

STRUCTURE AND FUNCTION OF THE CONIFEROUS FOREST BIOME ORGANIZATION¹

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ABSTRACT

Integrating the research effort for an analysis of ecosystems requires a strong but flexible organization. The Coniferous Forest Biome's research groups reflect our changing perception of the major processes operating in both terrestrial and aquatic systems. They also reflect changing goals as our understanding increases and wider application and longer range predictions are desired. In addition, there is a geographic perspective expressing the concentration of effort on different processes and systems across the Biome.

The evolution of field research and modeling are intimately linked. Directors and research committee chairmen take leading roles in designing and coordinating the research with the aid of workshops to measure progress, modify model structure, and identify critical data needs. Often a small task force is appointed to address particular problems that require shifting resources and personnel to meet a critical need. A key group of integrators has developed, consisting of people who have an ecosystem perspective and training in more than one discipline. Their contributions to the program are essential and their experience and talents make them capable of leading the next generation of ecosystem studies.

INTRODUCTION

The kind of science that can be accomplished by large integrated research differs from that which can be done by individuals or small groups. The structure of large scientific programs, although more formal than smaller ones, need not be less efficient. Integrated research, however, requires a special structure and a special kind of people to accomplish its task. This paper explains how integrated research has evolved in the Coniferous Forest Biome.

The Coniferous Forest Biome was initiated in September 1970 as one of the five programs in the Ecosystem Analysis Studies sponsored by the National Science Foundation as part of the U.S./International Biological Program effort. The general research objectives are to increase the understanding of whole ecosystems with special emphasis on land-water interactions. To keep track of details, help organize the research, and test the validity of certain assumptions, we make use of computers and system modeling.

Our general research philosophy is that knowledge of the internal structure and function of ecosystems comes from understanding basic processes that operate across a biome. Coupling these processes into subsystems and linking these into terrestrial and aquatic ecosystems provide a hierarchical

¹This is contribution no. 59 from the Coniferous Forest Biome.