

## Introduction to the special wildlife issue

*California Fish and Game* has been and will continue to be an important resource for scientists around the world. The Frontispiece for this issue is a February 14, 1930 letter found in Aldo Leopold's archives in which he noted, "I have long regarded 'California Fish and Game' as the only game magazine, outside of 'American Game,' that was worth reading." Leopold, the author of *A Sand County Almanac*, was a pioneer of wildlife science, conservation, and ecology.

Following its humble beginnings in 1914, *California Fish and Game* has become California's longest continuously running in-state scientific publication. Over the last century, there have been a number of special issues produced. As you know, we are now publishing volume 100 of the journal, which is planned to consist of four special issues averaging about 200 pages in length.

This special issue of Volume 100 focuses on the conservation and management of terrestrial wildlife. Although "evolution" appears in the title of one contribution, many of the papers included in this issue are based on the evolution of thoughts, statistical techniques, physiology, and methods of spatial analyses. Further, a number of papers germane to the current status or management of several species of wildlife are included.

Over this incredible period as California's longest-running, continuously published scientific journal, great leaders in wildlife science and conservation ecology have written in the journal or praised its prominence and usefulness for science. Joseph Grinnell was a regular and prominent contributor to *California Fish and Game* in the early days. Grinnell was the first director of the University of California, Berkeley's Museum of Vertebrate Zoology. He surveyed and recorded much of California's fauna, along the way creating a detailed field observation protocol still employed today by a majority of professional biologists and field naturalists, named in his honor as the Grinnell System. Joseph Grinnell's work fed into seminal works such as *Game Birds of California* (1918) and *Fur-bearing Mammals of California* (1937).

This third issue of volume 100 will continue the tradition of leading scientists publishing in the journal, as Grinnell did in his day, and will further bolster the journal's stature, as confirmed by Leopold eighty-five years ago. For example, Brett Furnas and Reginald Barrett open this issue by revisiting a foundational approach to evaluating species diversity in bird communities, and apply modern statistical techniques to that question. Dirk VanVuren describes the regeneration of shrubs on Santa Cruz Island nearly thirty years following the removal of feral sheep and feral goats from that isolated location off the coast of California. This kind of before and after analysis is incredibly valuable for today's resource managers. Dan Yparraguirre and coauthors have nicely described the contributions of the California Department of Fish and Wildlife scientists and collaborators to the conservation of waterfowl in California, and the Pacific Flyway in general. John Wehausen and Fred Jones have produced a succinct summary of the historical records of bighorn sheep in the Sierra Nevada, and Jeff Lovich and his coauthors provide detailed information on nest-site fidelity in desert tortoises. David Jessup and his coauthors present a detailed narrative on the evolution of ungulate capture techniques in California, and nicely summarized the literature on that subject. Eric Loft is the senior author of a sorely needed history of the origin and application of terminologies applicable to deer ranges, and Becky Pierce and

her coauthor developed a novel method of estimating the number of mountain lions within predefined study areas. All of these contributions relate directly to wildlife conservation within the state of California.

Contributions from several other authors address issues related to wildlife conservation in general, but that are not particularly restricted to California. For example, Paul Krausman and his coauthors reviewed the status of overpopulated deer ranges throughout the United States; this is a follow-up to an early (1947) paper published by Aldo Leopold and his colleagues, as well as work published more than 20 years ago in this journal by Krausman and his coauthors. Cynthia Downs and Kelley Stewart present new information on the utility of ecoimmunology and its application to the conservation and management of wildlife. Glen Sargeant and his coauthors raise the question of the utility of artificial water developments in a northern plains ecosystem, and their benefit to elk in that semi-arid environment. And, a group that includes the co-author of this introduction, Terry Bowyer, and some of his former students at the University of Alaska or Idaho State University, present a discussion to clarify many concepts and interpretations regarding density dependence among ungulates.

Natural history observations form the basis for many of the hypotheses that wildlife scientists have formulated and tested over the decades. In recognition of the importance of natural history to the science of wildlife ecology—and its effects on wildlife conservation and management—the final paper in this issue addresses novel feeding habits of a common species of waterfowl, and summarizes the existing, albeit sparse, literature on that subject. Collectively, all of the papers in this issue represent a wide and broad-based approach to wildlife ecology and wildlife conservation. Finally, former Deputy Director Terry Mansfield pays tribute to Bill Clark—who passed away last year—and the important role he played in wildlife conservation in California over a period of more than 30 years.

The future is replete with many challenges to the conservation of wildlife, particularly with respect to the western United States. Solar energy projects threaten to further fragment habitat for a number of desert species, among which are bighorn sheep and desert tortoise, as do development of gas and oil resources across the nation. In California, drought continues to be an issue not only for fisheries resources but, in many instances, also for terrestrial wildlife. The ever-present prospect of climate change provides challenges that have important implications for the conservation of wildlife and wildlife habitat. Those challenges are being addressed by scientists throughout the world. We are proud that *California Fish and Game* is again ascending to the heights of relevance, and that scientists from across the nation, as well as internationally, are again publishing the results of their research in this journal. To all the contributors to this journal, the readers of this journal, and all those who may follow in their footsteps, we ask that you never stop seeking to understand and manage the many current challenges—as well as those not yet imagined—that wildlife and wildlife habitat in California and the world face. We salute *California Fish and Game* in its centennial year, and recognize the important role it can play in the forthcoming hundred years.

Charlton H. Bonham, Director  
California Department of Fish and Wildlife

R. Terry Bowyer, Professor  
Idaho State University, Pocatello