

SOME OBSERVATIONS ON THE GIANT MALABAR SQUIRREL *Ratufa Indica* AND THE FLYING SQUIRRELS OF KANYAKUMARI DISTRICT

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Kanyakumari district is the southern most tip of peninsular India of Tamil Nadu State which has a common border with Kerala State. The Western Ghats extends through the Kerala state and Kanyakumari district. Thick tropical rain forest present in Western ghat harbours large number of mammalian fauna. One of the largest single group of mammals (Class Mammalia) is rodents (order Rodentia) which comprises squirrels, rats, mice, marmots, porcupines etc. These are comparatively small mammals and they show adaptive radiation. They live on the surface of the ground, in burrows, in trees and in water also. One character of the rodents namely, the teeth, differentiates them from all other mammals. It is in correlation with their food and feeding habits.

The giant Malabar squirrel, *Ratufa indica* is found in Kodayar, Balamore and Asambu hills of Western Ghats. The large brown flying squirrel, *Petaurista phillipensis* and the small Travancore flying squirrel, *Petionomys fuscocapillus* are the two species live in the southern Western ghats extending upto Kanyakumari district. These are the two sympatric flying squirrels of Western ghats in India. They are under the threat of extinction. *Petionomys fuscocapillus* is included in the schedule I of Indian Wild life Act 1972 while the *Petaurista phillipensis* and *Ratufa indica* are included in Schedule II of the Act.

Characters of these Squirrels

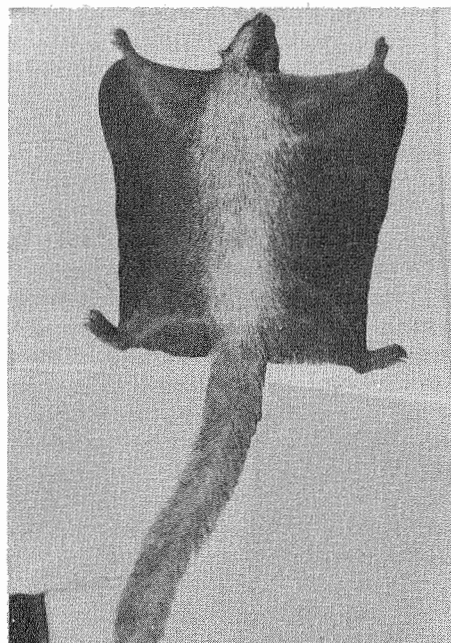
1. Teeth: All the squirrels have a dental formula $1003/1003 = 16$ teeth. Each half of the upper jaw and lower jaw bear one incisor in the front and three molars in the cheek. The incisors act like a chisel and it can continually grow throughout the life. The constant gnawing habit keep the size of the incisors normal. The canines and premolars are absent and the gap formed between the incisors and molars called diastema, helps in dividing the buccal cavity into two chambers, the front with incisors and the rear with grinders. The narrow passage between these two chambers helps in straining the large food particles. The diet and feeding habit have influenced the muscles for mastication also.

2. Colour: Colouration depends on the locality where they occur and also the climatic factors. *Ratufa indica* is the darkest form because it inhabits the moist evergreen forest of Western ghats.

3. Size and behaviour: When compared to other mammals, squirrels are insignificant in size and strength. They survived the competition and pressure exerted by other mammals by their wariness cunning, timidity and agility, their secretiveness and rapidity with which they breed (fecundity). Even though they are weak and timid hunger makes them really bold (Prater, 1948).

Ratufa Indica: (Indian giant squirrel)

The head and the body together measure about 40cms. and the tail alone about 60 cms. It has bright dark brown fur on the



Flying squirrel

upper side and pale colour on the lower side of head, chest and limbs. The tail is completely black in colour and is bushy. It lives among tall trees and never visits the ground. A leap covers about 20 feet. They are diurnal and most active in the early morning hours and also in the evenings. During midday they often go to sleep lying on the branches of trees with tail hanging downwards. During cold and wet seasons they rest in their nests.

These giant squirrels build globular nests with twigs and leaves in places where they are one with the surroundings. They build nests in the tree tops where heavy carnivorous mammals cannot reach. Sometimes they build more than one nest and in that one is used as nursery.

These squirrels can be spotted in the thick forests due to their loud rattling call and when there is a disturbance they show a peculiar behaviour similar to monkeys i.e. scolding, barking and raising general alarm. When they get frightened they never run away but they hide behind branches or lie flattened against a branch.

Petaurista phillipensis and *Petionomys fuscocapillus* (flying squirrels)

Since these squirrels have acquired the power of sailing or gliding through air they are popularly known as flying squirrels. They possess membranes or parachutes connecting

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the forelimbs and hind limbs of both the sides. In *Petaurista phillipensis*, the inter femoral membrane is not well developed. While at rest the parachute is not visible. During flight it spreads the membrane fully. It glides from a higher branch to a lower branch or from tree to tree. It usually makes a flat curved route. The speed is reduced while landing by an upward movement and it alights softly on a branch.

Petaurista phillipensis measures about 45 cms. long and tail alone is about 60 cms. *P. fuscocapillus* measures about 25 cms long and tail alone is about 30 cms. Both of them are nocturnal and the characters and behaviour also more or less similar. These resemble the nocturnal bats in emerging out at dusk and retiring before dawn. They do not build nests. They normally live in holes in trees. They sleep curled up into a ball. Head is tucked in between the fore and hind limbs and the tail is curled about the body. The large brown flying squirrel sometimes sleep on its back with legs and parachute outspread to keep the body cool during hot seasons.

Flying squirrels feed on fruits, nuts, barks, gums and resins, insects larvae etc. While feeding, it sits up on its haunches as other squirrels, holding the food on its fore limbs. They gnaw the food and the sound of feeding can be heard in calm nights. They call each other during night and normally this sound indicates the presence of these squirrels. Sometimes they make loud alarm followed by chattering cry.

The female flying squirrels prepare the hole as its nest by padding it with leaves, moss, fur etc. After giving birth to young ones, only the female will be seen with the offspring. Young ones are blind initially and parachute develops only at a latter stage.

Methodology of Observation

Since giant Malabar squirrel, *Ratufa indica* is a diurnal rodent, the presence can be easily detected. Observations in forests by using binoculars give a good picture of its occurrence and it is noted the number has decreased to a greater extent now.

The other two flying squirrels are nocturnal in habit. So great efforts have to be undertaken to find out the encounter rate (ER) as proposed by Kemper (1988). The same technique was adapted by Ashraf *et al.* (1993) to survey the flying squirrels of Western ghats. The two methods used are 1. Night transect method and 2. Watch tower observation using a spot light at night. Since these methods have to be used in the night in forests, one has to use powerful beam of light to spot these animals, mainly searching for the shining eyes, while these squirrels move around through the trees. Ashraf *et al.* (1993) have calculated encounter frequency (EF) using a simple measure of number of individuals sighted/ spot hour (Kemper, 1988).

These animals feed on fruits during night and all observations points have to be set up near fruiting trees where more numbers can be spotted. Normally the following trees are noted namely, *Magnifera indica*, *Knema attenuata*, *Myristica* sp., *Ficus* sp. and *Artocarpus integrifolia*.

Conservation

Occurrence of these giant squirrels and flying squirrels in

small numbers may be due to the deforestation. This produces habitat loss for these timid creatures. Monoculture of teak, tea, coffee and cardamom after deforestation may not be in a position to support a large population of these squirrels as does the virgin tropical rain forest. Population studies are possible only in areas where there is an access to the trees or forest areas. The number one records in certain areas may not be the correct data, due to several difficulties. But the condition of the forests at present indicates the general habitat loss. So, conservation of forest, the natural habitat of these squirrels has to be carried out to increase the number. Moreover these forms cannot be reared in captivity successfully to increase its numbers. Hunting of squirrels for meat and fur and also the habitat loss are the main reasons for the dwindling of numbers in the forests.

Conclusion

Taxonomic and exploratory study have to be undertaken to make a thorough survey of these endangered creatures. People living in and around the natural habitat of these squirrels have to be made aware that these squirrels should be well protected for our future generations and not to be hunted and to be prevented from extinction.

References

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