

The probability of 58 ramets of a possible 66 of a specific clone being randomly beetle-infested is small indeed.

Reasons for the observed selection are not known, but infested trees were poorer growers in comparison with other trees in the seed orchard. Such trees are oftentimes attacked in a forest stand. The sequence of arrival of beetle species on individual trees is not known. Any one of the 4 species may have been the initial or last arrived for any tree. Regardless, one or more beetle species did demonstrate a clonal specificity encompassing a 22 ha area, an occurrence not previously documented for *Ips* or *Pityophthorus* spp.—W. N. DIXON, Forest Entomologist, Contribution No. 554, Division of Plant Industry, Bureau of Entomology; Division of Forestry, P. O. Box 1269, Gainesville, FL 32602, USA.

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LUMINOUS DEFENSE IN AN EARTHWORM—We found several earthworms, possibly *Microscolex phosphoreus* (Megascoleoidae), in Alachua County, Florida that emitted light. Green-glowing haemolymph was discharged from the mouth and/or anus when the worm was forcibly handled and also flowed from wounds (see Wampler, 1981. *Comp. Biochem. Physiol.* 71A: 599-604). Earthworm lights in general have been supposed to be defense mechanisms serving either as warnings of unpalatability or as means of startling subterranean, presumably negatively phototactic predators (e.g. Gilchrist, 1919. *Trans. Roy. Soc. South Africa* 7: 203-12; Jamieson and Wampler, 1979. *Australian J. Zool.* 27: 637-69). To our knowledge no previous observations of predator reactions to luminous earthworms have been made.

*Microscolex phosphoreus* was palatable to a dermapteran *Labidura riparia* (Labiduridae) and an immature lycosid spider, both nocturnal predators collected within meters of where the worms were found on the surface after a heavy rain. In the laboratory each was placed with a worm in a 9 cm. dia. petri dish. Although worms managed to smear glowing fluid on their attackers and the predators "jaws" were frequently alight, worms were consumed without hesitancy. However a subterranean carnivore, the mole cricket, *Scapteriscus acletus* (Gryllotalpidae), reacted to luminescence. While one cricket quickly ate a *M. phosphoreus*, another dropped its prey as it began to luminesce, rapidly withdrew 2 cm and rubbed its head with the forelegs. The worm managed to crawl 9 cm before being reattacked. Again luminous fluid was emitted whereupon the cricket withdrew 2 cm. On a third encounter the worm was completely consumed.

Our sample suggests to us that the earthworms were palatable but that a predator can be startled by annelid bioluminescence, particularly if its hunting behaviors evolved underground in darkness. Thanks to J. E. Wampler for references. This is Florida Agricultural Experiment Station Journal Series No. 4545—JOHN SIVINSKI AND TIM FORREST, Dept. of Entomology and Nematology, University of Florida, Gainesville, Fla. 32611 USA.