

Rebecca Lewison

- Definitions: Trained as an ecologist, my research focuses specifically on the effects of human-mediated impacts on wildlife species. Both resource extraction and land use practices exert both direct and indirect effects on wildlife populations, but discerning these impacts presents a substantial challenge. My research tackles this challenging question on a wide range of wildlife species across many different environments.
- Tools: Using empirical and quantitative tools, I study vulnerable wildlife populations from many taxa that live in a diverse range of environments and face pressing conservation issues. My research employs many tools and approaches to answer these questions: field-based behavioral and biophysical monitoring, camera trapping, telemetry, stable isotope analyses, population modeling, analyzing contaminant transfer and exposure, and genetic analyses. What my projects have in common is that they all consider how anthropogenic factors impact wildlife species of conservation concern populations using innovative field, quantitative and lab-based approaches. One of my primary research goals is to support the development of innovative new quantitative tools and approaches to conservation science.
- Types of research questions I ask: I am a vertebrate conservation ecologist. My research is grounded in conservation science and the conceptual paradigms of ecology, employing a range of methodological approaches and quantitative analyses to address applied questions in resource management and conservation. The projects in my lab explore how fundamental ecological mechanisms, e.g. life history characteristics, population dynamics and structure, behavior, physiology, trophic linkages, influence population vulnerability in response to direct and indirect effects of human activities.
- Mentoring and collaborative work: Undergraduate and graduate students in my lab work in a diverse range of habitats from desert, to chaparral to coastal estuaries, and have been involved at all levels of my research program. The diverse research projects provide students with rich learning-through-research opportunities. . Collaborations within the SDSU community, local scientists and agencies and with the international community are a hallmark of my scholarship. I have established new partnerships with academic, NGO and government institutions, as well as maintaining and developing more long-standing relationships with resource management agencies.
- Example of my interdisciplinary approach. My research has always aimed to bridge and incorporate different and innovate methodologies. More recently, my interests have broadened to explicitly integrate social and natural science. On many of my projects, I am working closely with scientists from other fields of study, including economics, policy and planning, sociology, anthropology, and resource governance. I am particularly interested in using this interdisciplinary approach to understand resilience of natural systems. There are critical gaps in our understanding of the structure and dynamics of complex cumulative human stressors that impact natural system resilience. While there is a rich literature on ecological theory on resilience, the coupled dynamics between human and ecological processes remain essentially unexplored. My research interest centers on developing new approaches to integrate natural and social science methodologies to inform our understanding of system resilience.