Oaks as keystone species

Research has shown that hundreds of different organisms are found in California's oak woodland habitats; many would not survive without oak trees. From epiphytic lichens and algae inhabiting the well-lit upper branches, to mycorrhizal fungi associated with the roots, oak trees support hundreds, if not thousands, of associated native organisms.

Oak trees are a keystone species – a species that serves as the backbone of the ecosystem, and without which the ecosystem would fail. Gray squirrels and many different species of birds nest in the branches and eat the acorns; wood rats eat the acorns and build their middens from twigs and leaves on the woodland floor. Beneath the trees fungi, bacteria, worms, and many species of insects decompose leaf litter, while other fungi may reside within the living tissues of the trunk and branches. Salamanders live in the litter and prey upon insects that reside there. Mule deer also eat the acorns and find respite from the sun under the oaks along with many other animals. Mountain lions and bobcats prey on other animals that have eaten the acorns and insects. Hundreds of species of insects rely exclusively on oak trees for survival. Oak moth caterpillars depend on oak leaves for food. Gall-forming wasps stimulate formation of swollen galls on the tree branches. Inside the galls the young wasp larvae grow and develop.

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