Intraspecific Nest Adoption by a Foundress of Polistes jokahamae who Abandoned the Nest Containing her Own Brood (Hymenoptera: Vespidae)

Wataru Oyaizu & Kazuyuki Kudô

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An incident of intraspecific nest adoption involving the Japanese paper wasp Polistes jokahamae (Radoszkowski 1887) is described, in which a foundress moved to a nearby nest after leaving her original nest which contained a healthy brood. The adopted nest had been abandoned or orphaned within the previous two days. The developmental status of the broods were similar in the two nests, but the adopted nest contained more old larvae than her original nest. As such adoption has only been reported in two cases involving a Japanese paper wasp, the incident described in this present paper will significantly increase the understanding of the nest adoption behavior of paper wasps during the colony founding stage.

Keywords: adoption – founding phase – lone foundress – Polistes jokahamae (Radoszkowski 1887)

1 Introduction

Polistes wasps are distributed throughout the world [Reeve 1991]. They live in relatively small colonies and construct small combs, which are normally suspended by a narrow pedicel [Wenzel 1991]. Polistes wasp foundresses initiate their colonies either singly (haplometrosis) or in small groups (pleometrosis), but without the aid of workers. The frequency of pleometrotic colony initiation in Japanese Polistes wasps is quite low compared with those of American and European wasps [Miyano et al 2010].

In addition to nesting alone or in small groups, foundresses can also use other methods to obtain worker force: they can attempt to take over an existing nest either by actively usurping another foundress or by acquiring a newly abandoned or orphaned nest [Reeve 1991]. The former method usually involves the usurper being aggressive toward the resident foundress. In the latter case, orphaned nests can be taken over by an adult and maintained as their own without a fight [Kasuya 1982, Nonacs & Reeve 1993, Starks 1998, Starks 2001].

In the founding phase of the Japanese paper wasp Polistes chinensis antennalis (Pérez 1905), Kasuya [1982] observed that five foundresses took over the abandoned nests of conspecific wasps containing all immatures of all developmental stages (ie, eggs, larvae and pupae). In two of the five cases, the adoptive foundresses surprisingly abandoned their own nests whilst they contained a brood. Nonacs & Reeve [1993] presented a thorough analysis of the adoption of naturally- and artificially-orphaned nests in a population of Polistes dominulus (Christ 1791) and suggested that the adoption of abandoned or orphaned nests by wasps that have either lost their colonies or are subordinates in multiple-foundress colonies occurs commonly during the founding phase of this species. Furthermore, Starks [1998, 2001] revealed that a subset of spring P. dominulus foundresses did not initiate colonies but rather waited to adopt colonies that had been initiated and abandoned by other conspecific wasps.

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