


## Decline of the Critically Endangered Tonkin snub-nosed monkey in Quan Ba forest, Vietnam

Vietnam is a stronghold for threatened and endemic primate species, including the Critically Endangered Tonkin snub-nosed monkey *Rhinopithecus avunculus*. This species is confined to a few areas of north-east Vietnam and its distribution has declined markedly as a result of extensive deforestation, cardamom farming within forested areas and intensive hunting. The Tonkin snub-nosed monkey is now known from only two small forest patches in Ha Giang province (Khau Ca and Quan Ba forests).

The Fauna & Flora Vietnam Programme, with financial support from the Critical Ecosystem Partnership Fund and the Nando and Elsa Peretti Foundation, has been supporting community conservation teams for over a decade in both forests. These efforts focus on forest protection and reducing illegal wildlife trade. In Quan Ba, despite regular patrols, the species has not been sighted since 22 June 2020, although there have been anecdotal reports of the species from local community members. To determine its current status in Quan Ba, we initially gathered direct and indirect evidence from local communities, followed by a systematic 2 × 2 km grid-based survey during 17–21 April 2024. Each grid cell, except those heavily impacted by agriculture or human habitation, was searched by pairs of observers, including experienced biologists and community conservation team members. A total of 32 surveyors traversed a total of 731 km, searching for any evidence of the Tonkin snub-nosed monkey, but we did not record any significant signs of the species.

The decline of the Tonkin snub-nosed monkey in Quan Ba is of great concern, and underscores the urgent need for a protected area designation for this forest, focusing on zonation, habitat restoration and an expansion programme for the Khau Ca forest. Khau Ca is a National Park, providing protection specifically for the Tonkin snub-nosed monkey and its habitat. Quan Ba, however, does not have a conservation designation and therefore does not receive comparable protection. Monitoring and management plans need to be implemented to ensure the survival of this species and to preserve the ecological integrity of the region. Additionally, intensive research is required to prevent any cascading effects on the population in Khau Ca.

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## Saving the Ryukyu rabbit tick *Haemaphysalis pentalagi*

The metazoan parasites of vertebrates are important components of global biodiversity but although many parasite species are threatened with extinction, their conservation has been largely neglected. However, recent interest has culminated in the emergence of the nascent field of parasite conservation biology and the establishment of the IUCN Species Survival Commission Parasite Specialist Group (Hopkins & Kwak, 2023, *Oryx*, 57, 283). Until now, parasite conservation biology has been largely aspirational, with few practical efforts to protect threatened parasites. As far as we are aware, the conservation programme for the Ryukyu rabbit tick *Haemaphysalis pentalagi* is the first for a globally threatened parasite species.

The Ryukyu rabbit tick is a co-threatened parasite of the Amami rabbit *Pentalagus furnessi*, both endemic to the Amami archipelago in southern Japan. The population of *P. furnessi* (and presumably also *H. pentalagi*) declined markedly following the introduction of the small Indian mongoose *Urva auropunctata* in the 1970s. In 2022, a conservation project, partly funded by the Mohamed bin Zayed Species Conservation Fund, was launched to safeguard the Ryukyu rabbit tick from extinction, through both in situ and ex situ actions. On Amamioshima, in situ monitoring of *H. pentalagi* is ongoing. The aim is to collect baseline abundance data on *H. pentalagi* and to then assess the impacts of conservation actions taken to control introduced predators (mongooses, feral cats and dogs) and wildlife diseases (e.g. toxoplasmosis, rabbit haemorrhagic disease) that threaten *H. pentalagi* and its host *P. furnessi*.

An ex situ insurance population of *H. pentalagi* has been established at Hokkaido University from individuals collected on Amamioshima. This population has successfully reproduced in captivity and had completed one full life cycle as of May 2024, with the second captive-bred generation now maturing. A husbandry manual for this



Adult male Ryukyu rabbit tick *Haemaphysalis pentalagi*. Photo copyright: Takamasa Nemoto (all rights reserved).