
letters

After reading the article on the design of nature reserves by Quinn, van Riper, Karban, Robinson and Harrison in the last issue of *Park Science*, I felt it important to comment on several aspects of their study. The question of reserve size is very important, particularly in tropical and developing countries. We therefore have to be careful in our design of studies and in our evaluation of their results.

Quinn et al may not be realistically approaching the problem with their small study plots in a sheep pasture. A 2 m² plot is much smaller than any normal reserve design and is really analyzing diversity patterns at a very local scale. The authors seem to be rediscovering a well-known phenomenon in plant ecology – that a series of small plots scattered across a site will contain more species than a single large plot of the same total area. A second problem with this aspect of the study is their use of grassland. Many grassland species are good invaders and are disturbance tolerant, as are the marine intertidal organisms of their second experiment. It remains to be seen if they are replicating the processes of isolation that influence larger preserve areas or if the types of organisms are representative of extinction prone species.

Quinn et al are closer to reality in their investigation of islands and of actual national parks, but there are also some problems here. They do not seem to consider the difference between comparing a series of small parks that are in the same region with a large park from the same area and comparisons that are between regions that may have widely differing patterns of diversity and habitats. The example of combining Redwoods, North Cascades and Big Bend and then comparing it to Yellowstone is totally unfair because the former three parks are from such different zoogeographic areas and one automatically will increase diversity by summing checklists of parks from different regions. A more realistic question is: if Yellowstone were 25 percent of its present size or did not occupy the entire basin, how many species of large mammals would it support?

Ron Miller, Peter White and I recently sent a manuscript to *Biological Conservation* (its fate is still unknown) that suggests for rare plants in the Southern Appalachians a series of small preserves is less expensive per species preserved, but is probably not as biologically desirable as a large core reserve surrounded by a selected group of smaller reserves. The models were constructed not just with species lists but also with distribution data. Although I think the work of Quinn et al will make a valuable contribution to our understanding of biogeographic processes, they need to be cautious about drawing conclusions about patterns on one scale from data collected at another.

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Editor's Note: A fuller treatment of the Bratton/Miller/White work in this area will be carried in the Spring 1986 issue of Park Science.