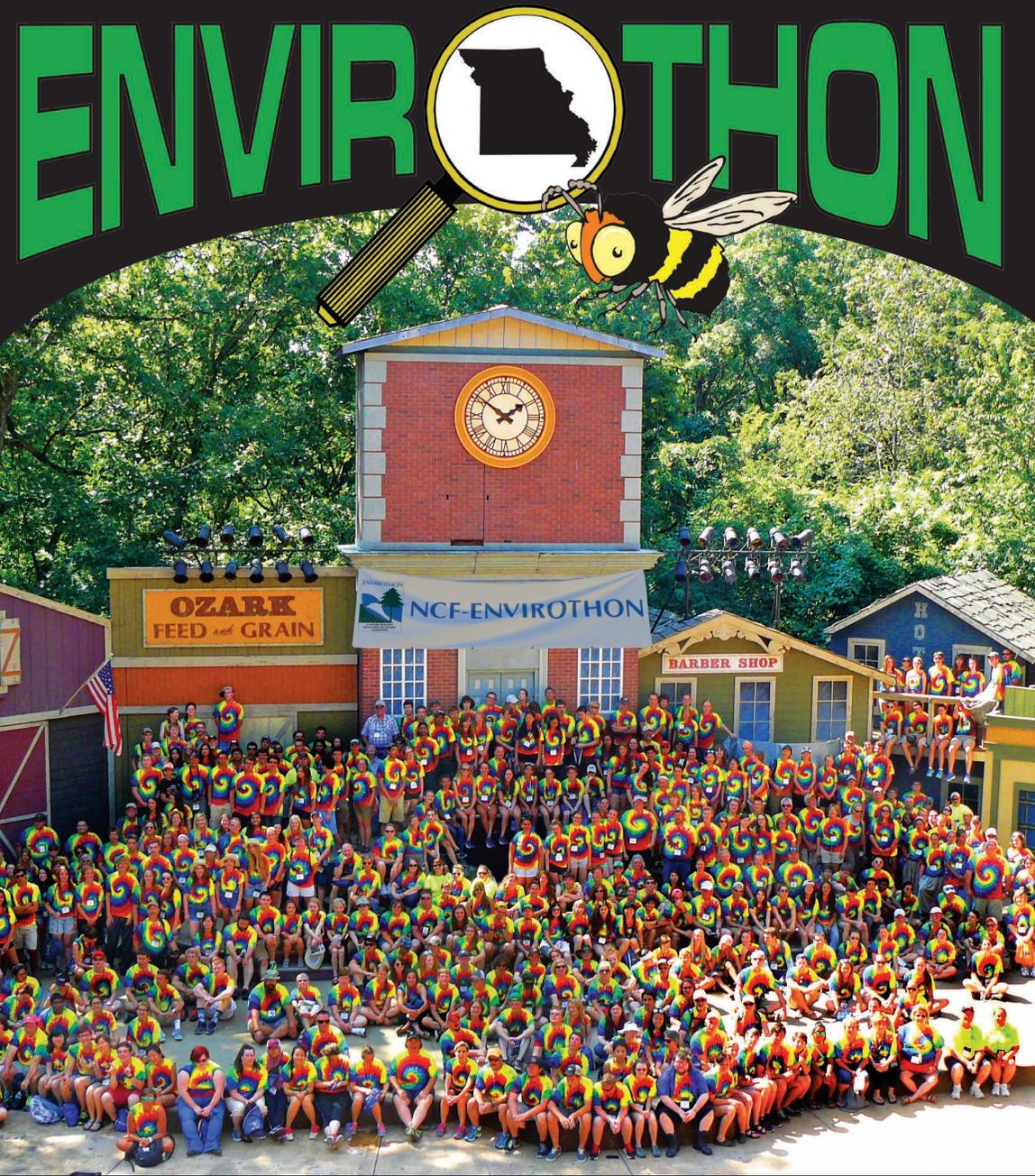


MISSOURI ENVIROTHON



2015

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Missouri Envirothon

A Brief History

Missouri held its first state Envirothon competition in 1998, with the Soil & Water Conservation Districts taking the role as sponsors. Ten teams competed in the pilot event which was quite successful and drew the attention of educators and conservation agencies.

Participation has grown significantly over the past 17 years. The state event now hosts an average of 21 teams each spring for the annual competition. Students come from all corners of the state, and are the “cream of the crop” – having earned the right to compete based on their scores at regional competitions. Missouri sends one team to the NCF-Envirothon (the North American level of competition) where 50 to 60 United States and Canadian teams compete. Since 1998, a Missouri team has placed within the top five during seven of those years.

Year	Missouri's Placement	Host State/Province	Current Issue Theme
2007	Fourth	New York	Alternative Renewable Energy
2008	Second	Arizona	Recreational Impacts on Natural Resources
2009	Fifth	North Carolina	Biodiversity in a Changing World
2012	First	Pennsylvania	Non-point Source Pollution/ Low Impact Development
2013	Third	Montana	Sustainable Rangeland Management
2014	First	Illinois	Sustainable Agriculture
2015	First	Missouri	Urban/Community Forestry

What is the Envirothon?

Envirothon is a problem-solving, natural resource education program for high school students. Teams of students are challenged to hone critical thinking skills as they answer questions and conduct hands-on investigations of environmental issue in five categories – Soils/Land Use, Aquatic Ecology, Forestry, Wildlife and Current Environmental Issues. In addition to a written test, teams also prepare an oral presentation solving a specific natural resource problem.

Envirothon began in Pennsylvania in 1979 as an outgrowth of a vocational agricultural land judging contest. The first national event was held in 1988 with five states participating. This year (2015), there were 52 state or provincial teams on the roster!

2015 NCF-Envirothon Donors

The NCF-Envirothon Committee and the Missouri Envirothon Committee would like to extend deep appreciation to the following individuals, organizations and businesses who so generously gave their support to the 2015 NCF-Envirothon held in Springfield, Missouri, July 27-August 2.

Canon USA, Inc.
Missouri Association of Soil and Water Conservation Districts
Missouri Department of Conservation
Missouri Department of Natural Resources
National Association of Conservation Districts
National Conservation Foundation
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USDA Natural Resources Conservation Service
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Missouri Department of Agriculture
Missouri Women in Agriculture
Pennsylvania Envirothon
Soil and Water Conservation Society
Bunge North America
Central Region Envirothon
City of Springfield
Drury Hotels
The Flower Merchant
Forrest Keeling Nursery
Missouri Society of American Foresters
Missouri Soil and Water Districts Employee Association
Platte-Clay Electric Cooperative
University of Missouri Extension
Wal-Mart



Missouri County Soil and Water Conservation Districts

Adair	Crawford	Lawrence	Randolph
Andrew	Dade	Lewis	Ripley
Audrain	Dallas	Linn	Saline
Barry	Daviess	Macon	Scott
Bates	DeKalb	Maries	Shelby
Benton	Dunklin	Marion	St. Charles
Boone	Franklin	Mercer	St. Clair
Butler	Gasconade	Mississippi	St. Francois
Caldwell	Gentry	Moniteau	St. Louis
Camden	Harrison	New Madrid	Ste. Genevieve
Cape Girardeau	Hickory	Newton	Stoddard
Carter	Holt	Nodaway	Sullivan
Cass	Howard	Osage	Vernon
Cedar	Jackson	Pemiscot	Washington
Clay	Johnson	Perry	Webster
Cole	Knox	Platte	Worth
Cooper	Laclede	Polk	Wright



It is through the support of the generous people and organizations listed here that the Envirothon is available to students in Missouri.

Thank You
for Your Support!!!

Missouri Envirothon Donors

- *Naturalist (A minimum gift of \$1,000)*
- Randolph County SWCD
- St. Charles County SWCD
- *Steward of the Land (A minimum gift of \$250)*
- Air & Waste Management/T.L. Maddox Co
- Bates County SWCD
- Cass County SWCD
- DeKalb County SWCD
- Holt County SWCD
- Jackson County SWCD
- Lewis County SWCD
- Pike County SWCD
- Platte County SWCD
- Ray County SWCD
- Ripley County SWCD
- Missouri Environmental Education Association
- Soil & Water Conservation Society Missouri Show
- Me Chapter
- Worth County SWCD
- *Friend of the Envirothon (A minimum gift of \$25)*
- Allgood's Nursery & Yard Service (Paul Allgood)
- Wilma Carlyon
- Paula Champion
- Friends of Mo State Employee Charitable Campaign
- Rose Marie Hopkins (In memory of Liz Brown)
- Hydro Cleaners (Deneen Jenkins)
- Keith Farms (Heather Keith)
- Peggy Lemons
- Charlie Perkins
- Audrey Rayl
- Judy Stinson
- Frankie Coleman
- Adair County SWCD
- Camden County SWCD
- Chariton County SWCD
- Clay County SWCD
- Dunklin County SWCD
- Gasconade County SWCD
- Lincoln County SWCD
- Moniteau County SWCD
- Osage County SWCD
- Scotland SWCD
- Stone County SWCD
- Sullivan County SWCD



Photo courtesy of Van Beydler

Campaign for the Continuing Support of Envirothon in Missouri

The Envirothon program across the state requires approximately \$15,000 to \$20,000 annually. These dollars fund trainings, competition t-shirts, lunches, site fees, materials, water, and other site necessities for over 500 students, 150 teachers and numerous volunteers across the state.

Missouri Envirothon recently embarked on a campaign for financial support to ensure the continued success of this important program. Donors are invited to give any amount, and will be listed annually in this magazine.

How to Donate to the Missouri Envirothon

For more information on how to donate to the Missouri Envirothon, a non-profit educational high school competition, contact Audrey Rayl at Lewis County SWCD at 573-767-5276, ext. 3, or audrey.rayl@swcd.mo.gov. Your donation will help the Missouri Envirothon committee fund seven regional competitions and the state event every year. These funds will also provide a cash financial award for the winning Missouri team to attend the North American Envirothon held annually in one of the participating states or Canadian provinces.

The categories of giving for the campaign to support Envirothon in Missouri are:

Conservationist (A minimum gift of \$10,000)

Ecologist (A minimum gift of \$5,000)

Naturalist (A minimum gift of \$1,000)

Steward of the Land (A minimum gift of \$250)

Friend of the Envirothon (A minimum gift of \$25)

**You can make a difference with any pledged amount.
Help us keep this program in Missouri!**

Please choose the sponsorship level of your choice and mail a check made payable to Missouri Envirothon to:

**Missouri Envirothon
Audrey Rayl at Lewis County SWCD
at 573-767-5276, ext. 3,
or audrey.rayl@swcd.mo.gov**



MDC Education Consultant Provides In-Depth Topic Study

Karen Armstrong *MDC Education Consultant*

The Northeast Regional Envirothon has a little known “secret weapon” in their Envirothon training arsenal: Karen Armstrong – a remarkable educator and an informed and connected conservationist.

Karen began working with Envirothon around the same time that she joined the Missouri Department of Conservation, more than 14 years ago.

“My first exposure to Envirothon came the year I began teaching high school science in Kirksville,” she explained. “I had just become a full-time teacher and was tasked with writing the curriculum for an environmental science course, so I was unable to take advantage of the Envirothon opportunity that year. However, after joining the Department of Conservation I was asked by the region’s Soil and Water Conservation District (SWCD) to help with their regional competition, and I have been helping ever since.”

Karen provides education and training to students participating in the competitions, and works with the teams’ teachers, providing in-depth topic study in wildlife, aquatics and forestry. She also devotes her energies to improving the oral presentation skills of the teams in the Northeast

Region, and serves as an oral presentation judge at the competitions.

“I believe the oral presentation component is an excellent opportunity to give students experience not only in the research and development of a possible plan to solve a timely environmental issue but also in learning to be confident in their knowledge and defense of their plan.”

Karen’s position as an education consultant with MDC fits well with the mission of Envirothon. “High school students are at the age where they will soon be out in the real world and have the opportunity to make informed decisions on environmental issues. I’d like to think that armed with the knowledge gained from their Envirothon experience, they will become good stewards of the environment.”

“The Envirothon also allows students the opportunity to learn more beyond what school has to offer,” she added, “by providing the chance to network with other students and potential employers such as MDC, the Natural Resources Conservation Service, the SWCDs and the Corps of Engineers (COE) (all of which have contributed professional volunteers to trainings and competitions).”

Karen has many fond memories of her experiences with Envirothon. “One of my favorite memories was the team made up of drama students who were surprisingly knowledgeable about natural resources. They presented a very interesting oral presentation, albeit a little beyond the Envirothon guidelines.”

She also recalled a time that she volunteered as a team guide during a state competition. “I was with a team of boys from the bootheel of Missouri, and these guys were from the Ozarks and every bit the part with their mule-ear boots, Wrangler jeans, and cowboy hats. Their enthusiasm was endless – embracing every aspect of the experience. One climbed a tree ripping a large hole in his pants in the process. They finished dead last but probably had the most fun that day.”

Karen said she believes the biggest benefits to students in the Envirothon program are

threefold: “Envirothon presents knowledge of natural resources and environmental issues that will help create informed and action-oriented citizens, it helps build the confidence they will need to voice their opinions, and it gives them opportunities to network with adult experts in natural resource fields.”

“I have truly enjoyed my Envirothon experience,” Karen smiled, “and a big part of that is being able to work with the wonderful and dedicated women from the Soil and Water Conservation Districts. They are so organized and have such positive attitudes that it is always a pleasure to work with them. Plus they always bring dozens of homemade cookies!!”

Not wanting to take the spotlight, Karen insisted the mention of the other volunteers from MDC, NRCS, SWCD, COE, the state geologist, and many others. It truly is a team effort!

Karen provides in-the-field aquatics training.



A Closer Look at Invasive Species: *Topic of 2016 NCF-Envirothon*

Perry Eckhardt, MDC Community Conservation Planner

Invasive species are the bane of many a natural resource professional's existence. They cause considerable harm to ecosystems, and they consume substantial amounts of labor, money, and other assets to manage. The problem extends beyond normal environmental concerns and actually affects economic concerns such as transportation, food production, and even human health. But, these broader effects provide hope that we can bring in a broader range of hands and minds to help combat and eventually solve the problem of invasive species.



According to the United States Fish and Wildlife Service, an invasive species is “an exotic species whose introduction into an ecosystem in which the species is not native causes or is likely to cause environmental or economic harm or harm to human health.” Because the exotic

species did not co-develop in the new environment there are fewer checks and balances, such as predators and diseases, to limit the exotic species' numbers, which allows it to wreak havoc. We have several notorious Missouri examples of invasive-exotics such as bush honeysuckle, emerald ash borer, feral hogs, and Asian carp, among many, many others. Please refer to the Missouri Department of Conservation's web-site to see several examples: <http://mdc.mo.gov/discover-nature/field-guide/invasive-species/invasive-species-field-guide>.

Nationally, invasive species have been credited with decreasing stream flows, displacing plant communities, radically altering local habitats, competing with native species for resources (food, space,

Photo courtesy of MDC Staff



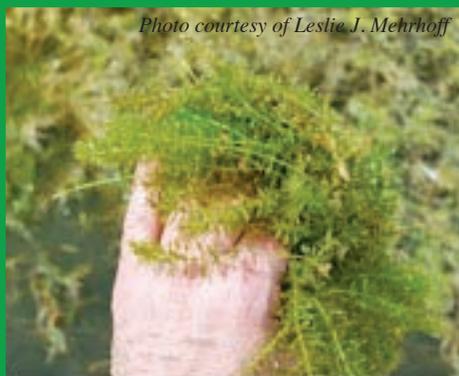
Emerald Ash Borer

nutrients), exacerbating soil erosion, and even causing extinctions. Economically invasives reduce revenue to natural resource based business, clog waterways and industrial water systems, act as hosts for crop diseases, and decrease rangeland resources. Invasive species may even directly affect human health by acting as disease vectors, or by containing toxins.

Invasive species have been introduced for several reasons, even seemingly legitimate causes such as the abatement of soil erosion (crown vetch), wildlife food and cover (Russian olive), forage (tall fescue), and even to benefit bees and honey production (sweet clovers). Unfortunately, the damage caused has been worse than the benefit derived. Of course, many exotic plants have not caused major ecological or economic damage, and have been extremely beneficial; for example many of our food crops are not native to Missouri. However, we must understand that some species seemed innocuous at first, but later developed into a problem. There are many characteristics that can help us to predict invasiveness such as high reproduction and dispersal rates, diverse diets, broad native ranges, gregariousness, high genetic variability, and living in a close-relationship with humans.

Controlling invasive species can be difficult and usually includes mechanical (hand pulling plants), chemical (pesticides), cultural (burning), and biological (introduction of another species) means. But of course, the best thing to do is to avoid introducing problem species into the environment. For example, landscape your yard with native plants, refrain from releasing unwanted exotic pets, and clean clothes and vehicles between travels to different habitats. These actions will help to slow the spread of invasive species.

Photo courtesy of Leslie J. Mehrhoff



Hydrilla



Sixteen Schools Hosted at State's 2015 Event

Teams of high school students from 16 schools participated in the 2015 Missouri Envirothon, held May 1 at the Capital West Christian Event Center in Jefferson City. This competition marked 17 years of participation by the state of Missouri in the Envirothon program, which is available to students in the United States and Canada.

Pembroke Hill High School of the Kansas City Region won top honors at the state event, and went on to represent Missouri at the NCF-Envirothon held in Springfield, Mo., later that summer.

KC Region Team Places First

The top ten winners at the state event were:

- 1st – Pembroke Hill High School
- 2nd – Parkway North High School
- 3rd – Licking High School
- 4th – Glendale High School
- 5th – Camdenton High School
- 6th – Houston High School
- 7th – Jamestown High School
- 8th – Smith Cotton High School
- 9th – McKinley High School
- 10th – Blue Springs High School

Recognition is also awarded to teams scoring the highest in a particular resource area:

- Forestry, Soils and Oral Presentation – Pembroke Hill High School
- Wildlife and Aquatics – Parkway North High School
- Current Issue (Urban/Community Forestry) – Licking High School



Photo courtesy of Theresa Dunlap



Photo courtesy of Theresa Dunlap

Teams participating represent the best and brightest of high school teens across Missouri.

Northwest Envirothon Students Competed at Hartell Lakes

Heather Keith 660-359-2006, ext. 101
www.swcd.mo.gov/grundy/Envirothon.htm

The Northwest Region hosts a fall competition; the most recent at Hartell Lakes Conservation Area. Five area high schools, with a total of ten teams participated in the competition (eight competing teams and two alternate teams). All the students gained the Envirothon experience in aquatics, wildlife, soils, forestry and current issue. An amazing 66% of the students were first-time Envirothon competitors.

A training day for teachers/coaches will be held in September/October prior to the next competition that will be held in November at Squaw Creek National Wildlife Refuge.

The Northwest Region strives to increase awareness, maintain and promote the Envirothon to the 65 high schools that reside in the region. Every year that a student participates they will be able to experience a new state park, refuge or conservation area in our region.



Students from the Northwest Region of the state had a cold day for competition, but positive energy kept smiles on the well-prepared competitors.

2 Northeast Region is Making Plans for New Season

Andrea McKeown 660-263-5702, ext. 3

The Northeast Regional Envirothon committee is planning a mid-October 2015 regional competition. The region covers 17 counties including: Putnam, Schuyler, Scotland, Clark, Sullivan, Adair, Knox, Lewis, Linn, Macon, Shelby,

Marion, Chariton, Randolph, Monroe, Ralls and Pike. Teachers in these counties who are interested in participating in Envirothon should contact Andrea McKeown, the Randolph County SWCD manager at 660-263-5702, ext. 3, for more information.



Photo courtesy of Van Beydler

Region and State Coordinators gathered with some of their volunteers for a photo in front of the "smashed house" – a prop used for the Welcome to Ozarks theme of the NCF-Envirothon. Images and characters from The Wonderful Wizard of Oz were used throughout the event, which was held in Springfield, Mo.(the Ozarks).

Northeast Region contact, Andrea McKeown (back, second from left) and State Envirothon Treasurer, Audrey Rayl (back, left) created many theme-related decorations for the national event.

3 Central Region Envirothon Hosts up to 120 Students Each Year

Tina Dulaban 660-547-2351 ext. 3

The Central Region is comprised of 17 counties including Henry, Saline, Pettis, Benton, Howard, Cooper, Morgan, Camden, Moniteau, Boone, Cole, Miller, Maries, Osage, Gasconade, Callaway and Audrain.

The committee consists of nine Soil and Water Conservation District employees, three test writers from the Missouri Department of Conservation, and one with the Natural Resources Conservation Service. Formalized trainings are not offered at this time, but teams are encouraged to contact their local Soil and Water Conservation Districts to set-up training opportunities.

Our event is held in the spring each year and consistently has 18 to 24—five-member teams competing. The committee has



The team from Camdenton Lakes High School took first place at the Central Region competition.

a strong partnership with Runge Nature Center in Jefferson City, which has been the testing location for several years now. Excellent trails and indoor facilities make for a wonderful central location.

With about 120 students and coaches it takes about 45-50 volunteers to make this event go smoothly in a day, not including assistance of the Runge staff. AND, a great group of volunteers consistently assists the program each year.

Serious competitors, great kids and coaches, along with wonderful volunteers in an outdoor setting. Wow, what more can you ask for?

4 St. Louis Region Teams Enjoy Fun Training Opportunities

Theresa Dunlap 636-922-2833, ext. 3

The St. Louis Region hosted six teams at their regional competition held at Powder Valley Conservation Area in Kirkwood, Mo., in April 2015. Teams were tested on the four natural resource areas with the current issue theme, Urban Forestry, featured throughout. Top honors went to Parkway North High School Team A, with the students from McKinley Classical Team A placing second, and Parkway North's Team B earning third. All three teams went on to represent the St. Louis Region at the Missouri State Envirothon competition in May 2015. Parkway North Team A placed second at state.

Envirothon teams in the St. Louis region are offered two trainings each year. The first is on a weekend in October at the Dana Brown Center of the Shaw Nature Preserve in Gray Summit, Mo., where students are invited to stay overnight in restored historical 1800s



Water resources educator, Jamie Paige (right) conducts an early morning hike into the wetlands at the Gray Summit Nature Preserve.

river. There is also a wetland walk where students gain knowledge in macroinvertebrate identification. Trainers who help with this event include MDC Fishery Biologists Denise Otto and Sarah Peper, MDC

St. Louis Region *(continued)*

Forester Mark Grueber, MDC Community Conservation Planner Perry Eckhardt, MDC Wildlife Biologist Jerod Heubner, and MDC Education Consultants Steven Juhlin and Jennifer Fakes. Jamie Paige, Stormwater Manager for the City of Wentzville conducts a wetland study. Many others pitch in for this fun weekend.

A second training is held in January at the August A. Busch Conservation Area. Students discover the wonders of soil during a half day workshop with NRCS Soil Scientist Dave Skaer, and SWCD Technicians Charlie Perkins and Jerry Weinrich. Students texture soils, identify layers in the profile, learn how to read topo maps and a whole lot more.

The training at Busch also features lessons on the Current Issue topic of the year. For 2015, Perry Eckhardt, MDC Community Conservation Planner and former MDC Forester, provided instruction on Urban Forestry. Students also were invited to join Mark Grueber, MDC Forester, at For-estReLeaf of Missouri for hands-on investigation of urban tree issues.

Dates are set for the next round of training



Parkway North Team A earned first place at the St. Louis Regional competition.

for the 2016 Envirothon. The Dana Brown weekend is October 24 and 25, 2015; and the Busch training will be held January 23, 2016.

5 Southwest Teams Place in Top Ten at State

Paula Champion 417-466-7682, ext. 3

The 2015 Southwest Region Contest was held November 5, 2015 at the MDC Nature Center in Springfield, MO. Ten teams (50 students) competed while their advisors received training in soils from Soil Scientist, Tom DeWitt and forestry from MDC Resource Forester, Brice Kelso.

The top three teams from the Southwest region, Licking High School, Houston High School, and Glendale High School in Springfield, all finished in the top 10 at the state competition with Licking High School scoring the top current issue score and finishing third overall.



The Licking High School team earned the top current issue test score at the Missouri State Envirothon.

Southeast Region Provides Training at Mingo Wildlife Refuge

Rachel Griffin 573-996-3619, ext. 3

Wilma Carlyon 573-751-1783

The Southeast Region held a training workshop on November 7, 2014 at the Mingo Wildlife Refuge in Puxico, Mo. Five schools attended the training with their advisors.

The Southeast Envirothon Competition was held March 31, 2015 at the MDC Nature Center in Cape Girardeau, Missouri with three teams advancing to the state competition. The teams advancing were Cape Central High School and two teams from Valle Catholic School. Valle Catholic was unable to participate at the state level due to a conflict in school scheduling.



Students from the Southeast Regional Envirothon work together to complete testing. Each student is a "specialist" in one of the five resource topic areas, but all work together to answer the questions.

Kansas City Region has Banner Year

Dave Fry 816-699-4528

wmdafry@gmail.com



Photo courtesy of Theresa Dunlap

Students on the Pembroke team are: Saurabh Goel, Eric Koch, Domenico DiMare, Devon Dietrich and Francesco DiMare.

Regional training was held on a frigid Thursday, February 26, with temperatures reaching only 16 degrees Fahrenheit that day. Despite cold temperatures, seven schools making up a total of eleven teams participated. This number shows a boost in teams from 2014 by two schools and three teams. The Kansas City Region was very fortunate to have top qual-

ity, skilled and highly motivated trainers: Lisa LaCombe in Aquatics, Paul Whitsell in Forestry, Joe Debold in Wildlife, Sheila Staton-Clifton in Soils, Wendy Sangster in Current Issues and SueAnn Wright in Oral Presentations. These six individuals did a wonderful job of presenting clear and concise information and facts to the students. Training took place indoors at Burr

Kansas City Region *(continued)*

Oak Woods Conservation Area, with the greatly appreciated, cooperation of the entire staff. The students accomplished their goal of learning and understanding environmental concepts throughout training.

The region's competition took place on March 26 at the same location as training with participation from seven schools including; Fort Osage, Blue Springs, Knob Noster, Lafayette, Oak Grove, Pembroke Hill, and Smithville who comprised eleven teams total. Sponsors also formed their own team and took the test at each ecostation to understand the challenges students were confronted with during the competition.

The top three teams, Pembroke Hill, Blue Springs and Smithville moved on to compete in the Missouri State Envirothon Competition on May 1, 2015 in Jefferson City, Missouri. Pembroke Hill won first place with 532.3 points, Blue Springs finished in the top ten with 325.7 points and

Smithville was just outside the top ten with a strong showing. A total of sixteen teams competed at the state level this year. Pembroke Hill then moved on as the 2015 Missouri State Envirothon champions to the national competition held in Springfield, Missouri from July 26 to August 2. Again Pembroke Hill emerged victorious by topping 51 other high schools from the United States and Canada.

The Kansas City Region Envirothon would like to thank the steering committee, the Burr Oak Woods Staff and all volunteers, team guides, and station monitors. With their help, 2015 has been a very fun and successful year. We would also like to say we appreciate the participation of all seven high schools and their team sponsors for their tireless hours of preparation and study.

State Coordinators

Peggy Lemons

573-893-5188, ext. 3

Judy Stinson

573-751-1783

Envirothon Regions



The Missouri Department of Conservation and Missouri Envirothon *Partners in Conservation Education*

Contributed by Kevin Lobraff, MDC Education Program and Curriculum Supervisor

In 1937, many of our state's natural resources were nearly depleted. Poorly managed and short-sighted timber harvest and agricultural practices caused erosion problems on a vast scale, choking our rivers with sediment and sending precious topsoil out of our state. Unregulated hunting of wildlife devastated many species, including deer and turkey. Missouri's natural bounty was exploited, and little thought was given to tomorrow.

That same year, the Missouri Department of Conservation (the Department) was formed with the goal of managing our forest, fish, and wildlife resources so they would be sustainable. By 1938, the Department had embarked on a full-time public education campaign and published the first edition of the *Missouri Conservationist* magazine.

In the early years, the Department partnered with landowners, concerned citizens, and other agencies to begin the work of restoring the health of our wildlife and the habitat it needs. Today, conservation education programs and partnerships are as important as ever. With over 90% of the state in private ownership, conservation works in Missouri only because Missouri citizens practice and support it.

In 1997, education staff from the Depart-

ment worked with the Missouri Association of Soil and Water Conservation Districts and other agencies to plan Missouri's first state Envirothon, which was held in 1998. Since then, the Department has been proud to continue this partnership with Missouri Envirothon to provide hands-on, in-depth natural resource education.

The Department's mission is to protect and manage the forest, fish, and wildlife resources of the state and to facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources. The Department shares many goals with Missouri Envirothon. Some of these include promoting environmental aware-

ness and stewardship; developing students' critical thinking, cooperative problem solving, and decision-making skills; presenting balanced options for natural resource management; and providing awareness of and accessibility to resource organizations offering assistance in natural resource issues.

The Department supports Envirothon events and activities statewide and year-round. In most regions, the Department hosts Envirothon trainings and regional competitions at conservation areas, nature centers, and other Department facilities. Department staff help with training for





Students meet with MDC resource professionals to study the ecology of a local stream. Rachel Settle (left), MDC intern, and Tiffany Edwards (right), MDC fisheries resource assistant, work with students using a kick net to collect fish.

advisors and students, especially in wildlife, forestry, aquatics, and the current issue. Department employees and volunteers help with tasks such as writing tests, scoring tests, chaperoning teams, staffing testing stations, judging oral presentations, setting up tables and chairs, and providing food and water for teams. Department staff also provides training in specialized topics such as species identification, macroinvertebrate sampling, and biomonitoring.

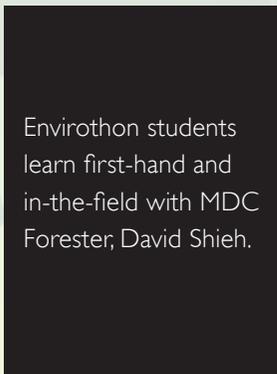
When high school students talk with Department staff who help with Envirothon events, they get valuable insight into natural resource career options. Several Envirothon students have served summer internships with the Department, and other students credit their participation in Envirothon with influencing their choice in teaching and natural resource jobs.

Many Envirothon coaches and advisors use Discover Nature Schools (DNS), the Department's conservation education curriculum, to help prepare students for the rigorous academic challenges offered by regional, state, and national Envirothon competitions. Some schools and advisors, who recognize the value of these units as

solid preparation for their future Envirothon teams, ensure the units are integrated into the elementary science curriculum. DNS educational units are now available for students in preschool through high school, which extends conservation education, science education, and Envirothon training to early childhood.

The relationship between the Missouri Department of Conservation and Missouri Envirothon is a win-win partnership. Envirothon coaches and students benefit from Department educational materials, training, and professional support. The Department benefits from a new generation of citizens who are knowledgeable about Missouri's forest, fish, and wildlife resources and who care about conservation.

Ultimately, the long-term goals of the Department and Missouri Envirothon are the same. Appreciating our rich outdoor resources, and realizing that the health and sustainability of those resources directly impacts the health and sustainability of humans, we partner to conserve them—not just for ourselves but for generations to come.



Envirothon students learn first-hand and in-the-field with MDC Forester, David Shieh.



Photo courtesy of Theresa Dunlap

2015
Missouri
Scholarship
Winner

Ellen Wang is 2015 Missouri Scholarship Winner

Ellen Wang was the 2015 recipient of the Mary S. Burt Envirothon Scholarship. Ellen competed in the St. Louis Region Envirothon, and worked with four other students to gain 2nd place at the 2015 Missouri State Envirothon Competition. She received a \$250 award.

Ellen is the daughter of Jiabin Wang and Chun Li of St. Louis, and a May 2015 graduate of Parkway North High School. She will be attending Stanford University with a goal of earning an Environmental Engineering degree.

Her academic and extracurricular achievements in high school were exemplary; and her commitment to her Envirothon studies made her an invaluable member of her team.

Ellen wrote: “(Envirothon) is my bridge between the world of academia and the natural world. And it is also this beautiful duality combining the desire to learn with respect for the environment that I hope to achieve by pursuing a career in environmental engineering.”

Ellen’s Envirothon coach was also her Honors Biology and AP Environmental Science instructor, Russell Barton of the Parkway North School District. In his letter of recommendation, Barton stated, “Ellen is amazing. She is perfect as a classroom citizen. She accomplishes great things in the classroom while taking the most challenging courses. She has national recognition in science both individually and as a member of teams. She has amassed a beautiful resume in spite of placing the needs of others in front of her own opportunities. There is an incredible force of innovation and progress crouched within this young woman and ready to explode into its full glory.”

The scholarship is named for Mary Burt, past district manager for the St. Charles County Soil & Water Conservation District. Mary’s niece, Lia Hepperman was at the State Envirothon competition and was able to present Ellen with the award. Lia is a Missouri Department of Conservation employee, and provides assistance to the Envirothon program at both the regional and state levels.

Below is the opening paragraph of Ellen’s essay about her Envirothon experience.

Advertised by a sole flyer in the school science department, a rather obscure club appeared to entail competition training, recycling campaigns, and maybe a bit of stream cleaning. I signed up for Envirothon. No one told me that ecological awareness would come to permeate my world and my outlook on learning. No one told me that striving to live in humble harmony with the Earth would become my long-standing goal. But that’s exactly what happened. Since my passion and involvement in the club has grown, Envirothon has shaped my dreams and aspirations in science.

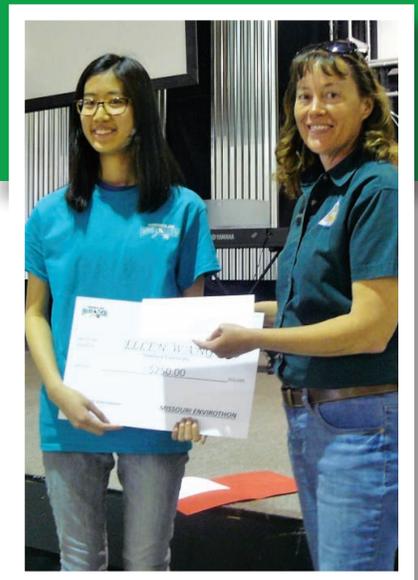




Photo courtesy of Van Beydler

Lemons, Stinson Inducted into Envirothon Hall of Fame

At the awards ceremony of the 2015 NCF-Envirothon, Peggy Lemons and Judy Stinson were inducted into the Envirothon Hall of Fame and given plaques of recognition for their dedication and commitment to the program.

Lemons and Stinson have been involved in the state program since 1998 and both have served on the board at the national level. Lemons continues to serve as the trustee for the National Conservation Foundation board.

Their efforts and enthusiasm have played a major role in the growth of Missouri Envirothon into the program it is today. They both continue to serve as co-chairs on the state committee and have for 17 years; and both have served as the co-chairs of the national competition when it was held in Missouri in 2005 and 2015.

Stinson noted that her long-running association with the program is centered on the students. “My passion for Envirothon is fueled by the students. We have had so many wonderful young men and women come through this program, and it is a pleasure to see them grow in knowledge and develop a love and respect for natural resources.”

Lemons agreed, adding “We love hearing back from Envirothon students and finding out that this program influenced them to choose natural-resource-based jobs. Missouri is fortunate to have so many vibrant, enthusiastic young scholars seeking to grow in their understanding of natural systems, and often taking that a step further by being a voice for natural resource conservation in the future.”

Missouri

★ Wins 2015 NCF-Envirothon ★

A five-member team of high schools students from Pembroke Hill High School in Jackson County took first place at the 2015 NCF-Envirothon-- a program of the National Conservation Foundation (NCF). They also received the top scores for aquatic ecology, oral presentation, and current issue.



Photo courtesy of Van Beydler

During the NCF-Envirothon teams were tested at outdoor stations on their knowledge of soils and land use, aquatic ecology, forestry, wildlife and a current issue, which was Urban/Community Forestry. Teamwork, problem-solving and presentation skills were evaluated as each team gave an oral presentation with recommendations for solving the specific challenge to a panel of five judges. The top four teams represented their oral presentation to a panel of seven new judges. Those four teams were Missouri, Texas, Massachusetts and Pennsylvania.

NCF works in partnership with Smithfield Foods, local conservation districts, forestry associations, educators and cooperating natural resources agencies to organize and conduct competitions on the local, regional, state and/or provincial level.



Photo courtesy of Van Beydler



Team members were (from left) Saurabh Goel, Domenico DiMare, Francesco DiMare, Devon Dietrich and Eric Koch. Their advisors were SueAnn and Rick Wright. Each team member took home a \$3,000 scholarship provided by Smithfield Foods.

The top winning teams were announced on Saturday August 1st, during the awards ceremony at Missouri State University in Springfield, Missouri. The top ten teams were:

1st

Pembroke Hill High School - Missouri

2nd

Penncrest High School - Pennsylvania

3rd

Academy of Science & Technology
Texas

4th

Newton North High School
Massachusetts

5th

The Mount Academy
New York

6th

MATES - New Jersey (Marine Academy
of Tech & Environmental Science)

7th

Venture Crew 202 - Maryland

8th

Charter School of Wilmington
Delaware

9th

Hidden Pond Nature Center - Virginia

10th

Hot Springs High School - New Mexico

Next year's NCF-Envirothon will be in Ontario, Canada and will be hosted by Forests Ontario. The dates are set for July 24-29.



Envirothon Skills Add Depth to Career

“When I joined the Envirothon during my sophomore year of high school, I had no idea how much it would benefit me in the long run,” said Lucas Stevens, a 2010 graduate of the Envirothon program. “The knowledge I gained in three years with the program have helped me better address the needs of the farmers I talk to every day.”

Lucas, a graduate of North Shelby High School in Shelbyville, Missouri, and a three year participant in the Northeast Region Envirothon program, is currently a salesman for Quincy Tractor of Quincy, Ill.

“I sell new and used agriculture equipment; and I’ve found that conservation and knowledge of environmental concerns are essential when it comes to farming and using the right tools for sustainability. When talking about soil properties, current issues, erosion/chemical run-off, forestry, native grasses and other farming topics, I have to be up-to-date with current laws and practices to fit the farmer’s needs of equipment and technology. My knowledge of conservation and sustainability help me to foresee problems and possibly eliminate troublesome issues for the farmer.”

Lucas began his involvement with Envirothon when another student in his school dropped the program due to other commitments. Mrs. Sandy Werr approached Lucas, and while he wasn’t sure what the benefits would be, he thought it sounded like fun. He also was impressed with the level of commitment shown by his teachers; “Mrs. Werr and Mrs. (Donna) Henderson took the time to teach the material on their own time, after school.”

He soon found that he enjoyed learning about conservation and being part of a team. “The Envirothon took a lot of my time, but it was well worth it. The friendships we developed, and the knowledge we gained are not things that you get in a regular classroom setting. Working together, solving problems, putting together a team oral presentation – all of that helped immensely to prepare me for college and my career.”

Lucas said that the program gave him a greater understanding of the interconnectedness of all natural resources. “I’m much more aware of my environment and the reasons why we need to practice conservation for future generations,” he explained. “We all want to make money, but there is a line you have to walk as a farmer or landowner in order to preserve the land so that future generations will also be able to farm.”

Lucas and his North Shelby High School Envirothon team won their regional competition three years in a row and represented their region at the state competitions from 2008 to 2010. He currently lives in Monticello, Missouri, and is engaged to Katie McDonald with a September wedding planned.

Environmental Educator is “Living Her Dream”



Mandy Noel, a former Envirothoner from the Northeast Region of Missouri, is a perfect example of the far-reaching effects the program can have. Mandy graduated from Mark Twain High School in 2007, and was an Envirothon competitor all four years.

Mandy Noel (above left), a 2007 graduate of the Missouri Envirothon program, leads students on hikes through the Oregon forests. Below, Mandy works with a crew to maintain the Pacific Crest Trail. (She is farthest up the trail in this photo).

“The Envirothon is such a wonderful way to get high school students interested in the outdoors through a friendly competition. It challenges them to work collaboratively with their peers to obtain a solid grasp on their state’s and our nation’s natural heritage,” she said. “It also encourages students to become better stewards of the land and, in my scenario and for many others, even go on to obtain an environmentally-related career. For these reasons, the Envirothon is invaluable!”

This spring (March 2015), Mandy graduated with an M.S. in Environmental Education from Southern Oregon University. Since moving to Oregon in 2012, this ambitious young lady has worked for the Bureau of Land Management in Medford, Oregon where she took students of all ages on guided hikes to the top of two 7-million-year-old lava flows called Table Rocks; and led nature programs on the Rogue River during the height of the salmon run. She also helped build and maintain hundreds of miles of trails throughout Southern Oregon, including a 40 mile section of the Pacific Crest Trail. Another internship found her at Crater Lake National Park’s Science and Learning Center where she coordinated teacher workshops focusing on geology and climate change; and developed the park’s citizen science program for middle and high school students.

“I strongly believe that if I had not participated in Missouri’s Envirothon program, I would not be where I am today. Studying Missouri’s rich natural resources as well as developing a convincing argument to address a current environmental issue for the Envirothon’s oral competition were both integral steps in my career path.”

Mandy credits at least three people with fostering that passion for nature. Her dad

and mom, Gary and Natalie Noel, made a point of spending summers camping in Missouri’s beautiful outdoors, and took their daughters on trips to mountains and oceans. “They have always encouraged me to do my best in all that I do, from my days competing in Missouri’s Envirothon to fulfilling my dreams of becoming a Pacific Northwest naturalist. Their love and support are what keep me chugging forward in life.”

She also mentioned Mrs. Theresa Casey, the teacher at Mark Twain High School who was also Mandy’s Envirothon coach and biology teacher. “Long before she was either of those things for me as a high school student, Mrs. Casey was my neighbor and pre-K teacher in Hannibal, Missouri. I cannot thank Mrs. Casey enough for inspiring my sense of wonder in the outdoors and for challenging our Envirothon teams and her students to succeed both in and outside the classroom.”

Mandy enjoys sharing her passion for nature with others. “It is truly rewarding to help others discover a new way to explore their environment and witness their eyes light up when they discover a majestic plant or animal living right in their backyard or on the public lands. I am truly living my dream as an environmental educator and I owe it all to Envirothon.”



Sheila Staton-Clifton, NRCS Soil Scientist (center; standing) guides students through soil profile analysis.



NRCS Soil Scientist Inspires Students to Dig Deeper

Envirothon competition testing is never easy, but many students gain a comfortable confidence in some of the natural resource areas. Many students say they enjoy studying wildlife, forestry or aquatics; but the number of students who choose soils as their favorite are far fewer. Sheila Staton-Clifton is taking steps to change that!

“I will enthusiastically take any opportunity to provide soils training to our youth,” said Sheila. “They are our future soil managers; and without soils education our other natural resources will greatly suffer.”

Sheila has been with the USDA Natural Resources Conservation Service for about 25 combined years as a student and full-time employee, with 14 of those years as a Soil Scientist. She has been offering training to Missouri Envirothon students for about 10 years, mostly in the Kansas City and Central Regions. She guides the students through soil profile descriptions and soil survey use; and teaches them how to properly analyze a soil pit, which is something students are required to do at state and national levels of competition.

Sheila believes that education and outreach are an important part of natural resource conservation. “It’s very rewarding working with students who are intent on learning. Exposing them to hands-on situations that they won’t get in a class-

room, can really bring the lessons home. It’s great to hear these young men and women say that our trainings inspire them to pursue natural resource conservation careers.”

Training for the teachers/coaches is also an important part of Sheila’s outreach efforts. “When the teachers show an enthusiasm for learning the subject matter, the students will reciprocate that in their efforts. It’s amazing to see them become excited about soils – a topic that many did not find interesting when first introduced. Soils are intricately tied to all other living things and it’s personally fulfilling to see students discover the relationship between soils and our lives.”



Staton-Clifton (left, front) takes students into the field to learn about soils.

Teacher Explains Why *“Envirothon is Worth Coaching”*



Parkway North High School Teacher, Russ Barton (right), joins his students on a wetland hike during an Envirothon training session.

Photo courtesy of Theresa Dunlap

A local newspaper referred to him as the “Indiana Jones of St. Louis”. Students in their evaluations use words like “genius” and “brilliant”. Peers have observed his intense passion for nature, and his commitment to environmental education. But if you ask Russ Barton to describe himself, he’ll say he is just a teacher of biology and environmental science who cares about the future of Earth’s natural systems, and enjoys showing students the intricate relationships in nature.

One of the many ways he has been able to extend that knowledge beyond the classroom is by encouraging students to participate in the Envirothon.

*“Envirothon is a kind of unique success because it really does address the **WHOLE STUDENT.**”*

Barton has coached teams in the Parkway School District in St. Louis County for the past 10 years. His teams won the state competition three of those years, and went on to compete nationally in Manitoba (14th place), New York (4th place) and Arizona (2nd place).

When asked why he continued to offer this program to his students, Barton explained:

“After several years of coaching some very strong Envirothon teams, I can say that it is by far the most effective tool that I use in teaching. Five students work together to tackle five areas of natural resource interest as a team with each area being too broad for anyone to completely master. This means that students have to learn more than just definitions and concepts. They have to learn how to prioritize what is most important and they have to become more

independent learners. They learn to work together and trust each other to master their own material. They also have to learn how to evaluate their peers and mitigate for weaknesses that might appear inside the team structure. When they get really good, they are sharing responsibilities in areas, and more than one member is covering each high priority concept or question. The conversations that emerge between team members are incredibly professional

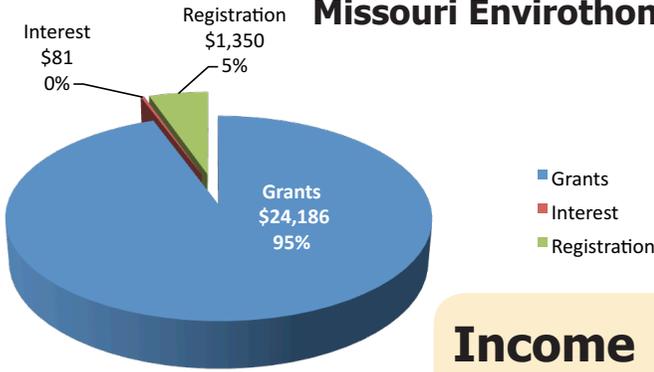
in their content, yet refreshingly creative.

In a world of buzzwords like STEM and STEAM and all the other educational alphabet soup, Envirothon is a kind of

unique success because it really does address the **WHOLE STUDENT**. They learn about their environment and how it works, how they fit into it and how they can be a better steward. They learn to speak and write more effectively. They learn how to give voice to their good ideas and how to listen to the ideas of others in order to improve their own. It builds student math skills and their depth of knowledge about the world they live in. They learn not just about the natural world, but about politics and social behavior and change as well. Envirothon is amazing because it teaches students not just about the world around them in all of its depth and breadth, but also how to be an active participant in improving it for themselves and their children. I think that is why Envirothon is and always has been worth coaching.”

2014 Missouri Envirothon

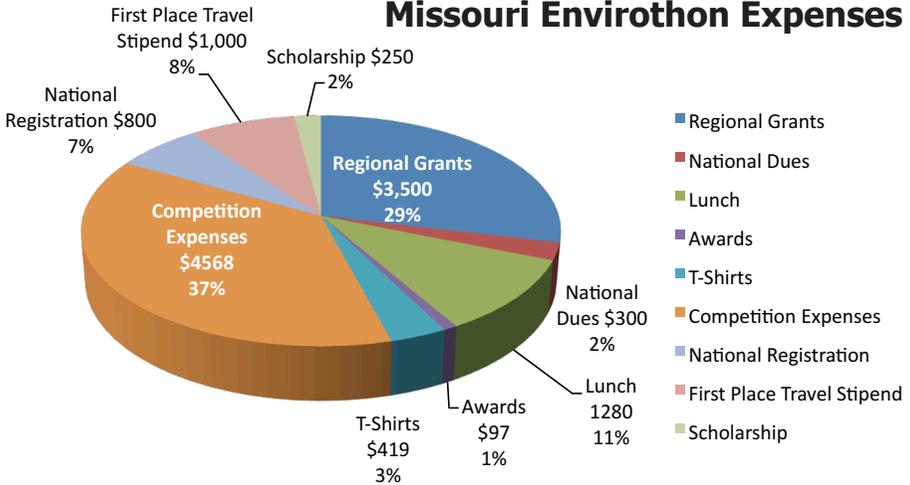
Missouri Envirothon Income



Income

Grants	\$ 24,186.00
Interest	\$ 81.00
Registration	\$ 1,350.00
	<u>\$ 25,617.00</u>

Missouri Envirothon Expenses



Expenses

Regional Grants	\$ 3,500.00
National Dues	\$ 300.00
Lunch	1280
Awards	\$ 97.85
T-Shirts	\$ 419.24
Competition Expenses	\$ 4,568.02
National Registration	\$ 800.00
First Place Travel Stipend	\$ 1,000.00
Scholarship	\$ 250.00
	<u>\$ 12215.11</u>

2016 NCF-Envirothon to be Held in Canada

The 2016 NCF-Envirothon will be held at Trent University in Peterborough, Ontario, from July 24th through the 29th. Teams vying for a chance to compete in Ontario will spend the next year exploring Invasive Species.

Did You Know??? Ontario has more than 250,000 lakes, and that they contain 1/5th of the world's fresh water. 66% of Ontario is forested. Ontario has 154 species of fish, 50 species of amphibians and reptiles, 483 bird species and 81 mammals. Learn more about natural resources in Ontario, and join the fun in 2016! This will mark the 22nd year of Envirothon in Ontario!



Go to

Envirothon.org

for more information

Visit the NCF Envirothon

Flickr Page to view tons of great photos from the Missouri 2015 event.

Missouri State Sponsor Agencies

Missouri Association of Soil and Water Conservation Districts

114 Local Soil and Water Conservation Districts (SWCD)

Missouri SWCD Employees Association

Missouri Department of Natural Resources

Missouri Department of Conservation

Natural Resources Conservation Service

University of Missouri Extension

Show-Me Chapter of the Soil and Water Society

These agencies also provide volunteers and resource professionals, who instruct the students during training sessions, write and grade the tests, and monitor the test stations.

In one year, more than 280 people volunteer at an Envirothon event in Missouri.

MISSOURI ENVIROTHON

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Jefferson City, MO 65109
(573) 893-5188 ext. 3

www.moenvirothon.org

An Environmental Education Program and Competition for High School Students

