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Burned by wild parsnip

Sun-induced burns from a common weed stump medical professionals and outdoor enthusiasts alike.

DAVID J. EAGAN

Wild parsnip: The plant that can put you on the hot seat. © David J. Eagan

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As children, we are warned away from fires and stoves, though most of us learn the truth of that lesson the hard way. But what if wild plants could cause burns, too -- and nobody ever told you which ones? Well, such plants do exist, and if you spend time outdoors, chances are they have burned you or someone you know. And equally likely, neither you, nor your doctor or nurse recognized the burn for what it was.

Unexpected patches of redness and blisters following a romp in the woods or fields usually are blamed on poison ivy, stinging nettles, insects or spiders. But there's another potential culprit: Wild Parsnip (*Pastinaca sativa*), the hobo brother of cultivated parsnip. Wild parsnip contains chemicals in the juices of its green leaves, stems and fruits that can cause an intense, localized burn -- actually, a sunburn.

In my research for this article I found that very few people, including medical professionals, know this plant and can confidently recognize its burns. At a recent dermatology conference, I was told slides of wild parsnip burns were shown at a stump-the-experts quiz session. Only a few in the audience knew the answer.

One physician I spoke with referred to the plant as a "medical orphan" that might be mentioned in medical school, but is rarely covered in detail. And even doctors familiar with how wild parsnip looks on skin would have trouble identifying the plant in the field.

Parents, pharmacists, landowners, naturalists, teachers, park employees -- I asked a wide range of people what they knew. And it was rare indeed when someone understood the whole parsnip story. Many thought the burns arise from an immune response, like poison ivy. They do not. A manager at a state park always warns his employees to be careful around wild parsnip -- he was familiar with the burns -- but he didn't know that sunlight triggered the reaction. And the general public? The same park manager told of seeing a little girl one sunny summer day with a wreath of fresh parsnip flowers in her

hair, which is a little like playing with fire.

Animals can be burned in a similar manner to people if the animals have lightly-pigmented skin covered with little hair so both plant juices and sunlight reach the skin.

How an old flame sings new admirers

Wild parsnip is an eye-catching, non-native weed that hails originally from Europe and Asia. There are varieties grown for their edible roots, but whether the wild type came to America as a garden vegetable or in the cuffs of some immigrant's pants, no one knows. Dried specimens at the University of Wisconsin-Madison herbarium date back to 1894 in southeast Wisconsin, and a specimen was collected on Madeline Island at the northern tip of the state in 1896.

Although not a native plant, wild parsnip has likely become "naturalized" in all of Wisconsin's 72 counties and is here to stay. Wild parsnip grows in large patches or as scattered plants along roadsides, in abandoned fields, on pastures, on restored prairies, and in disturbed open areas. And, according to observers around the state, its range has been expanding rapidly in recent decades.

The fact that wild parsnip is spreading is one more reason people are coming into more frequent contact with it. Another reason is it is one of the chief targets for weed removal in prairie restorations. Unlike benign weeds, wild parsnip can take over an area, outcompeting native plants. The ecological impact of this invader puts it high on the hit list of land managers.

There are chemicals in wild parsnip called psoralens (precisely, furocoumarins) that cause what dermatologists call "phyto-photo-dermatitis." That means an inflammation (itis) of the skin (derm) induced by a plant (phyto) with the help of sunlight (photo). When absorbed by skin, furocoumarins are energized by ultraviolet light (present during sunny and cloudy days) causing them to bind with nuclear DNA and cell membranes. This process destroys cells and skin tissue, though the reaction takes time to produce visible damage.

The chemical in wild parsnip may be a defense mechanism, just as healthy, green celery plants will produce higher levels of furocoumarins when they are under attack from pink-rot fungus.

In mild cases, affected skin reddens and feels sunburned. In more severe cases, the skin reddens first, then blisters rise -- some are impressively large -- and for a while the area feels like it has been scalded. Places where skin is most sensitive (arms, legs, torso, face, neck) are most vulnerable. Moisture from perspiration speeds the absorption of the psoralens.

Ouch! A run-in with wild parsnip can cause blisters and discoloration of the skin.

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Blisters appear a day or two after sun exposure. Soon after blisters rupture and the skin begins to heal. One of wild parsnip's "signature" effects is a dark red or brownish discoloration of the skin in the area where the burn occurred. This hyper-pigmentation can persist in the skin for as long as



two years.

Parsnip burns often appear as streaks and long spots. These reveal where a juicy leaf or stem drags across the skin, and is then exposed to the sun. Because of its surface resemblance to the effects of poison ivy, and because wild parsnip is so rarely accurately identified, it nearly always is diagnosed and treated as poison ivy. If you note the six clinical differences (see sidebar), however, you can readily tell them apart.

Treating a parsnip burn

If you get a parsnip burn, relieving the symptoms comes first. The affected area can be covered with a cool, wet cloth. If blisters are present, try to keep them from rupturing for as long as possible. The skin of a blister is "nature's bandage," as one doctor put it, and it keeps the skin below protected, moist and clean while healing occurs. When blisters pop, try to leave the skin "bandage" in place. To avoid infection, keep the area clean and apply an antibiotic cream.

Adding Domeboro powder to cool cloth compresses can help dry weeping blisters. Some doctors recommend a topical or systemic cortisone-steroid for extreme discomfort. For serious cases with extensive blistering, consult a physician.

Avoiding exposure, of course, is the wisest tactic. By learning to recognize the plant in different seasons and in different stages of growth, you can steer clear of it, or protect yourself by wearing gloves, long pants and long-sleeve shirts. Some people pull up the wild parsnips in the evening, when exposure to sunlight is minimal. If you do get the plant juice on your skin, the sooner you thoroughly wash the area, the less you will be affected.

Tales from the field

In case you're wondering, I've learned about wild parsnip burns firsthand. Over a decade ago, and newly arrived to Wisconsin where wild parsnip is common, I didn't believe my naturalist-friend who told me that it could cause blisters. Regarding myself as more of a botanist than she, and having never heard of such a danger, I scoffed. While she looked on dubiously, I picked a leaf, crushed it in my fingers and rubbed it on the underside of my forearm.

As I'd expected, nothing happened all that day and I remember feeling a bit smug. By afternoon the next day, however, I was not feeling so confident. The area on my arm turned red and quite sore. A few hours later, a three-inch long blister bubbled up and swelled like a miniature balloon.

I learned my lesson, but that didn't stop me from experimenting further. Borrowing a term from prairie managers, I now conduct "controlled burns" on my arms most summers; using the resulting small blisters and spots for show-and-tell to educate others about wild parsnip.

Many friends and acquaintances have shared their experiences with parsnip burns. One person told of a small burn that appeared unexpectedly on his leg. He had been pulling wild parsnip from a prairie on a sunny day while wearing protective clothing. It wasn't until the burn appeared that he noticed a small hole in his jeans, just large enough to admit plant juice and a bit of sunlight. One friend received a frighteningly bad case of parsnip burns. He had been clearing parsnip from a field with a scythe while wearing

sandals and shorts. The resulting burns were so bad that his legs looked like they had been sprayed with acid.

In the literature about wild parsnip and other phototoxic plants, there is mention of a contemporary contributor to the problem: weed whackers or string trimmers. These machines can spray bits of pulverized leaf and stem over the exposed skin of their operators, resulting in bizarre speckled patterns of small blisters and redness. One dermatologist in Madison saw such a case last summer. And another family practitioner in southwest Wisconsin regularly treats high school students who are hired to cut weeds along roadsides, typically while shirtless, for parsnip burns.

Have you been burned?

Keep these three points in mind when you encounter wild parsnip:

1. Everyone can get it. Unlike poison ivy, you don't need to be sensitized by a prior exposure. Wild parsnip causes a non-allergic dermatitis that can occur with the right combination of plant juice and sunlight.
2. You can touch and brush against the plant -- carefully -- without harm. Parsnip is only dangerous when the juice gets on skin from broken leaves or stems. Fair-skinned people, however, may be extra-sensitive to tiny amounts of juice.
3. Wild parsnip's "burn" is usually less irritating than poison ivy's "itch." Generally, wild parsnip causes a modest burning pain for a day or two, and then the worst is over. The itch and discomfort from poison ivy, in contrast, can drive people crazy for a long time.

Some unanswered questions remain. I did not test, nor did I find in the medical literature, how long skin remains sensitive to sunlight after being exposed to parsnip juice. And there are also other plants in Wisconsin -- such as Queen Anne's lace or wild carrot (*Daucus carota*) and cow parsnip or hogweed (*Heracleum maximum* and *Heracleum mantegazzianum*) -- that are reported to contain psoralens that cause phytophotodermatitis.

Are you interested in helping me discover more about the wild parsnip and other burning plants? I invite all interested readers to consider the two questions listed below. Send your responses to the e-mail address following the questions, and together we can add to what's already known about these fascinating species.

- Question 1: Is wild parsnip found in your area, how abundant is it, and where is it commonly found?
- Question 2: Do you have personal experience with parsnip burns (or burns from other plants)? Tell the tale.


E-mail your responses to: [David Eagan](mailto:David.Eagan@wnrmag.com)

I hope to hear from at least one person in every county in the state. An update on wild parsnip and other phototoxic plants, which will include your feedback, will appear in a future issue of Wisconsin Natural Resources magazine.

DAVID J. EAGAN is a field botanist, naturalist and native plants gardener who

works for the Institute for Environmental Studies at the University of Wisconsin-Madison.

Botanical basics



Life history: Wild parsnip typically lives for two years. The first year, as a spindly rosette of leaves, it keeps fairly low to the ground while the plant's carrot-like taproot develops. It may live two or more years this way until conditions are right for flowering. The second year, a hollow, grooved flower stalk rises 2-5 feet high, first holding clusters of yellow flowers and later dozens of flat, oval seeds.

Leaves: Pinnately compound, with a main stem and 5 to 15 leaflets.

Flowers: Yellow, in flat-topped umbrella-like clusters at the top of the plant.

Season: Wild parsnip rosettes are among the first plants to become green in spring, and its flowers turn a prominent yellow in midsummer. After flowering and going to seed, plants die and turn brown in fall, but first year rosettes remain green until frost.

Habitat: Roadsides, abandoned fields, unmowed pastures, edges of woods, prairie restorations.

Web sites for further medical and scientific information

- [Plant Poisoning -- Phytophototoxins](#)
- [Identifying Noxious Weeds of Ohio](#)
- [Poison Ivy Dermatitis](#)