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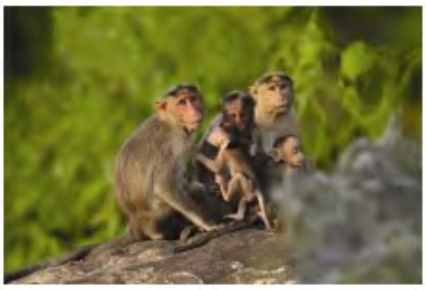
## Bonnet macaque

Many Asian primates including bonnet macaques of south India enjoy traditional and religious protection. Because they occupy geographically vast areas and exploit diverse habitats, such species are thought to be 'common' and 'not at serious risk'. Because large populations of bonnet macaques are found outside the wildlife reserves, not much attention is paid to this species for its conservation. However, since they mostly interface with humans, there is all the more a necessity that their population dynamics and conservation prospects are regularly monitored. Because of crops raids, the



population of this species has been eliminated in some regions due to increasing conflict with people. It was therefore found necessary to obtain baseline data on status of population and characteristics of groups in different habitats. Kumara *et al.* (**page 663**) provide data on bonnet macaques in Karnataka. The results reveal that the relative abundance and group size of bonnet macaques varied across habitats and in relation to degree of provisioning but the age–sex ratios showed no such variation. Though the bonnet macaques were found in most of the districts of the state, the relative abundance varied among the districts and Protected Areas. Mean group size was highest in human habitations followed by deciduous forests, roadsides and evergreen forests. The groups in highly provisioned places had the highest group size compared to medium or low degree of provisioning. The study highlights the need of population monitoring and need of conservation concern for a so-called common species.

## Sophisticated lysimeter technique from Europe

Exact monitoring of water and solute fluxes is challenging because the information is of basic interest to answer both scientific and practical questions regarding environmental protection of water resources, sustainable management of areas under agriculture and forest, mining or industrial areas, reducing leachate loss from landfills or explaining the fate of environmentally harmful substances. Different methods exist for measuring water and solute flux in and below the root zone. Meißner *et al.* (**page 601**) give a brief overview of existing indirect methods (e.g. water balance, tensiometer, time domain reflectrometry, frequency domain reflectrometry and environmental tracer) and direct methods (e.g. flux meter and drainage type lysimeter). They show that a large weighable outdoor lysimeter is the best method for obtaining reliable data about seepage water quantity and quality, but it involves significant investment and additional expenses for maintenance. To tackle this problem, new methods for the vertical extraction of soil monoliths and for the placement of the lysimeter in a container unit have been developed. The design of a weighable gravitation lysimeter and a weighable groundwater lysimeter is explained. An example is given for the high precision weighing technique. Besides recording rainfall and seepage, its weighing precision makes it possible to register mass input by dew, fog or rime. It also permits accurate calculation of the actual evapotranspiration.

## Metallographical studies of a steel chisel

The early evidence of iron production in India probably goes back at least to the middle of second millennium BC, evidenced from several early Iron Age sites spread across the country. Technological achievements in ferrous metallurgy were responsible for the emergence of the second urbanization in India, the first being the Indus Valley Civilization. To understand the process of the second urbanization, technical details in iron processing must be studied. For instance, carburization of iron which played a significant role in the manufacturing of agricultural equipments and helped in the settlement of the people, has not been critically evaluated in the literature. The metallographical studies of a steel chisel, excavated from the early Iron Age megalithic site at Mahurjhari in Vidarbha, Maharashtra, revealed that the chisel was made by solid-state reduction or bloomery process (see **page 636**). The iron bloom obtained was then forged in charcoal fire and deliberately carburized to make it steel. Finally, the chisel was hardened, quenched to impart hardness and subsequently tempered at lower temperature to eliminate chances of cracking and distortion during its use. The study confirmed that not only deliberate carburization or steeling of wrought iron but also the sequence of heat treatments – hardening, quenching and tempering – was known to the megalithic smiths around 900 BC in the region of Mahurjhari.