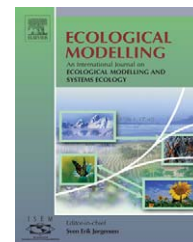


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Preface

This special issue includes selected papers from the third Conference of the International Society for Ecological Informatics (ISEI), which was held in Grottaferrata (Rome, Italy), from August 26 to August 30, 2002 (<http://www.isei3.org>). About 100 delegates from 23 countries attended the Conference, presenting 4 keynote lectures, 62 papers and 13 posters.

The first Conference in the series, which was held in Toulouse (France) in 1998, focused on the applications of artificial neural networks to ecological modelling, whereas the second one, which was held in Adelaide (Australia) in 2000, included not only artificial neural network applications, but also other machine learning techniques. The third Conference had an even broader scope, as it included ecological applications of informatics, machine learning and other computationally intensive methods.

This Conference was the first one to be named after the International Society for Ecological Informatics (<http://www.waite.adelaide.edu.au/ISEI/>), which was founded after the second Conference to define a conceptual framework for all the ecological applications that are based on processing, archival, analysis and synthesis of ecological data by advanced computational technology. While this special issue was in preparation, a fourth Conference was held in Busan (Republic of Korea) in October 2004 (<http://www.isei4.org>) and a fifth one was announced, which will be held in Mexico in fall 2006. Moreover, Elsevier will start publishing a new journal, *Ecological Informatics*, in 2006.

The majority of the papers in this special issue deal with artificial neural networks, both supervised and unsupervised, but papers presenting other methods, like evolutionary computation, classification trees, qualitative reasoning, fuzzy logic, etc., are also included. All of them provide an interesting perspective of this new discipline and show how the spectrum of computational techniques that can be applied to ecological problems is rapidly widening [see, for instance, the papers from previous conferences, which can be found in *Ecological Modelling* issues 120 (2–3) and 146 (1–3)].

This also reflects a general trend in current literature, in which artificial neural networks are the most popular method among those in the Ecological Informatics toolbox. For instance, in the *Aquatic Science and Fishery Abstracts*, which can be regarded as a significant showcase of the ecological literature, 43 references about artificial neural networks can be

found from January 2004 to June 2005, while references to all other methods barely match this figure. However, if compared to the recent past, the current Ecological Informatics literature is evolving and becoming more and more diverse.

In fact, many Ecological Informatics papers are more mature, focusing on real ecological issues rather than on methodological comparisons. A few years ago most papers were aimed at introducing new methods to ecologists, just showing that they were better than the conventional ones, while in several recent papers these methods are effectively applied to get new insights into ecological problems.

I hope that in the long run this focus shift will attract more and more ecologists and that Ecological Informatics will play a major role in future ecological research. I also hope that this special issue can be regarded as one small step along this pathway.

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Michele Scardi

Department of Biology, Tor Vergata University,
Via della Ricerca Scientifica, 00133 Rome, Italy

E-mail address: mcardi@mcclink.it

URL: <http://www.michele.scardi.name>

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