

Janine Gibert

29 August 1945 – 14 April 2009

Janine Gibert, one of the world's foremost subterranean biologists, passed away on the 14th April 2009 after a long illness. Janine was among the first biologists to recognize that caves represent only a fraction of the subterranean space available for colonization by organisms, and that many animals are able to migrate between different hypogean habitats, where connectivity exists. This resulted in subterranean ecology, including cave ecology, taking a much more central role in ecological research than had previously occurred.

Working from her lifelong base in Lyon she first completed a massive thesis on the subterranean amphipod genus *Niphargus*. She then went on to lead the Groundwater Hydrobiology and Ecology team based in Lyon. The primary focus of her research was on ecology, including the physico-chemical association between groundwater organisms and their environment in central France and beyond. Her research resulted in a large number of publications that continue to influence subterranean ecology today.

In 1994 she co-edited the seminal, and still essential, volume *Groundwater Ecology* (Gibert *et al.*, 1994), which finally shifted the emphasis from cave to subterranean biology. This book was, and remains, of great significance and was followed by a second edited volume centred on *Groundwater / Surface Water Ecotones* (Gibert *et al.*, 1997), which clearly highlighted the role of interdisciplinary science in the management of groundwater-dominated ecosystems.

Perhaps even more groundbreaking was her conception and planning of the PASCALIS project (Protocols for the ASessment and Conservation of Aquatic Life In the Subsurface). This stratified random design Europe-wide project aimed to characterize the full extent of subterranean biology across geographical regions and habitat types. Both theoretical and applied research themes were incorporated, as was the role of science in the conservation and management of subterranean ecosystems. The PASCALIS project led to the development of many novel experiments, with the results being published widely across the spectrum of biological, hydrological and interdisciplinary academic journals. A full and valuable summary of the project including contributions from authors outside of Europe appeared as a special volume of *Freshwater Biology* (Gibert and Culver, 2009). Our contemporary understanding and cognitive appreciation of subterranean biology has been influenced profoundly by Janine's work. We are fortunate that her ideas will live on in her many publications and in the ongoing work of her many colleagues in Lyon and elsewhere.

References

- Gibert, J, Danielopol, D L and Sandford, J A (eds). 1994. *Groundwater Ecology*. [San Diego, California: Academic Press.] 571pp.
- Gibert, J, Mathieu, J and Fournier, F (eds). 1997. *Groundwater / Surface Water Ecotones: Biological and Hydrological Interactions and Management Options*. International Hydrology Series. [Cambridge: Cambridge University Press.] 246pp.
- Gibert, J and Culver, D C. 2009 (eds). Assessing and Conserving Groundwater Biodiversity. *Freshwater Biology*, Vol.54, 639–941.

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