Fossil cervid from the Kiyokawa Formation (Middle Pleistocene) in Sodegaura city, Chiba Prefecture

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Skeletal remains of deer are abundant together with those of turtles among vertebrate fossils from Kiyokawa Formation (Middle Pleistocene) at Yoshinoda, Sodegaura city, Chiba Prefecture. These deer fossils include plural individuals. And they were disarticulated. However, a few bone fragments that found from different grids stick together. The skeletal portion that already identified is as follows;

[CRANIAL] Antler (fragment), Upper Molar, Mandible, Lower Molar
[AXIAL] cervical vertebrae, lumber vertebrae, sacrum
[FORELIMB] Humerus, Ulnoradius, Metacarpal, Carpal bones
[HINDLIMB] Pelvic, Tibia, Metatarsal
[OTHER LIMB] Proximal and medial phalanges

The morphological characters in antler (e. g. number of branch, point, and proportion) are very important for taxonomy of Cervidae. Then, in the fossil deer from Japanese Quaternary deposits, it is possible to identify their subgenera if that specimen consist the part of antler from burr to first branch. However, there is no antler material (includes burr and first branch) in Yoshinoda specimens. Therefore, we can not use this criterion for their taxonomic examination.

On the other hand, Ichihara Fossil Deer Research Group(1994) pointed out some morphological difference between two subgenera of Cervus, Cervus(Nipponicervus) and Cervus(Sika). After their opinion, the shapes of limb bones of former subgenus show robust proportions. The shape (especially width) of metacarpal and metatarsal bones of C.(Nipponicervus) is more robust than C.(Sika). These portions that found from Yoshinoda has slender proportion. Based upon this observation, deer fossils from Yoshinoda identifies as Cervus(Sika).

Cervus(Sika) includes recent species C.(S.) nippon (Eastern Asia) and extinct species C.(S.) grayi(Middle Pleistocene; China and Japan; contains Japanese subspecies C.(S.) g. katokiyomasai). The fossils from Yoshinoda are regarded as one of important fossil records of Cervus(Sika) in Japan. However, their fossil records from Japanese archipelago are too fragmentary to reconstruct their phylogeny and dispersal pattern.