BOMBUS PENNSYLVANICUS (HYMENOPTERA: APIDAE) PRESUMED NESTING IN RED IMPORTED FIRE ANT (RIFA) MOUNDS

Key Words: Bumblebee, red imported fire ant, nesting, coexisting.

J. Entomol. Sci. 20(3): 324 (July 1985)

On July 6, 1983, while active red imported fire ant (RIFA), *Solenopsis invicta* Buren (Hymenoptera: Formicidae), mounds near Santee, SC, were being uncapped and treated with Sevin 80S, female bumblebees, *Bombus pennsylvanicus* (DeGeer) were observed leaving three of approximately 50 treated mounds. One, three and ten bumblebees were observed exiting these three respective mounds. *Bombus pennsylvanicus* exited from the outer 5 cm of the visible portion of the mounds. Five bumblebees with full pollen baskets were observed approaching the mound previously vacated by ten bumblebees within one hour after treatment of the mound.

A knowledge of bumblebee biology and the behavior of the returning bees with full pollen baskets strongly suggests that the bees were nesting and can coexist in active RIFA mounds. New bumblebee queens hibernate as fertilized adults and emerge in early spring to start locating a favorable place in which to nest (Alford, D. V. 1975. Bumblebees. Davis-Poynter, London, England. p. 42-55; Heinrich, B. 1979. Bumblebee Economics. Harvard Univ. Press. Cambridge, MA. p. 7-21). Since these bumblebees were found in July, the evidence indicates that they were part of a well established colony. This is further emphasized by the fact that all bumblebees collected were female workers, which would be normal for a colony during July. Males would not be produced until late in the summer or fall when mating flights were close at hand (Heinrich 1979), and only in a well established colony would worker bumblebees have been present. No attempt was made to collect bumblebee larvae so it is impossible to state for absolute certainty that the bumblebees were nesting in the mounds; however, as previously stated, the behavior of the adult bumblebees does support this conclusion. Also, by not collecting bee larvae it is impossible to state whether the ants were or were not predatory on the larvae. The RIFA is known to feed on many different insects (Hays, S. B. and K. L. Hays. 1959. Food habits of *Solenopsis saevissima richteri.* J. Econ. Entomol. 52: 455-7), a predator-prey relationship may therefore exist between RIFA and bumblebee larvae. It is improbable that the relationship was parasitic, since Wilson (Wilson, E. O. 1971. The Insect Societies, Belknap Press, Cambridge, MA, p. 387-8) never noted a parasitic relationship between two different groups of social insects.

A voucher collection is deposited in the Clemson University Insect Museum, Clemson, SC 29634. Appreciation goes to Dr. Clarence H. Collison, Department of Entomology, Pennsylvania State University, University Park, PA for identification of *B. pennsylvanicus* specimens — L. A. Lemke, M. P. Nolan III, and J. B. Kissam, Department of Entomology, Clemson University, Clemson, SC 29634-0365. Published as Technical Contribution No. 2366 of the South Carolina Agricultural Experiment Station, Clemson. (Accepted for publication August 20, 1985)