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Long-term monitoring and experimental manipulation of a Chihuahuan Desert ecosystem near Portal, Arizona, USA

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S. K. Morgan Ernest,[1,4] Thomas J. Valone,[2] and James H. Brown[3]

[1]*Department of Biology, Utah State University, Logan, Utah 84322 USA*
[2]*Department of Biology, Saint Louis University, Saint Louis, Missouri 63103 USA*
[3]*Department of Biology, University of New Mexico, Albuquerque, New Mexico 87131 USA*

Abstract. Desert ecosystems have long served as model systems in the study of ecological concepts (e.g., competition, resource pulses, top-down/bottom-up dynamics). However, the inherent variability of resource availability in deserts, and hence consumer dynamics, can also make them challenging ecosystems to understand. Study of a Chihuahuan desert ecosystem near Portal, Arizona, USA, began in 1977. At this site, 24 experimental plots were established in 1977 and divided among controls and experimental manipulations. Experimental manipulations over the years include removal of all or some rodent species, all or some ants, seed additions, and various alterations of the annual plant community. While some of these manipulations were discontinued early on, others (i.e., ant and rodent manipulations) have been maintained throughout the study. Monitoring of the composition and abundances of ants, plants, and rodents has occurred continuously on all 24 plots. From 1977 to 2002, individual-level data on rodents (i.e., species, sex, size, reproductive condition) were collected monthly for each plot. From 1983 to 2002, the species-level abundances of plants were sampled on permanent quadrats. From 1977 to 2002, the species-level abundance of ant colonies was recorded for each plot, and from 1988 to 2002 additional information on ant abundances were recorded. Finally, from 1980 to 2002 we recorded precipitation at the study site.

These data have been used in a variety of publications documenting the effects of the experimental manipulations as well as the response of populations and communities to long-term changes in climate and habitat. Sampling is ongoing and this database will be periodically updated.

Key words: *ants; Chihuahuan Desert; LTREB data; plants; rodents.*

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[4] E-mail: morgane@biology.usu.edu