Pathological Effects of an Ectoparasitic Nematode *Noctuidonema guyanense* (Nematoda: Aphelenchoididae) on Adults of the Fall Armyworm (Lepidoptera: Noctuidae)

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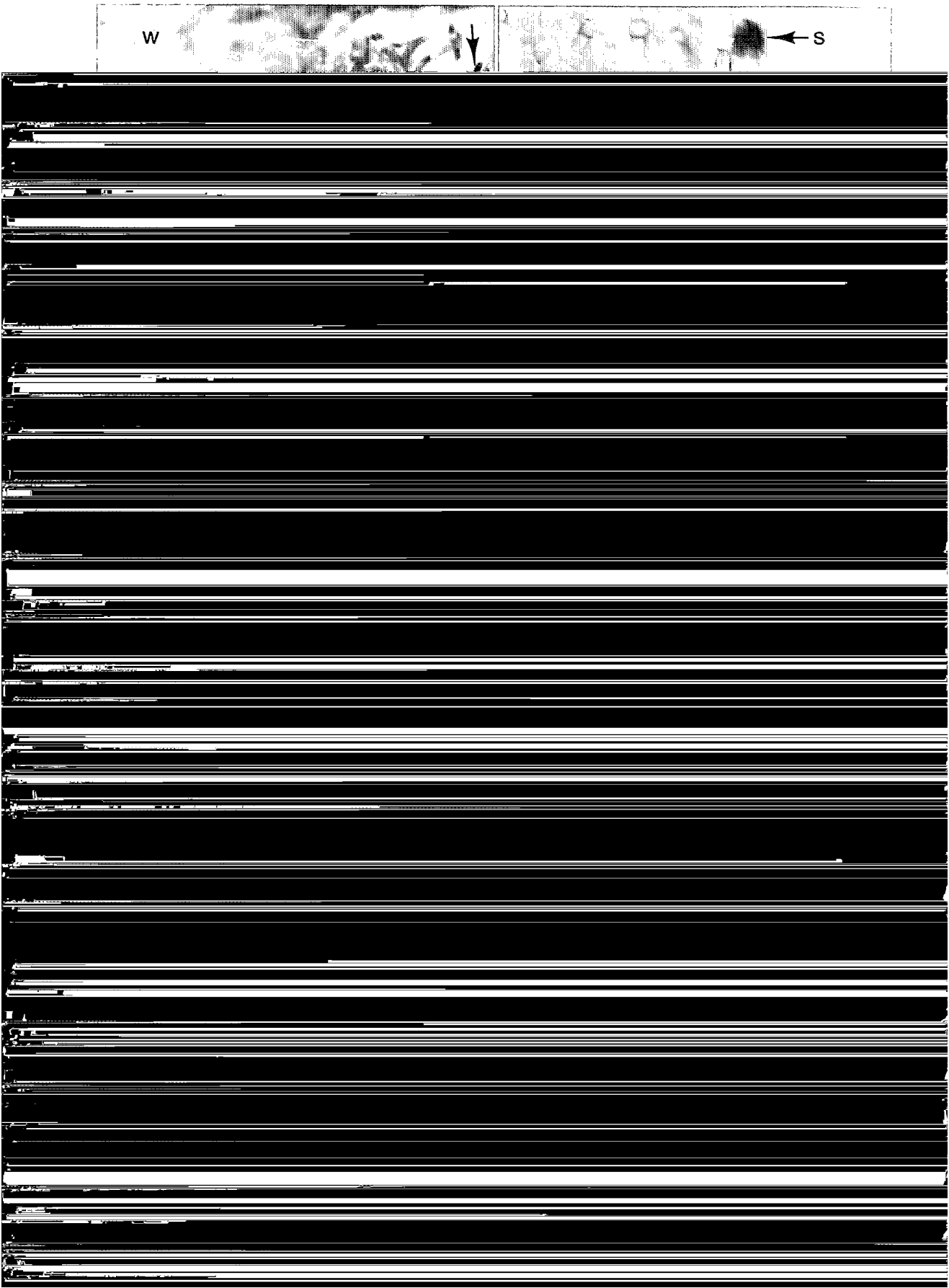
ABSTRACT Male *Spodoptera frugiperda* (J. E. Smith) moths were collected in French Guiana and Martinique and examined for evidence of pathogenicity produced by natural infestations of *Noctuidonema guyanense* Remillet and Silvain, an ectoparasitic nematode. Nematodes may occur on the genitalia, any abdominal segment, or intersegmental membranes but are most often found on the anterior margin of the eighth tergite and the tergal lobes of the first abdominal segment. Stained sections and whole mounts of moth cuticle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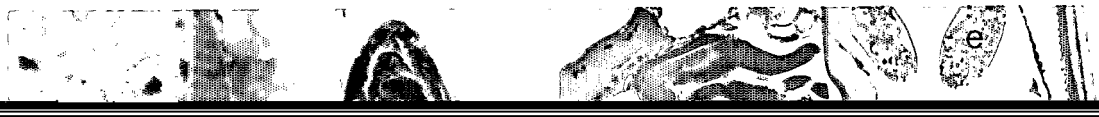
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were placed near Matoury, French Guiana (the *N. guyanense* type locality) in 1987, on Martinique in 1988, and near Tifton, Ga., in 1988.

Abdomens from freshly collected moths were removed, fixed in 10% formalin, and stored until

to determine whether *N. guyanense* feeds on hemolymph, cell solutes, or upon specific host tissues.

Cross-sections of moth abdomens showed that the nematodes often lie in cuticular depressions or furrows approximately the same size and shape as the nematode (Fig. 4–6). The cuticle and hypodermis were not thinned or eroded by the nematodes but were shaped to accommodate their presence. The depressions varied from broad and shallow furrows (Fig. 4) to well-defined hemispherical cavities (Fig. 6). These cuticular depressions are sharply defined when many nematodes occur together, particularly in the apices of the intersegmental spaces (Fig. 6).

Long, branched extensions of host cuticle in the intersegmental spaces, while not common, were usually associated with juvenile nematodes (Fig. 4). Short, unbranched cuticular processes in the intersegmental space were sometimes associated with the presence of one or more adult nematodes (Fig. 7). Because these latter processes were

were examined in this study, we have no reason to believe that the pathological changes reported here are unique to male hosts.

Acknowledgment

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