

**NON-TECHNICAL ABSTRACT:** Most members of the public may be surprised to learn that the majority of species on Earth, perhaps over 95%, remain to be discovered and described by biologists. This includes not only the microscopic Bacteria and kin, but also relatively large animals, like arachnids. Moreover, Biodiversity discovery remains a priority for biologists in all geographic regions, including California. I study arachnid animals, which are very poorly known, but have both ecological (e.g., spiders eat insects) and biomedical importance (e.g., a few spiders are harmful to humans). In the proposed research I will integrate cutting-edge biotechnological advances that allow unprecedented access to animal genomic information (i.e., DNA) with the problem of species discovery in a poorly known arachnid group. Data collected will set the stage for larger grant proposals to the National Science Foundation, which encourages this type of integrative research. I will also train several CSU undergraduates and graduate students in modern, integrative, biotechnology-driven, biodiversity science.