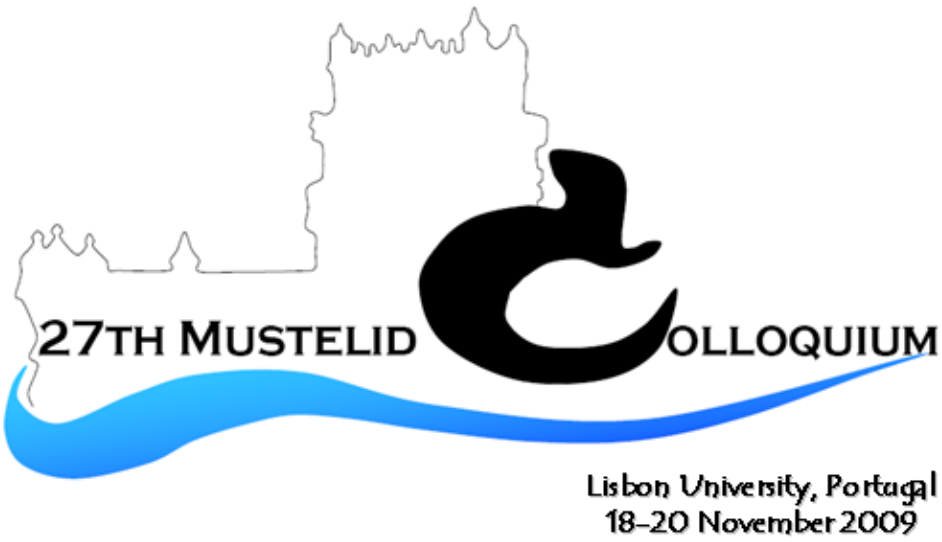
27th Mustelid Colloquium



Program and Abstracts

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THE CENTRE OF ENVIRONMENTAL BIOLOGY OF THE FACULTY OF SCIENCES OF LISBON UNIVERSITY

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CONTAMINATION BY HEAVY METALS IN AQUATIC TROPHIC WEBS: THE CASE OF OTTER AND RED-SWAMP CRAYFISH

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The effect of wetlands management on aquatic ecosystems is a major concern, especially in what concerns potential impacts on trophic webs. The otter (*Lutra lutra*), an aquatic predator is directly affected by wetland changes. This work intends to study the potential influence of a dominant prey-species, the red swamp crayfish, *Procambarus clarkii*, on the inputs of mercury and cadmium into the predator focusing on the relation between prey abundance, prey contamination, prey consumption and predator contamination. The study took place in 3 rice fields sampling sites within the Sado Basin (A- Nogueira; B- Barrosinha; C- Murta/Cachopos). Three water sources were identified during the sampling period: river, dam and natural springs. Abiotic (temperature, conductivity and pH) and biotic variables (namely dietary intake of prey species, *P. clarkii*) were evaluated as well as total mercury and cadium concentrations in *P. clarkii* samples and *L. lutra* faeces. The determination of the red swamp crayfish dietary intake by otters was achieved through the identification of prey items in scats, expressed as frequency of occurrence, relative frequency and biomass indexes. Faeces were collected along 6-10 km transects using circular collection stations with a medium radius of 50 meters. The density of *P. clarkii* was estimated by the use of funnel traps. Heavy metals were determined by atomic absorption spectrometry techniques in both predator and prey samples. A preliminary analysis of the relative and occurrence frequencies indicated a clear dominance of *P. clarkii* as otter prey-species. As for other prey groups, temporal and geographic variations were observed. The contamination levels seem to follow a geographical / spatial pattern. The average mercury values for all samples ranged from 0.1 to 1.3 mg/Kg, with Murta revealing the lowest values and Nogueira the highest. A similar pattern was observed for cadmium, which ranged from 0.03 to 3.16 mg/kg. Metal accumulation in *P. clarkii*, suggests a potential relationship between predator and dominant-prey and that *L. lutra* may be highly vulnerable to the contamination of *P. clarkii*. This conclusion may represent a problem for the species' conservation if habitat management promotes mercury and/or cadmium bioaccumulation in crayfishes.