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DISTINCTION, STATUS AND NOTES ON HABITS OF *RANA BREVIPALMATA* PETERS

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ABSTRACT

The close resemblance of *Rana brevipalmata* to *Rana limnocharis* has resulted in a lot confusion regarding the specific status of the former particularly because of intra-specific variations exhibited by the latter. A study of the two species collected from the montane forests of Western Ghats has brought out many more stable differences between the two, thus justifying the specific status of *R. brevipalmata*. Observations made on the behavioural patterns of the two also lend support to this.

The close resemblance of *Rana brevipalmata* to *Rana limnocharis* has already been remarked upon (Boulenger, 1920 ; Daniel, 1975). The former is distinguishable by its longer hind-limbs, shorter web and the better developed inner metatarsal tubercle. *R. limnocharis* which is one of the commonest and widely distributed frog shows considerable intra-specific variations, three races having been recognised in India other than the nominate one. The extent of its variations is so wide and the degree of resemblance with *R. brevi-palmata* so strong that some consider *brevi-palmata* as a subspecies of *limnocharis*. Gorham (1974) in the checklist of world Amphibians includes it under the synonymy of *R. limnocharis*. Boulenger (1920) considers them very close to var. *nilagirica* but feels that it is entitled to the specific rank assigned to it by the original author.

I have collected 19 specimens of this uncommon frog from the following localities in Western Ghats and compared them with *Rana limnocharis* (var. *nilagirica*) collected alongside.

Muthanga (Wynad)	...	11 ex.
Chedleth („)	...	1 ex.
Anamalai	...	1 ex.
Valparai	...	6 ex.

Measurements taken on specimens of comparable body lengths belonging to the two species show that there is little or no significant difference in the length of hindlimb. This removes one point of distinction between the two species. However, this study has brought out some more stable differences between the two.

The tympanum in *R. brevipalmata* is comparatively smaller (less than half diameter of eye) than that in *R. limnocharis* (more than half diameter of eye). Its anterior border is separated from the posterior cornea of eye by a distance equal to the diameter of tympanum

in *R. brevipalmata* while this distance in *R. limnocharis* is only half or less its diameter. The less webbing in the former is expressed by the number of free digits in the two as follows.

	First	Second		Third		Fourth		Fifth
		int.	ext.	int.	ext	int.	ext.	
R. brevipalmata	1½	2	1½	3	2½	3½	3	2
R. limnocharis	1	2	1	2	1	2	2	1

The membrane midway between the third and fourth toes extends upto the level of the proximal subarticular tulercle of the fourth toe while the same in *R. limnocharis* lies half way between the proximal and second tubercles. An external fringe of skin on the outer margin of the fifth toe which is distinct in *R. limnocharis* is totally nonexistant in *brevipalmata*. The inner metatarsal tubercle is much larger, compressed, elliptic and more than half the length of inner toe measured from distal end of tubercle while this is only one-third in *limnocharis*. The tarsus also presents distinctive characters which help in easy separation of the two. This in *R brevipalmata* is quite smooth, devoid of both tubercles and the tarsal fold while *R. limnocharis* has strong white-tipped tubercles scattered on the upper side of tarsus and tibia. The tarsal fold is also present as a distinct cutaneous elevation. Boulenger (1920) states that the outer metatarsal in *R. brevipalmata* is separated nearly to base as against half or one-third united in *R. limnocharis*. The present specimens show that the fusion is restricted to the basal one-third in both species when viewed from above. The lower side, however, shows an apparently complete separation in *R. limnocharis* unlike in *brevipalmata*. A vertebral line is more often present than not, having been observed in 16 out of the 19 specimens of *R. brevipalmata*. The very strong fold touching the lower border of the base of the arm noticed in one example from Malabar by Boulenger (1920 : footnote on p. 38) has been observed to be present in several examples belonging to both the species.

Apart from serving to distinguish the two frogs, the differences enumerated above also amply justify the specific status of *R. brevipalmata*.

Specimens of *R. brevipalmata* were collected from montane forests of Western Ghats with an altitudinal range of 600-700 metres along with specimens of *R. limnocharis* indicating a general similarity in the habitats of the two. All the same, one could discern a clear shift in the micro-habitat of *R. brevipalmata*. While *R. limnocharis* is essentially an animal living in very close association with and spending most of its time in or on the edge of water, *R. brevipalmata* has chosen a niche slightly farther away from water but never so far that it could, by a leap or two, reach it when alarmed. Its favourite haunts appear to be the sloping banks of streams with some undergrowth in well shaded parts of forests. I have observed a few near a culvert in the Mavinhalla forest at Muthanga Reserve. From the patchy shrubbery covering the banks I have seen them taking long and elegant leaps, rising in an arc and landing neatly in the water, at times even four metres away. While examining a small patch which contained earlier two frogs, I discovered two shallow pits excavated by them in the moist soil. I believe that they have their favoured haunts and that they forage for insects among the undergrowth taking to water only in times of danger. The morphology of the hindlimbs agrees well with the habits—long legs for long

leaps, brief webbing indicating lesser dependance to water and compressed metatarsal tubercles for excavation of soil for making "nests". They are active during night and I have collected a few of them from cart-roads inside the Muthanga Reserve forest during one of my nocturnal excursions on a rainy night.

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