FOR IMMEDIATE RELEASE
University of California launches new biodiversity monitoring program: CALeDNA

Tags: citizen science, conservation, naturalist, genomics, DNA, climate change, students, ecosystem

University of California launches CALeDNA program to catch a snapshot the state's biodiversity.
Can scientists reconstruct an entire habitat from a vial of soil? The University of California Conservation Genomics Consortium thinks they can. They just launched a program to send 1000 people to collect 18,000 samples of soil and aquatic sediment from across the state. The CALeDNA program intends to "revolutionize conservation in California" by asking for volunteers to collectively achieve this goal by the end of 2017. Citizen scientists sign up on the program website, www.ucedna.com, and receive training, a sample collection kit, and a phone app to guide them (https://play.google.com/store/apps/details?id=org.caledna.collect.android or just search CALeDNA UCLA in the Google Play Store). The scientific team hopes about half of the participants will deploy the kits on hikes to any of the 39 UC natural reserves, and that the other half will sample broadly across the stunning iconic – and fragile – ecosystems of California. They already have several 'BioBlitz' events planned; the first is Feb 10 at Pillar Point near Half Moon Bay, CA.

The kit samples get sent back to a team of molecular biologists at UC Los Angeles ready to extract their DNA and prepare the remaining sample for permanent archiving in a new museum of California soil and sediment samples. They are using ambitious DNA sequencing technology, 'metagenomics', traditionally used to inventory the species in marine systems, to inventory the terrestrial environment. This technique captures fragments of DNA, called "environmental DNA" or eDNA, from cells shed by animals as they scamper by, from plants as fallen leaves compost, and from all the small critters, bacteria, archaea, and fungi that live underground. High tech next generation DNA sequencers generate hundreds of thousands of DNA barcodes that are compared to the global database of all barcodes of life, which lets them extrapolate hundreds of species with even the slightest DNA in a gram of soil. They are set on releasing this information—and the technological approach itself—to conservation practitioners in the state. To figure out what lives in a place, say, from an undeveloped lot in the desert, a grassland being considered for cattle range, or a patch of coastal sage scrub experiencing drought, teams have traditionally had to survey intensively for up to four years, and they still can't catch everything. Now stakeholders can more rapidly monitor the biodiversity in a place, and make wiser decisions in less time. "With more extreme climate sweeping the state, and nearly 1000 species on endangered or watch lists, California can't afford to wait to take action", says Dr. Robert Wayne, the lead of the Consortium.

The CALeDNA program was created under the UC Conservation Genomics Consortium that was supported by UC President Janet Napolitano's Catalyst Grant Program.

Photos for press below (Credit: Maya Edelman, CALeDNA artist):
Image 1: What are ecosystem services that California species and habitats provide?

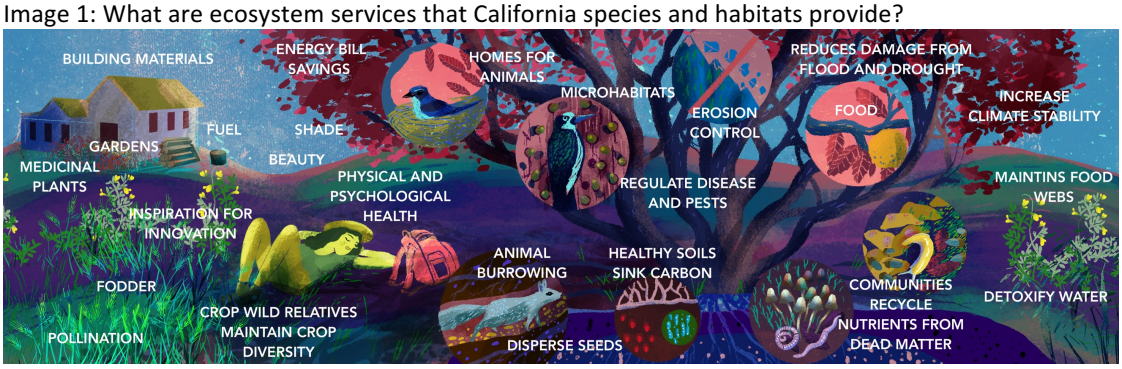

Image 2: Overview of the CALeDNA program. Hike, collect, help UC scientists monitor species