Ecology, distribution and population status of some threatened species of coastal plateaus of Konkan, Maharashtra

Abstract

Coastal plateaus in Konkan region of Maharashtra represent unique ecosystems, highly characterized by seasonality. Lack or scarcity of woody species make rocky plateaus appear barren or "waste lands" for eight month long dry season covering winter and summer. However, monsoon brings these plateaus back to life with gregarious populations of ephemeral plants, insects, amphibians and reptiles, most of which are habitat specialists. The biological uniqueness of rocky plateaus gets further highlighted due to their high endemism.

Recently, most of these coastal plateaus are experiencing heavy biotic pressures. Lack of awareness about their role as special habitat and consequently absence of baseline understanding regarding their ecology are main hindrance in bringing them under formal framework of protection.

As a part of an extensive biodiversity documentation programme for Coastal ecosystems of Maharashtra, BNHS has recently undertaken an in-depth study of plant communities on these coastal rocky plateaus and various threats destructing them.

Konkan - as it is widely popularly known - is a rugged segment of the western coastline of Maharashtra, resting between the “Sahyadries”- the Western Ghats mountain ranges and the Arabian Sea. The region extends over about 720 km North-South and 44 Km East-West and exhibits peculiar physiographic setup with varied undulating terrain throughout the region. The area ranges in elevation from mean sea level to 1425 m above msl and is characterized by various land forms having gently undulating low plateaus, cliffs, in the west to very steep slopes, ridges and high hills towards eastern portion. The most remarkable of all these variations of landforms are the Lateritic plateaus which cover the largest land surface in the central and southern Konkan (Ratnagiri and Sindhudurg districts) and are locally known as “sadas”.

Very recently rocky outcrops have started gaining attention of scientific community as special habitats. They are highly characterized by seasonality, appearing totally barren during dry season with drastic changes in physiognomy over a period of four months during rainy season. Lack or scarcity of woody species make rocky plateaus appear barren or “waste lands” for eight month long dry season covering winter and summer. The monsoon begins in early June and stays for four months. There is visible dynamism on plateaus during four months of this season as the plateaus experience sudden outbreak of vegetation and then gregarious flowering of different species at different times.

Both rock and air temperature and humidity fluctuate widely throughout the year as well as in a day’s time. On the other hand, during monsoon the area remains partially or totally inundated. Thus the microclimatic conditions on these plateaus are extreme and distinct from the surrounding habitats. Consequently the communities which dwell on coastal rock outcrops across the world experience a wide array of adverse environmental conditions, such as very high and low temperatures, fluctuating humidity, flooding, drought, harsh wind, salinity and lack of nutrients. As a result these communities are known to harbour habitat specialist plants which can cope up with these extremities and flourish. The plants include ephemerals, which complete their life cycle as fast as within four favourable months or geophytes, which survive dry period through their underground parts such as bulbs and rhizomes. Many of these species show certain adaptive strategies like carnivory, desiccation tolerance, succulence (high water content) etc.

Rocky plateaus harbor high biodiversity which corresponds to their microhabitat diversity. Combinations of factors such as absence or presence or thickness of the soil layer, duration of water availability, and surface characteristics give rise to these microhabitats. The short living rock –pools, puddles formed in shallow depressions, streams, rock surfaces with or without thin film of soil and water, crevices and furrows in between two rock surfaces, cliffs and pockets of woody vegetation wherever thick soil layer is available, are some of the distinct features. The biological uniqueness of these rocky plateaus is further highlighted due to their high endemism and presence of narrow- niched endemics.

Recently, most of these coastal rock outcrops here are experiencing heavy biotic pressures such as their rapid conversions for settlements, paddy fields, orchards, quarries, grazing fields, windmill farms and industrialization. Lack of awareness about their role as special habitat and consequently absence of baseline understanding regarding their ecology are main hindrance in bringing them under formal framework of protection. The narrow-niched endemic species of this region are facing

Systematic assessment of distribution and population trends of the highly threatened habitat specialists of these plateau is of utmost priority to conserve them and their habitats. BNHS has undertaken a detailed study aimed at evaluating status of these species in this area, to set conservation priorities.


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