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355 - LIFE ALONG THE LOIRE: HOW *CARDIOCONDYLA ELEGANS* COPES WITH FLOODING, HIGH TEMPERATURE, AND INTRA-SPECIFIC COMPETITION

J. C. Lenoir¹, S. Rodrigues², O. Dangles³, P. Jugé⁴, A. Lenoir¹, J. L. Mercier¹

¹IRBI, UMR CNRS 6035, France; ²UPRES EA2100, France; ³IRD (UR072), France; ⁴Association pour le Développement de l'Enseignement Supérieur en Val de Vienne, France

The ecology of *Cardiocondyla elegans* was investigated in order to determine the environmental conditions favouring colony development and whether this species can be used as a bioindicator in its natural habitat (river's alluvial deposits). In particular, we studied the architecture of nests and measured abiotic (soil temperature, humidity and soil composition) as well as biotic (flora) environmental factors associated with a *C. elegans* population along the Loire River in France. Architecture of nests is similar to many other subterranean ant species. The nests are made in sediments containing less than 60% fine sand, approx. 25% fine gravel, and at least 20% coarse gravel. This peculiar soil composition allows *C. elegans* to build nests that include spaces in which they can survive annual floods. Although the soil surface temperature can easily exceed 45°C, the deeper chambers of the nest always remain cooler than 30°C. Humidity of sediments increases rapidly following rain but without any apparent consequences to ant populations. However, soil water content may increase following floods and can result in the destruction of up to 40% of nests. Nonetheless, *C. elegans* generally attains a density of 1 nest per m² in its riverine habitat during the summer. New nests are founded by winged females who disperse from the surviving nests. Owing to intra-specific competition, these new nests are spaced regularly among the established ones. Along with the local flora, *C. elegans* can be used as an indicator to characterize the morphological evolution of the secondary channels of the Loire River.