

Diurnal Behavioral Patterns and Substrate Use of Endemic Endangered Frog *Fejervarya greenii* in Horton Plains National Park (HPNP)

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With the objective of providing important data through studying diurnal behavioral patterns and substrate use for the conservation of endemic endangered frog *Fejervarya greenii* the study was conducted in and around five lentic waterbodies in HPNP for three consecutive days per month from January to December 2016. Time periods were selected as 06:00 hrs — 09:00 hrs, 09:00 hrs - 12:00 hrs, 12:00 hrs - 15:00 hrs, 15:00 hrs - 18:00 hrs and 18:00 hrs - 20:00 hrs. Possible substrate types were recorded as submerged plant cover, bare water cover, short plants and shrubs cover, grass cover, decaying plant matter and leaf litter cover, sand, mud, gravel and rocks. Locomotion, feeding, resting, refuge use, alert, calling, courtship and swimming were identified as distinct behaviors of *F.greenii*. The behavior of both mature and immature individuals were recorded in 30 second intervals for 20 minutes in each time period. The utilized substrate in each behavioral pattern was recorded. Individuals tend to rest between 06:00 hrs - 09:00 hrs. They were moderately active during 09:00 hrs - 12:00 hrs and mature individuals used to call most of the time. *F. greenii* was mostly inactive during the time period of 12:00 hrs - 15:00 hrs. They tend to rest, call and exhibit courtship behaviors during 15:00 hrs - 18:00 hrs. They were most active during 18:00 hrs - 20:00 hrs. Each distinct behavior was recorded in submerged plant cover. Swimming was restricted to bare water cover. Calling and courtship behaviors were restricted to submerged plant substrate. Gravel and rocks were not utilized. Relatively inactive behavior during the time period of 12:00 hrs - 15:00 hrs was probably a behavioral adaptation to avoid high desiccation during this hottest time. Calling and courtship behaviors were observed in each month which indicates that this species breeds continuously throughout the year. This study identifies the submerged plant cover associated with lentic water bodies as the breeding habitat of this endangered frog population.

Keywords: *Fejervarya greenii*, Horton Plains National Park, Behavior, Substrate Use