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Desert Bloom Means Desert Butterflies: 6 Nice Ones to Watch For

Chris Clarke | March 24, 2015

The California Desert race of sagebrush checkerspot butterflies is a bit more orange than this Grand Canyon specimen | Photo: Ranger Robb/Flickr/Creative Commons License

About every second or third spring, and in about one autumn in ten, tourists flock to the California desert in search of the fabled desert bloom. That's when the desert's native plants take advantage of recent rains, if any, to put out flowers in a desperate attempt to reproduce by setting seed.

Even a moderately abundant bloom can be well worth your attention, as the desert's usually earth-toned landscape sports accents in yellow, purple, pink, and orange. But desert plants aren't the only living things adding a bit of

color to the desert as they attempt to pass on their genes to a next generation.

Where there are desert flowers, in other words, there are desert butterflies. It's unusual to see a field of desert bloom that doesn't have at least a few interesting lepidopteran critters flitting from flower to flower. Here are six of the showiest and most interesting.

Sagebrush checkerspot (*Chlosyne acastus*)

Pictured at the top of this article, the sagebrush checkerspot is a wide-ranging, highly variable species. In the Mojave Desert, it tends to be more orange with fainter black markings than its cousins elsewhere in the arid West. About an inch and a half in wingspan, it can be easily spotted flitting around desert shrubs in open country, especially in areas with good stands of rabbitbrush or other plants in the daisy family. (Sagebrush checkerspot larvae eat plants in the daisy family, including the Mojave Desert natives Orcutt's aster, and rayless goldenhead.)

On a very recent hike in the southern backcountry of Joshua Tree National Park, I saw dozens of sagebrush checkerspots flitting from shrub to shrub, some following me as I hiked to take advantage of my shade. Some flew in tandem: pairs of checkerspots mating in mid-air as the males placed spermatophores, inside the females' reproductive orifices. Afterwards, presumably, the females laid eggs on daisy family plants that would feed the next generation of sagebrush checkerspots.

Desert black swallowtail (*Papilio polyxenes coloro*)

Desert black swallowtail drinks nectar from a yellow aster in the Mojave National Preserve | Photo: Chris Clarke

A subspecies of the more widespread black swallowtail of the East Coast and Midwest, the desert black swallowtail is actually more yellow than black, at least at first glance. In fact, you might mistake this one for the common anise swallowtail found fairly often in coastal gardens and vacant lots. How can you tell the desert black from the anise swallowtail? The anise swallowtail *usually* shows a little bit more color in its blue and red hindwing patches than the desert black, but that's hard to gauge unless you've got one of each so you can compare.

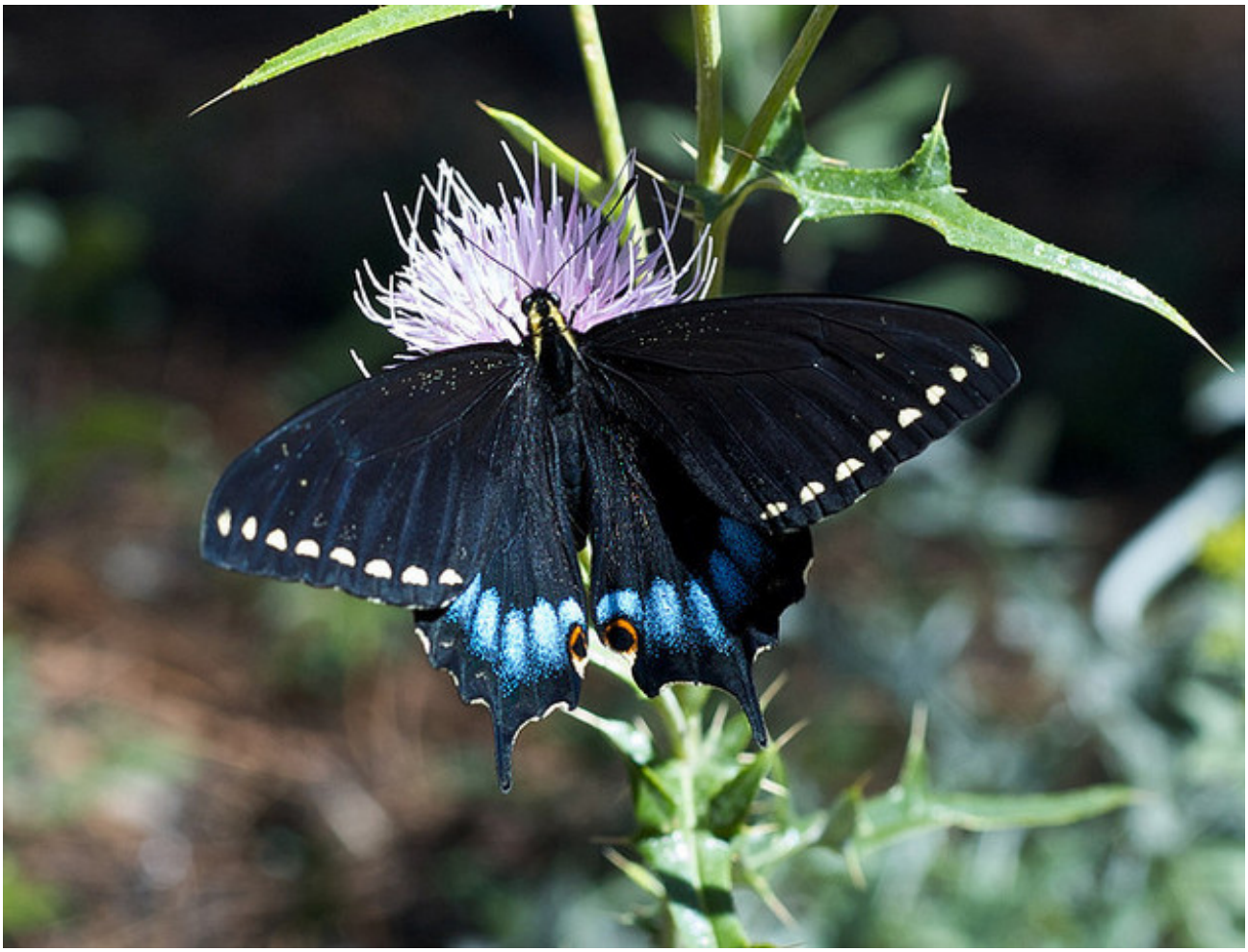
Here's an easier way to tell them apart: In California, anise swallowtails mainly stick to the coast and less-arid interior valleys, avoiding the state's true deserts. Which means if you're in the desert, it's probably a desert black swallowtail.

Desert blacks are a bit smaller than their eastern cousins, with a wingspan of about three and a half inches. Though the species as a whole is remarkably diverse in its choice of larval food plants, desert blacks seem to generally pick turpentine broom, a.k.a. *Thamnosma montana,* on which to lay their eggs, usually one per plant. If *Thamnosma* is in short supply, desert blacks have been known to lay their eggs on parsley family plants instead, including

the native Panamint Indian parsnip.

Unlike the sagebrush checkerspot, which generally has one reproductive "brood" in spring and early summer, desert black swallowtails can reproduce in spring and again in fall if summer rains are abundant enough to provoke an autumn bloom.

Indra swallowtail (*Papilio indra*)



Indra swallowtail | Photo: Steve Martin/Flickr/Creative Commons License

In September 2007, as I watched an unusual swarm of desert black swallowtails cover almost every available flower in an equally unusual autumn bloom in the Mojave National Preserve, I noticed that about one in a hundred of the swallowtails looked significantly different from its colleagues: darker, and apparently more determined in its flight. Though I could easily sneak up on the more yellow desert blacks with my camera, as evidenced above, these darker few seemed to be hell-bent on avoiding me.As it happened, that September day was my lucky day: I was seeing more Indra

swallowtails before my second cup of coffee than most non-lepidopterists see in a lifetime. The wonderful field guide Butterflies of North America by Jim Brock and Kenn Kaufman puts it like this:

> *Fortunate is the observer who gets a good glimpse of this widespread but local and elusive western swallowtail. Most populations occur in rugged, arid, mountainous country accessible only to bighorn sheep and to those humans with good hiking ability.*

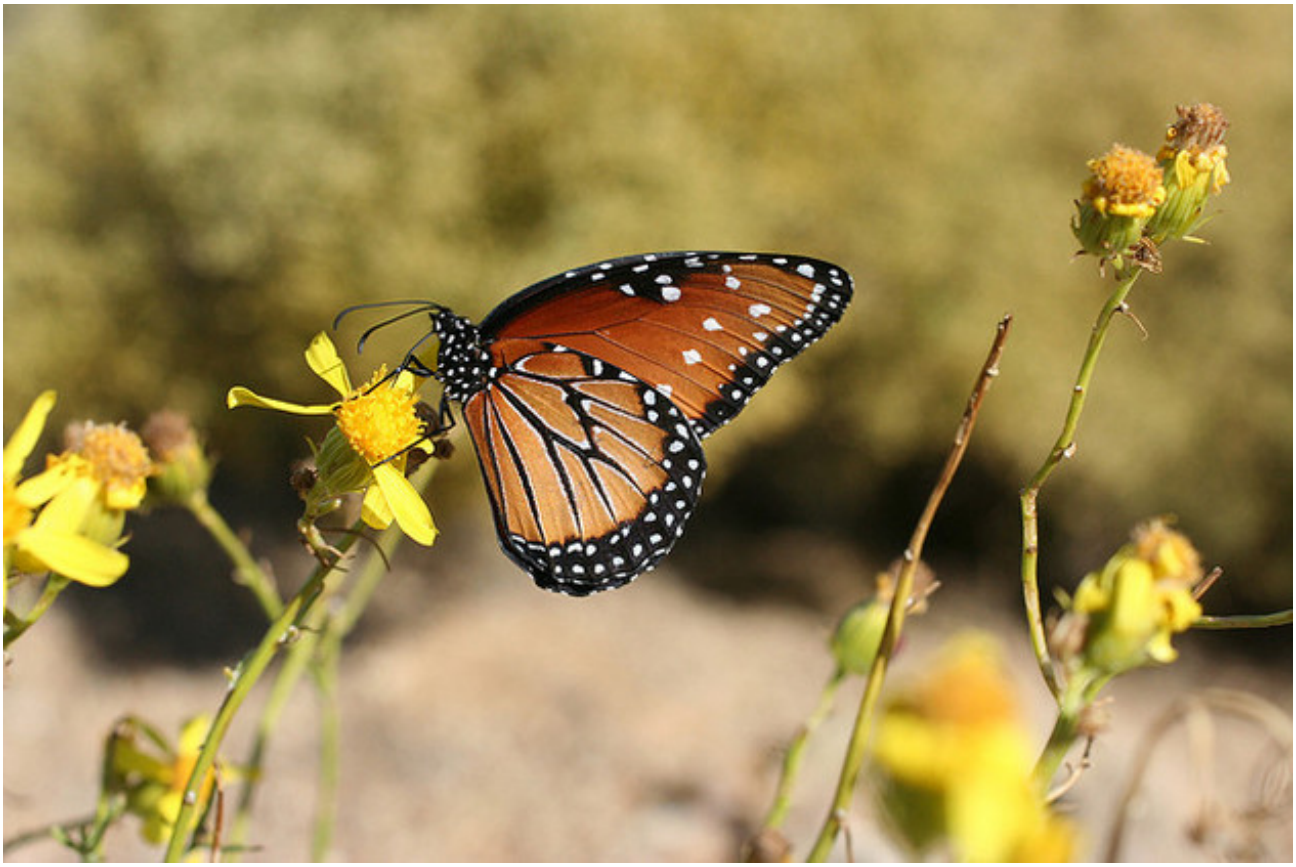
And there I was seeing them from my camping chair.

Indras are another variable species, with a number of subspecies to be seen in the desert. The ones I saw in the Preserve, atop Cima Dome, were likely members of the subspecies *Papilio indra martini* -- that subspecific epithet pronounced to rhyme with "Bart And I" rather than as if it were a gin-based cocktail.

Like a lot of other butterflies, indras will often drink from mud patches or dew-dampened bits of soil, which suggests a way to get a good look at one: park yourself near an existing puddle, or bring an extra gallon of water and make one. (You'll probably see more than just indras as a result.) Females select plants in the parsley family on which to lay their eggs, so if you happen by a stand of Mojave Desert parsley in the rocks during butterfly season, you might stake it out with your long lens.

Indras generally fly in spring, which makes my September experience even luckier for me. Given their rarity in the desert, if you do see an Indra be sure to let it survive your encounter unharmed, even if you're not in a place (like the Mojave Preserve) where collecting of any butterflies is forbidden.

Queen butterfly (*Danaus gilippus*)



Hey, you guessed wrong! This isn't a monarch. | Photo: Chris Clarke

If all you see is the underside of a queen butterfly's wings, you could certainly be excused for deciding it's the closely related monarch: at first glance, the pattern of dark veins separating areas of dusky orange looks remarkably monarchy. (Though butterfly experts would immediately notice the queen's lack of a black bar across the forewing.)

But look at the upper surfaces of the queen butterfly's wings, and it becomes a lot easier to tell them and monarchs apart. Queens have almost none of the monarch's striking stripes atop their three-and-a-half-inch wingspans, instead bearing a decorative marginal chain of little white dots.

Queens fly year-round in the California deserts, and are attracted to a wide variety of nectar plants, such as the goldenhead in the photo above. Like their monarch cousins, queens rely on milkweeds to feed their larvae. Fortunately, the California deserts still have plenty of native milkweeds, including the widespread *Asclepias subulata*.

A fun fact about queen butterflies: milkweeds help them reproduce in more ways than just feeding their babies. Male queens take in toxic alkaloids from

milkweeds and other plants and convert them into a sex pheromone called danaidone, which they then smear on the females' antennae to signal their readiness to breed. It's sort of like Axe Body Spray for butterflies, except that the female queens don't seem repelled by danaidone.

Southern dogface (*Colias cesonia*)

Southern dogface | Photo: Ranger Robb/Flickr/Creative Commons License

This close relative of California's official state butterfly, the California dogface, gets its name from the pattern of black markings on its upper wings as shown in the photo here. You may not see that part of the wings too clearly, though, if you spot a southern dogface in the desert: when feeding or resting, dogfaces tend to keep their one-and-a-half-inch wings folded upward like so. (If you get them backlit by the sun, that black pattern may show through.)

Dogfaces are part of the sulphur family, so named for their striking and characteristic yellow color. Unlike most other sulphur species, which tend to

inhabit colder northern and alpine climes, southern dogfaces don't range a lot farther north on the West Coast than the California Desert, where they can brood twice in good years.

Unlike many other butterflies, which perish with the coming of cold weather, southern dogface adults can overwinter given mild enough temperatures and enough plants in bloom to provide food. If you absolutely must butterfly hunt in the California Desert in November, in other words, you might well see southern dogfaces in Imperial County or elsewhere in the warm-winter Low Desert.

Adults will drink nectar from a wide range of native desert plants including *Coreopsis* and *Verbena*, as well as blooming alfalfa in farmers' fields. But these little yellow guys rely on plants in the legume family, including lupines and vetches, for their larval food plants. Note: again, that includes alfalfa in farm fields.

Desert orangetip (*Anthocharis cethura*)

Desert orangetip | Photo: Stickpen/Wikimedia Commons/Creative Commons License

A fascinating and beautiful small butterfly with about a two-inch wingspan, desert orangetips provide the novice butterfly watcher with an easy-to-identify species. If the butterfly is in the desert and it has the above-shown orange tips on its forewings, it's a desert orangetip. How easy is that?

Desert orangetips range from Western Nevada through the California desert into Baja, with an eastern extension into central Arizona. Arizonan individuals tend toward yellow as a background for those striking orange patches, while the California populations are more white.

For those of you sticking to the coast, there's also a subspecies found only on Santa Catalina Island, which is a bit beleaguered as invasive grasses crowd out the native mustards that make up its larval food plant base.

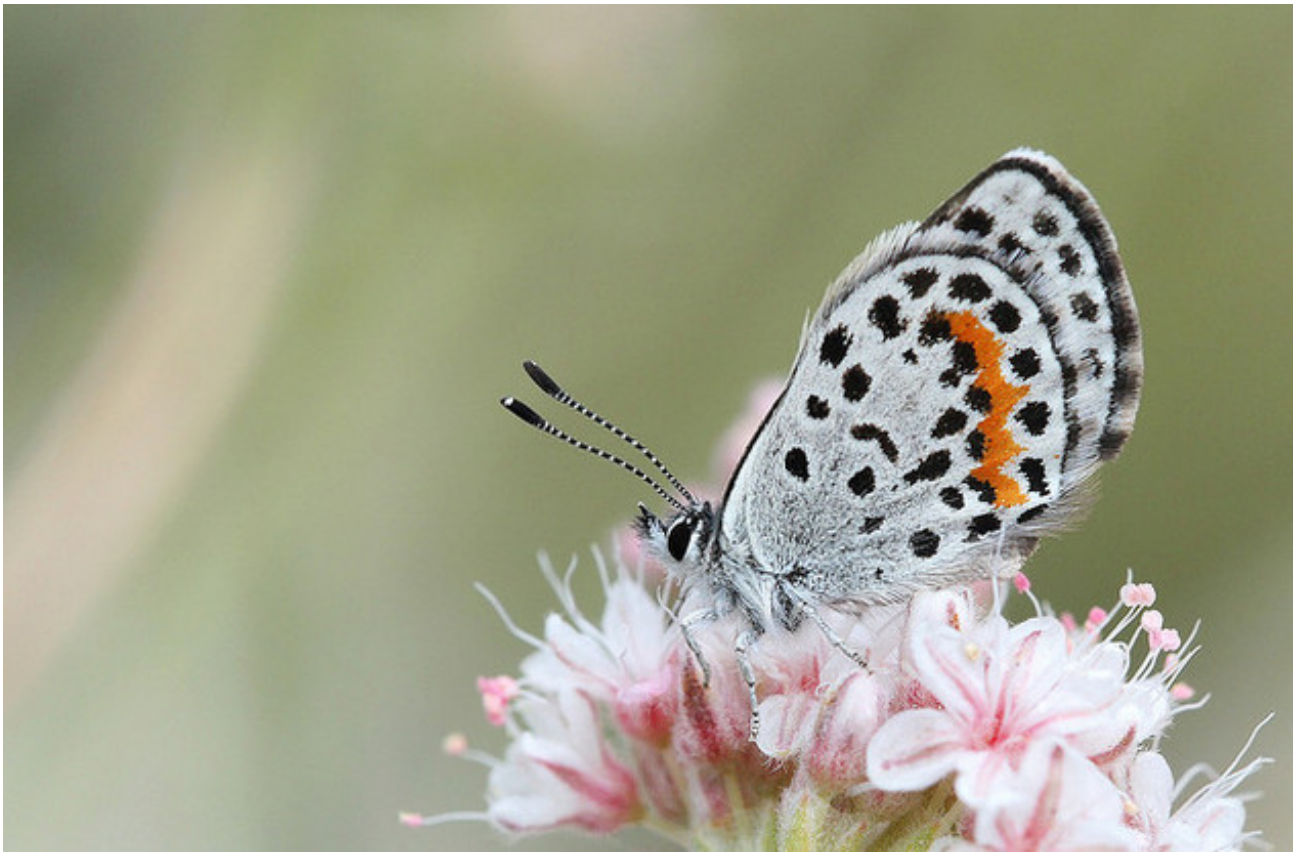
Invasive grasses are plaguing the deserts as well, and though the deserts

are also being colonized by an invasive mustard species it's not at all clear that desert orangetips will use Sahara mustard as a larval food plant. If the desert's native mustards get crowded out of an area, that may well mean no more desert orangetips in that area.

Orangetips are so-called "hilltopper" butterflies, meaning that you're more likely to find them in the desert's "sky islands" and at other places of higher elevations than on valley floors. Females lay their eggs on the flower buds of those native mustard species, and the emerging larvae eat both the flowers and the developing seed pods, which means that if orangetips decided to try eating Sahara mustard after all they could help control the spread of the plant. Someone should try to persuade them.

You're far more likely to see desert orangetips in seasons following wet winters. In fact, once those larvae finish easting their mustard seeds and pupate, they can stay in their cocoons for several years until conditions are just right for a good bloom.

Mojave dotted-blue (*Euphilotes mojave*)



We couldn't find a usable photo of a Mojave dotted-blue, but this related square-spotted blue is pretty similar | Photo: Steve Berardi/Flickr/Creative Commons License

Like a lot of its cousins in the blue family of butterflies, the Mojave dotted-blue relies on wild buckwheat as food for both larvae and adults. And though there are plenty of wild buckwheats in the California desert, the Mojave dotted blue is pretty particular about which species it will use as larval food plants. Only the yellowturbans (*Eriogonum pusillum*) and kidneyleaf buckwheat (*Eriogonum reniforme*) will do, apparently.

Fortunately, as you'll see if you click through on those last two links to see the plant species' occurrence records on Calflora, both buckwheats are fairly widespread throughout the California desert. But trouble looms: invasive cheatgrass may well be both crowding out and burning out the Mojave dotted-blue's native buckwheats, with dire potential consequences for the butterfly.

These are tiny butterflies, with wingspans of an inch or less. They have a lot of close relatives: until recently, the Mojave dotted-blue was considered a subspecies of the larger species "spotted blue" or *Euphilotes enoptes*, which was itself confusingly similar to the square-spotted blue pictured above. (Another *Euphilotes enoptes* subspecies, the Smith's blue, which is restricted to the Salinas River area in Central California, is on the federal Endangered Species list.)

Though their habitat is threatened by invasives, as well as off-road vehicle use and urban development, Mojave dotted-blues do have what might seem an unlikely ally: native ants. Once dotted-blue butterfly's sowbug-shaped larvae hatch out on those wild buckwheats, they start to exude a sweet substance called "honeydew" that's quite attractive to ants. Those ants will defend the larvae from other insect predators to protect their source of sugar, a distinct boon to the otherwise vulnerable young butterflies.

Those are just a handful of species that make up the amazing butterfly fauna of the California deserts. There are many more, and in certain times of year you can't look anywhere in the desert without seeing more and more species.

Want to learn more? In addition to the field guide by Jim Brock and Kenn Kaufman mentioned earlier, you can also check out John Garth and J.W. Tilden's "California Butterflies," published by the University of California Press in 1986. Though dated, it is a great source for basic California butterfly

ecology, while Brock and Kaufman's field guide is better to help identify mystery butterflies... and is considerably more current on taxonomy.

ABOUT THE AUTHOR

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Chris Clarke is KCET's Environment Editor. He is a veteran environmental journalist and natural history writer currently at work on a book about the Joshua tree. He lives in Joshua Tree.