

Initial colonization of Red Pierrot butterfly, *Talicauda nyseus nyseus* Guerin (Lycaenidae) in the lower western Himalayas: An indicator of the changing environment

The Red Pierrot butterfly, *Talicauda nyseus* (Guerin-Meneville), is endemic to the Oriental (Indo-Australian) region¹. The distribution (Figure 1) of the nominate race *Talicauda n. nyseus* (Guerin 1843) extends from Sri Lanka to southern India (including Mumbai, Khandala, Mahabaleshwar, Poona, Nilgiris, Kanara, Mysore, Bangalore, Palni Hills, Calicut, Hyderabad, Wynaad, Rutnageri, Travancore and Ganjam), Pakistan (Sind) and Bangladesh²⁻⁷. Two other races of this species are known to occur: *T. n. assamica* (Frushstorfer) being distributed from Assam in India to Myanmar and northern Thailand) and *T. n. annamitica* (Frühstorfer) distributed in Indo-China¹.

T. n. nyseus (wingspan 30–36 mm) inhabits semi-arid plains, human habitations, urban gardens, hill stations and open forests where its food plant, *Bryophyllum calycinum*, *Kalanchoe* spp. and probably where other species of Crassulaceae (*Calycinum*–Stone crop family) find a place^{3,5,7}. This includes patches in moist deciduous and evergreen forests where vegetation has been previously cleared and the top soil washed away, allowing its host plant to get established. This butterfly is active throughout the year. Its distribution^{5,7} ranges over low elevations from plains to 2400 m asl. The species is often overlooked because of its habit of flying slowly, close to the ground amongst the weeds. The sexes are similar, but in the female the red orange discal patch on the hind wing (dorsal side) is somewhat more extensive¹.



The Red Pierrot butterfly, *Talicauda nyseus nyseus* Guerin.

However, till date there is no record of the occurrence of this species from the Himalayas or northwestern India. In May and June 2003, two individuals of *T. n. nyseus* were collected from an urbanized block (Vasant Vihar) in Dehradun town located in the heart of the valley.

Dehradun valley (77°40'–78°15'E and 30°00'–30°35'N) lies in the 'tropical moist deciduous' sal (*Shorea robusta*) forest zone between the west Himalayan mountain ranges in the north and the Shiwalik range running parallel to it in the south, at a mean altitude of 485 msl. and covers an area of ca. 1920 km². In the west it is bordered by the river Yamuna and in the east by the river Ganga.

Subsequently, *T. n. nyseus* was recorded every month in Dehradun. Recently, it was found to colonize at least ten urbanized blocks spread over an area of ca. 30 km² in the city (Figure 2), as revealed from monthly butterfly sampling surveys carried out from May 2003 to October 2004 in these areas as part of a project on 'butterflies and land use'. Its flight period ranged throughout the year, with most

sightings from March to November and being less common in winter. The extended flight period suggests that it breeds throughout the year in Dehradun valley. Egg-laying by this butterfly was recorded during the month of March on its food plant, an ornamental, *Kalanchoe* sp. in a nursery. Seven larvae were also collected from *Bryophyllum* sp., another ornamental, in July. Larvae fed by tunnelling the leaves. Nectar feeding on flowers by adults was recorded in gardens on creepers and bushes (*Lantana camara*, *Sida rhomboides*, etc.). Wing span of the individuals collected (7) varied between 33 and 36 mm.

The present observations reveal that the Red Pierrot has successfully colonized the urbanized blocks in Dehradun valley, where its food plants were introduced and established in home gardens. The species might have been introduced accidentally into the area along with its food plant by nursery growers, who import these as ornamentals from southern India (e.g. Bangalore). The valley is now witnessing intensive urbanization, with establishment of home gardens in areas

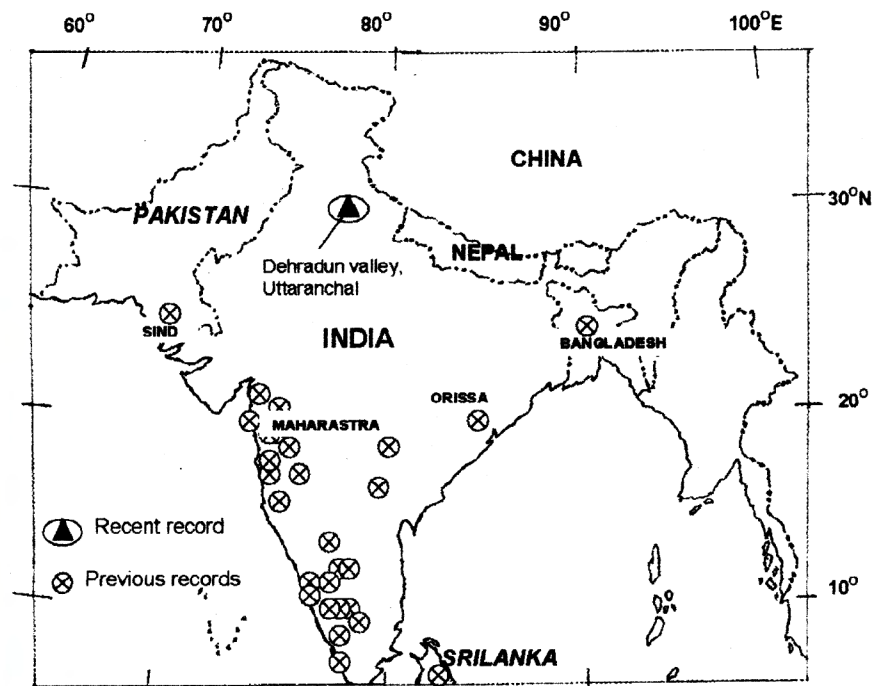


Figure 1. Map depicting geographical distribution of Red Pierrot, *Talicauda nyseus nyseus* (Guerin) in the Indian subcontinent and location of Dehradun valley, from where it has been recently recorded.

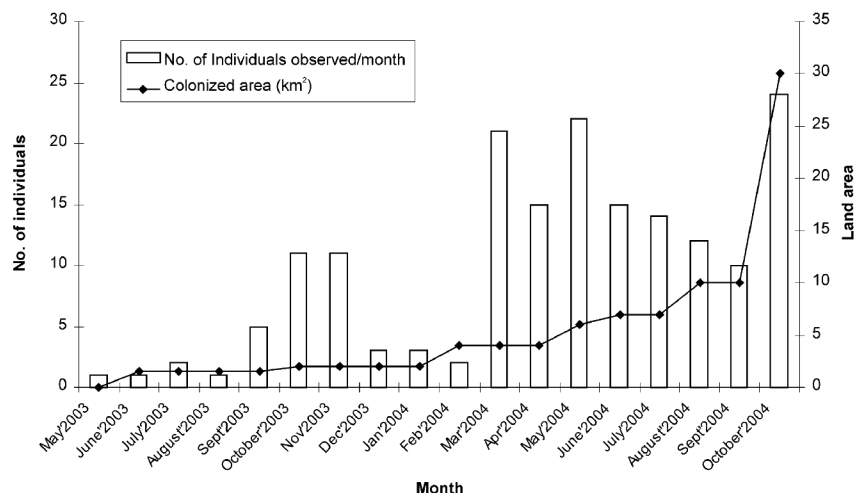


Figure 2. Seasonality and initial colonization by *Talicada n. nyseus* of urbanized blocks in Dehradun valley during the May 2003–October 2004.

that were initially under agriculture, tea gardens, scrub and sal forests. This changed environment has provided enough food supply round the year for the butterfly species to survive, establish and expand its distribution inside the valley.

This species was, however, absent from the native vegetation in the area, i.e. the sal forests which now occupy only about 55% land area of Dehradun valley, but once completely covered the valley⁸. The species also did not occur in areas under other land-use patterns now prevalent in the valley in non-sal forest areas: intensive agriculture, tea gardens, fruit tree orchards and agro-forestry plantations, according to sampling surveys carried out from July 2000 to October 2004. The species only colonized urbanized blocks which have rapidly increased in area inside the valley within the last 2–3 decades, mainly on land that was under agriculture, tea gardens and forest. Colonization of the urbanized blocks of Dehradun valley, by this 'non-forest' butterfly species reflects an alteration in species diversity of the area. When viewed on both temporal and spatial scales, this indicates a changing envi-

ronment in the tropical moist deciduous sal forest zone of the lower western Himalayas (450–1000 m), towards increasing aridity.

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ACKNOWLEDGEMENTS. The present study is part of a project (FRI-145/FED-9) on 'Butterflies and land use in the lower western Himalayas' being carried out by Entomology Division, Forest Research Institute (FRI), Dehradun, India and funded by the Indian Council of Forestry Research and Education. I thank the Head, Entomology Division (FRI) for extending his support and facilities. Thanks are also due to Mr B. C. Pandey and Mr R. Kumar for help in collection of data and insect and plant material from the field.

Received 20 November 2004; revised accepted 2 March 2005

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