

**TEMPORAL VARIATION IN TERRESTRIAL PEST GASTROPOD COMMUNITIES
IN AGRICULTURAL LANDS IN NUWARA ELIYA DISTRICT, SRI LANKA**

K.G.D.D. Thilakarathne^{1,2}, K.B. Ranawana³ and S. Kumburegama^{3*}

¹Department of Zoology, Faculty of Science, University of Ruhuna, Matara, Sri Lanka

²Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka

³Department of Zoology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka

*skumburegama@yahoo.com

Population fluctuations of terrestrial pest gastropods (TPG) are important aspects when developing pest control strategies. Nuwara Eliya District (NED) has the highest production of upcountry vegetables in Sri Lanka and recorded the highest TPG infestations. The study evaluated changes in TPG populations during both the rainy (RS) and non-rainy (NRS) seasons in the Nuwara Eliya District. Eighty agricultural lands were sampled from 2017 to 2019 during RS and NRS, establishing ten 1 m² sampling plots per location. A total of 5,758 individuals belonging to 13 species and seven families and 1,325 individuals belonging to nine species and five families were encountered during RS and NRS, respectively. Species abundance and density ($t = 4.69$, $p = 7.15 \times 10^{-6}$) were higher in the RS. The relative abundance and densities of each species except *C. chenui* were higher in RS. These differences were significant for *Bradybaena similis* ($t = 3.79$, $p = 2.2 \times 10^{-16}$), *Deroceras reticulatum* ($t = 2.64$, $p < 2.2 \times 10^{-16}$), *Lissachatina fulica* ($t = 2.90$, $p = 0.0005$), *Mariella dussumieri* ($t = 4.25$, $p < 2.2 \times 10^{-16}$) and *Macrochlamys indica* ($t = 1.96$, $p = 0.0001$). However, TPG eggs and estivating gastropods were found within the soil and under decaying organic matter during the NRS, indicating that these species breed during the NRS while the young hatch during the RS leading to a sudden increase in the population. Diversity of TPG (Shannon-Wiener, H' and Simpson dominance, D_s) were higher in RS ($H' = 1.60$; $D_s = 0.70$) than NRS ($H' = 1.45$; $D_s = 0.69$). The similarity of TPG communities between the two seasons was 57%. This population dynamics of TPG can be utilized to devise pest management actions. Here we recommend that the control measures are not limited to the RS but also implemented during the NRS when the TPG populations are relatively low, ultimately reducing the farmers' economic losses.

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