

SOCIAL ORGANIZATION OF TONKIN SNUB-NOSED MONKEYS IN NORTHERN VIETNAM: ECOLOGICAL PRESSURES AND EVOLUTIONARY IMPLICATIONS.

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The Tonkin snub-nosed monkey, *Rhinopithecus avunculus*, is an endemic, critically endangered, slender-bodied arboreal colobine, whose distribution is largely restricted to the tropical evergreen forests associated with karst limestone hills and mountains in northern Vietnam. It has been recorded at elevations between 200 to 1,200 m. The basic social unit of the Tonkin snub-nosed monkey is a one-male unit (OMU), and extra males form all-male unit (AMU). Different OMUs and AMUs frequently come together to feed, rest, and occasionally travel together, thereby exhibiting a secondary level of social organization – the band, with fission-fusion of stable OMUs. The Tonkin snub-nosed monkey is wide-ranging, and the home ranges of different units overlap completely. The former suggests widely distributed food resources, and the latter imply inter-group tolerance and the absence of defense for food resources. In 1992, a study of the Tonkin snub-nosed monkey at the Tat Ke Sector of the Na Hang Nature Reserve showed that the average size of the OMU was 17.7, and the band size was 72 (estimated 80). A latter study at the same site, carried out in 2005, observed that the average size of the OMU was 5.6, and the band size was 17 (estimated 22). This significant drop in group and band sizes could only be attributed to hunting pressures, evidenced by both primary and secondary data. Furthermore, habitat cover has in fact increased within that 13-year period and food resources are likely to have similarly increased, therefore unlikely to account for the reduced sizes.

Keywords: ecological pressures, *Rhinopithecus avunculus*, social organization, Tonkin snub-nosed monkey