

Freshwater turtles from the middle Pleistocene Kiyokawa Formation, Shimosa Group in Chiba Prefecture.

Ren Hirayama[1]; Naotomo Kaneko[2]; Hiroko Okazaki[3]; Shinji Isaji[4]; Yuji Takakuwa[5]; Hajime Taru[6]; Hiroaki Ugai[7]; Hisayoshi Kato[8]

[1] Fac. Inf., Teikyo Heisei Univ.; [2] Geological Museum, AIST; [3] Earth Science, Nat. His. & Inst., Chiba; [4] Earth Sci., Nat. Hist. Mus. Inst., Chiba; [5] Gunma Mus. Nat. Hist.; [6] Kanagawa Prefectural Museum; [7] Geosci., Univ. Tsukuba; [8] Nat. Hist. Mus. Inst., Chiba

Ectotherm vertebrates such as turtles should be good indexes for analysis of paleoclimatic environments. More than 500 fossil terrestrial vertebrates have been collected from the Kiyokawa Formation of the Shimosa Group at Yoshinoda, Sodegaura City, Chiba Prefecture, Central Japan by excavations of over 50 days from March 1993 to December 2003.

Fossil turtles are represented by 140 samples, including at least 9 individuals. All turtles are allocated into the Family Bataguridae (Testudinoidea: Testudines), a group of freshwater turtles. Most of turtles have been collected from bone-bearing beds (Unit B in Okazaki's abstract). They contain two extinct species, *Ocadia* sp. and *Mauremys yabei* (Shikama, 1949). Most of chelonian materials are isolated shells, although *Ocadia* sp. is represented by a nearly complete skeleton, with skull, limb bones, and 30 cm long shell preserved, from the Unit C in Okazaki's abstract. Two assemblages of disarticulated shells of *Mauremys yabei* are also known from the Unit B.

Ocadia sp. is distinguished from a living species (*O. sinensis*) by its extensive secondary palate and smooth shell surface. The sole living species of the genus *Ocadia* seems well adapted to a subtropical environment in eastern to southeastern Asia. The paleoclimate of Japanese Islands in the Middle Pleistocene age might have been rather warmer than hitherto suggested by paleotemperature based on mammalian fauna and flora.