Case study 11. Edible soil invertebrate consumption in tropical areas of South America

More than 2 000 species of invertebrates are used as food resource by humans worldwide. The use of soil animals as a protein source in human nutrition is still widely represented in indigenous populations in most regions of the world. Harvesting soil invertebrates is a common practice of local communities in the tropical lowlands of South America. In Amazonia for example, at least 32 ethnic groups consume a significant amount of small terrestrial invertebrates, and the total number of edible invertebrate species used as food in this area exceeds one hundred. These include invertebrates of the following trophic groups: geophagous, detritivorous, saproxylophagous, leaf cutters, predators and generalists.

Small invertebrates can make a significant contribution to the diet. Invertebrate consumption can provide significant amounts of animal proteins, especially during difficult periods of the year (e.g. rainy seasons) during which fish and game is scarce, e.g. 60 percent of animal protein in the diet during the rainy season for Guajivos Amerindians of Venezuela. Among the Tukanoan Indians (Colombia), insects and other small invertebrates provide up to 12 percent of the animal protein in men's diets and 26 percent in women's diets during the early months of the rainy season (May and June). Local people know not only the species eaten, but also other species not considered resources, for example, no terrestrial snails are mentioned as edible.

Amerindians value soil invertebrates for their flavour as well as for their nutritional value. Soil invertebrates are consumed as delicious and highly nutritive local snacks in parts of this region. For example, during the onset of the rainy season, native habitants of the Orinoco Llanos in Colombia hunt very enthusiastically for swarming females of Atta laevigata (Smith) (Hymenoptera: Formicidae), locally named "culonas". These ants are consumed like peanuts after toasting their large abdomens which are full of sugars and lipids (T. Decaëns and J.J. Jiménez, pers. obs. and tasting). In the Bolivarian Republic of Venezuela, the Ye'Kuana ethnic group collect and consume at least two different edible earthworm species that are highly prized compared to other food such as fish, game, pork or beef.

Prepared by Juan J. Jiménez and Thibaud Decaëns, Université de Rouen, France

References:

Cerda, H., Martinez, R., Briceno, N., Pizzoferrato, L., Manzi, P., Tommaseo Ponzetta, M., Marin, O. and Paoletti, M.G. (2000) Palm worm: (Rhychophorus palmarum) traditional food in Amazonas, Venezuela: nutritional composition, small scale production and tourist palatability. Ecology of Food and Nutrition 40, 13–32.

DeFoliart, G.R. (1999) Insects as food: why the western attitude is important? Annual Review of Entomology 44, 21–50.

Paoletti, M.G., Dufour, D.L., Cerda, H., Torres, F., Pizzoferrato, L. and Pimentel, D. (2000) The importance of leaf- and litter-feeding invertebrates as sources of animal protein for

the Amazonian Amerindians. Proceedings of the Royal Society of London B: Biological Sciences 267, 2247–2252.
Paoletti, M.G., Buscardo, E., and Dufour, D.L. (2001) Edible invertebrates among Amazonian Indians, a disappearing knowledge. In: Begissi, A. and Hens, L. (eds) Local knowledge in the tropics: relevance to conservation and management. Environment, Development and Sustainability 2, 195–225.
Paoletti, M.G., Buscardo, E., VanderJagt, D.J., Pastuszyn, A., Pizzoferrato, L., Huang, Y-S., Chuang, L.-T., Millson, M., Cerda, H., Torres, F. and Glew, R. (2003) Nutrient content of earthworms consumed by Yekuana Amerindians of the Alto Orinoco of Venezuela. Proceedings of the Royal Society of London B: Biological Sciences 270, 249–257.