

## Scientific Support for Habitat Conservation Planning in the Pacific Southwest

The habitat conservation planning process is administered by the U.S. Fish and Wildlife Service under their authorities designated by the Endangered Species Act. Non-federal property owners wishing to conduct activities on their land that might result in the incidental take of a listed species must first obtain an incidental take permit from the U.S. Fish and Wildlife Service. To obtain a permit, the applicant must develop a habitat conservation plan (HCP), designed to offset any harmful effects the proposed activity might have on the species.

HCPs, particularly the growing number of plans that cover large geographic areas and multiple species and habitats, address a complex array of ecological issues. The scientific information that underlies these plans must be reliable and thorough.

Scientists at the Western Ecological Research Center (WERC) are making important contributions to the scientific foundations upon which HCPs are developed and analyzed. They collect field data on the biology of the species in question, the habitat, and the ecological processes that provide suitable conditions necessary to maintain self-sustaining populations for individual species such as the desert tortoise, and for groups of species such as waterfowl and marine mammals.

Every conservation planning effort requires that the configuration of reserve areas is suitable for sustaining



The orange-throated whiptail, protected through an HCP. Photo: C. Brown

### Primary Areas of Scientific Support:

- Ecological field data
- Reserve design
- Impact analysis
- Ecological monitoring
- Planning and decision support

the species in question. Research efforts by WERC scientists in this area address restoration of disturbed habitats and evaluation of scenarios to enhance habitats.

Center scientists are conducting research to better understand how limiting factors may be influencing declining species and what can be done to mitigate such impacts. Examples include discovering the impacts and distribution of invasive species and controlling disease outbreaks in migratory birds.

Monitoring data are needed to ensure biological goals and objectives of HCPs are being met. WERC scientists employ special expertise in sampling design and knowledge of sampling and data analysis techniques suited for individual species or groups of species for projects such as the CALFED program.

Current technology such as geographic information systems, remote sensing, and simulation modeling have enabled greater insight into conservation requirements and opportunities, especially from the broader geographic view that the large HCP efforts require. Efforts at WERC are ongoing to develop a computer-based framework for incorporating biological data, socio-economic data, and optimization modeling to support the assessment and visualization of conservation plan alternatives.

### For more information, contact:

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