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Laboratory of Wildlife Biology

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This laboratory was established in 1995 as the first in Japan to bring the techniques of veterinary science to bear on problems of wildlife conservation. The main research activities of the lab include studies of the regulation of large mammal populations (ungulates, carnivores, and pinnipeds) and the conservation of endangered species. Veterinary medicine plays a prominent role in assessing the population fecundity and mortality patterns that influence wildlife conservation and management programs. We also conduct research on the conservation of mammals in East Asia and the systematics and distribution of deer in China. The lab is directed by a professor and associate professor (listed above) and includes seven graduate students, one undergraduate student, and five graduate research fellows (as of October, 1998).

Research Subjects

1. The Sika deer (*Cervus nippon yesoensis*)

Our laboratory works cooperatively with the Hokkaido government on studies of population

dynamics, reproductive ecology, and food habits of the Sika deer. The Sika deer population on Hokkaido has expanded to number more than two hundred thousand, and although nearly 50,000 are harvested each year, the impacts of the expanding herds on native forests, plantations, and agricultural lands are dramatic.

2. Terrestrial carnivores

Three research projects are focused on terrestrial carnivores or omnivores on Hokkaido:

- interactions between brown bears (*Ursus arctos yesoensis*) and humans
- reproductive ecology of introduced raccoons (*Procyon lotor*)
- Conservation studies of sables (*Martes zibellina*), particularly evaluation on the impacts of introduced Mustelids and habitat deterioration on sables habitat use.

3. Marine Mammals

Research projects include studies of the migratory ecology and reproduction of the Steller sea lion (*Eumetopias jubatus*) (currently in decline), the sea otter (*Enhydra lutus*) (distributed just north of Hokkaido in the Kuril islands), and other pinnipeds that frequent the coastal waters of Hokkaido. We are also gathering data on stranded marine mammals around Hokkaido, especially spotted seals (*Phoca largha*) for population study as genetics and morphology. Cooperative research projects with Russian scientists have also been initiated in the Kurile islands and the Kamchatska peninsula.

4. Marine Turtles

The lab supports a study of the population dynamics of the hawksbill turtle (*Eretmochelys imbricata*) in Caribbean Sea, based upon age structure estimates derived from carapace layers and surface pattern on scute. Field surveys are conducted in the coastal waters of Cuba, Puerto Rico, and the Ryukyu islands, and research samples have been collected from turtle populations throughout the world.

5. Oscillation and chaos in population dynamics

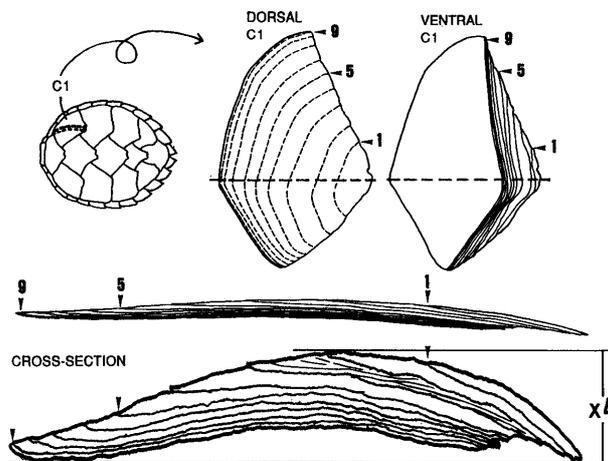


Fig. 1. Illustration of the examination of C1 carapacial scute by counting surface and intra-scute annual layers for wild harvested hawksbill estimated 10 years old.

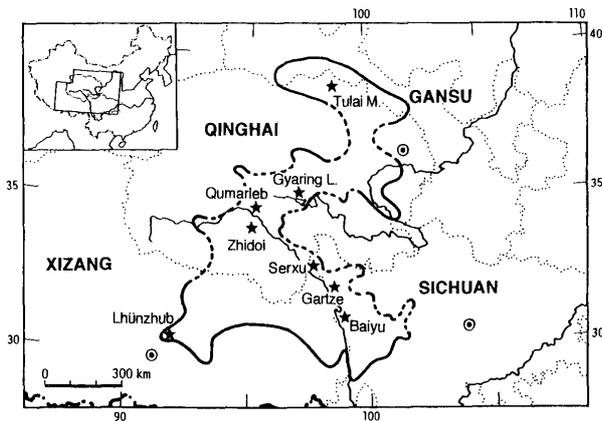


Fig. 2. Distribution of the white-lipped deer (*Cervus albirostris*). The white-lipped deer, which is distributed on the Tibetan Plateau, is an important species in the analysis of the evolution and systematics of the advanced species of the genus *Cervus*. Although there was very little information concerning this deer, the cooperative project between Japan and China was clarifying the status of this species.

6. Cervids in China

A variety of cervids, ranging from primitive to more advanced species, inhabit China. A cooperative research project with Chinese counterparts uses comparative anatomy and genetic techniques to clarify the systematics and evolution of cervids in Asia.

7. Biogeography of Tibet and Xinjiang

The southeastern regions of the Tibetan plateau has been recognized as an important source from which the progressive vertebrates dispersed. The lab has been involved in ongoing research of these dispersal processes

throughout Tibet, Xinjiang, and East Asia.

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