

THE SPATIAL DISTRIBUTION OF MICROBES IN THE ENVIRONMENT

The Spatial Distribution of Microbes in the Environment

Edited by

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Preface

In my first microbiology class in 1968, Richard Wodzinski opened his first lecture with “Wodzinski’s Laws of Bacteriology.” Those laws were (1) Bacteria are very very small, (2) Bacteria are our friends, and (3) Bacteria always have the last word. These simple statements motivated a career of curiosity, and started me on a wild ride of discovery with my miniscule colleagues. The realization that an entity so tiny could mediate critical ecological processes observed across scales of kilometers begs for an explanation of how populations and communities are distributed within those large spaces. How big is a microbial community? Where does one stop and another start? Are there rules of organization of the communities into spatially discrete patches, and can those patches be correlated with observed processes and process rates?

Over the years I have added what I tell my classes are “Mills’ Corollaries to Wodzinski’s Laws.” With respect to the topic of this volume, the corollaries to the first law are: (1a) But there are a whole lot of them, and (1b) They can grow very very fast. Again, distribution in space and time is a central theme, and it has motivated much of my effort over the last 30 years.

Whether they were inspired by catchy (but meaningful and correct) phrases, or not, the theme has also captured the attention of some excellent microbiologists, and they have agreed to share their observations with us in this volume. There is much activity in this area at present, and this volume will no doubt be incomplete when it becomes available. Nevertheless, we all hope that it helps our current and future colleagues to appreciate the importance of spatial scale and spatial distribution in the understanding of just how the “very small” microbes manage to do so very much.

Aaron L. Mills, January 2007

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