

Community Structure Abundance And Morphology

During the past two decades, there has been a gradual change of emphasis in ecological studies directed at unravelling the complexity of natural communities. Initially, the population approach was used, where interest lay in the way individual populations change and in the identification of factors affecting these changes. A good understanding of the dynamics of single populations is now emerging, but this has not been a very fruitful approach at the community level. In the natural world, few species can be treated as isolated populations, as most single species are the interacting parts of multispecies systems. This has led to a community approach, involving the study of interrelationships between species within communities and investigation of the actual organization of natural communities as a whole. The formalization of a number of new concepts and ideas has evolved from this approach, including niche theory, resource allocation, guild structure, limiting similarity, niche width and overlap etc. , which, until fairly recently, have been examined mainly from a theoretical point of view. However, a wealth of field data is gradually being added to the literature, especially from the general areas of island biogeography and resource partitioning amongst closely related species. Community structure embodies patterns of resource allocation and spatial and temporal abundance of species of the community, as well as a number of community level properties such as trophic levels, succession, nutrient cycling etc.

The field of insect nutritional ecology has been defined by how insects deal with nutritional and non-nutritional compounds, and how these compounds influence their biology in evolutionary time. In contrast, *Insect Bioecology and Nutrition for Integrated Pest Management* presents these entomological concepts within the framework of integrated pest management.

In recent years researchers have discovered that bats play key roles in many ecosystems as insect predators, seed dispersers, and pollinators. Bats also display astonishing ecological and evolutionary diversity and serve as important models for studies of a wide variety of topics, including food webs, biogeography, and emerging diseases. In *Bat Ecology*, world-renowned bat scholars present an up-to-date, comprehensive, and authoritative review of this ongoing research. The first part of the book covers the life history and behavioral ecology of bats, from migration to sperm competition and natural selection. The next section focuses on functional ecology, including ecomorphology, feeding, and physiology. In the third section, contributors explore macroecological issues such as the evolution of ecological diversity, range size, and infectious diseases (including rabies) in bats. A final chapter discusses conservation challenges facing these fascinating flying mammals. *Bat Ecology* is the most comprehensive state-of-the-field collection for scientists and researchers. Contributors: John D. Altringham, Robert M. R. Barclay, Tenley M. Conway, Elizabeth R. Dumont, Peggy Eby, Abigail C. Entwistle, Theodore H. Fleming, Patricia W. Freeman,

Lawrence D. Harder, Gareth Jones, Linda F. Lumsden, Gary F. McCracken, Sharon L. Messenger, Bruce D. Patterson, Paul A. Racey, Jens Rydell, Charles E. Rupprecht, Nancy B. Simmons, Jean S. Smith, John R. Speakman, Richard D. Stevens, Elizabeth F. Stockwell, Sharon M. Swartz, Donald W. Thomas, Otto von Helversen, Gerald S. Wilkinson, Michael R. Willig, York Winter

Coral reef communities are among the most complex, mature and productive ecosystems on earth. Their activity resulted in the creation of vast lime constructions. Being extremely productive and having the function of a powerful biofilter, coral reefs play an important role in global biogeochemical processes and in the reproduction of food resources in tropical marine regions. All aspects of coral reef science are covered systematically and on the basis of a holistic ecosystem approach. The geological history of coral reefs, their geomorphology as well as biology including community structure of reef biota, their functional characteristics, physiological aspects, biogeochemical metabolism, energy balance, environmental problems and management of resources are treated in detail.

Proceedings of Clone 2000, an International Workshop held in Obergurgl, Austria, 20-25 August 2000

The climate record for the past 100,000 years clearly indicates that the climate system has undergone periodic--and often extreme--shifts, sometimes in as little as a decade or less. The causes of abrupt climate changes have not been clearly established, but the triggering of events is likely to be the result of multiple natural processes. Abrupt climate changes of the magnitude seen in the past would have far-reaching implications for human society and ecosystems, including major impacts on energy consumption and water supply demands. Could such a change happen again? Are human activities exacerbating the likelihood of abrupt climate change? What are the potential societal consequences of such a change? *Abrupt Climate Change: Inevitable Surprises* looks at the current scientific evidence and theoretical understanding to describe what is currently known about abrupt climate change, including patterns and magnitudes, mechanisms, and probability of occurrence. It identifies critical knowledge gaps concerning the potential for future abrupt changes, including those aspects of change most important to society and economies, and outlines a research strategy to close those gaps. Based on the best and most current research available, this book surveys the history of climate change and makes a series of specific recommendations for the future.

Ecomorphology is the comparative study of the influence of morphology on ecological relationships and the evolutionary impact of ecological factors on morphology in different life intervals, populations, species, communities, and evolutionary lineages. The book reviews early attempts at qualitative descriptions of ecomorphological patterns in fishes, especially those of the Russian school. More recent, quantitative studies are emphasised, including multivariate approaches to ecomorphological analysis, the selection of functionally important

ecological and morphological variables to analyze, an experimental approach using performance tests to examine specific hypotheses derived from functional morphology, and the evolutionary interpretations of ecomorphological patterns. Six major areas of fish biology are focused on: feeding, sensory systems, locomotion, respiration, reproduction, and phylogenetic relationships. The 18 papers in the volume document: (1) how the morphology of bony fishes constrains ecological patterns and the use of resources; (2) whether ecological constraints can narrow the niche beyond the limits imposed by morphology (fundamental vs. realized niche); (3) how communities of fishes are organized with respect to ecomorphological patterns; and (4) the degree to which evolutionary pressures have produced convergent or divergent morphologies in fishes. A concluding paper summarizes ecomorphological research in fishes and points out taxa that are underrepresented or are especially promising for future research.

Lagoon Environments Around the World - A Scientific Perspective covers a wide range of topics. Typically bordering between land and sea, lagoons are among the most diversely utilized waterways on the planet. Lagoons are extremely important environments socio-economically, and their usage places ever increasing stress on these very sensitive aquatic regions. The effective management of shallow aquatic environments requires a detailed scientific understanding of the various contributory natural processes. This has both environmental and economic implications, especially where there is any anthropogenic involvement. This book draws on international scientific research to examine the following lagoon related issues: classification, circulation hydrodynamics, ecosystems, sedimentation, anthropogenic stresses, and response to extreme events. The research was carried out by researchers who specialize in shallow water processes and related issues.

Human beings have a long historical relationship with the coast. Initially it provided food and security, later forming important locations for industrial and commercial development. Now the emphasis has shifted towards leisure and conservation, although the former functions remain crucial. However, it is only very recently that people have started viewing the coast as a common and valuable resource that requires rational utilisation and scientific management in order to sustain its attractiveness. Of course, enlightened management comes only through understanding of the complicated coastal regions, which enables coastal managers to balance pressures from different sectors and to minimize risks. Scientific knowledge will continue to be the most important basis for resolving the conflicts between coastal users and interest groups such as developers and ecologists. Coastal management has also shifted from traditional restorative or remedial actions towards planned avoidance of other conflicts. Despite rapid advancement in coastal sciences over recent decades, most of the major coastal issues have remained outstanding in the agenda. Control of shoreline erosion and protecting sea level rise continue to be crucial problems

facing coastal scientists. Destructive coastal storms still cause tremendous damage, particularly in low altitudes. Wetland and estuary reclamation have led to the loss of the most valuable estuary wetlands which are required to sustain biological productivity and biodiversity. This volume includes papers on marine and coastal pollution, eutrophication, aquaculture, conservation and utilization, coastal wetlands, and coastal zone management.

The evolution of species abundance and diversity; Competitive strategies of resource allocation; Community structure; Outlook.

This introduction to basic concepts of biodiversity-sampling outlines standardized field methods for macroalgae and seagrass communities developed by NaGISA (Natural Geography in Shore Areas), a project operating under the international Census of Marine Life. NaGISA promotes simple standardized protocols and focuses on widespread nearshore habitats. This book, written by premier coastal ecologists and taxonomists, provides a text for field courses, a manual for coastal managers, and a reference guide for researchers studying biodiversity or preparing species inventories.

Dieses Buch ist der zweite von vier Bänden der Reihe Handbuch der Zoologie zur Systematik und Biologie der Coleoptera. Mit ca. 350.000 beschriebenen Spezies sind die Coleoptera die bei Weitem reichste Ordnung und die größte Gruppe von Tieren mit vergleichbarem geologischem Alter. Die Käfer-Bände des HdZ bieten modernen Biologen Antworten auf Fragen zur Phylogenese, Evolution und Ökologie der Coleoptera. Der zweite Coleoptera-Band umfasst alle nicht im ersten Band behandelten Polyphaga-Taxa (außer Phytophaga) sowie erst kürzlich beschriebene Gruppen mit Informationen zur weltweiten Verbreitung, Biologie, Morphologie aller Lebensabschnitte (einschließlich Anatomie), Phylogenese und Erläuterungen zur Taxonomie. Umfassender Überblick neueste Informationen

Oceanography and Marine Biology: An Annual Review remains one of the most cited sources in marine science and oceanography. The ever-increasing interest in work in oceanography and marine biology and its relevance to global environmental issues, especially global climate change and its impacts, creates a demand for authoritative refereed reviews summarizing and synthesizing the results of recent research. If you are interested in submitting a review for consideration for publication in OMBAR, please email the Editor in Chief, Stephen Hawkins, at S.J.Hawkins@soton.ac.uk. For nearly 60 years, OMBAR has been an essential reference for research workers and students in all fields of marine science. This volume considers such diverse topics as the Great Barrier Reef Expedition of 1928-29, Mediterranean marine caves, macromedusae in eastern boundary currents, marine biodiversity in Korea, and development of a geo-ecological carbonate reef system model to predict responses of reefs to climate change. Seven of the peer-reviewed contributions in Volume 59 are available to read Open Access on this webpage (1, 2, 3, 4, 5, 6 and 9). An international Editorial Board ensures global relevance and expert peer review,

with editors from Australia, Canada, Hong Kong, Ireland, Singapore and the United Kingdom. The series volumes find a place in the libraries of not only marine laboratories and oceanographic institutes, but also universities worldwide. This condensed volume summarizes updated knowledge on the warm-monomictic subtropical Lake Kinneret, including its geophysical setting, the dynamics of physical, chemical and biological processes and the major natural and anthropogenic factors that affect this unique aquatic ecosystem. This work expands on a previous monograph on Lake Kinneret published in 1978 and capitalizes on the outcome of more than 40 years of research and monitoring activities. These were intensively integrated with lake management aimed at sustainable use for supply of drinking water, tourism, recreation and fishery. The book chapters are aimed at the limnological community, aquatic ecologists, managers of aquatic ecosystems and other professionals. It presents the geographic and geological setting, the meteorology and hydrology of the region, continues with various aspects of the pelagic and the littoral systems. Finally, the last section of the book addresses lake management, demonstrating how the accumulated knowledge was applied in order to manage this important source of freshwater. The section on the pelagic system comprises the heart of the book, addressing the major physical processes, external and internal loading, the pelagic communities (from bacteria to fish), physiological processes and the major biogeochemical cycles in the lake.

Aquatic Ecotoxicology: Advancing Tools for Dealing with Emerging Risks presents a thorough look at recent advances in aquatic ecotoxicology and their application in assessing the risk of well-known and emerging environmental contaminants. This essential reference, brought together by leading experts in the field, guides users through existing and novel approaches to environmental risk assessment, then presenting recent advances in the field of ecotoxicology, including omics-based technologies, biomarkers, and reference species. The book then demonstrates how these advances can be used to design and perform assays to discover the toxicological endpoints of emerging risks within the aquatic environment, such as nanomaterials, personal care products, PFOS and chemical mixtures. The text is an invaluable reference for any scientist who studies the effects of contaminants on organisms that live within aquatic environments. Provides the latest perspectives on emerging toxic risks to aquatic environments, such as nanomaterials, pharmaceuticals, chemical mixtures, and perfluorooctane sulfonate (PFOS) Offers practical guidance on recent advances to help in choosing the most appropriate toxicological assay Presents case studies and information on a variety of reference species to help put the ecotoxicological theory into practical risk assess

This book investigates the introduction of invasive species and their behavior in oceanic islands. How can we define invasive species? What is their history? How did they come to dominate and transform ecosystems? These are relevant questions when trying to understand the behavior of invasive species—primarily in

fragile ecosystems such as islands—and to understand the biological, ecological, social and economic impacts of invasions. We chose the Galapagos Islands, a place well-known to be unique in the study of evolution, as a laboratory to analyze the interactions between invasive and endemic species, to understand the makeup of the ecosystems emerging after invasions have occurred, to describe the relationships of invasives with the people that live in these islands, and to try to develop comprehensive analyses on this topic from multi-scalar and multi-disciplinary points of view. For a long time, the discussion has been about how proper management of the species could achieve two main goals: the eradication of the species to recover affected ecosystems and the conservation of endemic species. The discussion has taken on other nuances, including the suggestion that an invasive species, when it is already adapted to an ecosystem, forms an integral part of it, and thus eradication would in itself go against conservation. On the other hand, some invasive species are not only part of the biological compound of the island ecosystems, but they also form part of the social and cultural history of the inhabited islands. Some of these identified by the local inhabitants are species of real or potential economic value.

Consisting of more than six thousand species, amphibians are more diverse than mammals and are found on every continent save Antarctica. Despite the abundance and diversity of these animals, many aspects of the biology of amphibians remain unstudied or misunderstood. *The Ecology and Behavior of Amphibians* aims to fill this gap in the literature on this remarkable taxon. It is a celebration of the diversity of amphibian life and the ecological and behavioral adaptations that have made it a successful component of terrestrial and aquatic ecosystems. Synthesizing seventy years of research on amphibian biology, Kentwood D. Wells addresses all major areas of inquiry, including phylogeny, classification, and morphology; aspects of physiological ecology such as water and temperature relations, respiration, metabolism, and energetics; movements and orientation; communication and social behavior; reproduction and parental care; ecology and behavior of amphibian larvae and ecological aspects of metamorphosis; ecological impact of predation on amphibian populations and antipredator defenses; and aspects of amphibian community ecology. With an eye towards modern concerns, *The Ecology and Behavior of Amphibians* concludes with a chapter devoted to amphibian conservation. An unprecedented scholarly contribution to amphibian biology, this book is eagerly anticipated among specialists.

Reservoirs are specific aquatic ecosystems and have complex behaviors of both natural lakes and rivers, regulated significantly by their functions such as flood controlling, hydropower generation, irrigation and fishery. This volume offers a general description of reservoir limnology in tropical and subtropical China. It functions as a window opening to all the aquatic scientists with a main focus on reservoirs in southern China and at the same time also covering several important, large reservoirs such as the Three Gorge Reservoir and Danjiangko

Reservoir. Topics discussed are zooplankton, phytoplankton and zoobenthos communities, cyanobacteria, nutrient budget, sediments, biogeochemical cycling of mercury, fishery and eutrophication.

This book presents an up-to-date review of the ecology of yeast communities in natural ecosystems. It focuses on their biological interactions, including mutualism, parasitism, commensalism and antagonistic interactions, and is closely connected with the volume *Yeasts in Natural Ecosystems: Diversity* by the same editors. Yeasts are the smallest eukaryotic organisms successfully growing under a wide range of environmental conditions. They constantly modify the environment through their own metabolic activities. Although yeasts are among the earlier colonizers of nutrient-rich substrates, their role in ecosystem processes is not limited to the consumption and transformation of simple sugars. They also engage in close relationships with animals, plants and other fungi in the environment as mutualists, competitors, parasites and pathogens. This book reviews the diversity of biological interactions and roles of yeasts in ecosystems and summarises recent concepts and tools developed in community ecology. All of the chapters were written by leading international yeast research experts, and will appeal to researchers and advanced students in the field of microbial ecology.

Balancing Ecosystem Values: Innovative Experiments for Sustainable Forestry is a compendium of more than 40 contributions from Asia, Europe, and North America. The theme encompasses experiments implemented at an operational scale to test ecological, social, or economic responses to silvicultural treatments designed to balance the complex set of objectives currently targeted in sustainable forest management. Several invited and plenary papers emphasize the variety of outcomes demanded by the public, as well as the essential role that these long-term studies will play in allowing natural resource managers to make better-informed, science-based decisions. A broad spectrum of silvicultural treatments and systems are covered, as are simulation runs with different types of models and discussion about design challenges for scaling up from stands to landscapes. Diverse forest ecosystems, stand structures and plant, animal, and fungal species are also considered. The conference included 2 days in the field where participants saw several types of the comprehensive field experiments firsthand. The conference concluded with a critique from state, private, and public land managers.

Bat Ecology University of Chicago Press

The Kingdom fungi encompass a massive diversity of taxa with wide-ranging ecologies, life cycles, and morphologies ranging from unicellular aquatic chytrids to large mushrooms. Before molecular methods came in existence, taxonomists considered this Kingdom to be a member of the plant kingdom due to certain life styles like immobility and growth habitats. Molecular markers (also known as DNA markers), facilitated a better alternative method over traditional morphological methods, employed for the identification, characterization, and to

understand the evolution of fungi. The morphological methods used for identification are mainly dependent on spore color or microscopic features whereas molecular markers are based on DNA polymorphism in the genomic organization. Phylogenetic studies reported in last decade, based on molecular markers, have reshaped the classification system of Kingdom fungi, which divided into one subkingdom, seven phyla, and ten subphyla. Recent advances in molecular mycology have opened the way for researchers to identify and characterize novel fungal species from unique environments. Mycology is concerned with the systematic study of fungi, including their genetic and biochemical properties, their use to humans as a source of medicine and food, as well as their dangers, such as poisoning and infections. In the 21st century with the development of DNA sequencing technologies and phylogenetic analysis based on molecular markers, new insights into fungal taxonomy were provided. This book contains a thorough discussion of molecular characterization and detection of different groups of fungi by using PCR-based markers and provides a comprehensive view of the applications and uses of different molecular markers in molecular mycology. It also addresses the recent molecular markers employed to solve the problems of identification and discusses current approaches used in molecular characterization and detection of fungi.

This volume presents the work of researchers at many sites spanning the East African Pliocene. The authors take a broad approach that seeks to compare paleoenvironmental and paleoecological patterns across localities and among various taxonomic groups. This volume aims to synthesize large amounts of faunal data, and to present the evolution of East African vertebrates in the context of environmental and climatic changes during the Pliocene.

Although ecologists have long considered morphology and life history to be important determinants of the distribution, abundance, and dynamics of plants in nature, this book contains the first theory to predict explicitly both the evolution of plant traits and the effects of these traits on plant community structure and dynamics. David Tilman focuses on the universal requirement of terrestrial plants for both below-ground and above-ground resources. The physical separation of these resources means that plants face an unavoidable tradeoff. To obtain a higher proportion of one resource, a plant must allocate more of its growth to the structures involved in its acquisition, and thus necessarily obtain a lower proportion of another resource. Professor Tilman presents a simple theory that includes this constraint and tradeoff, and uses the theory to explore the evolution of plant life histories and morphologies along productivity and disturbance gradients. The book shows that relative growth rate, which is predicted to be strongly influenced by a plant's proportional allocation to leaves, is a major determinant of the transient dynamics of competition. These dynamics may explain the differences between successions on poor versus rich soils and suggest that most field experiments performed to date have been of too short a duration to allow unambiguous interpretation of their results.

Plants face a wide range of environmental challenges, which are expected to become more intense as a result of global climate change. Plant–soil interactions play an important role in the functioning of ecosystems. Soil properties represent a strong selection pressure for plant diversity and influence the structure of plant communities and biodiversity. The complexity of plant–soil interactions has recently been studied by developing a trait-based approach in which responses and effects of plants on soil environment are quantified and modelled. This fundamental research on plant–soil interaction in ecosystems is essential to transpose knowledges of functional ecology to environmental management. *Frontiers in Plant-Soil Interaction: Molecular Insights into Plant Adaptation* will address topics that provide advances in understanding plant responses to soil conditions through the integration of genetic, molecular, and plant-level studies of diverse biotic and abiotic stresses under field and laboratory conditions. This book will be beneficial to students and researchers working on stress physiology and stress proteins, genomics, proteomics, genetic engineering and other fields of plant-soil interactions. *Frontiers in Plant-Soil Interaction* will also help scientists explore new horizons in their area of research. Brings together global leaders working in the area of plant–environment interactions and shares their research findings Presents current and future scenarios for the management of stressors Illustrates the central role for plant-soil interactions in applying basic research to address current and future challenges to humans

One major consequence of climate change is abrupt, dramatic changes in regional biodiversity. Even if the most optimistic scenarios for mitigating climate change transpire, the fate of many wild species rests on the shoulders of people engaged in conservation planning, management, and policy. Providing managers with the latest and most useful climate change research is critical and requires challenging the conventional divide between scientists and managers.

Biodiversity in a Changing Climate promotes dialogue among scientists, decision makers, and managers who are grappling with climate-related threats to species and ecosystems in diverse forms. The book includes case studies and best practices used to address impacts related to climate change across a broad spectrum of species and habitats—from coastal krill and sea urchins to prairie grass and mountain bumblebees. Focused on California, the issues and strategies presented in this book will prove relevant to regions across the West, as well as other regions, and provide a framework for how scientists and managers in any region can bridge the communication divide to manage biodiversity in a rapidly changing world. *Biodiversity and a Changing Climate* will prove an indispensable guide to students, scientists, and professionals engaged in conservation and resource management.

Coverage: 1982- current; updated: monthly. This database covers current ecology research across a wide range of disciplines, reflecting recent advances in light of growing evidence regarding global environmental change and destruction. Major areas of subject coverage include: Algae/lichens, Animals,

Annelids, Aquatic ecosystems, Arachnids, Arid zones, Birds, Brackish water, Bryophytes/pteridophytes, Coastal ecosystems, Conifers, Conservation, Control, Crustaceans, Ecosystem studies, Fungi, Grasses, Grasslands, High altitude environments, Human ecology, Insects, Legumes, Mammals, Management, Microorganisms, Molluscs, Nematodes, Paleo-ecology, Plants, Pollution studies, Reptiles, River basins, Soil, Tundra, Terrestrial ecosystems, Vertebrates, Wetlands, Woodlands.

Ecological morphology examines the relation between an animal's anatomy and physiology—its form and function—and how the animal has evolved in and can inhabit a particular environment. Within the past few years, research in this relatively new area has exploded. *Ecological Morphology* is a synthesis of major concepts and a demonstration of the ways in which this integrative approach can yield rich and surprising results. Through this interdisciplinary study, scientists have been able to understand, for instance, how bat wing design affects habitat use and bat diet; how the size of a predator affects its ability to capture and eat certain prey; and how certain mosquitoes have evolved physiologically and morphologically to tolerate salt-water habitats. *Ecological Morphology* also covers the history of the field, the role of the comparative method in studying adaptation, and the use of data from modern organisms for understanding the ecology of fossil communities. This book provides an overview of the achievements and potential of ecological morphology for all biologists and students interested in the way animal design, ecology, and evolution interact.

'As an undergraduate text [the book] does a superb job of traversing the wide expanse of ecology. Several chapters should be key components of any course on understanding weed ecology.' *Biological Invasions* --

In arid and semi-arid deserts, soils are commonly covered with biological soil crusts. The study of arid biocrusts and their ecological function has become increasingly common in the literature over the last several decades. Interestingly, no mention is made of biological soil crusts in forested ecosystems, raising the question as to whether they exist in these areas and if they do, why they have yet to be recognized as such? Through the use of a parallel logic, this study finds that biocrusts do indeed exist in forests, a novel relationship in forest ecology and seeks to determine if there exist ecophysiological explanations for the abundance and distribution throughout the forest landscape. This study examined the effects of climate variables and substrate types on the abundance, distribution and overall cover of forest soil biocrust at fifty-two sites in southern Oregon, U.S.A. Sites were randomly selected within established buffer zones in the Siuslaw, Rogue-Siskiyou, Umpqua, and Fremont-Winema National Forests. The methods of Belnap et al 2001 were tested and then modified for application in forested ecosystems. Data were collected on the relative abundance and distribution of biocrust morphological groups across available substrates, community biocrust morphology, aspect, elevation and soil texture, pH and organic matter content. Site-specific data on average annual precipitation and minimum/maximum

temperatures was collected using the PRISM Climate Model. This study found substrate colonization by specific morphological groups mixed across the study; though dominant communities were observed for each substrate present, substrate availability appears to be confounded by a number of variables (climate, stand age and structure and litter layer) not controlled for in this study. Biocrust community morphologies varied across sites, primarily influenced by the surface texture of the substrate and morphology of the individual. Relatively smooth surfaces (rock, bare soil) often resulted in smooth biocrust morphologies, whereas rough surfaces (dead wood, bare soil) tended to result in a rolling morphology. Litter layer directly influenced the relative proportion of substrates colonized, notably affecting dead wood and mineral soil biocrusts. Total biocrust cover increased as precipitation increased as did biocrust preference for dead wood substrates while mineral soil remained unchanged and rock surfaces were negatively represented. Aspect generally followed the anticipated distribution of total biocrust cover with the highest cover on N and NW aspects and lowest on the W aspect. Increases in elevation were negatively related to overall biocrust cover. Soil texture was not found to be directly related to overall biocrust cover, attributed in part to the highly adaptive nature of the biocrust community. Soil organic matter (SOM) influenced total biocrust cover with positive correlations between total cover and increasing SOM content. Soil pH increased as expected across the precipitation range (17 to 159 in/yr) of the transect. Total biocrust cover was found to trend with soil pH, but is believed to be attributed to the parallel relationship between precipitation and pH, rather than pH alone given the relative moderate pH range (4.39 to 6.54) of the study. The distribution and abundance of forest soil biocrusts is strongly influenced by precipitation. The confounding influence of precipitation to litter layer depth and organic matter content (through gradients of vegetative productivity) and soil pH further are concluded to influence substrate preference by morphological groups. Across the variables examined, similarities between the two communities (arid and forest) in response to climate and soil chemistry show parallel relations, justifying the formal establishment of biological soil crust community in forested regions. The differences between communities related to the presence of trees validate the establishment of forest soil biocrusts as distinct community in both form and ecological function with the forests.

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