

FOREWORD

This issue of the Revista Chilena de Historia Natural is a collection of articles resulting from the presentations given at an International Workshop held at the Universidad de La Serena, La Serena, Chile, in October 1991: "Desertification: a landscape-ecosystem perspective". The interest and commitment of a number of Chilean scientists in developing a long term ecological research program in the arid and semiarid regions focused on desertification led to this workshop. Several scientists at New Mexico State University in collaboration with ecologists from several other North American universities have been involved in long term research on desertification. That program focuses on the hypothesis that desertification has changed a previously relatively uniform distribution of water and nutrients to a heterogeneous distribution. The result of this re-distribution of water and nutrients is a shift from a grass dominated system to a woody shrub dominated system. The woody shrub system appears to be stable. While shrub systems may have net primary production as high as that of grasslands that production is not in a form readily used by domestic livestock, hence productivity is perceived to have decreased. There is evidence that the remaining grass dominated areas are in a transition state moving towards shrubland.

Most work on desertification has focused on symptoms rather than on causal agents and the ecological processes that change during desertification. The US ecologists nominated to be participants in this workshop, have focused their diverse backgrounds and knowledge on these ecological processes. It is our contention that such complex problems require the efforts of an *interdisciplinary team* in order to adequately address the problem. This perception is also shared by the group of Chilean ecologists nominated as participants in this workshop.

The major goals of the workshop were: 1) To introduce the Chilean scientists the conceptual framework developed by the US Long Term Ecological Research (LTER) group, 2)

to analyze the state of art on ecological research carried out in the Chilean arid zone, 3) to assist Chilean ecologists in the organization of their long term ecological research, 4) to discuss the mechanisms of establishing training programs for graduate students at US institutions focused on those research areas on arid ecosystems not currently being investigated in Chile, 5) to explore sites for a future permanent field station to establish long term studies of Chilean desert ecosystems, and 6) planning future joint research projects between US and Chilean scientists.

During the workshop we tried to keep a balance between formal sessions and informal interactions in the field. Our past experience on conferences and workshops have showed us, that the most successful and of enduring value are those in which there is a minimum of formal presentations and formal sessions and a maximum of informal interpersonal and group interaction. Therefore, we visited the experimental stations set up at Lagunillas and Parque Nacional Fray Jorge, IV Región, Chile. This allowed us to discuss some of the field experiments being carried out by Chilean ecologists in collaboration with US ecologists. We had a trip from La Serena (30°S) to Vallenar (28°S) to observe the blooming of the desert. Fortunately, after three years of drought, 1991 was a rainy year in the Chilean desert. Two days were programmed for formal presentations. We asked the participants to present idea-oriented rather than data based presentations. Most of the original presentations were enriched by discussions during the formal presentations and/or field activity. We expect that the present collection of papers reflects the conceptual framework developed during the workshop. Three of the participants (Gary L. Cunningham, Wesley M. Jarrell, and Mary T.K. Arroyo) did not send their contributions because they had been published elsewhere. Presentations of the geographers Hugo Bordini and Enrique Novoa were not included because their subjects were beyond the scope of the Revista Chilena de Historia Natural. We hope that this collection of papers

may become a rich source of ideas, innovative views, and questions for future studies on desertification.

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