

# California All Taxa Biodiversity Inventory

## Soil, Litter, and Insect Sampling Protocols

The protocols in this sampling series are a field reference for soil and insect sample collection as part of the California All Taxa Biodiversity Inventory (ATBI). The ATBI initiative is developing a specimen-based DNA barcode reference library for all California.

Samples of soil, litter, and insects are collected to characterize the biodiversity across California. Each field sampling effort should aim to capture as much biodiversity per sample as possible. The goal of this sampling protocol is to sample sites comprehensively and document as many species as possible. Thus, this protocol does not require strict adherence to methods for statistical consistency such as a stratified sampling design.

Protocols developed thanks to Stillwater Sciences, California Academy of Sciences, University of California Davis, University of California Santa Cruz, Natural History Museum of Los Angeles County, Society for Protection of Underground Networks ([SPUN](#)), Soil Biodiversity Observation Network ([SoilBON](#)) sampling protocols, and others.

Protocols in this sampling series include:

- **Leaf Litter:** Leaf litter consists of fallen and decaying vegetation that have accumulated on the ground. Invertebrate specimens present in moist leaf litter samples will be extracted and catalogued.
- **Environmental DNA (eDNA):** Pieces of DNA are left behind by organisms as they interact with their environment, including soil. Small soil samples will be analyzed for eDNA to determine which species are present in the region.
- **Bulk Soil:** Soil samples will be collected and processed for a diversity of invertebrates, macroinvertebrates (centipedes, insects, etc.) and microinvertebrate species (nematodes, mites, etc.). A portion will be preserved for future analysis including bacterial or chemical.
- **Insects:** Insects will be collected primarily via sweep nets. Insect samples will be sent to labs to be extracted and catalogued. This protocol does not include the collection of bumble bees or federally listed branchiopods, butterflies, or other insects on the California Terrestrial and Vernal Pool Invertebrates of Conservation Priority [list](#).