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Helping People Help The Land

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The Reverchon Naturalist

Recognizing the work of French botanist Julien Reverchon, who began collecting throughout the North-Central Texas area in 1876, and all the botanists/naturalists who have followed ...

Wild Onion

Allium sp.

Kaleb Pool

The wild onion's (*Allium sp.*) fragrance offers a smell that I can remember throughout my life. Whether you chop some up while mowing the grass, crush some beneath a tire while driving through a field, or simply get a whiff of it on a passing breeze, it will likely be a plant you'll not soon forget.

In most cases, I believe it has been *Allium drummondii* that I've run across. This species was discovered by Thomas Drummond, a Scottish botanist and collector, while he explored and collected plants in North America. Common names for this plant are Drummond's onion or prairie onion.

Figure 1 (*above*). Clusters of showy flowers adorn Drummond's onion. ***Photo source: www.plants.usda.gov***

Figure 2 (*right*). Edible bulbs of the native Drummond's onion. ***Photo source: www.texasbeyondhistory.net***

Wild onions of this species have been found in at least 7 states in the central U.S. including: Texas, Oklahoma, Kansas, Nebraska, South Dakota, Arkansas, and New Mexico. However, other plants in the *Allium* genus have been known to occur in temperate climates all over the Northern Hemisphere and even a few species have been found in South America and tropical Africa. Species boundaries for this taxa are somewhat unclear since it is widely accepted that there are about 750 species around the world, but some estimates are as low as 260 and range to as high as 860.

Allium drummondii is a herbaceous perennial monocot that propagates through bulbs. There are generally 3 to 4 leaves that emerge from the basal bulb, and an erect stem produces a cluster of small, delicate flowers that range from pale pink to a darker magenta color (Figures 1 and 2). These flowers will eventually turn into dense, nut-like seeds.

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See You Down the Road

By Ricky Linex
NRCS Wildlife Biologist
Weatherford, Texas

Second Spring, Second Chance

Spring rains in May and early June have been very beneficial for much of the north central Texas area. These rains have greened up much of the grass across the area. These rains came too late to offer much help with annual forbs and wildflowers; these were rains that benefited the grasses. Where the grasses had not been over-grazed and a good cover of litter remained upon the soil surface, these rains allowed the landscape to act as a water catchment, taking into the land the bountiful raindrops. Raindrops landing upon upstretched leaves infiltrated down through the standing leaves and grass stems to reach the matted litter, and then soaked into the topsoil and percolated downward deeply into the soil profile and perhaps into an aquifer, recharging the underground water table.

Where grazing had been too aggressive and bare soil has shown through only the thinnest cover of litter, these raindrops smashed into the soil surface with the force of a small explosion, dislodged soil particles which became suspended in the water and paused only a few seconds before seeking the path of least resistance, to run down slope taking water and soil toward the nearest draw, creek or river. This land is truly acting as a watershed with raindrops scouring the topsoil and creating erosion at the point of contact as well as along the flow of the runoff and deposition of this topsoil into our creeks and rivers. There are numerous reasons why landowners treat the land the way they do. I'm sure most of the reasons fall into socio-economic motives that people feel cannot be easily remedied. To quote Willie Nelson from the 1982 movie *Barbarosa,* "What cannot be remedied must be endured." We do not have to endure over-grazing of the lands of Texas. We can remedy over-grazing with a change in mindset, education into plant health based upon grazing management and stocking rate calculations based on available forage. It takes work to be a good grass manager. At the end of the day, a rancher's crop is not measured in the pounds of livestock produced, but in the pounds of forage produced.

photo spot

Mud Puddling, anyone (above right)? It was a *Lepidoptera* festival on a bare spot along the roadside! "Mud puddling" is a foraging technique that benefits the health and vigor of butterflies and their offspring. Butterflies, usually males, will sap up the water from seeps and other moist, bare ground areas. The dissolved salts and minerals are then passed along during mating. Nectar and nutrients make a complete and nutritious diet.
Photo credit: Melissa Sturdivant, Soil Conservationist, USDA-NRCS.

Canada wildrye *(Elymus canadensis)* (above left), is a cool-season grass that usually has thick and bristly spikelets forming at the end of its arching culms. This specimen is truly robust and healthy with spikelets more than 10 inches in length.
Photo credit: Rebecca Svoboda, Soil Conservationist, USDA-NRCS.

Citizen Scientists Take On Invasives in Texas

Dana Wilson

The arrival of spring brings renewed energy to get out in nature and volunteer in our area parks and wild spaces.

This year, area Master Naturalists, Master Gardeners, Scouts, and other citizen scientists in the north central Texas area are off to a running start in the battle against invasive species.

In two workshops conducted through the Lady Bird Johnson Wildflower Center's "Invaders of Texas" Program, 55 volunteers learned about the nature of invasive species and what are the most common invasive plants in the north Texas area.

Figure 1 (*above*). Trained "Texas Invaders" volunteers head into the bush for the planned attack.

Figure 2 (*below*). On a mission to eradicate invasive plant species, "Texas Invaders" volunteers work to eradicate noxious plant species that choke native Texas landscapes.

Photos credit: Jim McIntosh, Texas Master Naturalist (North Texas Chapter), and a "Texas Invaders" volunteer.

During the training, volunteers explored resources in the "Invaders" database to learn how to recognize species, to record species, and they also learned techniques for eradication of invasive species.

Once armed with knowledge, then it was time to get into the fields and take action. In mid-April, citizen scientists, AKA "Invaders" volunteers, descended the hill on Bluebonnet Trail at Cedar Ridge Preserve in Dallas (Figure 1). Armed with knowledge, dedication, and a few shovels, axes, saws, and loppers, they *attacked* and helped to eradicate invasive privet and nandina from the nature preserve (Figure 2). Every plant that is eradicated is a plant what won't spread, won't disperse seed…and will provide an opening in the ecosystem where, hopefully, a beneficial native plant will have a chance to grow. One by one, plant by plant, "Texas Invaders" volunteers CAN make a stand to control invasive plant species!

Dana Wilson is a Certified Trainer for the "Texas Invaders" Program. Dana is also a Texas Master Naturalist and member of the North Texas Chapter, and lives in the Dallas area.

Editor's Note: Do you want to help slow down the spread of harmful invasive species and reduce their ecological and economic damage? If so, visit www.texasinvasives.org for more information about the "Texas Invaders" Program and how to become a trained volunteer. Also, check out page 5 for additional information to help you fight those invasive species.

Detritivores and Decomposers: Nature's *Recyclers*

Jim Stanley

Most folks know that water evaporates from the oceans, moves over land, and rains, and the rain either runs off the land into rivers and back to the ocean or soaks into the soil where it either cycles through vegetation or seeps into water tables and aquifers, but it eventually all returns to the oceans.

It is also fairly well understood that light energy from the sun is used to convert carbon dioxide and water into chemical energy stored in the chemical compounds that make up green plants. When herbivores eat the plants, some of the energy in the plant chemicals is converted into chemicals of the herbivores' bodies, which are then eaten by carnivores to make the chemicals in the carnivores' bodies, and so on up the food chain the energy transfers. Some molecules that are consumed by animals are used directly by the animals, such as sugars. Other molecules are broken down and rearranged into different molecules for the consumers' bodies.

But when plants and animals die, what happens to the carbohydrates, fats, proteins, and bones in their bodies? When the animals eliminate waste, what happens to that? And, how does it happen? In addition to the herbivores and carnivores of the animal kingdom, there are living things called detritivores, and these species eat dead plant and animal material, and animal waste, in order to build their own bodies, and they in turn, produce waste. Eventually, all of the larger complex chemicals that made up the plants and animals are broken down into simpler chemicals or elements which then become the nutrient building blocks of the next generation of living things.

When you think of nature's recyclers, the species that probably first comes to mind are vultures (both turkey vultures and black vultures). But, there are a lot more species that either live almost exclusively or partially on the consumption of dead things. Ravens and crows, of course, and most omnivores such as coyotes, foxes, raccoons, skunks, opossums, rats, and mice will eat dead animals when given the opportunity.

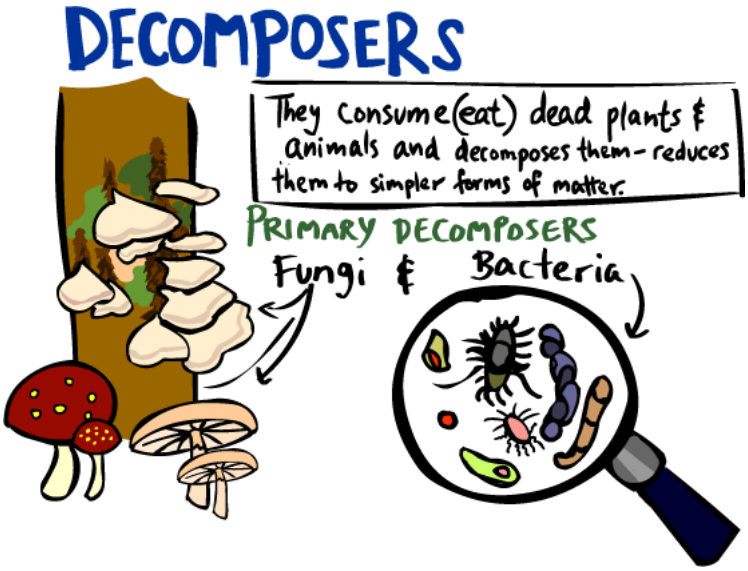

Figure 1 (above). Some of the more common decomposers include fungi and bacteria. These "recyclers" keep the nutrients moving in an ecosystem. ***Photo source: www.sjfc.edu***

Additional clipart used with permission: www.wpclipart.com

There are also fish that will eat almost anything (e.g., catfish). The young of many animals and insects will eat small bits of dead plants because they are not yet large enough to eat other animals. Earthworms, dung beetles, ants, centipedes, crawfish, and tadpoles are such examples. Many species of flies lay their eggs in dead animal carcasses as well as on manure, and the larva feed on that material when they hatch.

Thus, much of the dead plant material and animals and waste are recycled into other organisms. All perform a service we can appreciate. If something didn't take care of all of the dead plants and animal bodies and waste, the forest floor would be many feet deep in these materials. Of course, if these raw materials were not being recycled, we would eventually, if we had not already, run out of things.

But, the process doesn't stop there. Organisms frequently called "decomposers," usually bacteria and fungi such as mold and mushrooms, further break down dead organic material into its simplest molecules and elements, and return these simpler materials back to the ecosystem as carbon dioxide and water, plus various minerals such as nitrates, calcium, phosphorous, and potassium (Figure 1).

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(Continued from Page 1— Wild Onion)

All the specimens that I've found have been growing in full sun and in fairly shallow, damp soils like those found along creeks and streams, or in those soils typically found in seep areas.

Wild onions are generally not preferred by livestock or wildlife, and are considered to be "off-putting" to most grazers or browsers. Cattle will sometimes inadvertently graze the plant while eating other grasses, and this will be evident in any milk provided as it will have an onion smell and taste.

Historically, wild onion was used by humans for food whether it was used as a seasoning or as a stand-alone food.

There is a plant that mimics wild onion and is mildly toxic, if consumed. Crow's poison (*Nothoscordum bivalve*) or false garlic, looks almost identical to wild onion, and the only way to tell the difference is that crow's poison doesn't have the characteristic odor of onions. The toxin is mild, but if enough is consumed, it can cause a stomach ache.

Many of the wild onion's "cousins" are still economically important today and are widely cultivated, and include: domestic onion (*A. cepa*), French shallots (*A. oschaninii*), leeks (*A. ampeloprasum*), scallions (*A. spp.*), and herbs such as garlic (*A. sativum*) and chives (*A. schoenoprasum*).

Due to their showy flowers, many of the *Alliums* are used as ornamental plants as well. They are available for use in landscapes and are often displayed at gardening shows.

Kaleb Poole is a District Conservationist for the USDA-NRCS in Cleburne, Texas.

TEXASINVASIVES.ORG

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(Continued from Page 4—Detritivores and Decomposers)

It is these organisms that decompose organic litter on the surface of the soil into small enough particles to be carried into the soil by rainwater. Also, this is where other bacteria and fungi convert many of these minerals into forms that can be taken up by the roots of plants.

Mother Nature doesn't waste anything! Everything is recycled. Atoms are essentially indestructible.

Every gardener knows that the component of our soil that is most lacking is organic matter and it is organic matter that helps make the soil porous, light and airy as well as being a source of important nutrients. When gardeners compost dead plant material and then put it on their vegetable gardens or flower beds, they are simply using Mother Nature's processes to break down organic matter into simpler compounds and make it available for the living plants, as well as maintaining their soil in a healthy, fertile state.

Jim Stanley is a Texas Master Naturalist and the author of the book, "Hill Country Landowner's Guide."

A Visual Clue for Landowners

Mike Miller

The bumper crop of grasshoppers was evident. As our ATV traveled down the pasture road, the little kamikazes struck us with reckless abandon. I dodged hoppers, evaluated range conditions, and took notes on the overall lack of nesting and fawning cover. I began to notice that the taller warm season grasses could be found in every clump of prickly pear and every downed cedar skeleton—where grazers couldn't reach. As I searched for the right words to let the landowner know that the pasture was overgrazed, and livestock deferment was sorely needed, he remarked, "Look at what the grasshoppers have done to this place." Now, I know that grasshoppers are particularly bad this year, and they take their fair share of forage, as evidenced by the defoliated ornamental plants behind my house, but that didn't fully explain what happened to the forage in his pasture.

Good land stewards want to maintain plant health, watershed function, and have plenty of nesting and fawning cover. But, like the proverbial frog being boiled alive without realizing it, forage can be over-utilized by livestock, deer, or exotics before the realization occurs that animals need to be removed. Grazing exclosures can be a practical method to help landowners estimate forage use, determine appropriate stocking rates and pasture recovery periods, and understand the role of environmental conditions. The exclosures exclude ungulates from small, representative areas so vegetation changes outside the cage can be compared to changes inside the cage.

A simple exclosure can be constructed with 2 – 16' cattle panels (4-foot tall, 4" openings) pulled into a circle with the overlapping ends wired together. Each exclosure is then wired to 2 to 4 T-posts driven into the ground for support. You can also build 4' x 4' or 8' x 8' square cages wired to T-posts at the corners (Figure 1). Regardless of the design, they need to be tall enough to discourage grazing and browsing use, but yet small enough (in terms of square footage) to prevent deer from jumping inside.

One exclosure should be placed in each pasture, but you can place more according to changes in soil and vegetation. You can also place a few around small woody plants that receive browsing pressure from deer, goats, or other browsing animals. With a little practice, you will be able to discern browsing pressure on woody plants outside as compared to inside the cages.

Placing cages in food plots can help you determine how much grazing pressure the plot is receiving. A few years ago, I met with an absentee landowner who complained that his food plot didn't do too well. After placing a cage in the plot the next year, he found that seed germination and plant growth were fine inside the cage. Outside of the cage there was just too much foraging from deer for the new plants to thrive.

Plan to visit the exclosure cages a couple times each year, and take pictures. You may want to visit during the growing season (May/June) and during the dormant season (Jan/Feb). Take pictures from about 10 feet away, looking north so that some area outside of the cage is viewed within the picture. Not only can immediate comparisons be made inside versus outside of the cages, but you can begin to evaluate vegetation trends by examining pictures over time.

Figure 1 (*above*). 4' x 4' square cage erected as a grazing exclosure helps with monitoring of grass utilization.

Photo credit: Dean Marquardt, Private Lands Biologist, with Texas Parks and Wildlife in Granbury, Texas.

Exclosures provide a visual cue for adjusting livestock management practices and/or reducing deer numbers to accomplish your forage and wildlife cover goals. Like the old adage, "A picture is worth a thousand words," exclosures tell a story that can help you become a more effective land steward.

Mike Miller is a Technical Wildlife Biologist with Texas Parks and Wildlife in Stephenville, Texas.

Afternoon Delight

Ricky Linex

In the spring of 1976, a young group called the Starland Vocal Band came out with a chart-topping hit called, *Afternoon Delight*. When walking around in the hot afternoon sun, I often think of this song, especially when walking among a small and com-mon perennial forb.

Spreading sida (*Sida abutifolia)* is a sleepy plant during the summer months. This perennial begins growth after the last frost and begins blooming in early May. One who takes an early morning walk to take advantage of the cooler weather will not see the flowers of spreading sida. One who dares to look in the afternoon sun will see the same plants ablaze with bright yellow to orange-yellow flowers which arise from the leaf axils. Throughout the summer months, these flowers bloom, but only in the afternoon sun (Figure 1).

Spreading sida does just as its name implies—spreading prostrate upon the soil surface turning skyward only when growing upon other plants. Stems originate from a woody root and may reach up to 20 inches in length. The leaves of this species of sida alternate up the stems, are coarsely toothed, and have a flat base with a rounded tip, and can reach 1¾-inches in length though often seen smaller. The petiole is about the same length as the leaves. The leaves and stems have star-shaped hairs visible under magnification (Figure 2). The five, yellow petals are united at the base and average about ½-inch across (Figure 3). Fruit is a capsule having two prominent points or beaks.

Spreading sida is eaten by sheep, goats, deer and occasionally cattle. Crude protein ranges from 20 percent during early summer dropping to 14 percent in late summer with medium to high energy values. The seeds are eaten by quail, and the flowers are visited by many pollinators. Spreading sida can be found in all soils, especially sandy or rocky soils in open hills, ledges and out-crops, rocky prairies, and open woodlands.

Though the lyrics of the song, *Afternoon Delight,* stray slightly from one's observations of forbs and flowers, this plant does provide afternoon delight to those who observe it. Take a walk in the afternoon sun, and you will find this delightful plant ablaze with color.

Ricky Linex is a Wildlife Biologist with the USDA-NRCS in Weatherford, Texas, and also serves as the Co-Editor for the Reverchon Naturalist.

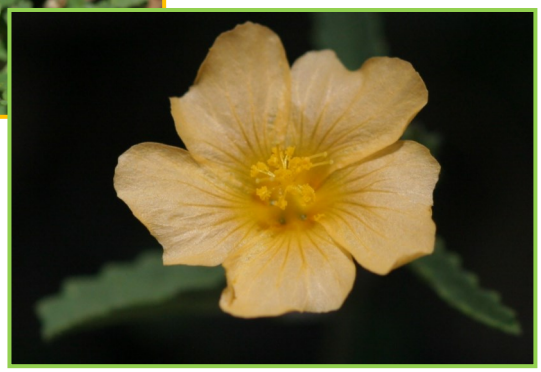


Figure 1 (above). Flowers of spreading sida are just beginning to open in the afternoon sun at 2:52 pm on June 6th.
Photo credit: Ricky Linex, USDA-NRCS.

Figure 2 (inset above). 125x magnification of a spreading sida stem reveals star-shaped clusters of trichomes or leaf hairs.
Photo credit: Melissa Sturdivant, USDA-NRCS.

Figure 3 (right). A close up of spreading sida's flowerhead.
Photo credit: Ricky Linex, USDA-NRCS.

Adding Diversity to Lesser Prairie-Chicken Habitat: Rainbow Germplasm Wild Plum

(Prunus sp.)

Brandon Carr

Wild plum is a native, perennial, warm-season shrub or small tree. Plants sucker out, creating thickets ranging from 4 to 10-feet tall (Figure 1).

The ½ to 1-inch fruit ranges in color from deep yellow to bright red and ripens from June to September (Figure 2). The leaves are simple and grow alternate or in a cluster of each other. The flowers of wild plum are white in color, fragrant and small. They bloom between February and May and typically have five petals with many stamens. Wild plum often occurs along fence rows, roadsides, and prairie streams. It preforms best on well-drained sandy loam soils throughout northwest Texas and southern Oklahoma with 22 to 30 inches of annual rainfall.

Figure 1 (above). Growth typical of thicket-forming wild plum. Photo source: USDA-NRCS James E. "Bud" Smith

Figure 2 (below left). Plump fruit of wild plum is a highly -valued food source for many wildlife species. Photo source: USDA-NRCS James E. "Bud" Smith PMC.

It is easily established from seed or root sprouts. Stratified seed can be planted in April or May. Root sprouts should be planted in late fall, or after frost and before new leaf formation in the spring. Plantings should be planned in compact groups or motts on 2 to 3 foot centers.

Rainbow Germplasm is a composite plant release from the James E. "Bud" Smith Plant Materials Center in Knox City, Texas. Seed was collected and combined from native plants located in Kent, Fannin, and Wise counties in Texas.

Wild plum has many benefits as a conservation plant. It can be included in lesser prairie-chicken habitat plantings to provide resting, escape and thermal cover. It is an important plant for wildlife food and cover. The thickets provide excellent cover for large and small mammals and game birds, as well as nesting cover for song birds. The fruit ripens from June to October supplying food for deer, small mammals, and various types of birds throughout the summer and fall months. The early spring blooms provide nectar to many species of pollinators. Wild plum also provides excellent erosion control and plant diversity for surface-mined areas. It is also used in shelterbelt plantings and for beautification in landscaping projects.

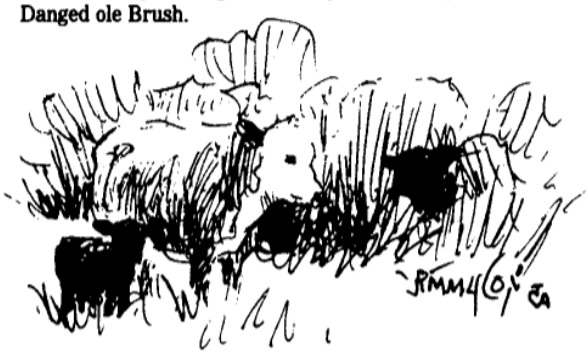
Brandon Carr is a Soil Conservationist with the James E. "Bud" Smith Plant Materials Center (PMC), USDA-NRCS, in Knox City, Texas.

That Danged Ole Brush!

By Jake Landers
Extension Range Specialist, San Angelo, Texas

Illustrations by Jimmy Cox

When you sell all your goats 'cause of coyote kill,
Then the good price of mohair is a bitter pill,
And oak bud poisoning has made your cows ill,
Danged ole Brush.



When your neighbor's bull gets your heifers bred,
And he's black as coal and you like 'em red,
And all you see through the mesquite is his head,
Danged ole Brush.

At first you doze and then you spray
And then you grub the wetback way.
You want to burn but it might get away,
Danged ole Brush.

When your horn's all muffled by young growth of cedar,
And you can't find a sick cow in order to feed her,
And your wife says she'll help look if you need her,
Danged ole Brush.

A brushy wall holds up your fences,
And your neighbors think you've lost your senses,
And you balance your books except for expenses,
Danged ole Brush.

Your grazing plan's not working-out right.
Thickets a plenty put the ewes out of sight,
And sick baby lambs keep you up all the night,
Danged ole Brush.

You go to the bank and add to your loan
And fix up the fences and stand by the phone
And sign up the hunters with an encouraging tone,
Danged ole Brush?

You bring in the hunters a thousand a gun
Who don't get much meat but have lots of fun.
Income beats expenses hundred to one,
Danged ole Brush!

Charcoal flavors, mesquite and oak,
Wood chips and firewood, it's no joke
What people'll pay to make the smoke.
Danged ole Brush!

There may be a need for changing my ways,
It's hard to admit brush management pays,
I guess I'll hate it the rest of my days,
Danged ole Brush.

From Ranch Magazine - December 1986

Jake Landers is retired range specialist with Texas A&M AgriLife and lives in Menard, Texas.

Learning about plants is a lot more fun when afield! Zone 5 Wildlife Biologist Ricky Linex explains the value of compassplant *(Silphium laciniatum)* (below), to fellow conservationists who listen attentively during a plant ID training held in central Texas.

Photo credit: Chad Hajda, Soil Conservation Technician, USDA-NRCS.

See anything happening on your Texas rangelands? Articles and photographs related to the flora and fauna of our native landscape are welcome. We'd really like to hear from you; share what's happening in your part of the state.

Send a photo for the "Photo Spot" section! A picture is worth a thousand words, right? But, articles are always welcome. Send your 300 to 500-word essay to Ricky Linex at ricky.linex@tx.usda.gov or Melissa Sturdivant at melissa.sturdivant@tx.usda.gov.

Melissa Sturdivant

Melissa Sturdivant is a Soil Conservationist for the USDA-NRCS in Goldthwaite, Texas, and serves as the Co-Editor for the Reverchon Naturalist.

A Royal Subterfuge: Mimicry Among the Monarch-y

The Queen butterfly (*Danaus gilippus*) (Figure 1) can fool you if you don't look close enough. It, like the Monarch (*Danaus plexippus*), is a famous Milkweed butterfly. Butterfly mimicry can be deadly for those animals predating upon them. Queens, just like the Monarchs, forage on both plants and nectar from the Milkweeds which results in less than savory food and often near-fatal results for the consumer.

The royal subterfuge must be working—the whole "royal family" is involved: the Viceroys and Queens are trying to *mimic* the Monarch-*y*. Viceroy butterflies (*Limenitis archippus*) have engaged in the game of mimicry, but not the whole process. Viceroys don't feed on Milkweeds, so needless to say, they *might* actually be tasty. I haven't tried them though, and not many other animals have either. Is it because they look so much like the Monarch? Probably, and that's just one advantage of mimicking a toxic alkaloid-laden morsel like the Monarch butterfly. That's pretty amazing! Birds and other predators have figured it out —maybe it's that they *must* all taste bad because they look so similar to one another. So, the "royal" family gets the "royal" treatment. Each of these butterfly species seems to be avoided which increases the chances of survival and reproduction. It's a win-win scenario for all involved in the "mimicked Monarch-*y*," except the hungry bird or other insect-eating consumer.

To help you ID them in the field, here are a couple of useful hints: Queens do not usually have the dark venation on the upperside as compared to the Monarch or Viceroy (Figures 2, 3 & 4); and, to tell the difference between the Monarch and the Viceroy, the Viceroy has a dark horizontal band on the hindwings and the Monarch does not (Figures 3 & 4).

1. Queen underside; 2. Queen upperside; 3. Monarch upperside (www.icr.org); 4. Viceroy upperside (www.baylor.edu)

Photos credit (unless otherwise noted): Melissa Sturdivant, Soil Conservationist, USDA-NRCS.

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