Kalinga Frog

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In news : Recently, the scientists have reported a first-of-its-kind discovery of morphological phenotypic plasticity (MPP) in the Kalinga cricket frog

What is morphological phenotypic plasticity (MPP)?

MPP is the **ability of an organism to show drastic morphological (physical features) variations in response to natural environmental variations** or stimuli.

About Kalinga Cricket Frog

- Its documentation was done in 2018 and reported from the Eastern Ghats.
- It was thought to be endemic to the hill ranges of the Eastern Ghats
- In the Eastern Ghats, the species is found on the higher-elevation hill ranges of Odisha and Andhra Pradesh.
- Its scientific name is Fejervarya / Minervarya Kalinga

Key highlights of the study

- The discovery was made by researchers from the Breeding Behaviour and Bioacoustics Lab, Department of Zoology, Karnatak University, Dharwad and Zoological Survey of India, Pune
- In the present research communication, the team have reported the Kalinga cricket frog from the central Western Ghats, with the evidence of considerable 'morphological phenotypic plasticity (MPP)
- According to them the physical characteristics of the species in Eastern Ghat vary entirely from the known Fejervaraya / Minervarya species from the Western Ghats
- The research paper also evoked a large number of

questions on taxonomic ambiguity within the genus Fejervarya / Minervarya.

- The biogeographic zones: The frog from the Eastern Ghats is phenotypically showing certain differences when compared with the population that was observed in the Eastern Ghats
- DNA analysis: As per the researchers only genetic analysis that helped prove that physically different-looking frogs were the same

Morphological difference

- While explaining the differences in morphological features, one of the researchers said both populations show substantial morphological characters.
- Colour variations across the different populations of the same species were quite common. But in this case, there are contrasting morphometric differences in terms of head shape and size; the number and size of the fingers vary from two to four, which are comparatively larger.
    - Also, the toe sizes were observed to be smaller in the frog species found in the Western Ghats
- Asper the researchers, in India, the Fejervarya / Minervarya group was complex and detailed studies on bioacoustics breeding ecology were needed to generate the information on these populations
- While explaining the significance of the recent findings, this information will not only help to trace the distribution of these species along the peninsular region of India but could also be used to evaluate the possible links with species that were found in the North East region.
- The researchers said that it is the first-of-its-kind finding in amphibian research in India.
- The researchers point out that earlier, there were reports of morphological variations but not the

combination of genetics and morphology across two different biogeographic zones.
    - The general perception of ‘every species is everywhere’ is not the case with many Western Ghats frogs
- They also said that If the species is widespread, its genetic divergence should be homogeneous. But in our case, there is some difference and not enough to say it is a new species
- The researchers, speculate that the Eastern Ghats would have been a connecting land bridge for species dispersal between the Western Ghats and northeast India as the Fejervarya genus frogs are widespread

The Western Ghats and the Eastern Ghats

- The Western Ghats and the Eastern Ghats are the two different biogeographic zones, with unique histories. While the Western Ghats are considered as a biodiversity hotspot, that is not the case with its eastern counterpart
- Geologically, the Western Ghats are ancient, having Gondwanaland relict forests in the south, while the formation of the Eastern Ghats is recent.
- Both landscapes have unique ecosystems, with special microclimates and microhabitats that support a great number of diversities including amphibians.