POTOMAC VALLEY MASTER NATURALISTS
Citizen Science Projects

West Virginia Citizen Science Opportunities

Crayfishes in WV: Zach Loughman, Natural History Research Specialist at West Liberty State College, is running a statewide survey of the Crayfishes found in WV and would appreciate any help in collecting. Contact him at: Zachary J. Loughman, Natural History Research Specialist, Campus Service Center Box 139, West Liberty State College, West Liberty, WV, 26704, Phone: (304) 336-8923, Fax: (304) 336-8266, zloughman@westliberty.edu .

WVDNR Research Projects: Contact Keiran O'Malley at Romney and volunteer to help on any surveys or other projects. (He teaches the PVMN Reptiles and Amphibian Class.) Contact him at Kieran.M.O'Malley@wv.gov

Bird Banding: Contact Bob Dean who bands locally and volunteer to help him. Contact Bob at 304-754-3042 or BobDean52@gmail.com .

Fish Research Projects: Contact Vicki Blazer at the USGS National Fish Health Research Lab in Kearneysville WV. You'll start out recording notes during research field work, but as you gain knowledge and experience, you can do more. Contact Vicki at vblazer@usgs.gov.

Citizen Science Opportunities

Astronomy and Weather

The Milky Way Project www.Milkywayproject.org
The Milky Way Project is currently working with data taken from the Galactic Legacy Infrared Mid-Plane Survey Extraordinaire (GLIMPSE) and the Multiband Imaging Photometer for Spitzer Galactic Plane Survey (MIPSGAL). We're looking for bubbles. These bubbles are part of the life cycle of stars. Some bubbles have already been found - by the study that inspired this project - but we want to find more! By finding more, we will build up a comprehensive view of not only these bubbles, but our galaxy as a whole. We're asking you to help us map star formation in our galaxy.

Galaxy Zoo www.galaxyzoo.org
Your job is very simple! When classifying you will be shown an image of a galaxy and be asked a series of questions about it. All you need to do is to look for features that mark out different types of galaxy and answer the questions as well as you can. This is a job that humans are much better at than computers, so most of the questions should be fairly easy. If you find it hard to decide upon the answer to a particular question, don't worry! There often won't be a 'correct' answer. Just pick the one that seems best and move on to the next question. By looking at all the answers given for each galaxy the Galaxy Zoo scientists will be able to work out which is most likely to be the right one, and how sure we can be about it. Your individual opinion is extremely important to making that possible.

The Old Weather Project www.oldweather.org
The Old Weather project isn't about proving or disproving global warming. We need to collect as much historical data as we can over the oceans, because if we wish to understand what the weather will do in the future, then we need to understand what the weather was doing in the past. Help scientists recover worldwide weather observations made by Royal Navy ships around the time of

World War I. These transcriptions will contribute to climate model projections and improve a database of weather extremes. Historians will use your work to track past ship movements and the stories of the people on board.

Moon Zoo www.moonzoo.org
The aim of Moon Zoo is to provide detailed crater counts for as much of the Moon's surface as possible. Unlike here on Earth where weather quickly erodes any signs of all but the most recent impacts, craters on the lunar surface stay almost until eternity. That means that the number of craters on a particular piece of the surface tells us how old it is. This technique is used all over the Solar System, but the Moon is particularly important because we have ground truth — samples brought back by the Apollo missions — which allow us to calibrate our estimates. Planetary scientists have always carried out this kind of analysis on large scales, but with your help and the fabulous LRO images then we should be able to uncover the finer details of the Moon's history. We need your help to explore the lunar surface, by answering a series of questions about what you see.

Snow Core http://snowcore.uwaterloo.ca/snowtweets
Contribute to cryosphere research! Snow and cryosphere researchers at the University of Waterloo ask you to tweet snow depths in your area. Sign in to your Twitter account (or sign up, it's free!) and write a message that looks like this: #snowtweets <depth> at <location>
We'll be using your contributions to help us verify satellite observations around the world.
(OK, so you DO have to have a Twitter account.)

Students' Cloud Observations On-Line (S'COOL)
http://science-edu.larc.nasa.gov/SCOOL
Students' Cloud Observations On-Line (S'COOL) is a citizen science project in which volunteers make and report cloud observations from sites of their choosing, such as a field trip, vacation, or even a backyard. The project aims to collect data on cloud type, height, cover, and related conditions from all over the world. Observations are sent to NASA for comparison to similar information obtained from satellite. The S'COOL observations help validate satellite data and give a more complete picture of clouds in the atmosphere and their interactions with other parts of the integrated global Earth system.

Insects, Arthropods, and Arachnids

Firefly Watch https://legacy.mos.org/fireflywatch/about_firefly_watch
Firefly Watch combines an annual summer evening ritual with scientific research. Boston's Museum of Science has teamed up with researchers from Tufts University and Fitchburg State College to track the fate of these amazing insects. With your help, we hope to learn about the geographic distribution of fireflies and their activity during the summer season. Fireflies also may be affected by human-made light and pesticides in lawns, so we hope to also learn more about those effects.

Odonata Central http://www.odonatacentral.org
OdonataCentral is a website designed to make available what we know about the distribution, biogeography, biodiversity, and identification of Odonata (dragonflies and damselflies) worldwide. The photographic records submitted by amateur natural historians and citizen scientists help generate a large database of distributional records. OdonataCentral makes its database available to researchers to dynamically generate maps, checklists, and accompanying data.

Monarch Watch http://www.monarchwatch.org/waystations/
Monarch butterflies need our help. You can aid them by creating "Monarch Waystations" (monarch habitats) in home gardens, at schools, businesses, parks, zoos, nature centers, along roadsides, and

on other unused plots of land. You can certify your new or existing monarch habitat to show that you are contributing to monarch conservation. Upon certification your site will be included in the International Monarch Waystation Registry, an online listing of Monarch Waystations. By creating and maintaining a Monarch Waystation you are contributing to monarch conservation, an effort that will help assure the preservation of the species and the continuation of the spectacular monarch migration phenomenon.

Monarch Larva Monitoring Project www.mlmp.org The overarching goal of the project is to better understand how and why monarch populations vary in time and space, with a focus on monarch distribution and abundance during the breeding season in North America. As an MLMP volunteer, you'll conduct weekly monarch and milkweed surveys, measuring per plant densities of monarch eggs and larvae. You'll also be able to participate in more detailed optional activities, such as measuring parasitism rates and milkweed quality. Your contributions will aid in conserving monarchs and their threatened migratory phenomenon, and advance our understanding of butterfly ecology in general.

Monarch Tagging Program www.monarchwatch.org ($15 for tags and record forms).
The purpose of monarch tagging is to associate the location of capture with the point of recovery for each butterfly. The data from these recaptures are used to determine the pathways taken by migrating monarchs, the influence of weather on the migration, the survival rate of the monarchs, etc. Tags are purchased in kits. Each kit contains a premigration newsletter, datasheet, instructions and a multiple of 25 tags, depending on how many are ordered in that kit. With tags and datasheets in hand, participants tag as many monarchs as they are able and record the date, location and other information onto their datasheets and return the information so that when monarchs are collected the information you recorded will be in the data base.

Bee Hunt http://www.discoverlife.org/bee/
Bee Hunt participants use digital photography to record and study the interactions between plants and pollinators, following rigorous protocols to ensure high-quality data. The data collected will help provide a better understanding of pollinators' importance in growing food and maintaining healthy natural ecosystems. Bee Hunt is open to anyone, anywhere, whenever pollinators are flying. In North America, depending upon your location, you can start as early as March and go as late as November.
There are four ways to participate in Bee Hunt:
1. Inventory pollinators at your site with photographs
2. Compare species in two patches
3. Provide nesting sites for mason bees and study when they are active
4. Use bowls and soapy water to collect insects for a more complete inventory of species

Viburnum Leaf Beetle Project http://www.hort.cornell.edu/vlb/
Participants in this project monitor gardens, parks, or school yards throughout the spring and summer to identify viburnum leaf beetles. As a citizen scientist, you gather data that researchers can use to help stop the spread of this pest, reduce the damage it causes, and help us all be better prepared for future invasions by exotic pests. The viburnum leaf beetle is an invasive, non-native beetle that first appeared in New York State along Lake Ontario in 1996, and has steadily spread. It has been reported in Maine, Pennsylvania, Vermont, and parts of Ohio, as well as Ontario, the Canadian Maritime Provinces, and British Columbia. It is a voracious eater that can defoliate viburnum shrubs entirely. Plants may die after two or three years of heavy infestation. (Although WV is not listed, the surrounding states probably put us at risk.)

Lost Ladybug Project http://www.lostladybug.org/index.php
The Lost Ladybug Project asks citizen scientists to find, collect, and photograph the native species of ladybugs that have become quite rare in recent years. Ladybugs are important and beneficial predators because they eat harmful insects like aphids that damage plants. To help ladybug species, scientists need detailed information on which species are still out there and how many exist.

The School of Ants http://schoolofants.org
The School of Ants project is a citizen-scientist driven study of the ants that live in urban areas, particularly around homes and schools. Participation is open to anyone interested in contributing. You can get involved in collecting ants in schoolyards and backyards using a standardized protocol so that detailed maps of the wildlife that lives just outside our doorsteps can be made.

Birds

Nest Watch http://watch.birds.cornell.edu/nest/home/index
NestWatch teaches people about bird breeding biology and engages them in collecting and submitting nest records. Such records include information about nest site location, habitat, species, and number of eggs, young, and fledglings. "Citizen scientists" submit their nest records to our online database where their observations are compiled with those of other participants in a continent-wide effort to better understand and manage the impacts of environmental change on bird populations.

Great Backyard Bird Count http://www.birdsource.org/gbbc/
The Great Backyard Bird Count is an annual four-day event during which bird watchers count birds to create a real-time snapshot of where birds are located across the continent. (In 2013, dates are February 15-18). Anyone, from beginning bird watchers to experts, can participate. It takes as little as 15 minutes on one day, or you can count for as long as you like during each day of the event. Yearly data collection makes the information more meaningful and allows scientists to investigate far-reaching questions.

Project Feeder Watch http://www.birds.cornell.edu/pfw/
Project FeederWatch is a winter-long survey of birds that visit feeders at backyards, nature centers, community areas, and other locales in North America. FeederWatchers periodically count the birds they see at their feeders from November through early April and send their counts to Project FeederWatch. FeederWatch data help scientists track broadscale movements of winter bird populations and long-term trends in bird distribution and abundance. Project FeederWatch is operated by the Cornell Lab of Ornithology and Bird Studies Canada.

Plants

Project BudBurst http://budburst.org/
Project BudBurst engages the public in making careful observations of phenophases such as first leafing, first flower, and first fruit ripening of a diversity of trees, shrubs, flowers, and grasses in their local area. Project BudBurst has targeted 75 native trees, shrubs, wildflowers, and grasses to monitor throughout the year. With the help of citizen scientists, the project will compile valuable environmental information that can be compared to historical records. By recording the timing of the leafing and flowering of native species each year, scientists can learn about the prevailing climatic characteristics in a region over time.

Global Garlic Mustard Field Survey www.GarlicMustard.org
Help scientists gather much-needed data on the abundance and distribution of an invasive plant called 'garlic mustard' (scientific name: Alliaria petiolata). Many invasive species, like garlic mustard, are quickly changing North America's ecosystems, but scientists still don't understand why or how this happens. To figure this out we need sample data from all over the world, but that requires a large group effort. Fortunately, it does not require specialized training because plant performance can be reliably quantified with simple measurements such as height and seed production of individuals, as well as area of coverage and density of plants. By spending as little as a single day on this project, you could help scientists to come to a new understanding about invasive species. This in turn could ultimately lead to important new management strategies.

Animals

eMammal siwild@si.edu
eMammal is a project, sponsored by the Smithsonian Institution, that recruits volunteers to deploy motion triggered cameras, or "camera traps", to collect pictures of wildlife in protected areas from Maryland to North Carolina. The project has three main goals; document wildlife in protected areas in the mid Atlantic now and expand nationwide later, curate digital camera trap photos as museum specimens at the Smithsonian, and engage the public with natural spaces and mammal conservation through volunteering with the project and public access to the photos that are collected. It seems that they are not yet a citizen-science project, but may be in the future. Email the link above for more information or use the Facebook link: https://www.facebook.com/eMammal

Project Squirrel http://projectsquirrel.org/index.shtml
Project Squirrel is calling all citizen scientists to count the number of squirrels in their neighborhoods and report their findings. The goal is to understand urban squirrel biology, including everything from squirrels to migratory birds, nocturnal mammals, and secretive reptiles and amphibians. To gain data on squirrel populations across the United States, citizen scientists will also be asked, when possible, to distinguish between two different types of tree squirrels - gray and fox. Anyone can participate in Project Squirrel. No matter where you live, city or suburb, from the Midwest to the East Coast, Canada to California, if squirrels live in your neighborhood, you are encouraged to become a squirrel monitor.

Project NOAH www.projectnoah.org
Noah is a mobile phone app that allows nature lovers to document local wildlife and add their observations to a growing database for use by ongoing citizen-science projects.
Using the Noah mobile application, users take a photograph of an interesting organism, select the appropriate category, add descriptive tags, and click submit. The application captures the location details along with the submitted information and stores all of it in the species database (You do need an iPhone with the app installed.)

Reptiles, Amphibians

Frog Watch USA http://www.aza.org/frogwatch/
FrogWatch USA is the Association of Zoos and Aquarium's (AZA) flagship citizen science program that allows individuals and families to learn about the wetlands in their communities and help conserve amphibians by reporting the calls of local frogs and toads. For over ten years, volunteers have been trained to enter their FrogWatch USA information and ongoing analyses of these data have been used to help develop practical strategies for the conservation of these important species.

General Nature

Picture Post http://picturepost.unh.edu/
Picture Post invites everyone with a digital camera to become an environmental monitor. All you have to do is place a 4-inch-by-4-inch wood or plastic post in the ground, with the top at chest-height. Then, resting your camera on the top of the post, take a series of nine photographs: eight to cover a panoramic view of the surrounding landscape and a ninth of the sky directly over the post. Upload your photos to the Picture Post website, and you've just helped track our changing environment. Sponsored by NASA and housed at the University of New Hampshire.

Nature's Notebook http://www.usanpn.org/how-observe
Nature's Notebook is a national plant and animal phenology observation program. You can join thousands of other individuals who are providing valuable observations that scientists, educators, policy makers, and resource managers are using to understand how plants and animals are responding to climate change and other environmental changes. Your observations will make a difference! Phenology is the study of recurring plant and animal life cycle stages, or phenophases, such as leafing and flowering of plants, maturation of agricultural crops, emergence of insects, and migration of birds. Many of these events are sensitive to climatic variation and change, and are simple to observe and record. As a USA-NPN observer, you can help scientists identify and understand environmental trends so we can better adapt to climate change.

Wildlife Watch http://www.nwf.org/wildlifewatch/
Wildlife Watch is a national, nature-watching program created for people of all ages. When you record your observations, National Wildlife Federation and Wildlife Watch partners collect and review your findings to track the health and behavior of wildlife and plant species.

World Water Monitoring Day http://www.worldwatermonitoringday.org/
World Water Monitoring Day is an international program that encourages citizen volunteers to monitor their local water bodies. An easy-to-use test kit enables everyone from children to adults to sample local water bodies for basic water quality parameters: temperature, acidity (pH), clarity (turbidity), and dissolved oxygen. Though World Water Monitoring Day is officially celebrated in September, the monitoring window is usually extended to cover the period from March 22 (World Water Day) until December 31. Participants are encouraged to make their observations at anytime within that extended window.

Don't like any of these suggestions? Find your own! There are some amazing opportunities at this website. Your work just needs to be done in West Virginia to qualify for Master Naturalist Volunteer Hours. http://scienceforcitizens.net/finder/