

Press Release

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Jury report for Prof. M. (Marten) Scheffer

Professor of Aquatic Ecology and Water Quality Management at Wageningen University and Research Centre

Professor Scheffer receives the NWO/Spinoza Prize 2009 for his pioneering contributions to our understanding of critical transitions in complex systems, varying from shifts in shallow lakes to climate change and the collapse of ancient cultures.

Marten Scheffer (13 September 1958, Amsterdam) gained his degree in ecology with distinction at Utrecht University in 1985 and gained his doctorate there in 1992. After research positions at Dorschkamp (now Alterra) and the Institute for Inland Water Management and Waste Water Treatment (RIZA), he has been Head of the Department of Aquatic Ecology and Water Quality Management at Wageningen University and Research Centre since 1998. Marten Scheffer is also a co-founder and board member of two new international institutes for interdisciplinary research, the European Institute 'Para Limes' (comparable to the Santa Fe institute), and the South American Institute for Resilience and Sustainability Studies on the coast of Uruguay. Besides being a successful scientist, Scheffer is also a gifted musician who plays instruments such as the violin, mandolin and guitar.

Marten Scheffer works on mechanisms that determine the stability and resilience of complex systems. He started his research career with the design of simple mathematical models that could explain equilibria and abrupt transitions in shallow lakes. He showed that such lakes can have two stable states: clear with aquatic plants or turbid with algae. A temporary reduction of the fish population is now widely used to trigger a shift from a turbid state to a clear state with a high biodiversity.

He has since elaborated the models he set up for lakes and, in cooperation with experts from other disciplines, has applied these ideas to a wide range of complex systems. For example, by studying other ecosystems he has shown that systems varying from coral reefs to savannas have tipping points, where a catastrophic change can bring the system to a different state. However, he has also applied his insights outside of ecology, for example to social economic systems and the climate system, and to the question as to how evolution could have led to such a large number of species on our planet.

Marten Scheffer has been a member of the editorial boards of the journals *Ecosystems*, and *Ecology and Society* right from the start. He publishes widely and has written three books, including the popular scientific book 'Vijver, Sloot en Plas' [Ponds, ditches and lakes] and the academic volume 'Critical Transitions in Nature and Society' recently published by Princeton University Press. Scheffer also translates the results of his work to applications in environmental policy.

The ecologist from Wageningen is a charismatic leader who builds up institutes and attracts students from both the Netherlands and abroad. He is a freethinker with a rare breadth of thought as well as an independent and creative innovator. His students and colleagues praise the clarity with which he explains complex issues and his qualities as a lecturer are widely praised.

Marten Scheffer is an influential but above all surprising and inspiring scientist who repeatedly crosses and pushes back the boundaries between various scientific disciplines. The Spinoza committee has high expectations of him in the future, and eagerly looks forward to seeing how he will use the 2.5 million euro of the NWO/Spinoza Prize to take his research in new directions.

Further information for the press:

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This jury report served as the basis for the speech given by Dr Hans van Eeklen at the announcement ceremony for the NWO/Spinoza Prizes 2009 on 9 June 2009.

