S, 149°13′E), one of which (HI85–171) had $n=34$, while the other (HI85–172) had the very low number $n=2$, $2n=4$ (Fig. 1). These two colonies must surely represent separate species, yet the morphological features which distinguish their workers are of a nature conventionally recognized merely as intraspecific variation (see, for example, the discussion of *M. piliventris* by Brown (1953, *Bull. Mus. Comp. Zool.* **111**: 20). This, of course, has important implications for future taxonomic work on the genus. The species with $n=2$ has been confidently identified by R. W. Taylor as *M. piliventris*.

The $2n=4$ karyotype comprises two pairs of submetacentrics (2K=4ST), of which both chromosomes have well developed C-bands at the proximal regions of their long arms. Homologues of chromosome 1 are homomorphic, but those of chromosome 2 show remarkable heteromeorphism in C-bands, and in the size of their short arms.

Three other colonies collected from Jerrabomberra Hill, near Queanbeyan (35°21′S, 149°14′E), N.S.W. (HI85–188) and at a much lower elevation near Nelligen Creek Bridge. W. of Batemans Bay (35°43′S, 150°10′E),

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N.S.W. (HI85–211 and –241) also had the same $n=2$ karyotype (K=2ST and 2K=4ST), suggesting that the species involved is both stable and fairly widely distributed.

The even more remarkable chromosome number $n=1$, $2n=2$ was reported recently for a species of the *Myrmecia pilosula* (Smith) group by Crosland and Crozier (1986, *Science* **231**: 1278). This karyotype comprises one pair of submetacentrics (2K=2SM) with large C-banded blocks at their pericentromeric regions. Among the smaller species of *Myrmecia*, *M. piliventris* and *M. pilosula* are morphologically rather distinct from each other, but their karyotypes can be systematically related. We assume that the $n=1$ *pilosula* karyotype would have been derived from $n=2$ karyotype by reciprocal translocation (though not necessarily in a lineage including morphologically *piliventris*-like species). More information about the

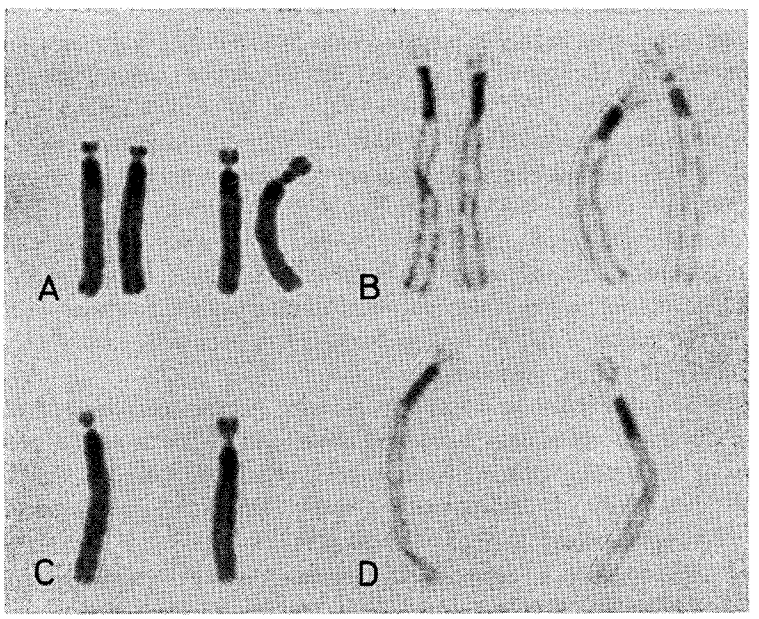

Fig. 1. Karyotypes of *Myrmecia piliventris*. A and B. $2n=4$ (worker). C and D. $n=2$ (male). A and C. Conventional staining by Guimsa. B and D. C-banded karyotypes.

details of C-bands and the karyology of other related species is desirable. *M. pilosula*, *M. piliventris*, and their many chromosomally unstudied relatives, must stand as prime analysis of karyotype evolution and speciation in ants.

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