PROJECT LIST-6:12 copy

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RESEARCH SUMMARY (Since 1956)

1) Foraging Ecology of Feral Honey Bee Colonies. European honey bees were first brought into California in 1853, commercially into Ventura County in 1875, and onto Santa Cruz Island about then ó they later expanded their range and out-competed native bee species over most of that island. For the last decade, our studies of honey bee foraging ecology accompanied efforts as we eradicated that exotic species from the island.

2) Varroa Mite Impact on Colonies in a Region. After a programmed introduction of varroa mites on the eastern half of Santa Cruz Island, we followed the demise of colonies ó both on the eastern half and western half (where no mites had been introduced). Two full years passed before any colonies perished. Two more years elapsed before all known colonies had died. We tallied no swarms during subsequent years. Eleven years passed after varroa introduction before we could no longer find any honey bees on the island (last seen in late July 2004).

3) Honey Bee Recruitment to Food. The well-known honey bee "dance language" hypothesis fails to explain an ever-expanding body of experimental results. We found that a modified 1937 von Frisch alternative "odor-search" hypothesis for recruitment of honey bees to food sources has far more practical application. The honey bee DNA genome analysis results also contained no support for dance language. Colonies obviously forage as units, with interchange between individuals within the colony incidental to the average distance that bees range. Although bee scientists have neglected the role of wind direction this last half century, wind does influence colony foraging patterns to a marked degree. See: HYPERLINK "http://www.beesource.com/point-of-view/adrian-wenner/read-me-first/" http://www.beesource.com/point-of-view/adrian-wenner/read-me-first/

4) Island Biogeography. The Northern Channel Islands chain off the coast of Santa Barbara, earlier considered a former peninsula of the Santa Monica Mountains, more nearly resembles a "miniature Galapagos." Our work revealed that the land vertebrates on those islands closely match the depauperate fauna one would expect from "oceanic islands" rather than from land-bridge type islands.

5) Philosophy, Sociology, and Psychology of Science. Experience with controversial issues has permitted a deep insight into the workings of science. A resultant book, Anatomy of a Controversy (Wenner and Wells, Columbia University Press, 1990), uses events that occurred during the dance language controversy as a thread to tie together different attitudes toward scientific process.

6) Biology of Monarch Butterflies. The life history of monarch butterflies in Santa Barbara suggests that the large overwintering aggregations along the South Coast are composed primarily of California raised individuals. An alternative hypothesis, that of range expansion from overwintering coastal populations in the spring and range contraction in the fall, competes well with the previous "directed" long distance migration (navigation) hypothesis.

7) Crustacean Growth and Reproduction. We have studied sand crabs along the California coastline, in Hawaii, at Enewetak Atoll, and in the Gulf of California. Their relative growth rates and egg production reflect their "well-being" and led to their use as "biomonitors" or "indicator species" in the environment. Sand crabs living near the San Onofre Nuclear Power Station, for example, did not fare well (e.g., eggs ruptured soon after extrusion near that plant).

8) Mammoth Elephants and Early Man. Did early Indian arrivals in North America feed upon the dwarf mammoth elephants on the Northern Channel Islands? Our geological investigations revealed that many of the red earth areas earlier believed to be Indian fire pits are instead soil oxidized around organic nuclei.

9) Environmentally Safe Pest Control. Cooperation with Nature yields more lasting benefits than direct confrontation. A book, Tiny Game Hunting: Environmentally Healthy Ways to Trap and Rid Pests from Your House and Garden (Klein and Wenner, Bantam, 1991 ó Australia/New Zealand edition, 1993) contains helpful hints on how to work with Nature in the control of pest species. (Revised 2001 edition ó University of California Press.)

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