



## **2021 Spring Roan Mountain Naturalists Rally Modified Format Saturday, April 24, 2021**

The Spring Roan Mountain Naturalists Rally is modified this year due to the Covid-19 pandemic. Instead of the usual three-day event, the rally will only be one day with no evening programs, and no meals will be offered. We are planning to return to our regular schedule as soon as possible.

Field Trip participants will meet in the field adjacent to the cabins in Roan Mountain State Park for all trips. For this rally, all trips are free and there is no printed brochure.

Our hikes will feature Birding, Salamanders, Snakes, Wildflowers, Mosses and Liverworts, Owls, Wildlife Tracking and Signs, Nature Photography, Ecology Exploration, Geology of Roan Mountain and more. They will be led by some of the area's leading naturalists. There is something for all levels of interest including many kid friendly hikes.

Trip options and registration can be viewed at  
<https://www.friendsofroanmtn.org/2021-spring-rally-trips>.

Due to Covid-19, extra precautions are being taken. Our first priority is to keep everyone safe. To meet recommended State of Tennessee and Roan Mountain State Park guidelines for safe COVID-19 protection for organizers, trip leaders and rally participants, the following measures will be taken:

1. Everyone should maintain a safe distance of at least 6 feet.
2. Everyone will be required to bring a mask and wear it when social distancing is not possible.
4. Trip group size will be limited to 9 participants and 1 leader.
5. Pre-registration is required for all events (Participants will sign up online. Once you register, you will receive an email with a ticket.)

Please consider supporting this and all our rallies by joining the Friends of Roan Mountain or by donating.

For additional information, please email Larry McDaniel, Spring Rally Director at [larrycmcd@hotmail.com](mailto:larrycmcd@hotmail.com) . For general park information, contact Roan Mountain State Park at 423-547-3900.

# Helpful Hornets, Friendly Flies, and Beloved Bees

## Roan Mountain's Hidden Pollinator Brigade

— Cade Campbell



Bees are world-renowned for their role in pollinating plants, making honey, and helping produce human food (fruits, vegetables, etc.) in the process. Without them, we would be in serious trouble. However, bees alone are not environmental saviors; they're only a tiny fraction of a larger, intimidating (sometimes literally) realm of pollinators! Especially, conventional honeybees. Every plant, especially our native wildflower species, has a specific set of compatible pollinators, including but not limited to bees, wasps, beetles, and flies. Even butterflies, hummingbirds, and other exciting, colorful species are well-known for visiting tubular Turk's Cap Lilies (*Lilium superbum*) and Lobelias in the Blue Ridge summer, but what about all the other swarming, buzzing activity around high-elevation wildflowers?



**Lily Leaf Beetles (*Lilioceris lili*) pollinate Turk's Cap Lilies as they move from plant to plant, devouring the petals, stems and leaves at the end of the season. After they finish eating and breeding, the lilies become virtually invisible without colorful blooms and the adult beetles die; only to return the next year. Beetles are much more primitive pollinators than bees, and their amazing biodiversity often makes them much more effective when pollinating certain plant species. Honeybees will not touch certain species of wildflowers that beetles love.**

One example of these special pollinators is well-known to experienced hikers on the balds of Grassy Ridge, Roan High Knob, and Carver's Gap. Around six species of hornets (*Dolichovespula*) and yellowjackets (*Vespula*) occur regularly on the mountain, but one is particularly common, and incredibly fascinating; the Parasitic Blackjacket (*Dolichovespula arctica*). They're most frequently observed "drunkenly" stumbling around, defending the umbels of Mountain Angelica (*Angelica triquinata*) along the Appalachian Trail, and they have the capability to strike fear into many unfamiliar hikers (even those who don't know their horrific-sounding name). With a defensive-to-aggressive disposition, a cloak of solid-black wings, and a skull-like facial pattern, this species is impressive to watch as they hunt smaller insects and zoom from flower to flower. Don't let their appearance fool you, though; these same insects are also the predominant pollinator for a great deal of sweet-scented plants of clearings, balds, and meadows, bolstering the summer tranquility by buzzing from flower to flower, showcasing their vibrant patterns and humorous antics.

Every spring, the only surviving member of the previous year's colony is a large, lonely queen. She crawls with rapidly buzzing wings and muscular legs from the depths of decaying wood where she spent the winter "supercooled;" frosted on the outside with rows of jagged ice crystals, sifting antifreeze slowly through her body on the inside. Such an emergent queen is extraordinarily ready to build a new nest, rear an "army" of workers, and help plants complete their life cycle and yield tasty fruit. *Usually*. Other boreal species common on the balds, like



the similar (but yellow) Northern Aerial Yellowjacket (*Dolichovespula norvegicoides*), adhere to this strategy. Blackjackets and aerial yellowjackets often have above-ground, hanging nests that look like ornate birch bark, while other hornets and yellowjackets frequently construct underground nests. But as these queens hatch their first brood of daughters in a successful paper nest, the Parasitic Blackjacket (*D. arctica*) wakes up late. Altering her pheromones to match those of the other species' workers, she calmly marches inside the nest and elegantly executes the existing queen. Replacing her own pheromones once again, this time with those of her predecessor, she "convinces" the new workers begin incubating her own eggs and soon the nest is entirely dominated by the new, parasitic species. This is a brutal tale, but many of the endemic wildflowers on the mountain need these unique hornets, all species of them. Together, they have different preferences, different ecological niches, and unique life histories that enable many more plant, insect, and even larger bird and mammal species to thrive together.



**Parasitic Blackjackets (*Dolichovespula arctica*) and their unsuspecting host, the Northern Aerial Yellowjacket (*D. norvegicoides*, middle), pollinating Mountain Angelica alongside some ground-nesting yellowjackets and bluebottle flies.**



**An Eastern Forest Sedgesitter (*Platycheirus obscurus*) hoverfly, pollinating a globally-endangered and endemic Spreading Avens (*Geum radiatum*) flower on Roan Mountain.**

Flies, beetles, and hornets are key pollinators on Roan Mountain. An Appalachian "sky-island," that is, one of the few Southeastern U.S. mountains with true subalpine, boreal forests, the area's biodiversity is incredible. Hundreds of species of plants host even more specialized pollinator species; and comparatively few of them are bees. Considering that there are at least two-hundred species of native bees (solitary, non-commercial bees, not including honeybees) native to the Appalachians, it's overwhelming to consider the full extent of pollinator speciation in the mountains. The preservation of these insects and their fascinating stories is very important; but how do we know what's there to protect and even simply appreciate? Pollinators can be hard to notice, identify, and appreciate (especially parasitic hornets!), but that doesn't degrade their distinct beauty and importance. Due to these factors, there is a proportionally small record of pollinator species on our iNaturalist database. You can help Roan Mountain's pollinators in a variety of ways (i.e. planting native wildflowers, minimizing mowed lawn areas, etc.) but one

important aspect of "pollinator preservation" is very easy for anyone with a smartphone or camera! Follow this link for more information about the Friends of Roan Mountain project to document biodiversity on the mountain: <https://www.inaturalist.org/projects/friends-of-roan-mountain-natural-history-database> All observations of wild plants, animals, and fungi are appreciated!

# Botany for Beginners

(Happy retirement Joe!)

Text & photos by Jamey April 2021

To honor Joe McGuiness' long-standing 'Birding for Beginners' walks at the Roan Naturalists' Rallies **and** his retirement early in the pandemic, here are some "learn the easy ones easily" vascular plant starters and how common names are not always truth-in-advertising, as well as some plant identification resources:

## Graminoids

**Graminoids** are grasses and herbaceous grass-like plants. This old rhyme is helpful for separating the three main graminoid families. The first two lines are standard, but the third line varies:

Sedges have edges,

Rushes are round,

Grasses have hollow stems wherever they are found.

**Poaceae**, the grass family, also has "leaves that grow up from the ground" that emphasizes the **intercalary meristems** at the base of stem nodes and leaf blades that push the leaves up. Meristems are the actively/rapidly growing undifferentiated cells capable of cell division. The intercalary meristems explain how grasses survive grazing much better than other plants while also explaining why lawns may need frequent mowing. Broomsedge (*Andropogon virginicus*) is a grass, not a sedge.

**Cyperaceae**, the sedge family, is well-known for the three-sided stems in the diverse sedge genus (*Carex*) while the spike-rushes (*Eleocharis*) can have 5 or more sides on the stem. And yes, the spike-rush might be better called spike-sedge. Other common name issues in this family include cotton-grass (*Eriophorum* spp.) and bulrushes. Many bulrushes in *Scirpus* have been moved to other genera such as *Bolboschoenus*, *Isolepis*, *Schoenoplectus*, and *Trichophorum* (the rare deerhair bulrush).

**Juncaceae**, the rush family, does tend to have to have round stems though some like the path rush (*Juncus tenuis*) are flattened but they still have rounded edges. I cannot think of any rushes with grass- or sedge-based common names.

Ed Schell had another take on the rhyme. After reciting the normal version, he would end it thus:

But, when it comes to sedges, it's then that I hedges,

And when it comes to grasses, it's then that I passes.

I do not recall him disclaiming rushes, but I thought it might go something like this:

When it comes to rushes, it's then that I hushes (or fusses)!

## MADCapBuck

Fig. 1: Which of these is not like the others?





**MADCapBuck** can help with learning woody plants. It is an acronym for the opposite-branched, opposite-leaved groups and mixes common names with a plant family name. There are far more alternate-branched woody plants than opposite-branched ones. I write it with mixed capital letters to indicate the different groups and use examples of local plants, native or not:

**Maple** – Maples (*Acer* genus) species (abbreviated spp.) were once in their own family (Aceraceae) but are now in the soapberry family (Sapindaceae). Maples tend to look like maples (simple lobed leaves) except for the boxwood tree (*A. negundo*) which has compound leaves. And do not be fooled by the maple-leaved viburnum (*Viburnum acerifolium*) – see fig. 1 middle image between red maple (*A. rubrum*) and striped maple (*A. pensylvanicum*).

**Ash** –Ashes (*Fraxinus* spp.) are in the olive family (Oleaceae) along with fringe-tree (*Chionanthus virginicus*), forsythia (*Forsythia viridissima*), swamp privets (*Foresteria* spp.), and privets (*Ligustrum* spp.).

**Dogwood** – Dogwoods (*Cornus* spp.) are in the dogwood family (Cornaceae), but do not be fooled by the pagoda dogwood (*Cornus alternifolia*) which is alternate-branched. Its leaves are similar to other dogwoods (see fig. 2).

**Caprifoliaceae** – the honeysuckle ‘super’ family is sometimes split to into other families (or subfamilies):

**Adoxaceae**, the moschatel family, includes elderberries (*Sambucus* spp.) and viburnums (*Viburnum* spp.).

**Diervillaceae**, the bush-honeysuckle family, has *Diervilla* spp.

**Linnaeaceae**, the twinflower family, has the twinflower (*Linnaea borealis*).

**Caprifoliaceae** still includes honeysuckles (*Lonicera* spp.), along with horse gentians (*Triosteum* spp.), and coralberry (*Symphoricarpos orbiculatus*).

**Buck** – for buckeyes (*Aesculus* spp.) since we do not have horse chestnuts locally. Buckeyes are our only opposite-branched woody plant with palmately-compound leaves. Like maples, the former buckeye family (Hippocastanaceae) has been moved into Sapindaceae.

Fig. 2: Pagoda dogwood’s leaf veins similar to other dogwoods (left). Buckeyes have palmately compound leaves:



Some other opposite- and subopposite-branched woody plants **not** in the MADCapBuck acronym that you might run across include:

#### Ones with Simple Leaves

*Euonymus* spp. include strawberry-bush, heart’s-a-busting, burning bush, and wahoo in the staff-tree family (Celastraceae).

Hydrangeas (*Hydrangea* spp.), climbing hydrangea (*Decumaria barbara*), and mock-oranges (*Philadelphus* spp.) have been moved out of the saxifrage family (Saxifragaceae) into the hydrangea family (Hydrangeaceae). See fig. 3 for a lookalike viburnum.

Butterfly-bush (*Buddleja davidii*), in the figwort family (Scrophulariaceae), is non-native and naturalizing, thus becoming an invasive exotic.

Empress or princess tree (*Paulownia tomentosa*) has been moved into its own family (Paulowniaceae). It is an invasive exotic that has been causing problems for decades.

Sweetshrub (*Calycanthus floridus*) is in the sweetshrub family (Calycanthaceae).

Woody St. Johns-worts (*Hypericum* spp.) are in the St. Johns-wort family whether or not it is recognized as Hypericaceae or Clusiaceae.

Buttonbush (*Cephalanthus occidentalis*) is in the madder/coffee family (Rubiaceae).

Partridge berry (*Mitchella repens*), a small woody vine, is also in the coffee family. See fig. 3.

Pirate-bush (*Buckleya distichophylla*) is a rare hemi-parasitic shrub in the sandalwood family (Santalaceae). It is a root-parasite of other plants while also doing photosynthesis.

### Compound Leaves

Bladdernut (*Staphylea trifoliata*), in the bladdernut family (Staphyleaceae), has trifoliate leaves.

Fig. 3: Witch-hobble (*Viburnum lantanoides*) (left) is similar to wild hydrangea (*H. arborescens*) in having showy sterile male flowers to attract pollinators to its smaller fertile flowers. Partridge berry is a small prostrate vine.



References used for compiling the list include Guide to the Vascular Plants of Tennessee (2015) and “Weakley’s Draft Flora” (see below).

### Plant identification keys and guides

There is a tendency to use picture books when starting out and that is a-okay. Just be aware that not all of our plants are in every popular field guide and common names may vary for individual plants as well as mix up different families.

**Technical floras** have all or at least most plant species in them for a given area, and they use dichotomous keys for identification. Dichotomous keys are binary, either-or, yes-no question-based flow chart ways of identifying plants. The terminology can be intimidating but the internet has made things so much easier without having to go to a library or herbarium. I have been using dichotomous keys so long I sometimes think two-dimensionally.

**Handlens:** technical floras require a 10-power handlens/loupe and sometimes a microscope. Many smartphone cameras can take quality closeup photos of plant parts and are becoming a fair substitute for the traditional handlens.

The following references supplement Charles R. Smith’s ‘**A Field Naturalist’s Reference Collection for Tennessee and Nearby States**’ (September 2015) which you can find at FoRM’s website under “links”.

I use multiple references and internet sources when identifying unknown plants:

Two of the best “wildflower guides” for our area are:

Horn, Dennis and Tavia Cathcart (Editors). 2005. **Wildflowers of Tennessee, the Ohio Valley and the Southern Appalachians**. Lone Pine Publishing. ISBN: 1551054280. Tavia Cathcart has been a speaker at two(?) of our rallies.

Carman, Jack. 2001. **Wildflowers of Tennessee**. Highland Rim Press, Tullahoma, Tennessee (out of print?).

**UT Knoxville Herbarium website** for plant pictures and Tennessee county distributions. You can search by common or scientific name (I like the genus search page). <https://herbarium.utk.edu/vascular/index.php>

**Digital Atlas of the Virginia Flora** is also useful <http://www.vaplanatlas.org/> for pictures and Virginia county distributions.

Tennessee waited a long time for its first comprehensive book for Tennessee plants: Chester, E.W., E.B. Wofford, J. Shaw, D. Estes, and D.H. Webb. 2015. **Guide to the Vascular Plants of Tennessee**. University of Tennessee Press, Knoxville. ISBN-10: 1621901009. ISBN-13: 978-1621901006. Prior to this book, Tennessee folks were using the Flora of Missouri (1999), Plant Life of Kentucky (2005), and the Vascular Flora of the Carolinas (1968).

**Alan Weakley's ongoing "draft flora"** is available online in different versions. He keeps adding new geographic areas. The latest version is the 2020 **Flora of the Southern and Mid-Atlantic States**. You can access them here <http://www.herbarium.unc.edu/flora.htm>

The **Flora of Virginia** comes in hardcopy as well as an app (\$19.99) for both android and iOS smart phones <https://floraofvirginia.org/>

Likewise, the **Flora of North America** North of Mexico has hardcopy and digital forms. I use the website far more than hardcopies. However, the large geographic range means a lot more species are in the identification keys than we have in our local areas, so things can get unnecessarily complicated, and not all editions have been published. You can learn more here [http://www.efloras.org/flora\\_page.aspx?flora\\_id=1](http://www.efloras.org/flora_page.aspx?flora_id=1)

**iNaturalist** is another app that is uniting amateur naturalists with professionals. Please do not reveal locations for rare species which means you need to identify plants before sharing locations. You can learn more here <https://www.inaturalist.org/>

Whatever your plant interest they are increasingly accessible with new publications and apps. High-definition dSLR and phone cameras can reduce the need to collect plants as long as photos are taken showing branching, flowers, stems, pubescence (or lack thereof), leaves, and other diagnostic features. Just please include something for scale in the photos (a centimeter ruler is preferred but many other things can be used instead). Happy explorations to any new budding botanists!

## Xtreme Roan Adventures 2021

Mark your calendar for the Xtreme Roan Adventures 2021, Friday and Saturday, July 30 & 31. Yes! We are going to get the kids outdoors again.

Many expert naturalists from all over the Tri-Cities have volunteered to help get the kids excited about the wonders of their natural surroundings. The naturalists will help them learn and identify birds, salamanders, millipedes, snakes, animal tracks, and much more. The purpose is to kindle a spark of curiosity in the natural surroundings into a burning lifelong appreciation of nature.

The Adventures are open to all kids ages 2 – 15. An adult is required to accompany the kids on the Adventures. So, it makes this a family Adventure.

This year the Free Friday Night Adventures at the Roan Mountain State Park amphitheater stars the very entertaining TJ and Guthrie Great Stage Show. They are crowd pleasers and expert arachnologists. (Pre-registration is required.)



Saturday will be a hive of activity with multiple Adventures taking off at 9:00 and 10:30 a.m. These Adventures will start and return to the R.M.S.P amphitheater.

Lunch break, 11:45 – 1:30 will be at the R.M.S.P. Conference Center. The porch of the Conference center will be full of nature crafts, wildlife and activity.

Afternoon Adventures start at 1:30. These will include hikes on the top of Roan Mountain.

Choices of Adventures are online at: [Friends of Roan Mtn.org](http://FriendsOfRoanMtn.org). and [Xtreme Roan Adventures.org](http://XtremeRoanAdventures.org).

Attendance is limited by the COVID-19 restrictions. Pre-registration is required at: [www.friendsofroanmtn.org/](http://www.friendsofroanmtn.org/).

Watch for the upcoming schedule at <http://xtmereroanadventures.org/>

Or contact: Ken Turner, 423-538-3419, [Ken@XtremeRoanAdventures.org](mailto:Ken@XtremeRoanAdventures.org)



# Twin Springs is Getting a Facelift!

The Twin Springs Recreation area, located 6.5 miles from Roan Mountain State Park's Gristmill Visitor Center along TN 143, sits at 4262' elevation. It has been the site of many family picnics and numerous FORM Naturalists Rally birding and wildflower field trips.

Friends of Roan Mountain, in partnership with the U. S. Forest Service, adopted the Twin Springs Recreation Area in 2017 in order to facilitate re-opening of the area after it had been closed due to cuts in funding and staff. Since then, we have held periodic work days to do basic trimming and clean-up. In the fall of 2018 we added a new roof to the picnic shelter. All of this has led to a noticeable increase in public use.



Left: New metal roof on the picnic shelter

Above: A reminder to keep the area clean.

In August of 2020 FORM received a grant of \$3000 from the Carter Park and Recreation Board to make even more improvements to Twin Springs. On April 12, a crew of six volunteers began the work of improving the concrete pad of the Twin Springs Picnic Shelter on Roan Mountain because areas of the concrete were crumbling.

The first step in the process was to remove the crumbling concrete using rented chipping hammers and then clean the pad. Next, concrete forms will be installed, and finally a new layer of concrete will be poured over the old pad. We also plan to paint the wood in the shelter.







Many thanks to the hardworking volunteers: Saylor Fox, Charles LaPorte, Joe Ritger, Randall Rogers, Ken Turner and Gary Barrigar! Stay tuned for more work days at Twin Springs!



## **ROAN MOUNTAIN STATE PARK HAPPENINGS**

Below are some links to help you connect with Roan Mountain State Park, learn about upcoming park events, follow the park on Facebook, and join their Photography Blitz group.

### **Website:**

<https://tnstateparks.com/parks/roan-mountain>

### **Events at the RMSP:**

<https://tnstateparks.com/parks/events/roan-mountain>

### **Facebook:**

<https://www.facebook.com/roanmountainstatepark>

### **Roan Mountain State Park Photography Blitz:**

<https://www.facebook.com/groups/261073515041166>



[www.tnstateparks.com](http://www.tnstateparks.com)

# GIFTS AND MEMORIALS

Friends of Roan Mountain gratefully acknowledges these charitable gifts

## Honoree Gifts

Don Fisher for Jennifer Bauer and Gary & Nancy Barrigar

Network for Good Anonymous for Norma Morrison

## Donations

Lynn Brown

Warren & Diane Edwards

Linda Good

Andy Jones

John and Connie McLendon

Susan Peters

Frank Shattuck

## Memorials

W. Mills Dyer, Jr. for Debbie Neves

Sierra — In memory of my mother, Doris Brown

Dwenda Goodman for Thomas Norman

# Between Friends

**Share *The Roan* — Consider a gift membership in FoRM**

Click the Membership tab on our website at [www.friendsofroanmtn.org](http://www.friendsofroanmtn.org)

or email [friendsofroan@gmail.com](mailto:friendsofroan@gmail.com).



<https://www.facebook.com/FriendsOfRoanMountain/>

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