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## ON THE PIKAS OF NORTH MANCHURIA

BY A. S. LOUKASHKIN

In North Manchuria three forms of pikas occur, namely, *Ochotona daurica*, *Ochotona hyperborea manchurica* and *Ochotona hyperborea cinereo-fusca*. The first of these occupies the high steppes and semi-deserts of the Barga upland, the second the rocks and cliffs of forested mountains of the Great Khingan Range, and the last the mountainous country along the Amur River near Heiho (opposite Blagoveschensk).

The Dahurian pika makes its burrows in the flat places. Here the animals form colonial associations. Their burrows are not so deep as in the next species, and when one crosses on horseback the great stretches occupied by the colony of Dahurian pikas, his horse every now and then breaks through into the underground shelters of the animals.

At the end of August these animals prepare their hay stocks for the winter-time. They cut off the grass stems at the root and bring them to selected places on the open ground surface, piling the grass in small cone-like heaps, arranging it so that the tops are below and cut ends above.

Such a haycock after drying weighs from two to five pounds. When drying their grass the pikas turn their haycocks over several times until they become well prepared hay. Many hundreds and sometimes even thousands of such minute cones can be seen in September, covering an area of two to three square kilometers occupied by the colony.

The Dahurian pika does not show preference to any particular kind of plants; it feeds on any kinds that occur. Various species of *Artemisia* constitute a considerable percentage in their stocks.

Mongolian herders, knowing this peculiarity of the Dahurian pikas, utilize their hay stocks in winters, when hardened deep snow covers the steppe, and grazing for the cattle and sheep becomes very difficult. The Mongolians drive their herds to localities where there are pika colonies and the hungry animals feed upon the pika stocks.

The voice of this pika is quite pleasant and even musical. It is a whistle broken at short intervals, beginning on a high note and descending to low ones. The sounds resemble the voice of a bird rather than that of mammal.

The pika is heard whistling mainly early in the morning just after day-break, and after sunset. In springtime I have heard its voice more than once near Dalainor Lake at midnight. Therefore, I conclude that it is on the alert almost all day and all night.

The Dahurian pikas bring forth their young twice a year. They are very delicate in captivity, living a short time only.

The Siberian fitch (*Putorius evermanni michnoi*) and the least weasel (*Mustela rixosa pygmaea*) appear to be their natural enemies.

The Manchurian pika (*Ochotona manchurica*) keeps to the basalt rocks, making its dwelling in crevices and cavities of the cliffs, and in burrows under big stones lying on the surface.

The Manchurian pikas do not put their hay in the form of a conical heap. Instead of this they hide the hay in conveniently situated holes in trees and in the rotted out cavities of stumps, or sometimes under wind-felled tree trunks, and in cavities among rocks. Its hay stocks are piled in formless masses that may reach a weight of 15-40 pounds. All the hay stocks that I saw were located in safely hidden places. This precaution enables the pikas to save their food from the forest robbers, among which are the Ussurian moose (*Alces alces bedfordi*), Siberian roe-deer (*Capreolus capreolus pygargus*) and varying hare (*Lepus timidus transbaicalicus*).

The Manchurian pika is social in its habits, but its colonies are usually not so large as in the foregoing species. Only on the lava stream of the "Fourteen Volcanoes Country" (or Ujun Holdonger in the Dahur language) have I met with enormous colonies, where I had a splendid opportunity to observe pikas at almost every step. There they found unusually favorable conditions. Numberless crevices and rocks made it possible for them to hide at any danger.

These pikas make long paths, connecting one burrow entrance with another. The same paths are used also for their "expeditions" in order to collect grasses from the nearest meadow. In July they begin to collect and dry grasses. The food materials brought from the meadow they put on heated rocks in small packets or in the form of long rows. Immediately after it dries out the hay is removed to places of safety. Such work is continued every day during July and August.

The sound produced by the Manchurian pikas is a very loud, sharp, monotonous, and short whistling. They are exclusively diurnal animals in their habits, and very active. I have never heard their voices in the night. Both the Dahurian and Manchurian pikas are remarkable for their absolute cleanliness. Their lavatories are situated on the surface somewhat outside of the burrow entrances. Usually they execute their necessities of life somewhere near a stone or some other protruding object. The urine is very dark-rusty in color, and the excrements are dry and of ball-like form the size of a Singapor pepper, dark-green or blackish in color.

When eating herbs, Dahurian and Manchurian pikas do not hold them in their fore paws, like the rodents; but exactly like hares and rabbits, they stand on all four legs and work only with their jaws. They always begin to eat at the base of the stems, gradually following to the upper parts and leaves.

The Manchurian pika appears to be mainly an inhabitant of the forested mountains, where the Dahurian larch (*Larix dahurica*) is the predominating

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tree. In such a forest the *Rhododendron dahuricum*, a heavy moss carpet and thickets of *Vaccinium vitis-idaea* compose the undergrowth.

While moving from hole to hole and in visiting grazing grounds the Manchurian pika makes use of tunnels and paths made through the moss carpet. It often climbs on the wind-fallen trees, stumps, and rocks, from which it suspiciously looks over the surroundings. After feeding it likes to rest on some elevation (rock, timber, etc.) and warm itself for hours in the sunshine.

In December a deep layer of snow covers the Great Khingan Range for the whole winter. At this time the pikas make very long trenches and tunnels under the snow; unwillingly and seldom do they appear on the snow surface.

The Manchurian pikas absolutely fail to survive captivity. They die in live-catching traps before the arrival of the collector, probably within an hour or two after the moment of trapping.

The main enemies of the Manchurian pika are the Siberian yellow mink (*Mustela sibirica*) and the yellow ermine (*Mustela alpina*), both of which freely penetrate into the pikas' burrows.

The larvae of *Hypoderma* sp. are parasitic in the body of the Manchurian pika. Usually a pair of larvae are located on the belt under the skin one on each side. In cases when there are more than four larvae in one animal the result is usually fatal.

Both Dahurian and Manchurian pikas are noted for their curiosity. When they see a man approaching they begin to whistle and then hide themselves. If at this time the observer stops and remains motionless they disappear into the burrows or crevices, but after a short time they appear again on the surface approaching closer and closer (following by the underground ways), until they finally arrive at a distance of only three or four meters from the observer. Then they remain hidden behind a rock or tree, or at the exit of their burrow, keeping close watch of the observer. After a short time the observer may be able to see several muzzles of pikas looking for him from their hidden shelters, and ready to disappear at any sign of danger. If the observer stays motionless and is sufficiently patient, the pikas come to the surface of the ground and continue their activities close to his feet.

Various kinds of mouselike rodents live in association with the pikas and make use of their paths, tunnels and burrows, especially in winter. I have trapped *Phaiomys brandti*, *Stenocranius gregalis raddei*, *Cricetulus furunculus*, *Phodopus songarus*, and even *Allactaga mongolica* in traps set at the entrance of the burrows of *Ochotona daurica*. The same association was observed when I was collecting *Ochotona mantchurica* on the Great Khingan Range. Very often I had good luck there with small mammals about whose presence in that region I had no knowledge. For instance, in 1935 (November-December) I brought back to Harbin a good series of *Clethrionomys rutilus*

*hintoni*, *Phaiomys vinogradovi*, *Apodemus major rufulus*, and *Apodemus agrarius mantchuricus*, all of them having been trapped on the paths of colonies of *Ochotona mantchurica*.

As to the third form of pika, namely *Ochotona hyperborea cinereofusca*, I can say nothing because I have never had a chance to observe this animal under natural conditions.

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