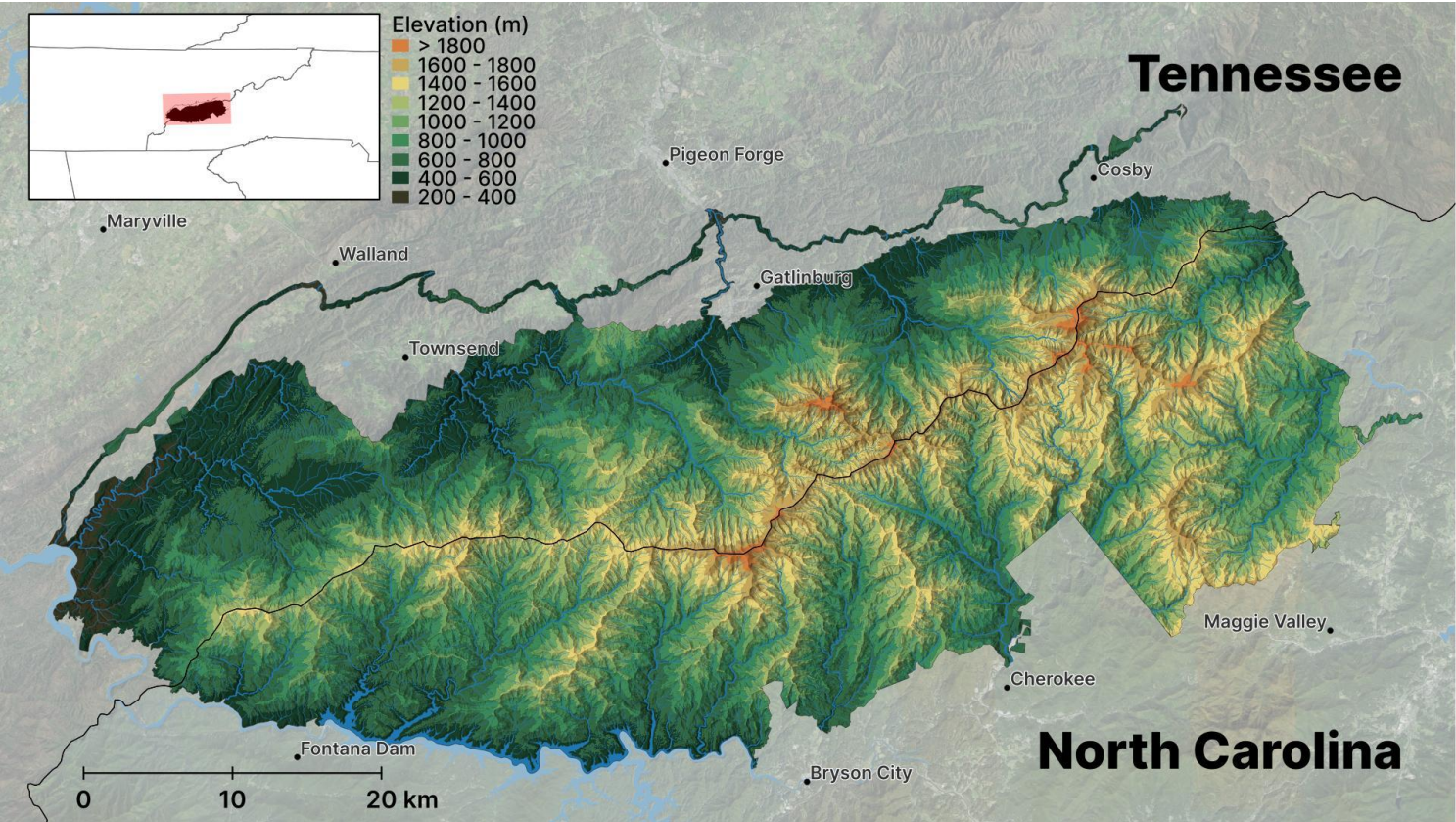


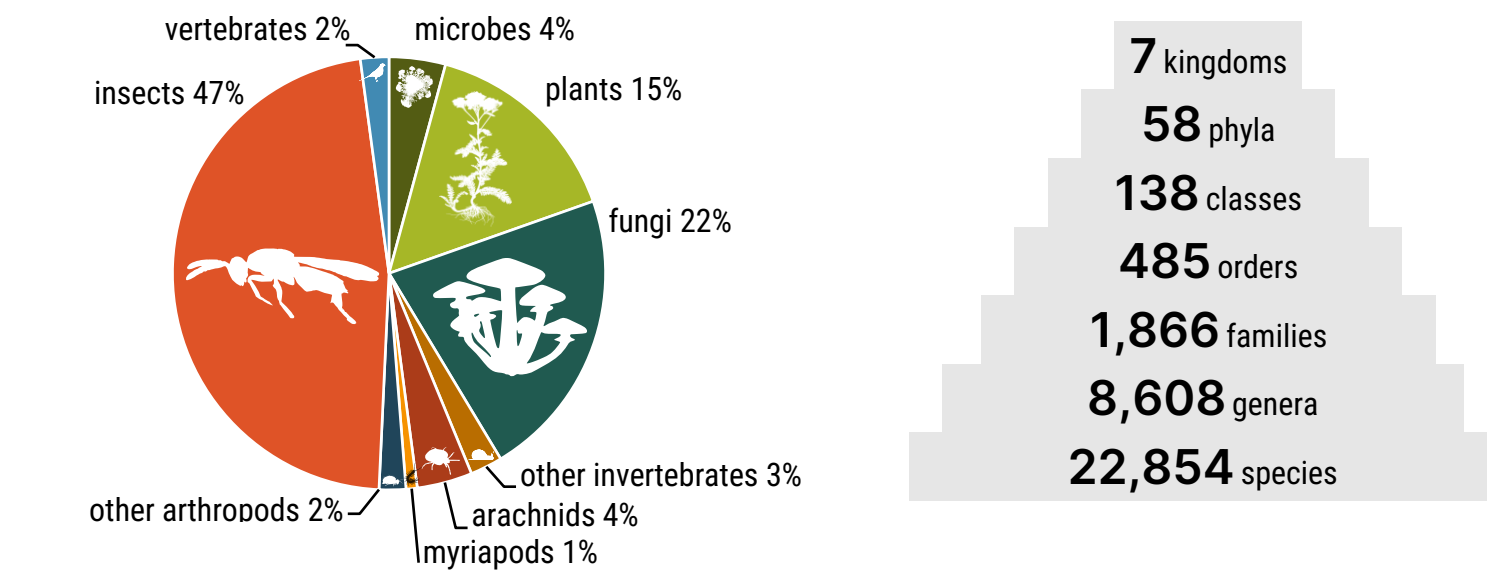
# Great Smoky Mountains National Park

## All Taxa Biodiversity Inventory

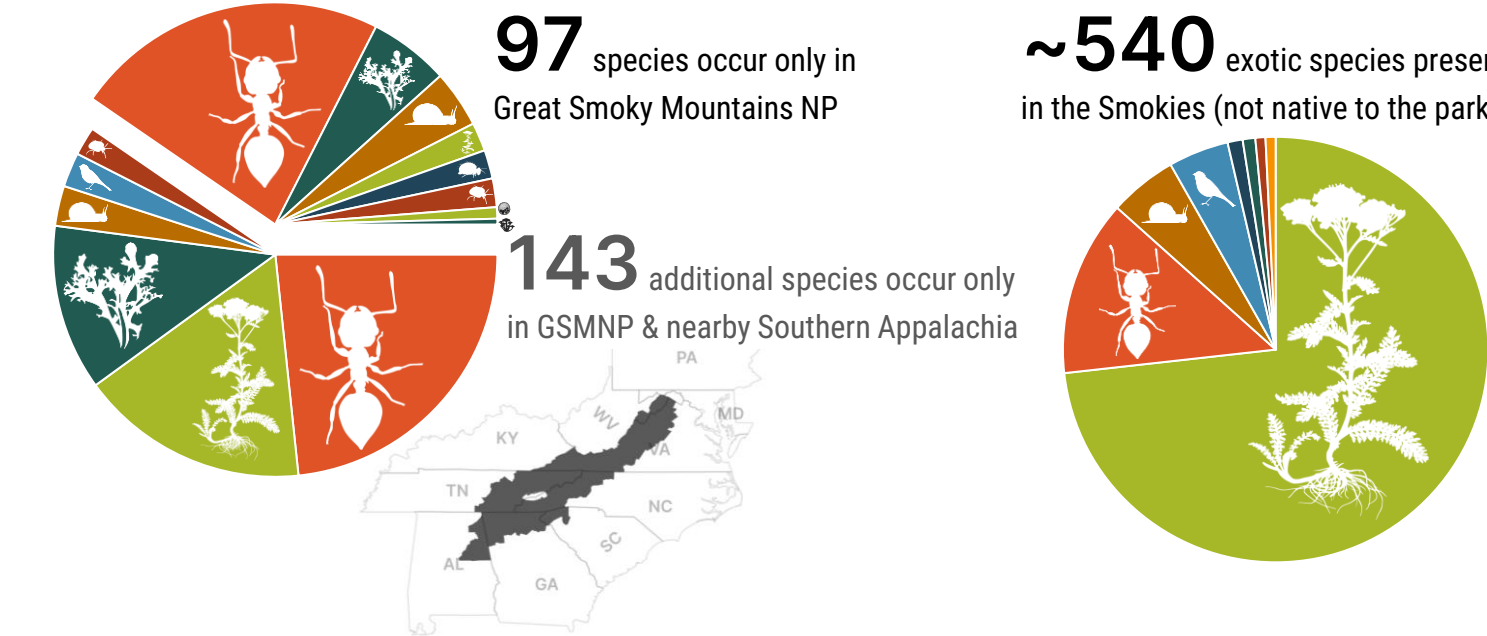


Straddling the Southern Appalachian Mountains of Tennessee and North Carolina, Great Smoky Mountains National Park encompasses 816 square miles of rugged mountainous terrain and hosts an incredible diversity of flora and fauna. It's home to the All Taxa Biodiversity Inventory (ATBI), a massive effort to discover, understand, and conserve every species living in the park.

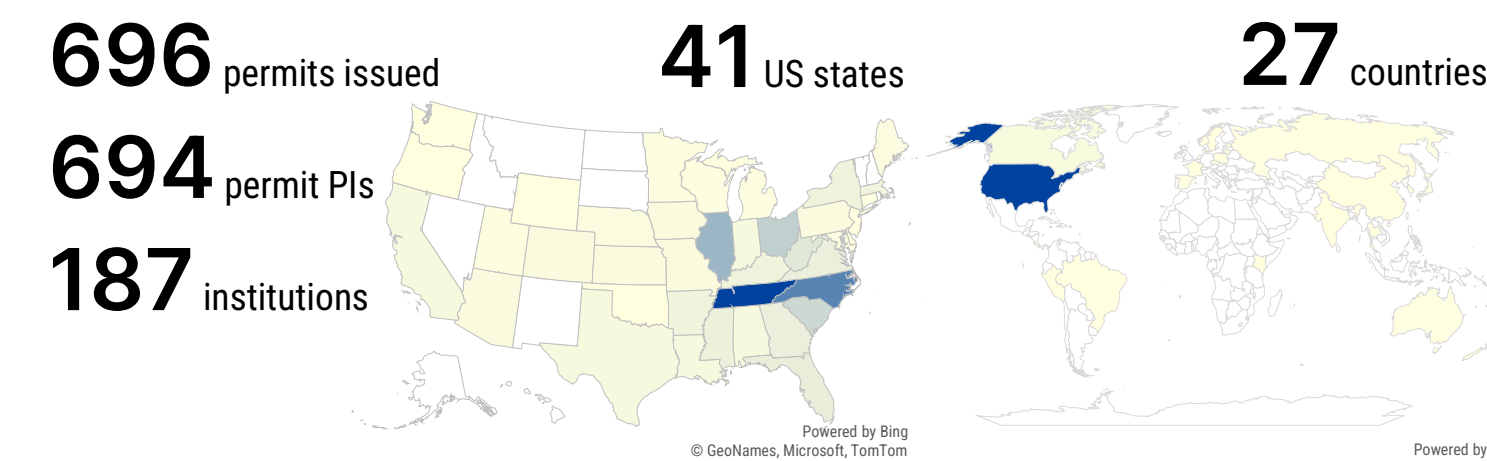
### A wondrous diversity of life in the Smokies



### Endemics and exotics in the Smokies



### ATBI-related research permits in GSMNP



### Coordinated by Discover Life in America

The Smokies ATBI is coordinated by Discover Life in America (DLiA), a nonprofit partner of GSMNP. DLiA works with the National Park Service, researchers, educators, and community scientists to conduct the ATBI and share findings with the public.

**Our mission:** Connecting communities and scientists in discovering, understanding, and conserving the natural world.

DLiA is funded through individual donations, corporate sponsorships, fundraising events, and grants. We are a 501(c)(3) nonprofit organization (EIN 62-1770910). You can join the discovery!

Learn more at [dlia.org/entomology-2025](https://dlia.org/entomology-2025) →



### Smokies Taxa Tally

	Historic to GSMNP	New to GSMNP	New to science	Total
Microbes	Bacteria	0	267	272
	Archaea	0	0	44
	Viruses	1	18	5
	Protista slime molds, amoeba, microsporidia	143	195	18
Plants	Vascular flowering plants, conifers, ferns, etc.	1,598	219	1
	Non-vascular mosses, etc.	634	13	0
	Chromista water molds, sporozoans	9	39	1
	Algae	358	566	78
Fungi	Non-lichenized	2,687	1,254	67
	Lichens	341	560	68
	Cnidaria jellyfish, hydra	0	4	0
	Porifera freshwater sponges	0	2	0
Other Invertebrates	Platyhelminthes flatworms	6	43	4
	Bryozoa moss animals	0	1	0
	Gastrotricha hairy bellies	0	2	0
	Nematomorpha horsehair worms	2	3	0
	Nematoda roundworms	13	87	4
	Nemertea ribbon worms	0	1	0
	Mollusca snails, slugs, mussels, etc.	121	68	2
	Annelida aquatic worms, leeches, earthworms	23	68	7
	Tardigrada waterbears	2	57	26
	Rotifera wheel animals, spiny-headed worms	0	4	0
	Acari mites, ticks	43	253	48
	Opiliones harvestman	1	22	2
Arachnids	Araneae spiders	236	274	43
	Scorpions & pseudoscorpions	11	10	1
	Chilopoda centipedes	21	41	0
	Symphyla symphylans	0	1	2
Myriapods	Paupoda pauropods	7	25	17
	Diplopoda millipedes	39	34	4
	Crustacea crayfish, copepods, pillbugs	20	75	32
	Protura coneheads	7	9	10
Other Arthr	Collembola springtails	89	138	61
	Diplura two-pronged bristletails	4	5	5
	Archaeognatha jumping bristletails	1	2	1
	Zygentoma silverfish	1	1	0
Insects	Odonata dragonflies, damselflies	58	45	0
	Ephemeroptera mayflies	81	54	8
	Zoraptera angel insects	0	0	0
	Dermaptera earwigs	2	0	0
	Plecoptera stoneflies	78	50	12
	Orthoptera grasshoppers, crickets, katydids	63	51	4
	Embiopoda web-spinners	0	1	0
	Phasmatodea walking sticks	2	2	0
	Mantodea mantids	2	0	0
	Blattodea cockroaches, termites	2	8	0
	Thysanoptera thrips	0	48	0
	Hemiptera true bugs, hoppers	353	591	5
Vertebrates	Psocodea barklice, booklice, parasitic lice	26	104	5
	Hymenoptera ants, bees, wasps	373	1,283	25
	Megaloptera alderflies, dobsonflies, fishflies	4	3	0
	Neuroptera lacewings, antlions, etc.	9	36	0
	Strepsiptera twisted-wing insects	0	2	0
	Coleoptera beetles	572	2,071	84
	Trichoptera caddisflies	173	67	4
	Lepidoptera butterflies, moths, skippers	728	1,212	39
	Mecoptera scorpionflies	15	2	1
	Siphonaptera fleas (parasitic Mecoptera)	17	9	1
	Diptera flies	918	1,383	81
	Fish	71	5	0
Total	Amphibia frogs, salamanders	39	3	3
	Reptilia snakes, lizards, turtles	38	2	0
	Aves birds	233	21	0
	Mammalia bats, elk, rodents, bears, etc.	64	6	0
Species known to GSMNP historically				10,339
Species recorded in GSMNP since ATBI began				11,420
Species described from GSMNP since ATBI began				1,095
Species currently documented in GSMNP				22,854

Sources: Becky Nichols and Paul Super, Great Smoky Mountains National Park. Updated November 2025.



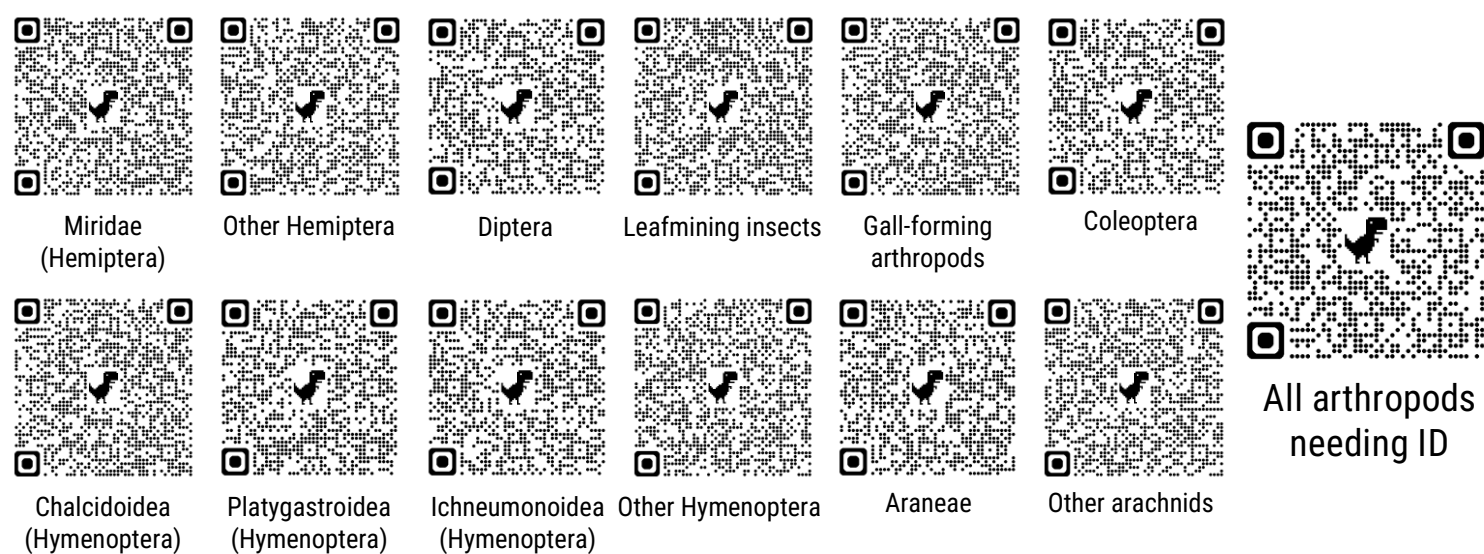
# Join the discovery in the Great Smoky Mountains

## Add identifications in iNaturalist

We've recorded more than 300 new species records from the Smokies through the iNaturalist community science platform! iNat users also help gather datapoints about known species and document interactions between species. You can help by:

- Adding identifications to observations (even IDs above species are helpful)
- Flagging identifications that you disagree with
- Annotating life stage, sex, phenology, etc.
- Commenting if you notice interactions between species
- Noting when the depicted taxon is only identifiable with a clear view of some particular morphological feature

Can you help identify any of these?



## Identify arthropod material

Over 25+ years, we've accumulated a backlog of roughly 500K arthropods. Most were collected in Malaise, pitfall, and Lindgren funnel traps and are in alcohol, though some are mounted. Most are sorted to order. You can help us by identifying a batch of this material. We can send material from the Smokies to you, and we may be able to pay you for your time and effort.

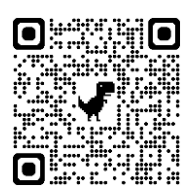


## Apply for our summer internship

We're looking for enthusiastic undergraduates to join our team and help us learn about the incredible flora and fauna of the Great Smoky Mountains!

- 9 weeks (June—July)
- Summer stipend and housing provided
- Based out of GSMNP in Gatlinburg, Tennessee
- Biodiversity-focused field research, DNA barcoding, and more

Application opens January 2, 2025. More at [dlia.org/summer-internships](https://dlia.org/summer-internships) →



## Donate to conserve biodiversity

Donate to Discover Life in America, a 501(c)(3) nonprofit and partner of Great Smoky Mountains National Park. Your monetary support helps us:

- ✓ Manage the massive biodiversity survey in the Smokies
- ✓ Educate students and the public about the value of biodiversity
- ✓ Train the next generation of nature advocates through engaging internships
- ✓ Conserve life in the Smokies and beyond



Learn more at [dlia.org/entomology-2025](https://dlia.org/entomology-2025) →

## Come study life in the Smokies

Despite 27 years of research, there's SO MUCH MORE to learn about the biodiversity of Great Smoky Mountains National Park. Interested in conducting research in this ancient and biologically-fascinating park? We're here to help!

- Get started with the resources at [dlia.org/information-for-scientists](https://dlia.org/information-for-scientists) →
- Check out our list of priorities below
- Questions? Ask Will: [will@dlia.org](mailto:will@dlia.org)



## Our taxonomic priorities

These are our biggest needs in terms of taxonomic research right now, but there are always species to find and new things to learn from even the best-studied taxa.

	Needs	Comments
Bacteria, Archaea, Protozoa	understudied	Rife for discovery, especially from soil and aquatic samples.
Nematoda	backlog, understudied	10 specimens need ID in backlog. Only 94 species documented—vastly under-documented.
Nemertea	understudied	Only a single taxon documented ( <i>Prostoma</i> sp.)
Mollusca	backlog	40 in backlog needing ID
Annelida	backlog	400 in backlog needing ID
Acari	backlog, understudied	11K in backlog needing ID. Water, soil and plant mites are especially understudied.
Pseudoscorpiones	understudied	
Rotifera	understudied	Only 3 species documented; probably understudied.
Chilopoda	backlog	16 in backlog needing ID
Diplopoda	backlog, understudied	12 in backlog needing ID. Lots of cryptic diversity in the Smokies, likely more to discover.
Symphyla	understudied	Only 3 species documented; likely understudied.
Crustaceans: Isopoda	backlog	45 in backlog needing ID
Collembola	backlog	6K in backlog needing ID
Archaeognatha	backlog	7 in backlog needing ID
Ephemeroptera	backlog	47 in backlog needing ID
Zoraptera	understudied	No species documented yet, but they're almost certainly present!
Dermaptera	backlog, understudied	4 in backlog needing ID. Probably a few undocumented species to find.
Plecoptera	backlog	400 in backlog needing ID
Embioptera	understudied	New! Web galleries just discovered in 2025. No species yet identified. Need more survey work.
Thysanoptera	backlog	9K in backlog needing ID
Hemiptera, in general	backlog	
Hemiptera: Anthracoridae	understudied	
Hemiptera: Coccoidea	understudied	
Hemiptera: Fulgoroidea	understudied	
Hemiptera: Miridae	Understudied, iNaturalist	Well represented on iNaturalist but lacking ID: see 'Miridae of Eastern United States' iNat project
Hemiptera: Psyllidae	understudied	
Hemiptera: Tingidae	understudied	Gorgeous and yet somehow under-studied. How?!
Hemiptera: Nabidae	understudied	
Psocodea	backlog	7 in backlog needing ID
Neuroptera	backlog	400 in backlog needing ID
Strepsiptera	backlog, understudied	<10 specimens catalogued so far, none IDed to species. Survey work needed.
Coleoptera	backlog	17K in backlog needing ID
Hymenoptera, in general	backlog	72K in backlog needing ID, some sorted past order
Hymenoptera: Chalcidoidea	understudied	Many in backlog
Hymenoptera: Cynipoidea	understudied	Many in backlog
Hymenoptera: Ichneumonoidea	understudied	Extremely well-represented in backlog
Hymenoptera: Platygastroidea	understudied	Some in backlog
Trichoptera	backlog	1K in backlog needing ID
Lepidoptera	backlog	17K in backlog needing ID, including many caterpillars
Mecoptera	backlog	350 in backlog needing ID
Siphonaptera	backlog	51 in backlog needing ID
Diptera, in general	backlog	280K in backlog needing ID
Diptera: "Acalyptratae"	understudied	
Diptera: Asiloidea	understudied	The coolest!
Diptera: Muscoidea	understudied	
Diptera: Oestroidea	understudied	
Leafmining and gall-forming arthropods	understudied, iNaturalist	iNaturalist is ideal for them if host plant is recorded. Tons of recent new records, with many more likely.
iNaturalist observations for specific species	iNaturalist	Our Smokies Most Wanted guide list species for visitors to watch for, including natives and exotics.