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Preface: Organising knowledge on aquatic plants: the European Weed Research Society and scientific networks

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Since the publication of the last EWRS symposium on aquatic plants in Lisbon (Caffrey et al., 1999), scientific knowledge on the topic has increased substantially, for example, global change and plant invasions and the problems they cause are increasing. Some events have occurred that increased the research effort on macrophytes, such as the European Directive on Water Quality (OJEU, 2000), and some standards have been produced dealing with aquatic plants: examples include the European standard on river plant studies (CEN, 2003) and the French standard presented in the present issue (AFNOR, 2003) to enhance the application of the Directive.

Problems caused by the proliferation of native and exotic aquatic plants in aquatic ecosystems in France have been occurring for several decades. Standing water bodies have been worst affected. Management by cutting goes back at least to the 1920s, primarily in ponds used for fish production. Over the last three decades aquatic plant management problems have increased sharply, especially in waters used for leisure activities. This has resulted for several reasons:

- quantitative and qualitative changes in the water bodies (e.g., changes in availability of resources, eutrophication and various amenities)
- changing human uses of aquatic ecosystems (particularly the development of multi-use management)
- increased sensitivity of users to plant-associated problems in water-bodies.

These changes have resulted in an increasing reluctance to accept the natural constraints on use of a water-body typically generated by the natural functioning of the aquatic ecosystem (such as the presence of a large standing crop of aquatic vegetation): users expect a certain quality related to the pursuit of their water-based leisure activities, particularly if they are paying. This drives the managers of water-bodies to set up regular management activities in an attempt to meet users' expectations. As a result, active aquatic plant management programmes are increasingly common in French lakes and other waters used for leisure activities.

In Europe, the first efforts aimed at coordination in this field, by specialist meetings, occurred in the1960s, with the setting up of the "European Weed Research Council", which subsequently became the "European Weed Research Society". Since then this association has organized a series of symposia dedicated to aquatic plant management and to the biology and ecology of aquatic plants. EWRS symposia on aquatic weeds take place every three or four years in different European countries. The first, in 1964, was in France, in La Rochelle, then Germany in 1967, Britain in 1971, Austria in 1974, the Netherlands in 1978, Yugoslavia in 1982, again in Britain in 1987, Sweden in 1991, Ireland in 1994 and Portugal in 1998. Proceedings of all symposia have been published. Selected papers from the last three symposia have been published in special issues of the international journal "Hydrobiologia".

Several members of the Aquatic Plants Group of EWRS also contributed to a major review of aquatic plant biology and management (Pieterse & Murphy, 1990), which was distributed worldwide to scientists and technicians involved with aquatic plant management. At the symposium in Lisbon (September 1998), a decision was taken to organize the current symposium in France.

In France, the EWRS collaborated with COLUMA, an association involved in techniques of weed control in agriculture. Within this forum, an "aquatic plants" group was established in the early 1970s, which wrote and published in 1973 the first French document dedicated to the control of aquatic plants. This document included keys to the identification of most aquatic plants, drawings, information on the biology and ecology of the plants and a synthesis on aquatic plant control techniques. A new edition of this document was produced in 1988 (COLUMA, 1988) but it is now sold out.

Subsequently, some 15 French scientists and researchers on aquatic plants created a Group of Scientific Interest "Inland Water Macrophytes" in order to coordinate research into the biology, ecology and management of aquatic plants in France. During the past decade this group has undertaken a series of joint studies on aquatic plant communities in rivers, produced a bibliographic review of those aquatic plants prone to causing weed problems in France, on macrophytes as bio-indicators, and has put forward a Macrophyte Index for use in French rivers.

Over the past three decades in France, only two major symposia dedicated to aquatic plants have been held (although relevant scientific communications have been presented at other meetings). The first was in Alsace in 1994, on the biology and the ecology of aquatic plants (Trémolières & Muller, 1995) and the second was a seminar organized in 1996 by the French Ministry of the Environment on introduced species (animals and plants) in continental aquatic water bodies (Bergot & Vigneux, 1997).

The 11th International Symposium on Aquatic Weeds, held in Moliets et Maâ (Département des Landes) in 2002 was attended by 160 delegates from more than 25 countries (mainly from Europe, but also Mexico, Brazil, New Zealand, Egypt, Iran, India and the United States). The meeting was a resounding success with 110 contributions, 37 of which have been reviewed and edited for publication in this present volume.

The wide range of study, scale and aims of these papers led us to name this special issue : "Macrophytes in aquatic ecosystems : from biology to management", following the old paradigm : "knowledge to achieve management and management to achieve knowledge".

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