

## Madera Canyon Species Spotlight

### **Pipevine Swallowtail & Red-Spotted Admiral**

Where Madera Creek crosses Proctor Road, there is often a shallow pool of water, or at least a patch of damp sand. Insects, particularly butterflies, are attracted to the moisture and dissolved minerals. Butterflies will gather at the water's edge in numbers called "puddle parties". During high butterfly season in late summer and fall, sometimes hundreds of sulphurs, blues, skippers, and other butterflies gather together here at once for a drink.

Amongst the many smaller butterflies, there may be a few much larger Pipevine Swallowtails. Unlike the others, they do not sit still to drink, but constantly flutter their blue-black wings. The movement shows off bright red spots on their under hindwings and the trailing tails that give "swallowtails" their name. They seem fidgety and are quick to take flight and leave if disturbed!

Right over the pool a Coyote Willow provides a little shade. Spring through fall there may be a very similar butterfly perched out on the sunlit branches. Just the size of a Pipevine Swallowtail, this butterfly also shows off beautiful blue-black wings. But unlike the antsy swallowtails, these butterflies sit mostly still with their wings wide open. Occasionally they slowly close their wings, revealing bright red spots on the under hindwings. But a closer look reveals that the hind wings do not have any tails! This butterfly is a Red-spotted Admiral, a Pipevine Swallowtail lookalike, or "mimic".

The Pipevine Swallowtail, *Battus philenor*, is one of southeast Arizona's more common butterflies and can be found on the wing mid-January to mid-November from desert up into foothill woodlands. In our area, the females search for Watson's Pipevine, *Aristolochia watsoni*, the only type of plant their larvae will eat, to lay their eggs. Pipevines produce nasty tasting toxic chemicals, but Pipevine Swallowtail caterpillars are immune to the toxins! They actually eat and store, or "sequester", the chemicals in their bodies, then pass them into the pupa and adult stages. Vertebrate predators, like birds, learn not to eat the red caterpillars or adults because of the unpleasant taste. The red larvae and conspicuous bright spots on the adult's under hindwing are "aposematic coloration"- a warning signal to would-be predators.

The Red-spotted Admiral, *Limenitis arthemis arizonensis*, used to be called the Red-spotted Purple. They fly between late March to mid-November along willow-lined streams like Madera Creek from about 3,900 to 6,900 feet elevation in oak/juniper and mixed evergreen woodland. These butterflies look remarkably similar to the Pipevine Swallowtail- except no tails! Scientists believe that the Red-Spotted Admiral evolved by natural selection to closely resemble the Pipevine Swallowtail and thus potentially "hide" behind the Pipevine Swallowtail's "bad-tasting reputation".

Red-spotted Admiral caterpillars eat primarily willows, but also cottonwood, aspen, and chokecherry- plants that do not contain nasty tasting toxic chemicals. Neither the larva, pupa, nor adults are toxic or bad-tasting- indeed, they would make a fine meal for a hungry predator! But if a predator, like a bird, has negative foul-tasting past experience with adult Pipevine Swallowtails, it may learn to recognize and avoid ALL butterflies with this particular size and

color pattern. That is very good news if you are actually a tasty mimic- a Red-spotted Admiral! Of course, this all depends upon the predator having tangled with a yucky Pipevine Swallowtail butterfly before; without a prior negative experience, the mimicry will not work.

One final interesting note about the Red Spotted Admiral- their caterpillars look like fresh bird poop! If you are a tasty caterpillar, looking just like excrement, something most predators would avoid or just overlook, is probably very good camouflage indeed!



Pipevine Swallowtail- has two tails



Red-spotted Admiral- a mimic with no tails



Pipevine Swallowtail- underwings with red spots



Red-spotted Admiral- underwings with red spots