The eumaeine lycaenid Strymon jaqueline was recently described by Nicolay & Robbins (2005) as a dry-area specialist that occurs in the Tumbesian Regions and the Río Marañón Valley (northeastern Peru, Cajamarca) at elevations between 460−1300 m. The type locality is Peru, Cajamarca, kilometre 62 Pacasmayo to Cajamarca, 600 m. This species probably breeds continuously all year round since adults have been collected in March, June, September and November. It belongs to the S. serapi group, although its precise systematic position within this group remains unclear.

On the afternoon of May 11, 2005 the authors stopped briefly next to the road that runs along the Chileté-Jequetepeque river valley, from Pacasmayo to Cajamarca, kilometre 95, 550 m (07°13’46"S, 79°03’15"W). The site was extremely hot and dry, and the vegetation sparse (Fig. 1). Surprisingly, about 20 individuals of S. jaqueline, both males and females, were observed flying around and landing on some large N. arequipensis var. gigantea (Werdermann & Backeberg) Ritter. The significance of these observations is discussed in relation to lycaenid survival in a xeric environment, pollination and mate location.

Keywords: Ants, butterflies, cactus, desert, Formicidae.

Resumen

Se describe el uso de néctar extrafloral del cactus Neoraimondia arequipensis var. gigantea (Werdermann & Backeberg) Ritter por parte de adultos de la mariposa especialista en zonas áridas Strymon jaqueline Nicolay & Robbins, 2005 (Lepidoptera: Lycaenidae: Eumaeini). Se discuten las implicaciones de estas observaciones en relación a la supervivencia y reproducción en un entorno desértico y a la polinización.

Palabras clave: Hormigas, mariposas, cactus, desierto, Formicidae.

NOTA CIENTÍFICA

Extrafloral nectar feeding by Strymon jaqueline Nicolay & Robbins, 2005 (Lepidoptera: Lycaenidae: Eumaeini)

Uso de néctar extrafloral por Strymon jaqueline Nicolay & Robbins, 2005 (Lepidoptera: Lycaenidae: Eumaeini)

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Abstract

Adults of the dry area specialist Strymon jaqueline Nicolay & Robbins, 2005 (Lepidoptera: Lycaenidae: Eumaeini) are here recorded feeding on extrafloral nectar of the large cactus Neoraimondia arequipensis var. gigantea (Werdermann & Backeberg) Ritter. The significance of these observations is discussed in relation to lycaenid survival in a xeric environment, pollination and mate location.

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Resumen

Se describe el uso de néctar extrafloral del cactus Neoraimondia arequipensis var. gigantea (Werdermann & Backeberg) Ritter por parte de adultos de la mariposa especialista en zonas áridas Strymon jaqueline Nicolay & Robbins, 2005 (Lepidoptera: Lycaenidae: Eumaeini). Se discuten las implicaciones de estas observaciones en relación a la supervivencia y reproducción en un entorno desértico y a la polinización.

Palabras clave: Hormigas, mariposas, cactus, desierto, Formicidae.

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homopteran-secreted honeydew (Waterhouse, 1932; Hinton, 1951; Pierce, 1995). Outside of the Lycaenidae and Riodinidae, extrafloral nectar feeding has been suggested for the hesperiid Hesperopsis gracielae (MacNeill, 1970), although direct evidence is still lacking in this case (Wiesenborn, 1997). Several species of adult moths, including many pest species, are nocturnal feeders at extrafloral nectaries of cotton (Gossypium hirsutum L.) (Lukefahr & Rhyne, 1960; Rejesus, 1968; Rogers, 1985; Wiesenborn & Baker, 1990).

Unfortunately, the larval morphology and hostplant for S. jacqueline is still unknown. The species belongs to a Bromeliaceae-feeding lineage (Nicolay & Robbins, 2005) and although some scattered bromeliad plants were present on the ground and rocks at the location where our specimens were collected, no butterfly activity was observed near these plants.

An association between N. arequipensis and ants has been described from the Lima region of Peru for N. arequipensis var. rosalora (Werdermann & Backeberg) Rauh and Camponotus sp. ants (Ostolaza, 1985; Novoa et al., 2003). Moreover, numerous other studies have documented ant visitation to Cactaceae extrafloral nectaries suggesting it is a frequent phenomenon worldwide (e.g. Lloyd, 1908; Pickett & Clark, 1979; Blom & Clark, 1980; Pemberton, 1988; Oliveira et al., 1999). The benefit of such a relationship for the ants seems evident since cacti extrafloral nectar represents a source of water, sugars and amino acids in xerophytic environments (Pickett & Clark, 1979; Ruffner & Clark, 1986). Several hypothetical benefits for the cacti have been proposed, including defence against herbivores, and enhanced access to soil nutrients due to the presence of ants nesting in the soil at the base of the cactus (Wagner, 1997). Moreover, it has been suggested that extrafloral nectaries may also play an indirect role in pollination, for example by helping to attract potential pollinators (Ford & Forde, 1976; Wäckers & Bonifay, 2004). Indeed, adults of S. jacqueline were observed feeding on cactus flowers, so the possibility exists that this species could serve N. arequipensis as a pollinator. Furthermore, simultaneous concentrations of male and female S. jacqueline on fruiting plants of N. arequipensis may facilitate mate location; however, although all specimens appeared freshly eclosed, we did not observe any mating activity or male territorial behavior.

The locality where we collected S. jacqueline is situated about 30 km from the type locality where Gerardo Lamas collected a series of four specimens in 1981. One of these specimens was collected on a cactus, and in the species description of S. jacqueline, Nicolay and Robbins state that adults have been observed on cactus plants ‘in the middle of the desert’. It is possible that these individuals were also searching for or imbibing cactus extrafloral nectar. The poor environment where S. jacqueline flies seems unlikely to be able to sustain large populations of butterflies, and Nicolay and Robbins (2005) note that S. jacqueline appears to be exceedingly rare. However, Nicolay and Robbins also recorded ‘ten individuals in one day at two localities’ and R. Robbins (pers. comm.) has informed us that these individuals were observed as aggregations on flowers. Thus, localised nectar sources, either flowers or extra floral nectaries may stimulate aggregating behaviour in S. jacqueline and could account for occasional observations of relatively large numbers of individuals.
The substantial variability that this species displays in wing pattern (Nicolay & Robbins 2005) was also observed in the series of eight specimens collected on this occasion. However, the wide variation in color among individuals found at a single site does not support the hypothesis of Nicolay & Robbins (2005) that the intensity of the female orange scaling may be correlated with altitude. The amount of orange on the submarginal area of the dorsal forewings of females varied widely and was even absent in some individuals. The presence of the two ventral hindwing basal spots was also variable in both sexes.

Two males and one female *S. jacqueline* are deposited in the collections of the Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru (MUSM); one male and one female in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM); and three females, with bodies preserved in 100% ethanol and wings in separate glassine envelopes, are deposited at the Museum of Comparative Zoology (MCZ) DNA and Tissue Collection, Harvard University, Cambridge, Massachusetts (sample codes: RV-05-M335 to RV-05-M337). Alcoholic samples of the ants collected on the cacti are deposited in the DNA and Tissue Collection at the MCZ (sample codes: RV-05-J845 and RV-05-M338).

The concentration of insects on fruiting cacti in such a harsh environment contrasted generally with the lack of insect activity in the surrounding area and on other nearby cacti of the same species with fewer or no developed fruits. This leads us to conclude that the extrafloral nectar of *N. arequipensis var. gigantea* is an important source of nutrients and/or water in this xeric environment and acts as a powerful attractant for several species of insects.

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Literature cited


