THE DIET
OF THE JAVAN RHINO

Alain Compost

The better the feeding ecosystem is, the more likely it is that a certain location will suffice as a natural habitat for the Javan rhino. Ujung Kulon provides the ecosystem the Javan rhino needs.

Fresh tracks in the mud are impressed on the forest floor. Along the path a few branches show signs of being recently snapped.

It is mainly through circuitous means, such as looking for clues like these or by a study of droppings, that scientists get to know the feeding habits of the tiny, remaining population of the Javan rhinoceros (*Rhinoceros sondaicus* Desmarest). For all its size, the animal is not easy to spot in the forests of Ujung Kulon. The animal's feeding habits are especially hard to learn about through direct observation because the Javan rhino prefers to eat during the night.

The Ujung Kulon peninsula seems to be eminently suited as a habitat for the Javan rhino. Its vegetation is greatly varied, ranging from primary forest to areas covered with secondary growth along the fringes of the national park. But the area has been heavily marred by past human activity and by the 1883 eruption of the volcano Krakatau, especially along the peninsula's northwestern coastline.

A number of studies have been made over the years to learn more about the diet of the Javan rhino, which is essential in the effort to protect the species from extinction. From the various observations that have been made, it is clear that the Javan rhino is a pure herbivore. However, it does not seem to be particularly choosy about the kinds of plants it eats.

A survey made in 1989 by a team from the Bogor Agricultural University (IPB) established that there are at least 50 plant species growing inside the Ujung Kulon National Park on which the rhinos feed. Among the most favored are *Laportea stimulans*, which grows in abundance in certain areas along the south coast, *Glochidion zeylanicum*, *Desmodium umbellatum*, and *Ficus septica*.

Hartmann Ammann, of Switzerland's Basel University in 1985, in an inaugural dissertation on the ecology and sociology of the Javan rhinoceros based on extensive field research, noted the high species diversity of the Javan rhino's diet. Although the animals were apparently dependent on the presence of forest, vegetation types without tall trees, such as gaps created by fallen trees and shrubland without trees, seemed to be preferred, possibly because of the better than average quality of the foodplants that grow in unshaded locations. (Most of the plants eaten were in unshaded locations.) Furthermore, the rhinos seldom fed in locations where the quantity of available food was small.

The Javan rhino is a browser, which means that it prefers young leaves, shoots and twigs, especially those growing on saplings. Grasses are rarely eaten. To get at the young leaves, the animal often first uproots a sapling by pushing against it with its head, or by cutting off larger branches with its strong teeth. Small twigs are simply bitten off. Taller branches are pulled down, and if the crown of a sapling is out of reach, the animal may try to break the stem with its jaws or press it down with its head and body.

Djaja, Sajudin and Lo Yauw Khian identified not less than 120 genera of plants, belonging to 62 families, or 155 varieties in all, on which the rhino feeds. According to the researchers, a number of other herbivores compete with the rhino for the same kind of food in the limited confines of the Ujung Kulon National Park. The most important among them are the wild ox (*Bos javanicus*), deer (*Rusa timorensis*) and

Alain Compost

muncak (*Muntiacus muntjak*), of which the wild ox is the most important due to its size and strength and to the large number of its population.

In addition to the species already mentioned, the researchers identified trees, especially saplings, of the families Euphorbiaceae, Moraceae, Palmae, Lauraceae, Anacardiaceae, Anonaceae, Ebenaceae, Meliaceae, Myrtaceae, Rubiaceae and Vitaceae to be among the best liked sources of food for the rhino.

Of the various plant varieties, most favored are *Dillenia excelsa*, *Leea sambucina*, *Amomum coccinium*, *Eugenia polyantha*, *Amomum megalocheilos*, *Acronychya laurifolia* and a few others. *Amomum megalocheilos*, with exceptionally juicy stems and leaves, is especially favored during the dry season.

Hartmann Ammann noted a number of peculiarities that characterize the Javan rhino's feeding habits. They are the wide range of foodplant species, the constant change from one plant species to another while feeding, the preference for certain parts of plants, and for feeding in certain types of vegetation environments. According to the researcher, those peculiarities are the results of selective pressures which have acted upon both the rhino and its foodplants.

Selective pressures themselves, Hartmann Amman says, are the product of interactions between the rhinos and their foodplants, between rhinos and competing herbivores, and between foodplants and other plant species. Possible factors underlying the observed preferences for certain foodplants and certain vegetation types, according to Hartmann Ammann, include the plants' natural defenses, physical as well as chemical, and nutritional value. Density of foodplants available, average quality, and availability of other resources are believed to be the main factors determining choice of feeding habitat.

One of the most notable characteristics of the Javan rhino's feeding habits, it seems, is the wide variety of plant species it consumes. Hartmann Amman even assumes that given a sufficiently long observation period, the animal's diet would probably prove to include almost all the plant species of suitable size. Aside from the need to avoid the intake of damaging amounts of toxins contained in certain plants, plant species vary in nutrient – especially mineral – content and a diverse diet appears to be necessary to maintain a balanced diet.

□ HARTOYO PRATIKNYO