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The Natural Reserve System: the University's uncut diamond

Among the programs included in the University of California's Division of Agriculture and Natural Resources is the Natural Reserve System. This system was founded on the premise that nothing can replace direct observation of organisms and natural environments in the field. Indeed, many phenomena can only be studied in the field. The ecological diversity of the California landscape gives both faculty and students an unmatched opportunity to field-test hypotheses and to study and observe natural phenomena that cannot be duplicated in a classroom or laboratory.

Realizing that this invaluable educational resource could one day be lost to the inroads of development, the Regents of the University established the Natural Reserve System in 1965 to serve as "living laboratories" for field teaching and research. The 26 existing reserves acquired over the years by gifts, purchases (using non-State funds), leases, and use agreements, constitute an ecosystem library of California's natural diversity and are available to any qualified student or researcher worldwide.

The reserve system plays a vital role in both teaching and research. For teachers of field science, the University reserves are outdoor classrooms: sites where they can point out natural rules and relationships. Then the students can experience for themselves the profound learning that comes from direct and disciplined observation. This year we expect more than 4,000 students from throughout California to use the reserves.

In research, the reserves are as important to field scientists as the campus laboratory is to the chemist or medical researcher. Unlike campus laboratories, the reserves cannot be rebuilt if they are destroyed; they are irreplaceable ecosystems, each millions of years in the making. Some of the reserves have on-site personnel, housing, and sophisticated equipment that have enabled scientists to work efficiently and productively in the field. To date, more than 2,100 professional publications have been produced by workers in this relatively young system.

The Natural Reserve System focuses on habitats that are largely undisturbed, and it may seem incon-

gruous that it is housed under the same roof with agriculture which, of course, focuses on habitats that are intensely manipulated. There is a strong logic behind this seeming incongruity, however: one system learns from the other.

One need only recall the problems with agricultural drainage to Kesterson Wildlife Refuge to realize that natural areas are not isolated from the effects of agricultural production. But in addition, the reserve system is important to the long-term development of California agriculture. The reserves contain species, such as wild strawberries, that are critical storehouses of genetic variation needed for the improvement of their cultivated relatives. Some reserves, especially our desert examples, contain plant species that hold promise as future sources of petroleum substitutes and compounds of pharmaceutical interest. Ecological processes on the reserves, such as nitrogen cycling and predator-prey interactions, may also give us insight into the development of production practices that may make agriculture both less demanding on expensive inputs and less threatening to natural systems. The Natural Reserve System is thus not only an important natural laboratory for teaching and basic research, but it is also a valuable resource for agriculture.

To many people, the existence of the Natural Reserve System may be a revelation in itself. The system has kept a low profile as it concentrated on acquiring and protecting key habitat types before they disappeared to development. Now the emphasis is shifting to the management and protection of the existing reserves and to improved communication of what the reserve system has to offer.

I invite those of you interested in learning more about this uncut diamond to contact me or the Director of the Natural Reserve System. We would welcome your support in bringing this important natural resource program into its full luster and realization of its potential.