

Editorial

Hosting European Inland Fisheries Advisory Commission (EIFAC); key role of crayfish in ecosystems and socioeconomic relevance

European Crayfish: food, flagships and ecosystem services 26-29 October, Poitiers, France

The organizing laboratory “Ecology Evolution Symbiosis” has worked on crayfish since 1992. In 2001, a first European crayfish congress (Euroconference) was funded by the European Commission, entitled “Knowledge-based management of European native crayfish: exchanges between researchers and managers”. Following this event, a European programme CRAYNET was created under the coordination of Catherine Souty-Grosset, involving 11 countries, on the topic “European crayfish as keystone species – linking science, management and economics with sustainable environmental quality”. 38 countries collaborated in updating the distribution of crayfish in Europe and more than 500 scientists and managers were linked in the network. The CRAYNET activities – including four special issues in BFPP – revitalized European interest in conserving crayfish and led EIFAC – the European Inland Fisheries Advisory Commission, corresponding to a sub-commission of FAO (Food and Agriculture Organization of the United Nations) and covering 33 countries – to re-establish in 2008 its work package on crayfish, which had been in abeyance since 1996. It was therefore natural that the present congress would harbour EIFAC in its choice of two main topics:

- (1) Interactions of crayfish and fish in freshwater ecosystems (competition, predation, other ecological interactions), and
- (2) Socio-economic aspects: – crayfish production, past and present; costs of fisheries; new ideas such as cultural values and ecosystem services for human well-being; new insights such as crayfish as flagship species and eco-tourism, linked with education of the public, and also with restoration of aquatic ecosystems. Recent projects such as the MEA and Biodiversity Plans are of equal importance with the production of food.

Other topics concerned the rising imperative to increase our knowledge base of both indigenous and non indigenous crayfish, for better management of our heritage species.

96 participants from 19 countries attended this meeting, about 30% of participants being Ph.D. students.

Through all these activities the wider importance of freshwater crayfish is now well recognized and completion of the IUCN Red List for freshwater crayfish was updated in 2010. Therefore there was again a need for a conference this same year to update what is known and point out gaps in knowledge, considering that crayfish are keystone species in freshwater environments and that the declines in indigenous crayfish species (ICS) populations – because of both deterioration of the habitat and introduction of competing non-indigenous crayfish species (NICS) that harbour the crayfish plague – have adverse effects on overall ecosystem functioning. This is through effects on provisioning services such as food provision, through declines in fisheries, astaciculture, loss of traditional recreational fishing and of other resources such as bait for fishing. Regulating and supporting services, through the loss of crayfish, may also suffer adverse trophic cascade effects on both predators and prey as well as plant development, thus indirectly affecting ecosystem support in terms of water purification, nutrient cycling and

primary productivity. Cultural services such as recreation, ecotourism and education may also be affected, again with loss of recreational fishing, and restriction of opportunities to observe and study natural habitats of the native European heritage species.

In this special issue a keynote paper deals with Interactions between crayfish and fish, indigenous and introduced, by Julian Reynolds. The second keynote covered socio-economic aspects by Francesca Gherardi, on Sustainable human use of crayfish, and the third keynote, presented jointly by Leopold Füreder and Stephanie Peay, looked at Two indigenous European crayfish under threat – how to retain them in aquatic ecosystems for the future? Pavel Kozak coordinated a round table discussion on Conservation of native crayfish, culture, restocking, including the topics of Developing Catchment-based conservation strategies for crayfish and Guidelines for evaluation of reintroductions. This is presented as an opinion paper.

Mirroring the presentations during the congress, the EIFAC Working Party on Crayfish, chaired by Markku Pursiainen, concentrated on two cognate topics – ecosystem roles of crayfish, including fish-crayfish interactions, and a range of socio-economic aspects – fisheries, aquaculture, habitat degradation, disease, among others. The underlying theme was Conservation through habitat protection and restoration. The meeting aimed to encourage participation and submissions from eastern and central Europe, underlying the fact that EIFAC is an all Europe organization. All these topics are illustrated through the papers presented in this special issue from KMAE: interactions of crayfish and fish; Knowledge base of ICS and NICS; Socio economic aspects; Crayfish genetics; Crayfish invasions and crayfish plague. Also, increasing the general awareness of freshwater crayfish is important, and modern new communication tools are required. Among the new technical developments presented at the Conference, with relevance for taxonomists, researchers and stakeholders alike, was the use of smartphones (iPhone™, Androids™, etc.) for the field identification of European crayfish (De Vaugelas *et al.*).

The four special CRAYNET volumes in BFPP (available on free access at www.kmae-journal.org) are:

- Reynolds J.D. and Souty-Grosset C. (eds.), 2003b. The endangered native crayfish *Austropotamobius pallipes*, bioindicator and heritage species. *Bull. Fr. Pêche Piscic.*, 370-371, 230 [CRAYNET 1].
- Taugbøl, M.C. and Souty-Grosset C. (eds.), 2004. European native crayfish with a special focus on *Astacus astacus*, linking socioeconomics and conservation. *Bull. Fr. Pêche Piscic.*, 372-373, 254 [CRAYNET 2].
- Füreder L. and Souty-Grosset C. (eds.), 2005. European native crayfish in relation to land-use and habitat deterioration, with a special focus on *Austropotamobius torrentium*. *Bull. Fr. Pêche Piscic.*, 376-377, 357 [CRAYNET 3].
- Gherardi F. and Souty-Grosset C. (eds.), 2006. European crayfish as heritage species – linking research and management strategies to conservation and socio-economic development. *Bull. Fr. Pêche Piscic.*, 380-381, 566 [CRAYNET 4].

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