MAMMALIA IN THE STEPPE BIOCENOSE

A. N. Formosov

Zoological Museum, Moscow University

The dependence of the animal world on the surrounding environment has long been an object of scientific investigation. Concerning Mammalia, we possess at present much data showing how these animals are, in many cases, influenced by one or another specific peculiarity of the locations in which they dwell. Temperature, moisture, altitude above the sea-level, character of the soil, etc., put a peculiar stamp on the organization and the mode of life of mammals, either directly, or else by means of the vegetation which is always highly sensitive to the slightest variation in the environmental conditions. The peculiar characters of the steppe mammalia, resulting from a protracted evolution in wide plains, with low-growing herbaceous vegetation, are so well known that it seems needless to enumerate them. The sandy and buff colors, characteristic of the antelopes, the foxes, the marmots, the suslike, the ground squirrels, the voles, the jerboa, etc., harmonize admirably with the golden gray tints of the dry plains. We know about periodic migrations of the herbivorous mammals, owing to the summer drying up of the steppes vegetation. For the rodents, the time of awakening from hibernation corresponds to the appearance of the young vegetation; that of rearing the young coincides with the period of bloom in the vegetation, and lastly, hibernation in the autumn begins with the decay of the nutritive plants. All these facts bear solely upon one side of the question—the significance of the steppe vegetation for the mammals dwelling in its midst. They furnish no answer to the second part of the question, viz., whether these animals themselves play any part in the transformation of the environment and whether their vital activity contributes in any way to change the aspect of the steppes.

J. Grinnell ('23), in his interesting work, "The Burrowing Rodents of California as agents in soil formation," has shown that the results of the activity of burrowing rodents, belonging to a small group of the mammalian fauna, are considerable, and deserve serious attention. He concludes thus: "On wild land the burrowing rodent is one of the necessary factors in the system of natural wellbeing." The present article is partially a contribution to the work of Grinnell, and its object is to show the importance of Mammalia in the life of the steppes that extend in a wide belt through eastern Europe and central Asia. My own investigations upon this subject were made in southern Russia and northern Mongolia, during the expedition of the Russian Academy of Sciences (July to October, 1926), of which I had the pleasure of being a member.