depending upon the rate of expansion of water use in the Valley.

In the last 10 to 15 years, Valley water users have realized the seriousness of the overdraft situation, but only small gains have been made toward a solution to the problem.

Recharge volumes of water available in the Valley each year are not sufficient to support intensively cultivated irrigated agriculture at even one third the present acreage levels.

Zoning ordinances to protect and promote certain types of land use and to restrict other types to conserve the ground-water stock resource may be feasible for the Valley, but even if such ordinances were adopted, water levels would continue their decline although at slower rates.

Los Angeles County did attempt to zone the Valley to prevent the drilling of new wells in 1944. The ordinance was a temporary urgency measure designed to prevent additional overdraft while a comprehensive land use or conservation plan could be prepared. Public pressure and the insecure legal basis of the ordinance combined to effect its repeal after only a year's enforcement. No reduction in overdraft was observed during this period. No subsequent action has taken place.

A new experiment in the fight against overdraft originated in the Orange County Water District in 1953. Passage of legislation permits both an ad valorem property tax and an annual pumping levy to be used to buy water from the Metropolitan Water District and use it to recharge the depleted ground-water reservoir. The tax and levy structure is designed to protect nonfarm property owners from subsidizing payments for water necessary to eliminate annual overdraft induced by farmers. The cost of this program is within reasonable range for the individual farmer, and payment is in proportion to the amount of ground-water used.

With certain modifications, a similar plan could be adopted for use in Antelope Valley, provided a firm water supply was available at prices Valley farmers could afford. Specific measures to combat overdraft may be seriously hampered by initial resource imbalance and economic pressures dictating resource depletion rather than conservation.

Without some effective plan to import additional water, the ground-water stock of the Valley can be conserved, but overdraft will continue.

Barring imported water, long-run overdraft will continue in Antelope Valley until economic pressures force a balance between recharge and draft.

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California Insects

survey provides accurate data for study of state's insect problems

Paul D. Hurd, Jr.

Insects of economic importance in California—whether native or introduced—have often been studied with almost complete disregard for their relationship to other insect species, largely because of the immediacy of a specific problem.

However, exploration by entomologists of the central problem of biology—the mechanism of evolution—has demonstrated that there are a number of general underlying principles to be obtained from an analytical study of related insect species. These studies, while still too few, have shown that an organism is able to live—or thrive—only in portions of the total environment where it can meet the requirements of its livelihood. There are, however, many instances where insect species are able to survive in artifically created environments—such as those insects, for example, which have developed resistance to DDT.

California—because of its geographic location and topographic diversity—contains several districts with definite differences in their insect populations. Some of the insects are more important, economically, than others. However, there is no assurance that one group of insects will not become economically important as the environmental conditions of another group of insects undergo change.

The motivating reason for undertaking an insect survey in California by the University of California was to make known the relationships among insect species so that problems relating to agriculture, forestry—and medicine—within or adjacent to the State may be approached from a fundamental and realistic viewpoint.

The objectives of the insect survey in California are: *1*, to critically explore the extent and nature of insect life of California; *2*, to obtain information on the geographic ranges, distributions, and ecologies—environmental conditions—of California insects; *3*, to maintain a research-survey collection which will reflect the nature of California insect life and provide the basis for analytical and evaluational studies; and *4*, to make this information readily avalable to researchers working on associated agricultural problems.

From 1940 to 1947, survey activities centered about the accumulation of insect specimens, with data from various districts of California. Since 1947, a basic research collection in the principal orders of insects has been available to and used by specialists in institutional, state, and federal agencies.

Considerable additional information is needed on the distribution and ecologies of California insects to clarify some of the problems of identification, distribution, host relationships, economic importance, and other related problems.

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The above progress report is based on Research Project No. 1205.

The Bulletin of the California Insect Survey, containing detailed information on the distribution and ecology of insects in California, is available by addressing a request to the Department of Entomology, University of California.

Map showing distribution of insects attacking forest products—*shaded areas*—and of insects attacking other commercial crops—*white areas*.