Featured Creature
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Klamath Network
Inventory & Monitoring Division
Natural Resource Stewardship & Science

Orange Sulphur
Colias eurytheme


© Kenneth Dwain Harrelson

Orange sulphur (*Colias eurytheme*)


© Charles Schelz

On clover in its typical upright position.

General Description
Flashing its pale orange wings, the orange sulphur butterfly flits low and erratically over the ground across much of North America. If you live next to alfalfa fields, you're very likely to have spotted more than a few.

Butterflies and moths are insects in the order Lepidoptera. One way to distinguish butterflies from moths is that butterfly antennae tend to be very slender and end with a club, whereas moth antennae tend to be threadlike (filiform) or feathery (pectinate) but never end in a noticeable club. Another distinction is that butterflies are mostly active during the day, unlike the mainly nocturnal moths. The orange sulphur is a widespread and common North American butterfly belonging to the Pieridae family, the "Whites and Sulphurs."

The orange sulphur is medium-sized with a wingspan of about 5 cm (2 in). Though color may vary among individuals, the wings are typically yellowish and orange, although some females are white and may appear greenish. The top (dorsal) wing surface has dark brown to black edging. Two similar looking cousins are the clouded sulphur (*C. philodice*) and the western sulphur (*C. occidentalis*). Given how difficult it is to identify an animal that won't stay still, much less fly in a straight line, your success at identifying a butterfly will improve by learning its favorite nectaring flowers and caterpillar host plants (read on).

Habitat and Range
Orange sulphurs like open habitats from sea level to the mountains, such as agricultural fields, pastures, meadows, and lawns coast to coast from southern Canada to central Mexico. Closely tied to pea family plants (Fabaceae), millions may swarm alfalfa fields (becoming "pests") when conditions allow.


© MJ Hatfield

Orange sulphur caterpillar (larva).

Behavior and Diet
If you're lucky to find a perched butterfly, it may be basking with wings spread out to warm itself on a cool day. Being cold-blooded, or ectotherms, they regulate their temperature by outside sources and are most active between 60 and 90 °F. Perhaps you've come upon a cluster of butterflies "mud-puddling." Males are especially attracted to wet ground, where they sip salts and minerals dissolved in the water that are thought to improve successful mating.

Adults fuel up on nectar from a variety of flowering species, including alfalfa, clover, milkweeds, and plants in the sunflower (aster) family. Caterpillars tend to concentrate on pea family plants, like vetch, alfalfa and clover.

Ecology
Butterflies are important pollinators. They are also common prey for spiders, ants, wasps, dragonflies, beetles, as well as lizards, frogs, birds, mice, and even carnivorous plants, like the sundew. With all those predators, how do butterflies defend themselves? Their bouncing, erratic flight pattern is one way to avoid predation. Ingenious camouflage is another. Some butterflies have bright, eye-shaped patterns on wings to ward off predators, and some ingest plant toxins that make them unpalatable to would-be attackers.

Life Cycle
Undergoing complete metamorphosis, from egg to caterpillar to pupa (chrysalis) to adult, orange sulphurs breed in the spring through late summer, producing up to 4 broods. Males patrol for females, looking for the characteristically female ultraviolet light *absorbance* on the hind wings that will distinguish her from a male of the species whose wings, on the contrary, *reflect* ultraviolet light. The pair join by the tips of the abdomens to mate. Females choose a male that by appearance (UV reflection) and smell (pheromones) likely offers the best spermatophore (package of sperm + nutrients). The female lays 1 tiny white (later becoming orange-red), spindle-shaped egg at a time on vegetation—typically vetch, clover, alfalfa, and other pea family plants. This host plant supports the larvae that hatch 4–5 days later. The female will re-mate with a new male every few days in the summer, up to 4 times, laying up to 700-1000 eggs in her lifetime! The larva, which is green with a white side streak for several of its growth stages (instars), eats continually until ready to pupate about a month later. Four to five days after emerging as a winged adult, the butterfly can mate. Depending on the climate and location, orange sulphurs may hibernate at any stage of the life cycle, though adults that don't hibernate live for just a few weeks.

Where to See
All Klamath Network parks.

Learn More
https://www.uky.edu/hort/butterflies/all-about-butterflies

https://animaldiversity.org/accounts/Colias_eurytheme/

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