



Figure 1. Summary phylogeny (genealogical tree) of birds.

The phylogeny shows where birds fit into the larger vertebrate family tree and the relationships of the earliest birds and their closest dinosaurian relatives (based on [2] and other studies cited therein). Timescale values are in millions of years; thick red line denotes the mass extinction at the Cretaceous–Paleogene boundary caused by asteroid impact (denoted by fireball on the right); arrows denote lineages that survived the extinction; circles represent species known from a particular point in time; thick line sections of branches indicate direct fossil evidence and thin lines are temporal distributions implied by phylogenetic ghost lineages; Cz, Cenozoic interval after the end-Cretaceous extinction. Silhouette anatomical features in the lower part of the figure are plotted approximately where they evolve on the phylogeny. Species silhouettes at the top of the image are from phylopic.org and designed by (from left to right): Nobu Tamura, Anne Claire Fabre, T. Michael Keeseey, Steven Traver, Andrew A. Farke, Mathew Wedel, Stephen O'Connor/T. Michael Keeseey, Brad McFeeters/T. Michael Keeseey, Scott Hartman, T. Michael Keeseey, Scott Hartman, Scott Hartman, Matt Martyniuk, Matt Martyniuk, Matt Martyniuk, Matt Martyniuk, Nobu Tamura/T. Michael Keeseey, Matt Martyniuk, J.J. Harrison/T. Michael Keeseey. 'Bipedal posture' silhouette by Scott Hartman.