

Nests and seasonal cycle of *Neocorynura pubescens* in Colombia (Hymenoptera: Halictidae)

by

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Abstract: In the Dept. de Antioquia, Colombia, *Neocorynura pubescens* is active throughout the year. Females collect pollen from weedy Compositae. Many nests in the banks of a small ditch were surprisingly similar in number of inhabitants, structure, manner of construction, and re-use to those of the strikingly different looking species, *N. fumipennis*, in Costa Rica. Mating presumably occurs in the nesting area; a clump of males prepared to pass the night on a perch in that area.

This note concerns the life history of the augochlorine bee, *Neocorynura pubescens*, a species previously known only from Central America. A single nest of the species was described from Costa Rica in a paper which contains or refers to nearly all previously published materials on nests of *Neocorynura* (Michener *et al.*, 1966; Sakagami & Moure, 1967).

The site and aggregation of nests in Colombia are very similar to those of the very different looking species, *Neocorynura fumipennis*, studied in Costa Rica (Michener *et al.*, 1966). The nests, likewise, are similar. The following account follows the sequence of the earlier study of *fumipennis*, briefly mentioning both similarities and dissimilarities; wherever possible repetitive description is omitted by reference to the paper on *fumipennis*.

Location of nests: Nests of *N. pubescens* were found in vertical banks of a ditch about 50 cm deep on the grounds of La Selva, a subestación of the Instituto Colombiano Agropecuario on the Llano Grande near the town of Rionegro, Dept. de Antioquia, Colombia. The banks were rather well covered with ferns and grass. The soil was a fine clayey loam, nearly black. Water flowed in the bottom of the ditch, and burrows of the bee occurred from the tops of the banks down to about 10 cm above the water level. The nests were abundant, often within a few centimeters of one another, and bees were numerous along a 40 m section of the

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ditch, beyond which they were not seen. There must have been thousands of nests in this aggregation.

Activities of adults: Observations of nests were made on October 3, 1976. The rainy season had begun only a week before; young of all ages as well as new nests, as yet without cells, showed continuation of activity from late dry season into the wet. Moreover, in the collection at the Universidad Nacional de Colombia in Medellín, assembled by Dr. Adolfo Molina-Pardo, there are females from Rionegro collected on flowers in every month of the year and males in every month except for January, February, September, November, and December. Material taken in Medellín includes males from September and November, and it seems very probable that males, like females, may be found throughout the year. In Costa Rica, also, *N. pubescens* is active in both wet and dry seasons and probably throughout the year (Michener *et al.*, 1966), as is *N. fumipennis*. In the more seasonal climate of southern Brazil, however, *N. polybioides* is probably inactive from April to August, probably passing this cool season as mated adults females (Michener & Lange, 1958) (Localities and altitudes in Antioquia from which there are specimens of *N. pubescens* in the collection at Medellín are as follows: Medellín, 1500 m; Alejandría, 1695 m; San Cristóbal, 1700 m; San Antonio de Prado, 1900 m; Rionegro, 2100 m; Carmen de Viboral, 2200m).

Males were flying over the nest area as in *N. fumipennis*. Mating was not seen but the flight pattern of the males was like that of mate-seeking male halictids. With approaching clouds and rain, a group of 25 or more males assembled, apparently for the night, at about 3:30 PM on a dry leaf of a weed growing at the side of the ditch. Nighttime resting places of males were not observed for *N. fumipennis*, but nests of both species opened in late afternoon almost completely lacked males, showing that they do not enter nests for the night.

Both sexes of *N. pubescens* were abundant on flowers of *Bidens pilosa* and a smaller yellow composite growing as weeds in a corn field, as close as 5 m from the nest site. Females were more common than males and many of them were collecting pollen. Males were not seen pouncing upon females on flowers or flying in the style of mate-seeking male halictids. This observation reinforces the view that the mating place is the nest aggregation area.

Nest guarding by females was not observed. Thin walls built between nest chambers that had met indicate underground responses like those of *N. fumipennis*.

There is nothing to suggest that the nest population structure differs from that of *N. fumipennis*, there being usually one adult female in each nest. Of eight nests dug, however, one contained two adult females instead of one or none. One of these females was unworn, unfertilized, with slender ovaries and no doubt a sister of the two pupae in the cell cluster. The other was slightly worn, fertilized, with enlarged ovaries, probably an older sister but also the mother of an egg and a small larva in the cell cluster. Another cell was being provisioned, making a total of five cells in the cluster. Presumably the younger adult sister would soon leave the nest.

Nests: The nests are as described for *N. fumipennis* except that the burrows usually slope downward, and were not noted to enlarge progressively from the entrance to the cavity but were of more or less uniform diameter, about 4 mm, narrowed at the surface. Burrows measured 4-9 cm in length from the surface to the cell cluster. The cell clusters and cavities are as in *N. fumipennis*. The cells may be slightly smaller than those of *N. fumipennis*; an entrance diameter of 2.3 mm was recorded as were maximum diameters of 4.1 and 4.5 mm and lengths of 9 to 10 mm.

Reuse of nests: Reuse of cavities and clusters, and reconstruction of cells were obvious but relining and reuse of old cells without reconstruction was not verified. As in *N. fumipennis*, old cells are not filled with earth but are commonly torn down so that the cluster consists largely or entirely of occupied cells.

Construction: Nothing in the data on *N. pubescens* contradicts the information on *N. fumipennis*. Construction of the cell cluster in an empty cavity rather than excavation of cells in the substrate is clearly the same for both species, as in completion and closure of one cell before beginning the next.

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