



CURRICULUM VITAE: WILLIAM E. HAAS

PROFESSIONAL SUMMARY

With a richly varied background spanning more than 40 years of field and museum experience in species identification and the design and practice of general vertebrate field studies-including pitfall trapping (for reptiles, amphibians, and small mammals); mist netting (for birds and bats); SonoBat, Anabat, and radar-based surveys (for birds and bats); and small mammal live trapping-Haas is now responsible for the planning and implementing long-term management and population monitoring of numerous conservation properties, perpetual management areas, wildlife preserves, and military installations. He has developed additional expertise in preparing baseline assessments and developing long-term monitoring plans, writing management plans, preparing property analysis records (PARs), and authoring conservation easements for preserves and other mitigation lands in addition to supervising a staff of biologists who conduct biological studies and field research in California, Nevada, Arizona, and New Mexico.

Between 1972 and 1984, Haas spent more than ten years abroad studying the ecology and natural history of tropical avifauna and herpetofauna in Mexico, the Greater Antilles, and Central America. Since relocating to the U.S. in 1984, his studies have focused on several of southern California's rarest, most sensitive species. Considered an authority on the biology and ecology of federal endangered southwestern willow flycatcher (*Empidonax traillii extimus*), the federal threatened California gnatcatcher (*Polioptila californica*), and the federal endangered arroyo toad (*Anaxyrus californicus*), in 2003 Haas founded the Pacific Coast Conservation Alliance, a public benefit 510(c)(3), that is dedicated to the study of endangered and threatened species of the western United States as well as the conservation and preservation of the lands and habitats in which they reside.

EDUCATION

BA Biology; Harvard College, Cambridge, Massachusetts
MA EMST; University of California, Berkeley, California

PERMITS

U.S. Fish & Wildlife Service Permit TE-779910 to survey, locate, and monitor nests and color band Coastal California Gnatcatcher and Southwestern Willow Flycatcher; to survey, locate and monitor nests of Least Bell's Vireo; to capture, mark (PIT tag), and release Arroyo Toad.

U.S. Geological Survey Master (Bird) Banding Permit #22761

California Department of Fish & Game Permit #801015-07 to capture for study by mean of pitfall traps, live traps, mist net, or other methods reptiles, amphibians, mammals and birds in San Diego, Imperial, Riverside and Orange Counties.

CURRENT POSITIONS

I. Senior Biologist, Aspen Environmental Group: Responsible for conducting field surveys for endangered and threatened species; the design, development, and critique of biological field studies; and evaluating the effects of projects (both construction and operation) on common and

sensitive wildlife. Mr. Haas has specific experience evaluating the effects of large scale energy and infrastructure projects including solar, electrical transmission, and water storage.

II. Founder and Executive Director of the Pacific Coast Conservation Alliance (PCCA), a 501(c)(3) (non-profit) corporation: Responsible for the design and practice of field studies of endangered and threatened species in order to further their survivorship; management of conservation lands in an environmentally and biologically sound manner; and the design and all support services involved in developing wildlife and open space preserves, including performance of baseline surveys; authorship of preserve documents; determination of in-perpetuity management needs and costs, and investment of endowment funds.

RESEARCH POSITIONS

I. Curatorial Assistant, Departments of Herpetology and Ornithology, Museum of Comparative Zoology, Harvard University, Cambridge, MA (1971 – 1976)

II. Research Associate, Departments of Herpetology and Birds and Mammals, San Diego Natural History Museum, Balboa Park, San Diego, CA (1996 – 2005)

RESOURCE ASSESSMENT

San Diego River Watershed, San Diego County, California

Principal investigator for 6-year study of the effects of water release regimes on the federal endangered arroyo toad and the California species of special concern Coast Range newt (*Taricha torosa torosa*) for the Helix Water District. The study design incorporated studies within control and impact regions within the watershed to assess the effects of water release regimes that differed in every year of the study. Study components included not only surveys for focus species but also water sampling (flow rates, dissolved oxygen content, determination of sediment quotients, changes in temperature, etc.), documenting effects of feral swine, and sensitive species surveys as warranted in accordance with study area habitats. The study purpose was to determine not only the effects of water releases on the focus species but also to determine best management practices including optimum release regimes as well as appropriate mitigation and adaptive management strategies when applicable. (2005 – 2011)

Ocotillo Wells/Salton City, Imperial County, California

Designer and Principal Investigator for an intensive study of the avifauna at the 15-section Freeman Ranch (aka Truckhaven Hills) property on behalf of the California Department of Parks and Recreation, Ocotillo Wells State Vehicle Recreation Area. The study was designed to document avian occurrence during four important periods: Winter, spring migration, breeding season, and fall migration. Responsibilities were to implement a statistically defensible study design that could evaluate species occurrence; species richness, abundance, and other measures of diversity; and population densities in order to determine and assign relative wildlife value of each of the 15 sections. Focus species within the study scope included the burrowing owl (*Athene cunicularia*) and the Le Conte's thrasher (*Toxostoma lecontei*). (2008 - 2009)

Marine Corps Air Station Miramar, San Diego County, California

Designer and Principal Investigator for the station-wide study to determine the distribution and population density of the California gnatcatcher on the 24,000-acre Marine Corps Air Station. Supervising a staff of four biologists, the effectiveness of the survey was the result not only of a rich knowledge of the species and its historic occurrences on the station but also a high level of

familiarity with the station, its history and operations (including recent fire history), its habitats, and its geomorphology. (2009)

Marine Corps Air Station Miramar, San Diego County, California

Principal Investigator and Design Coordinator for Miramar's long-term ecosystem monitoring program. Designed and implemented the initial (baseline) assessment and monitoring program in 1998-1999 to investigate impacts of military training on natural lands. Responsible subsequently for database management, design updates, and implementation of the bird, reptile, amphibian, small mammal, large mammal, and bat study components including the development of diversity assessment and updating of monitoring methods; choosing study sites; establishing and writing repeatable protocols; and instruction and supervision of field personnel. Sixteen trapping locations were established for the fixed trap location reptile, amphibian, and small mammal study components. An additional 80 use area grids were established to study bird occurrence, population densities, and diversity. The monitoring project focuses on comparisons between use area and control sites throughout the Air Station to document vertebrate population trends over an extended time period as they relate to the training mission and natural resource management responsibilities at the Marine Corps Air Station. (1998 - 2009)

Indian Canyons, Palm Springs, Riverside County, California

Designer and Principal Investigator for a 3-year study of riparian birds in the Agua Caliente Reservation Indian Canyons Preserve to a) assess occurring sensitive desert riparian bird species and b) to prepare a simple predictive model of habitat use in order to facilitate management of tribal lands. Designed and implemented the initial (baseline) assessment and monitoring program (1998-1999) to investigate impacts of military training on natural lands. Responsible for design and implementation of bird, reptile, amphibian, small mammal, large mammal, and bat study components including the development of assessment and monitoring methods; choosing study sites; establishing and writing repeatable protocols; and instruction and supervision of field personnel. The monitoring project focuses on comparisons between use area and control sites throughout the Air Station to document vertebrate population trends over an extended time period as they relate to the training mission and natural resource management responsibilities at the Marine Corps Air Station. (1998 - 2009)

San Pasqual Valley, San Diego County, California

Principal Investigator for a multi-organization study of the Southern Cottonwood Willow Riparian Forest and associated uplands for the City of San Diego, the Joint Powers Authority, and the San Dieguito River Park. Focus of the study was the assessment of occurrence and development of a habitat management plan that addressed the conservation of the least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher, yellow-breasted chat (*Icteria virens*), and arroyo toad as well as control of the nest parasite brown-headed cowbird (*Molothrus ater*). Management issues include compatibility of wildlife with existing agriculture, mineral extraction, and proposed trail construction. Additional studies included the evaluation of a proposal to remove the invasive exotic giant reed (*Arundo donax*) from Santa Ysabel and Santa Maria Creeks. (1998 - 2005)

San Diego County, California

In addition to conducting more than 100 one-day surveys in support of the San Diego County Bird Atlas at a broad assortment of locations and habitats, from the Pacific coast to the Anza-Borrego desert, I was responsible for designing and overseeing the owl survey component of this 5-year study. The atlas project (Unitt 2004) is one of the most comprehensive survey efforts relating to the natural history and distribution of North American birds. As a result, I was also responsible for authoring or co-authoring several of the species accounts including those for the long-eared owl

(*Asio otus*), spotted owl (*Strix occidentalis*), willow flycatcher, California gnatcatcher, black-throated gray warbler (*Setophaga nigrescens*), and Cassin's vireo (*Vireo cassinii*). (1997 – 2003)

San Felipe Valley, San Diego County, California

Principal Investigator and Design Coordinator for the bird, reptile, amphibian, small mammal, and bat components and co-principal investigator for mammal studies for the baseline assessment project of the California Department of Fish and Game in San Felipe Valley, San Diego County. The study sites included one 400-acre and one 750-acre parcel in possibly the most important overland avian migratory route in San Diego County as well as an area of intergrade for numerous coastal, desert and montane vertebrate species. The studies are based on data gathered from pitfall trap, small mammal live trap, mist-netting, and Anabat studies as well as visual encounter surveys. Responsibilities include data collection, subsequent development of management plan relating to recreational (e.g., hunting, hiking trails), and protection of biological resources (focusing specifically on the state-listed Species of Special Concern). (1998 - 2002)

Naval Air Station Miramar, San Diego, California

Study designer and Principal Investigator for a three-year station-wide (24,000-acre) reptile and amphibian survey investigating reptile and amphibian use of major habitats present on the Naval Air Station with special emphasis on vernal marsh, southern coast live oak riparian forest, and coastal sage scrub associations. Target species for intensive studies included three California Department of Fish & Game species of special concern: western spadefoot (*Spea hammondi*), orangethroat whiptail (*Aspidoscelis hyperythra*), and coast horned lizard (*Phrynosoma coronatum*). The overall goal of the study is to provide the Department of the Defense (U. S. Marine Corps) with information about comparative population densities of each resident species by habitat in order to facilitate future planning and land use on the station. (1995 to 1998)

Mission Trails Regional Park/Camp Elliott, San Diego, California

Supervising Biologist for a 5-year ordnance removal project - a joint venture between Mission Trails Regional Park, the City of San Diego, and the Army Corps of Engineers. Responsible for writing and implementing Biological Monitoring Protocols and the Field Safety Program for the first ordnance removal project conducted on non-federal lands in the U.S. Responsibilities included oversight of four biological monitors; sensitive species surveys and monitoring of 10 sensitive and/or listed plants and animals - including the federal endangered San Diego mesa mint (*Acanthomintha ilicifolia*), federal endangered least Bell's vireo (*Vireo bellii pusillus*), and federal threatened California gnatcatcher - during ordnance search and removal; and phasing of activities to maximize avoidance of impacts to sensitive species. (1990 – 1995)

Note: Complete (extensive) list of all, especially smaller scope, limited-effort, and short-term surveys and projects, are not included in this summary but may be made available on request or as necessary.

LONG-TERM ENDANGERED/THREATENED SPECIES RESEARCH

- CALIFORNIA GNATCATCHER (FT, CSSC)

1990 to present – Responsible for numerous long-term gnatcatcher studies to address habitat use, (meta-) population size changes, and response to wildfire by means of capture and color-marking as well as intensive, multi-observer survey techniques. Studies included focused data collection to assess the effects of noise on gnatcatcher breeding success, factors affecting and the timing of juvenile dispersal, large-scale movements of individuals, and more intricate studies to determine whether gnatcatchers move between established reserves; within and through inland archipelagos

of preserved lands; and their ability to cross major thoroughfares including a major interstate highways. Supporting these study goals were repeated surveys of large areas supporting the species including the Lakeside Archipelago (Lakeside, CA), 24,000-acre air station at Miramar (San Diego, CA), portions of Marine Corps Base Camp Pendleton (Oceanside, CA), and the 8,800-acre Seal Beach Naval Weapons Station Detachment Fallbrook (Fallbrook, CA).

- **ARROYO TOAD (FE, CSSC)**

1992 to Present - Conducted intensive research on the activity cycle and habitat use of the Arroyo Toad throughout its range and especially in San Diego County, California. Major contributions to the knowledge of this species' natural history and ecology include the first documentation of non-aquatic thermoregulation in adults of a nocturnal member of the family Bufonidae; documentation of rain-induced year-round activity periods; the relationship between soil composition, soil moisture content, and Arroyo Toad upland habitat use leading to the development of upland (non-breeding) survey methods; and an approved relocation protocol for U.S. Fish and Wildlife Service. Peer review of arroyo toad survey protocols and critical habitat designations for U. S. Fish & wildlife Service.

- **SOUTHWESTERN WILLOW FLYCATCHER (FE, CE)**

1993 to present - Principal Investigator and study design for the longest continuous ecological study of the southwestern willow flycatcher in the United States. Studies include monitoring the largest and most stable population of southwestern willow flycatchers in the state of California. The focus of Haas' work is the documentation of the flycatcher's population trends; breeding biology and ecology; and effects of activities occurring within and along the river bottom and closely associated uplands of the upper San Luis Rey River, San Diego County, CA. The study site is home each summer to a population of between 42 and to 51 pairs of this endangered flycatcher. Major contributions to the species survivorship include the development of a safe method of color marking to facilitate long-term study of the species, which led to the discovery of the significant differences between males and females of the species not only with respect to behaviors but also to habitat use and partitioning with significant implications to habitat restoration and recovery guidelines. Contributor and reviewer for the initial U. S. Fish & Wildlife Service-approved willow flycatcher survey protocol.

RELEVANT PUBLICATIONS and REPORTS

Campbell, K. F., R. A. Erickson, W. E. Haas, and M. A. Patten. 1998. California Gnatcatcher use of habitats other than coastal sage scrub: Conservation and management implications. *W. Birds* 29:421-433.

Haas, W. E. and K. Fischer. 1999. An improved method of preparing small color bands. *N. Am. Bird Bander*. 24:42-43.

Haas, W. and K. Campbell. 2003. Report of Coastal California Gnatcatcher Juvenile Dispersal across Interstate-8 at the MSCP Southern Lakeside Archipelago Lands San Diego County, California. Varanus Biological Services/Campbell BioConsulting Report prepared for: County of San Diego Department of Parks and Recreation. June.

Haas, W, and L. Hargrove. 2003. A solution to leg band injuries in willow flycatchers. *Studies in Avian Biology*, Cooper Ornithol. Soc., Lawrence, KS.

- Haas, W. E. 2004. Long-eared Owl (*Asio otus*), in San Diego County bird atlas (P. Unitt, ed.), pp. 291–293. Proc. San Diego Soc. Nat. Hist. 39.
- Haas, W. E. 2004. Black-throated Geay Warbler (*Dendroica nigrescens*), in San Diego County bird atlas (P. Unitt, ed.), pp. 291–293. Proc. San Diego Soc. Nat. Hist. 39.
- Haas, W. E. 2004. Cassin's Vireo (*Vireo cassinii*), in San Diego County bird atlas (P. Unitt, ed.), pp. 291–293. Proc. San Diego Soc. Nat. Hist. 39.
- Haas, W. E. 2004. Spotted Owl (*Strix occidentalis*), in San Diego County bird atlas (P. Unitt, ed.), pp. 291–293. Proc. San Diego Soc. Nat. Hist. 39.
- Haas, W. 2006. Results of Riparian Bird Breeding Census and habitat modeling in the Indian Canyons of the Aqua Caliente Indian Reservation, Palm Springs, Riverside County, California. 33pp
- Haas, W. and I. Quon. 2008. Importance of second nests following a catastrophic weather event: Evidence of colonial behavior in Southwestern Willow Flycatcher (*Empidonax traillii extimus*). W. Birds.
- Haas, W. E. 2010. Baseline bird surveys of the Property, Ocotillo Wells, California. Report prepared for California Department of Parks and Recreation Ocotillo Wells SVRA under agreement C0754015. 28pp.
- Haas, W. E. 2010. Distribution of the California gnatcatcher (*Polioptila californica*) on Marine Corps Air Station Miramar; Results of 2009 surveys. Report prepared under contract M67865-08-T-0068. 25p + fig.
- Haas, W. E. and M. G. McCain. 2010. 2010 report: Results of arroyo toad and coast range newt surveys in the San Diego River watershed; Helix Water District amphibian study. Report prepared under contract to Helix Water District, La Mesa, California. 21p+figures & tables.
- Haas, W. E. 2012. Long-term ecosystem monitoring of the vertebrate fauna at Marine Corps Air Station Miramar, San Diego, California: small mammal component, 2009. Report prepared under contract. M67865-08-T-0051. 12pp+figs.
- Haas, W. E. 2012. Long-term ecosystem monitoring of the vertebrate fauna at Marine Corps Air Station Miramar, San Diego, California: bird survey component, 2009. Report prepared under contract. M67865-08-T-0051. 23pp+figs & app.
- Haas, W. E. 2012. Long-term ecosystem monitoring of the vertebrate fauna at Marine Corps Air Station Miramar, San Diego, California: Reptile & Amphibian Component, 2009. Report prepared under contract. M67865-08-T-0051. 17pp+appendices
- Haas, W. E. 2012. Long-term Ecosystem Monitoring of Fauna Marine Corps Air Station, San Diego, California; Results of 2008 Spotlight Surveys. Solicitation No. M67865-08-T-0051. 12pp+app.
- Haas, W. E. 2012. 2011 report: Results of arroyo toad and coast range newt surveys in the San Diego River watershed; Helix Water District amphibian study. Report prepared under contract to Helix Water District, La Mesa, California. 23pp + figures & tables.

Haas, W. *In press* (2013). Activity cycle of the arroyo toad (*Anaxyrus californicus*) in San Diego County. *Herpetologica*.

Haas, W. *In Press* (2013). Thermoregulation in adult female arroyo toads. *Herpetologica*.

Haas, W. *In Press* (2013). Ecology of the Willow Flycatchers along the upper San Luis Rey River. *W. Birds*.

Haas, W., T. Lee, and K. Klutz. *In prep*. Effects of fire-related sedimentation on arroyo toad recruitment.

Zych, A. C. and W. E. Haas. 2006. Results of preliminary surveys for the arroyo toad and Coast Range newt in the San Diego River Watershed, Helix Water District water release regime study. Report prepared under contract to Helix Water District, La Mesa, California. 38pp.+ii