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Discovery of Road-killed Akamata *Dinodon semicarinatum* (Cope, 1860) (Reptilia: Colubridae) from Yoronjima Island, Kagoshima Prefecture, Japan: Evidence for Survival of This Snake on the Disturbed Islet

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与論島の路上におけるアカマタ *Dinodon semicarinatum* (Cope, 1860)（有鱗目，ナミヘビ科）の礫死体の発見：本種の同島での生存の証拠

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Abstract

Two road-killed individuals of akamata *Dinodon semicarinatum* were found in 2014 on Yoronjima Island, Kagoshima Prefecture, Japan, where population of this snake was believed to have already disappeared. Present findings indicate that the snake sti ll survives, though in quite low density, on this small island, despite reportedly rapid and extensive environmental degradation the re since the middle of the 20th Century. Effort is desired to reduce anthropogenic factors unfavorably affecting native wildlife on Yoronjima Island, such as predation by artificially introduced weasels *Mustela itatsi*.

要　旨

鹿児島県の与論島で2014年，この島ではすでに個体群が消滅したと思われていたアカマタ *Dinodon semicarinatum* の路上礫死体が２体確認された。今回の発見はこのヘビが低密度ながら依然，面積も小さく20世紀の半ば以降，生息環境が急速に悪化したとされるこの島に生き残っていることを示している。島外から導入されたイタチ *Mustela itatsi* による捕食をはじめ，この島在来の野生動物の生存に悪影響を及ぼしている人為的要因の減少に向けた努力が望まれる。

INTRODUCTION

Akamata *Dinodon semicarinatum* (Cope, 1860) is a medium sized colubrid snake (snout-vent length [SVL] usually < 135 cm in males, < 85 cm in females: Takiguchi and Ota, 2006), and is endemic to the Amami and Okinawa Island Groups, Ryukyu Archipelago, southern Japan (Nakamura and Uéno, 1963; Takara, 1962). It preys on a variety of small to medium sized vertebrates available in its habitat (Hamanaka et al., 2014; Mori and Moriguchi, 1988), and at least partially because of such broad dietary habit, akamata occurs not only on large islands with high faunal diversities, such as Okinawajima Island and Amamioshima Island, but also on much smaller islets apparently with much limited carrying capacities within the Central Ryukyus (Maenosono and Toda, 2006).

In October and November 2014, we obtained two road-killed specimens of akamata on Yoronjima Island. Akamata population, though surely once occurring on this island, has been considered to have disappeared recently. Present findings obviously indicate that the population still survives on Yoronjima Island. We report details of those findings and discuss their implications below.

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OBSERVATIONS

The first specimen (female; ca 65 cm in total length [TL]; ca 48 cm SVL; currently deposited in the Zoological Collection of the Kagoshima Prefectural Museum [KPM] [registered as RE01400001]: Fig. 1) was obtained on 3 October 2014 at Chabana, Yoron Town (Yoronjima Island) by Morikubo Take. It was found in an obvious "road-killed" state on the paved road with its head and middle of the trunk flattened and partially broken.

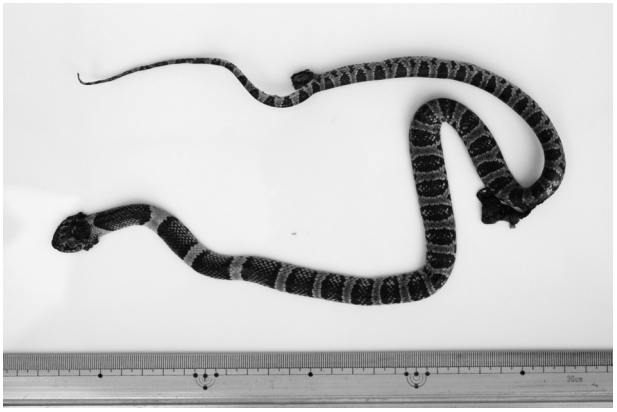

Fig. 1. Dorsal view of the road-killed female akamata *Dinodon semicarinatum* found in Chabana, Yoronjima Island on 3 October 2014 (RE01400001).

The second specimen (juvenile male; ca 35 cm TL; ca 25 cm SVL; also currently deposited in KPM [as RE01400002]: Fig.2) was obtained on 26 November 2014 at Chabana, Yoron Town (Yoronjima Island) by Kotaro Nita. It was also found in a "road-killed" state on the paved road with middle of the trunk flattened and posterior trunk partially broken.

Fig. 2. Dorsal view of the road-killed juvenile male akamata *D. semicarinatum* found in Chabana, Yoronjima Island on 26 November 2014 (RE01400002).

DISCUSSION

In his first report on the herpetofauna of the Amami Island Group, Koba (1956) referred to *D. semicarinatum* as occurring on several islands of the group including Yoronjima Island. However, he did not give any voucher such as specimens for the record of the species from Yoronjima Island, though he did so for its records from other islands. Several subsequent authors also surveyed Yoronjima Island herpetologically (e.g., Takara, 1962; Ota, 1986; Samejima, 1991), but none of them could verify the above-mentioned record by Koba (1956) at all. Likewise, one of us (HO) recently extensively surveyed Kazuo Koba's herpetological collection from the Amami Group (originally left in the Faculty of Education, Kumamoto University, where he had worked as a professor, but moved to the Osaka Museum of Natural History [OMNH] during the 1990s), but could not find a single akamata from Yoronjima Island.

Recently, Nakamura et al. (2009, 2013, 2014) examined numerous skeletal remains of vertebrates screened from the old garbage dump deposits, and recognized a number of reptiles and amphibians with certainty. They included akamata and several other species, whose occurrences on Yoronjima Island had not been verified with voucher at all, or at least during the last several decades. Nakamura et al. (2009, 2013, 2014) interpreted such results as reflecting recent disappearances of their Yoronjima populations, presumably as a consequence of drastic environmental changes of habitats for small vertebrates involved by alteration in land use for agriculture and artificial introduction of weasels *Mustela itatsi* for rat control, both during the 1950-1970s.

Present findings explicitly indicate that at least akamata still survives on Yoronjima Island. Even so, however, its population density is likely to be very low, judging from the long paucity of records with voucher material (see above). On several Ryukyu islands, introduced weasels have been giving devastating effect upon populations of small animals, lizards and snakes in particular (Ota, 1981; Ota and Masunaga, 2004; Ota et al., 1994). To enhance the chance for future survival of the native wildlife including akamata on Yoronjima Island, effort is much desired to reduce the predation pressure from the exotic carnivore by controlling its population.

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LITERATURE CITED

Hamanaka, K., A. Mori, and H. Moriguchi. 2014. Literature survey on food habit of snakes in Japan: Revisited. Bulletin of the Herpetological Society of Japan 2014: 167-181. (in Japanese)

Koba, K. 1956. Herpetofauna of the Amami Group of the Loo Choo Islands, I. Bulletin of the Faculty of Education, Kumamoto University 4: 148-164, 2 pls. (in Japanese with English summary)

Maenosono, T. and M. Toda. 2007. Distributions of amphibians and terrestrial reptiles in the Ryukyu Archipelago: A review of published records. Akamata (18): 28-46. (in Japanese)

Mori, A. and H. Moriguchi. 1988. Food habits of the snakes in Japan: A critical review. Snake 20: 98-113.

Nakamura, K. and S.-I. Uéno. 1963. Japanese Reptiles and Amphibians in Colour. Hoikusha, Osaka. (in Japanese)

Nakamura, Y., A. Takahashi, and H. Ota. 2009. Evidence for the recent disappearance of the Okinawan tree frog *Rhacophorus viridis* on Yoronjima Island of the Ryukyu Archipelago, Japan. Current Herpetology 28: 29-33.

Nakamura, Y., A. Takahashi, and H. Ota. 2013. Recent cryptic extinction of squamate reptiles on Yoronjima Island of the Ryukyu Archipelago, Japan, inferred from garbage dump remains. Acta Herpetologica 8: 19-34.

Nakamura, Y., A. Takahashi, and H. Ota. 2014. A new, recently extinct subspecies of the Kuroiwa's leopard gecko, *Goniurosaurus kuroiwae* (Squamata: Eublepharidae), from Yoronjima Island of the Ryukyu Archipelago, Japan. Acta Herpetologica 9: 61-73.

Ota, H. 1981. Notes on the herpetofauna of Hateruma Island, Ryukyu Archipelago. Japanese Journal of Herpetology, 9(2): 54-60. (in Japanese with English abstract)

Ota, H. 1986. A review of reptiles and amphibians of the Amami Group, Ryukyu Archipelago. Memoirs of the Faculty of Science, Kyoto University (Biology) 11(1&2): 57-71.

Ota, H. and G. Masunaga. 2004. Herpetofauna of the Kerama Islands of the Okinawa Group, Ryukyu Archipelago, Japan. Midori-ishi (15): 29-35. (in Japanese)

Ota, H., M. Toyama, Y. Chigira, and T. Hikida. 1994. Systematics, biogeography and conservation of the herpetofauna of the Tokara Group, Ryukyu Archipelago: New data and review of recent publications. WWFJ Science Report 2(2): 163-177.

Samejima, M. 1991. Animals of Yoronjima. Minami-Nihon-Bunka (21): 71-84. (in Japanese)

Takara, T. 1962. Studies on the terrestrial snakes in the Ryukyu Archipelago. Science Bulletin of the Division of Agriculture, Home Economics and Engineering, University of the Ryukyus 9: 1-202, 22 pls. (in Japanese with English summary)

Takiguchi, I. and H. Ota. 2006. Sexual size dimorphism in a colubrid snake, *Dinodon semicarinatum* (Reptilia: Squamata), from Okinawajima Island of the central Ryukyus, Japan. Current Herpetology 25: 79-92.