

Polistes canadensis (Linnaeus, 1758)

Carlos Henrique Marchiori¹

¹ Instituto Federal Goiano

Potential competing interests: No potential competing interests to declare.

Co-authors: Marcus Vinícius de Oliveira Santana¹ and Klebert de Paula Malheiros².

*Instituto Marcus Vinícius de Oliveira Santana¹⁻². Goiânia, Goiás, Brazil.

There are numerous species of wasps present in the Amazon, highlighting, among them, the species *P. canadensis*, popularly known in the region as “Caba-da-igreja”. They are social wasps, capable of obtaining resources within a radius of 650 meters from the colony, a relatively non-aggressive species that allows them to translocate their nests, that is, it allows the nests to be manipulated by humans, who can remove them from an unwanted location to a suitable location [1-5].

Caterpillars are the main source of food for both *P. canadensis* and other species in this genus. When capturing prey, these wasps exhibit a characteristic behavior, which is to cut and macerate the caterpillars, which makes it difficult to identify the preyed species, which are later shared with other wasps to feed the immature ones. Only one species, very present in collections, was identified with 37% of captured caterpillars being the corn caterpillar, also known as armyworm *Spodoptera frugiperda* (Smith, 1797) (Lepidoptera: Noctuidae). The average daily return with prey was 10.2, which demonstrates the potential of *P. canadensis* as a biological control (Figure 1) [6-8].

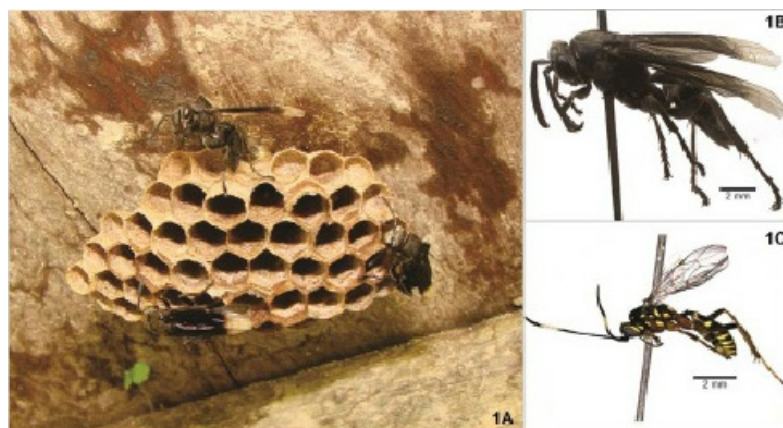


Figure 1. (A, B) *Polistes canadensis* (Linnaeus, 1758); (C) *P. canadensis* habitus; (D, E) Two color forms to *Seminota depressa* (De Geer 1773). Source: https://www.researchgate.net/figure/A-B-Polistes-canadensis-nests-C-Polistes-canadensis-habitus-D-E-Two-color_fig2_276060093.

In several regions of the Amazon, the advancement of agriculture is undeniable and growing, but there are large gaps in

the knowledge of sustainable agricultural practices adapted to the local reality, especially in the phytosanitary area. In this context, biological control with predatory wasps is an excellent strategy for the region, as it regulates the insect pest population, reduces the use of insecticides and, consequently, environmental impacts, and allows agriculture to fulfill its role, which is produce and generate income without destroying the environment [9-11].

References

- [1] Montefusco M, et al. *Polistes canadensis*: a potential biological control agent. *Sociobiology*. 2017; 64(4): 477-483.
- [2] Torres VO, et al. Bionomic aspects of the Neotropical social wasp *Polistes canadensis canadensis* (Linnaeus) (Hymenoptera, Vespidae) *Brazilian Journal of Entomology*. 2009; 53(1): 134-138.
- [3] Folak M. Competition for landmark territories among male *Polistes canadensis* (L.) (Hymenoptera: Vespidae): large-size advantage and alternative mate-acquisition tactics. *Behavioral Ecology*. 1993; 4(4): 325–331.
- [4] Oliveira MM, Gomes FB, Somavilla A, Krug C. *Polistes canadensis* (Linnaeus, 1758) (Vespidae: Polistinae) in the Western Amazon: a Potential Biological Control Agent. *Sociobiology*. 2017; 64(4): 477–483.
- [5] Fernández F, Sharkey M. Introduction to the Hymenoptera of the Neotropical region: Family Vespidae. In: Sarmiento CE, Carpenter JM, eds. *Family Vespidae*. National University of Colombia. American Museum of Natural History; 2006. p. 539-556.
- [6] Montefusco M, et al. *Polistes canadensis*: a potential biological control agent. *Sociobiology*. 2017; 64(4): 477-483.
- [7] Andrade Filho FCM. Colonial founding strategies of a primitive social wasp (Vespidae: Polistinae: *Polistes canadensis*) in an arid crescent. [Internet]. Fortaleza: Master's Thesis - Federal University of Ceará; @2017 [cited 2024 Mar 21]. Available from <https://repositorio.ufc.br/handle/riufc/24552>.
- [8] Buck M, et al. Unravelling cryptic species diversity in eastern Nearctic paper wasps, *Polistes* (Fuscopolistes), using male genitalia, morphometrics and DNA barcoding, with descriptions of two new species (Hymenoptera: Vespidae). *Zootaxa*. 2008; 3502: 1–48.
- [9] Sumner S, Kelstrup H, Fanelli D. Reproductive Constraints, Direct Fitness and Indirect Fitness Benefits Explain Helping Behaviour in the Primitively Eusocial Wasp, *Polistes canadensis*. *Proceedings of the Royal Society B: Biological Sciences*. 2010; 277(1688): 1721–1728.
- [10] Sumner SLE, et al. Radio-tagging technology reveals extreme nest-drifting behavior in a eusocial insect. *Current Biology*. 2007; 17(2): 140–145.
- [11] Ross, Kenneth G., and Robert W. Matthews. *The Social Biology of Wasps*. Ithaca: Comstock Pub. Associates, 1991.