



Preface: Temporal Changes in Mammalian Communities

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Temporal changes in mammalian communities

Preface

There have been a number of recent volumes written on the structure of communities, particularly with relation to the once very controversial issue of deterministic versus stochastic structure which has now lost much of its heat in most quarters, although some spirited debate still continues. There has been an increasing acceptance that while it is necessary to demonstrate conclusively that there is non-random structure in communities, this will indeed be the case in the majority of communities, with some notable exceptions such as herbivorous insects. Energies are now being directed towards gaining understanding of the modes of operation of the many factors that may produce deterministic structure, such as competition, predation, mutualism or disturbance.

The papers published here are some of those presented in the symposium "Temporal Changes in Communities: Seasonal, Annual, Successional and Geological", as part of the Fifth International Theriological Congress held in Rome during August 1989. The idea for this symposium grew out of an earlier symposium on "Patterns in the Structure of Mammalian Communities" (Morris et al. 1989) from the Fourth International Theriological Congress in Edmonton, Canada. Both of these symposia followed an earlier symposium "Small Mammals and Niche Spaces" (Fox and Powell 1985) as part of the joint meeting of the American Society of Mammalogists and the Australian Mammal Society in Sydney during 1984.

The Sydney symposium included reviews of mammalian communities in three biomes on each continent: desert, temperate forest and grassland in North America; desert, temperate forest and tropical forest in Australia. The Edmonton symposium was more wide ranging covering topics from geographical patterns in distribution and abundance to microhabitat use and foraging; from Mediterranean and North American deserts to tropical forests, heaths and mangrove swamps in Australia; from the rich African savannas to the Canadian boreal forests; from evolving patterns in mammalian faunas over millions of years to instantaneous views of competitive processes. It was this latter comparison which formed the focus for our organization of the Rome symposium where our theme compelled contributors to concentrate on temporal changes in mammalian communities.

Although the papers from this present symposium are more focussed, dealing with temporal changes only, they still have considerable scope: from changes in the patterns displayed by rodents in deserts and shrews in forests to marsupials and rodents in heaths and forests; from oceanic and montane islands to continental conservation reserves; from extensive field studies through computer simulations testing distribution data to the development of theoretical aspects of habitat selection. The time scales considered vary from relatively short-term successional change to the changes wrought over evolutionary time.

We selected this topic for our symposium as we feel that much is to be learned about the structure of communities from studying the ways in which these communities change over time. Equally well, understanding community structure can be applied most usefully to temporal processes such as succession. While here the authors have dealt with temporal change in the past, the most useful applications, of the knowledge and techniques explored here, will be to the future. Then ability to predict change in communities will not only be useful, it will be essential if we are to cope successfully with the changes engendered by global warming. The climatic change that will result will cause inevitable changes in all plant and animal communities.

We thank Luigi Boitani and his secretariat for making the symposium and Congress possible. We wish to thank everybody who contributed to our symposium, particularly those who presented posters or papers at the symposium but were constrained being represented here because of the extremely tight schedules for time and space that we imposed. We would also like to thank the Editor for the opportunity to have the papers from our symposium considered for publication in OIKOS. We greatly appreciate the rapid publication and wide distribution that this avenue offers to our symposium.

Barry J. Fox
Douglas W. Morris
18 May 1990

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