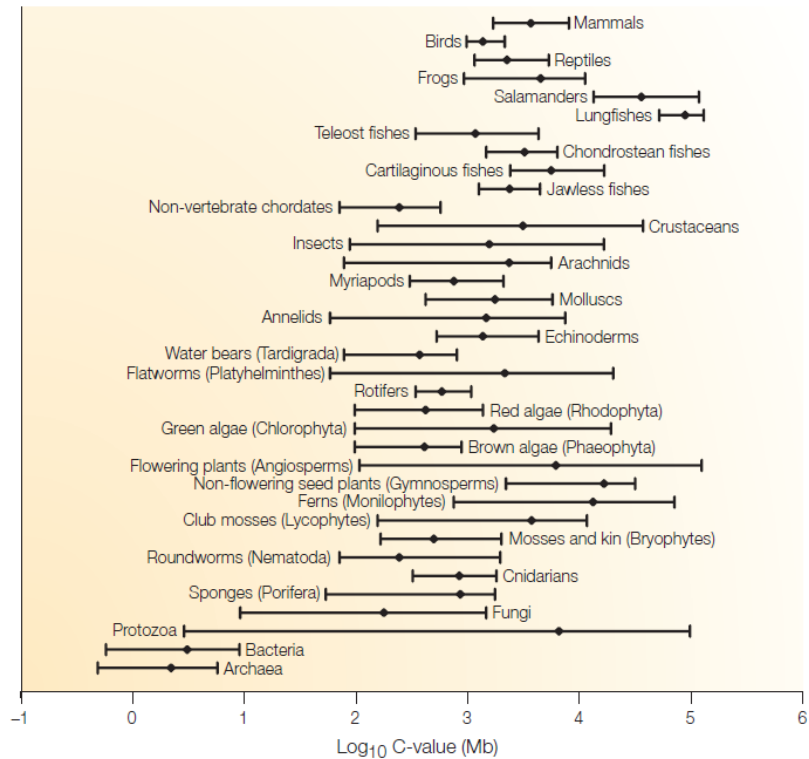


Box 1 | **Extensive variation in genome size within and among the main groups of life**

Ever since the first general surveys of nuclear DNA content were carried out in the early 1950s it has been apparent that eukaryotic genome sizes vary enormously and that this is unrelated to intuitive ideas of morphological complexity². This discrepancy between genome size and complexity remains clear more than half a century later, with genome sizes now available for nearly 9,000 species of animals and plants^{10,11}. In prokaryotes, genome size and gene number are strongly correlated⁸⁶, but in eukaryotes the vast majority of nuclear DNA is non-coding (FIG. 1; BOX 3). Nevertheless, there is some overlap in genome size between the largest bacteria and the smallest parasitic protists. The figure illustrates the means and overall ranges of genome size that have been



observed so far in the main groups of living organisms, and are loosely arranged according to common ideas of complexity to further emphasize the disparity between this parameter and genome size. Some commonly cited extreme values for amoebae (700,000 Mb) have been omitted, as there is considerable uncertainty about the accuracy of these measurements and the ploidy level of the species involved^{10,87}.