

Arthropod Populations At 3 Golden Gate Habitats Compared

French broom, an exotic shrub, has invaded native coastal scrub and grassland communities of the Golden Gate National Recreation Area (GGNRA). This plant is aggressive and very successful, forming dense, monospecific stands, which threaten the park's natural plant diversity. A field study was conducted to compare the arthropod fauna (insects and arachnids) in three different plant communities within GGNRA: coastal scrub, grassland, and French broom.

Arthropods were sampled in pitfall traps over a period of four days in mid-July 1991, during which 16,374 arthropods were collected from 36 traps. The dominant organism in both scrub and grassland habitats was the exotic Argentine ant. Only three other species of ants were collected. It is possible that the Argentine ant has displaced the native ant fauna and thereby indirectly threatens the endangered Mission Blue butterfly, which has a symbiotic relationship with some native ant species. This situation warrants further study.

The diversity of native arthropods (calculated using the Shannon-Weiner index) was highest in scrub, followed by grassland, and finally broom. In fact, it was shown that the invasion of French broom into native plant communities decreases the diversity of native arthropods by 1/3. Most species of arthropods found in broom also are found in either scrub or grassland in substantial numbers, so removal of broom does not threaten their populations. However, other species, such as spiders, beetles, and wasps, may be directly threatened by the spread of French broom.

Areas within the park that have been invaded by French broom are undergoing restoration by removal of broom and revegetation with native species. The results of this study will provide park resource managers with baseline data that previously were unavailable and will contribute to restoration and management of native communities.

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