2024 Governor's Environmental Stewardship Awards

Ethan and McKenzie Foster
Maury County
Category: Agriculture and Forestry

The Foster's beef cattle operation based in Williamsport and Santa Fe, TN has achieved many environmental and agricultural improvements over multiple generations with Ethan Foster, his wife McKenzie, and brother Allen currently operating the farm. The farm includes a small cow/calf operation of about 40 pairs on 200 acres of pasture and about 75 acres of hay production as well as a small stocker backgrounding program.

The farm practices rotational grazing in the paddocks and with the help of the local Natural Resources Conservation Service (NRCS) office and a grant they have built cross fencing, dividing the paddock into four sections. This allows the livestock to be rotated every few weeks. In addition to rotational grazing, they also enrolled in a 15-year contract through the Grassland Conservation Reserve Program. This program allows the farm to reduce bushhogging during prime nesting season for local wildlife and maintain beneficial ground cover for wildlife.

The farm's rotational grazing has also had a major impact on the grass productivity and health, reducing the need for inputs such as fertilizer. By planting a winter annual cover crop mix into their stocker pasture, they have measured a dramatic increase in soil health. The need for additional fertilizer has dramatically decreased, as well as weed pressure in months that cattle are not on the winter stocker pastures. The farm uses the stocker calf pasture for dual purpose: grazing of the stocker calves in the fall and an annual warm season grass hay field in the summer. This rotation allows the farm to graze the cattle and produce the hay needed for these calves all on one land unit.

Ethan Foster, one of the owner operators, has attended countless farm days and workshop trainings hosted by the U.S. Department of Agriculture and UT Extension to further his knowledge and learn best practices. He transfers this knowledge learned from experts and brings it back to Maury County by speaking at County Cattlemen's meetings, school Ag Days, and on daily farm visits through his job as a Soil Conservationist for the NRCS.

Ethan has worked with UT Extension to soil test and is certified in the UT Extension Master Beef (2020) and Master Farm Manager (2023) programs. He has also worked with the NRCS on multiple programs for his own farm. The creek exclusion fencing project was a result of partnering for technical and financial incentives from NRCS and the Tennessee Department of Agriculture non-point source program. Most of the farm practices that Ethan has implemented have improved water quality in Turkey Creek and the Duck River by excluding cattle from accessing the waterways on the property, minimizing the spread of pollutants in the streams.

Some new practices added to the farm in 2024 include the introduction of Native Warm Season grass plantings, as well as enrolling the forested acres on the farm into a Conservation Stewardship Program (CSP) with the NRCS to improve natural bad habitat for endangered species.

Ethan is a member of the Maury County Cattlemen's Association in addition to the Tennessee Farm Bureau Young Farmers and Ranchers (YF & R), He was elected to the Farm Bureau Board of Directors as a YF & R representative. Ethan emphasizes the plethora of opportunities out there for young farmers, and farmers in general through the state, county, and federal systems. He highly encourages all young people to get involved with farming and search out these opportunities to help them succeed in their farming endeavors while promoting positive environmental outcomes.

2024 Governor's Environmental Stewardship Awards

The Garden Club of Nashville
Davidson County
Category: Natural Resources

The Garden Club of Nashville created a grassroots project, Weed Wrangle®, which is a one-day, area-wide, volunteer effort to help rescue public parks and green spaces from non-native invasive species through hands-on removal of especially harmful trees, vines, and flowering plants. Supervised by experts in invasive weed management, Weed Wrangle® volunteers learn, practice, and begin a habit of maintaining an area free of non-native invasive plants and encourage replanting with natives in removal areas. The Weed Wrangle® project started with an idea to work with public parks and green spaces in the Nashville area. Weed Wrangle events are held yearly in almost every county in Tennessee.

The Garden Club of America (GCA), with its 18,000 members and 200 clubs across the country, initially supported the program through a three-year $3,000 Partners for Plants grant through its Civic Improvement Committee. Today, the GCA has a Memorandum of Understanding with Weed Wrangle so that all GCA clubs across the country work together to promote Weed Wrangle events and opportunities. Beyond Tennessee, Weed Wrangle, now in its 10th year, has spread to 30 states. The benefits of the program expand far beyond the plant removal effort itself.

In addition to removing invasive species, participants are engaged in native vegetation replanting efforts and receive educational benefits. Advice from botanists and other horticultural experts is utilized to help find the most effective way to address the invasive plants and replant with native plants. A native plant is one that is naturally found in an area. Plants introduced from other regions of the United States or other parts of the world are called exotics or non-natives. Because they have no natural predators to limit their reproduction, they usually spread rampantly.

In Tennessee, The Nashville Garden Club has partnered with the Tennessee State Parks and Natural Areas, the National Park Service, Tennessee Division of Forestry, Tennessee Urban Forestry Council, TVA, and multiple small and large cities across the state through parks departments, public parks, and green spaces.

Their hope and intention in this project are for others to use this concept and make it their own. They have concerted their efforts to make something that is scalable and offer a free template for all to use to create their own Weed Wrangle event. Over the course of 10 years, there have been 537 Weed Wrangle events held across Tennessee, utilizing 7,595 volunteers who have given a total 636,970 hours. A total of 184,295 plants have been removed, and 3,693 native plants have been replanted, with an additional 41 sites intending to replant natives and multiple sites that are planting native seeds. By engaging neighbors and challenging them to act in their own spaces, the hope is to create a movement that will have the greatest impact on the invasive plant population.

2024 Governor's Environmental Stewardship Awards

James Lawson High School
Davidson County
Category: Building Green

The new James Lawson High School in Nashville sets a precedent for design and sustainability in secondary education across Tennessee. Spanning 310,000 square feet over three stories, the school blends into the landscape, transforming site challenges into solutions that enhance learning and athletic environments while catering to the needs of the school curriculum.

The design process for James Lawson High School involved close collaboration with Metropolitan Nashville Public Schools (MNPS) to create a place that fosters critical thinking, inquiry, problem-solving, and creativity among the 1,600 students it serves. Multiple meetings with faculty, students, and community members ensured that the design of the school would become a hub for collaboration and community engagement.

Pursuing Gold level certification, under the LEED v4 Building Design and Construction: Schools rating system which recognizes the unique nature of school construction which addresses issues such as classroom acoustics, children's health, and educational opportunities. The school design embraces sustainability as the driver through various initiatives. These include maintaining a 53 percent diversion rate of construction waste not going to the landfill; roof-mounted photovoltaic arrays; a high-efficiency geothermal mechanical system; and natural daylighting which resulted in a 21 percent energy cost savings. Other features include the use of potable water which was reduced by over 50 percent by using low flow plumbing fixtures and collecting rainwater in a cistern onsite to supply gray water for toilet flushing in the primary restrooms. The site design also includes 11,600 square feet of green roofs and an outdoor classroom that connects students with nature.

Inspired by the area's historical significance, the school's design intertwines with the surrounding topography, utilizing concrete, terrazzo, brick, and wood to create patterns mirroring the nearby limestone bluffs. Leveraging the site's slope, the school incorporates grade-level entries at various points, reducing accessibility challenges and facilitating smoother traffic flow.

At the heart of the school is the student Commons, which acts as the main gateway to welcome students into the building. The double-height space is conceived to be a hive of activity, and a place for students and teachers to interact and socialize. The Commons fronts the two-story library and is flanked by two grand staircases on either side. One stair leads to the cafeteria and educational wings, while the other links to the athletics, music, and theater spaces. The theater is the first in the district to allow for a full height fly loft which is an extension of the stage walls that allows scenery to be flown up until it is out of sight of the audience.

The design and construction of James Lawson High School marks a pivotal milestone for the public school district and the students who will flow through its halls. Designed to be contextually honest and respectful of its place, the school moves beyond mere functionality with a building that blends with its surroundings, elevates sustainability strategies, and establishes a new community asset for Nashville.

2024 Governor's Environmental Stewardship Awards

Knoxville Utilities Board – Community Solar
Knox County
Category: Energy and Renewable Resources

Knoxville Utilities Board (KUB) provides electric, fiber, natural gas, water, and wastewater treatment services to more than 486,000 customers in Knoxville and parts of seven surrounding counties. KUB brought renewable energy to its community in 2023 by launching Knoxville's first community solar project, through which a 1 MW solar array generates approximately 1.36 gigawatt hours of clean energy. The program is already 93 percent subscribed at less than one year since its launch. By setting a precedent for future projects, KUB Community Solar will play a key role in driving Knoxville's clean energy future.

KUB is committed to improving the sustainability of its operations and providing clean energy programs for residential and business customers. The $1.4 million KUB investment builds upon its long-standing commitment to renewable energy and environmental stewardship on a three-acre brownfield site between the City of Knoxville's Public Works Service Center and Interstate 40. Due to the land restrictions of the site, the project utilized a screw-mounted racking system to minimize ground disturbance during array installation. The site also tested a solar powered robotic mower for vegetation management. The array is composed of more than 2,000 individual panels and generates approximately 1.36 gigawatt hours of electricity annually, enough to avoid nearly 964 metric tons of CO2 emissions per year which is equal to fully powering around 124 homes annually.

KUB Community Solar became the first project in the Knoxville area that allows residents to participate in a shared local array. Participants subscribe to a share(s) of the solar array for a monthly subscription fee and receive a credit back each month for the energy produced. By passing through the monthly production credit, KUB Community Solar mimics the benefit of rooftop solar without requiring upfront investments or equipment to be installed at an individual's property.

KUB Community Solar is the first step toward achieving KUB's long-term sustainability goal to support the development of 400 MW of solar power by 2030. In addition to demonstrating KUB's environmental leadership, KUB Community Solar is also a strong example of Knoxville's commitment to sustainability. With its location in front of the City of Knoxville Public Works building adjacent to I-40, it is a highly visible display of the community's progress toward climate and sustainability goals.

KUB is committed to safeguarding the communities' environmental resources and creating a greener future for generations to come. By locating the array on a state-recognized brownfield, KUB redeveloped an environmental burden into a site that now provides sustainable environmental benefits.

KUB Community Solar provides customers the opportunity to reduce their carbon footprint and support locally sourced clean energy without the financial and logistical burden of a traditional solar array. Each share helps avoid the same amount of emissions as recycling 314 pounds of waste per year. With over 2,000 individual solar shares, residential and commercial customers can support their own environmental goals at an affordable price.

KUB Community Solar was initiated as a Flexibility Research Project pilot to inform TVA's Generation Flexibility Program, which allows local power companies (LPCs) to generate a portion of their electric needs. The project expanded the limited examples of LPC-owned solar and community solar projects in the Valley, helping create a framework for future projects and adding to lessons learned.

2024 Governor's Environmental Stewardship Awards

Tennessee Environmental Council – Recycling Roundups
Davidson County
Category: Environmental Education and Outreach

Tennessee Environmental Council (TEC) hosted a Recycling Roundup Series – "Clean Up, Drive Through, Drop Off" – which is a hands-on drive-through recycling event targeting underserved communities across Tennessee, designed to raise awareness about the benefits of recycling and to collect hard-to-recycle materials.

TEC developed, planned, and executed 10 Environmental Protection Agency (EPA) funded recycling events, "Recycling Roundups", which took place throughout the state. The grant to fund this work was an EPA Environmental Justice Grant, which focused on ensuring that those facing environmental racism and hardships can help steer and mitigate the lack of resources within their communities. TEC has secured additional funding to host 35 more events across Tennessee through 2027.

A rubric was developed to ascertain what recycling assistance communities in Tennessee were most in need of, due to factors such as socio-economic status, accessibility to recycling resources and convenience centers, and proximity to landfills. Through these events, TEC collected, sorted, and recycled hard-to-recycle materials brought by Tennessee residents. These materials included tires, mattresses, medications, scrap metal, electronics, batteries, styrofoam, and more. The first 10 events took place from December 2022 to December 2023 in North Nashville, Clarksville, Memphis, Robbins, Camden, Ripley, Hornbeak, Rutledge, Cleveland, and Franklin. The events included a host of third-party vendors from across the state to collect and sort materials for the express goal of having them recycled and/or re-used. To date, the events have collected 239,000 pounds of materials brought in by over 1,400 attendees.

TEC utilized postcard mailings, newspaper and radio advertisements, television, social media ads, and direct outreach to community centers, businesses, houses of worship, and churches to garner attendance at these events. These events also sought to educate attendees on the importance of recycling and showcase what resources are available in their communities. Each participant received a two-sided educational handout showcasing where they could find local recycling resources in their community, and where they could take most of these materials when an event was not taking place.

It is TEC's hope that these Recycling Roundup events serve as a blueprint for communities across Tennessee and the country to implement their own recycling events.

2024 Governor's Environmental Stewardship Awards

The University of Memphis – Aquifer Study and Education
Shelby County
Category: Water Quality

The University of Memphis's Center for Applied Earth Science and Engineering Research (CAESER) completed and published the results of a five-year study, which sought to better understand the complex aquifer system that provides Memphis and Shelby County with their drinking water. The completion of this study and groundbreaking results provides a massive shift in understanding and fueled direct education outreach to over 10,000 West Tennesseans to better protect a critical water resource.

The Memphis aquifer is a critical natural resource to West Tennessee. The largest producer from this aquifer is Shelby County, which first drew from the aquifer in 1886. The aquifer was once believed to contain pristine 2,000-3,000-year-old water protected by a complete clay layer, but a 2018 study initiated by the citizens of Memphis and unincorporated Shelby County and led by CAESER found that the protective clay has naturally occurring holes, or breaches. This gives the protective clay layer more of a Swiss cheese appearance. These results have huge implications for Memphis, Shelby County, and West Tennessee.

Unique to this investigation and at the heart of it was the utilization of 22 master's and doctoral students from multiple disciplines to research specific issues pertaining to these breaches. Innovative techniques were key in these investigations, which required the formation of partnerships with utility officials, local, state, and federal government agencies, non-profits, the private sector, and the public. Recognizing that the citizens of Memphis and unincorporated Shelby County used their earnings to fund this $5 million effort, CAESER made public presentations to elected officials, local utilities, and the public throughout the five-year project period. They held a public forum and updated their website with a page about the aquifer study, which includes the executive summary of the study. They developed an informational booklet that is handed out at their education and outreach events.

CAESER believes in lifelong learning and strives to create a water- and data-literate citizenry. To facilitate this, it provides education for all generations in the community. The presentations provided transparency on the ongoing efforts, culminating in the presentation of all 22 studies, which called the public to action to be stewards of conservation and protectors of the local groundwater. In this way, all sectors of society play a supportive role.

Five years ago, CAESER started with eight combined known and suspected breaches in Shelby County. Now, there are 41 known and suspected breaches. Most of these new breaches were identified in northern Shelby County. The geology in the rest of Shelby County is similar, so it can be assumed that there may be many more breaches. It is believed there are likely closer to 70 breaches in the protective clay layer in Shelby County.

The study has since led to another supporting investigation of the groundwater system with financial support from the local citizens and from the Tennessee Department of Environment and Conservation. Once again, partnerships between academia, governmental agencies, non-profits, and private corporations are leading the charge to proactively save the Memphis aquifer and ensure the availability of high-quality drinking water for future generations. Between the two efforts, over 40 students will earn their advanced degrees (master's and/or Ph.D.) and enter the workforce as the newest, brightest scientists. Expanding the brain trust, breach detection methods, and contaminant modeling will be instrumental to proactively defending the Memphis aquifer. CAESER is proud of its mission to strengthen communities by improving environmental and social conditions through collaboration and research with its partners.

2024 Governor's Environmental Stewardship Awards

The University of Tennessee – food4VOLS
Knox County
Category: Materials Management

The University of Tennessee food4VOLS is a food recovery, transformation, and distribution program housed within the UT Culinary Institute. By recovering unused and overproduced food, food4VOLS has diverted 300,000 pounds of food and fought food insecurity in four counties in and around the university since the inception of the program. This diverted food equates to a reduction in greenhouse gases by almost 1 million pounds. The food is donated both on campus to hungry students and off campus to non-profits serving Tennesseans. This program is one of a kind in the USA, and already there are two other universities that will be implementing the program in South Carolina and Montana.

Partnering with UT Dining, food4VOLS recovers food from more than 12 different locations on campus ranging from catering, fast food locations, athletic dining, and large campus dining halls. To make the program successful, food4VOLS provides each Vol Dining location with plastic food containers at the end of service. Daily recovery of food averages over 500 pounds of food that falls into four categories – protein, starch, vegetable/produce, and dessert items. Each location's food recovery is recorded by weight and category allowing food4VOLS to assist Vol Dining with data that can reduce overproduction and overall waste generation.

Currently food4VOLS distributes the bulk of the prepared meals to Big Orange Pantry, located in the Student Union of the UTK campus. Smaller food4VOLS cupboards have been installed around campus in food deserts where students have little to no other food options. Each cupboard comes equipped with a fridge filled with meals, a microwave to reheat the meals on site, cutlery to be able to eat the meals, and a dry storage area where non-perishable foods are available. In 2023, food4VOLS provided an average of 375 meals per day to Big Orange Pantry and the cupboards combined.

Each food4VOLS ready-to-heat meal costs 27 cents to produce. All funding needed for the meals has come from public and private donations to the program. In 2023 food4VOLS raised over $60,000 to help create the ready-to-heat meals and provide transportation for collecting and distributing the meals. While the university assists with funding for staff and facility expenses, food4VOLS relies on donations for supplies in producing the meals.

Food4VOLS collects more food daily than can be distributed on campus via the ready-to-heat meals. Partnering with Second Harvest of East Tennessee, food4VOLS can donate excess food to four counties (Knox, Anderson, Blount, and Sevier) daily. Non-profit partners include Knox Area Rescue Ministries, Anderson County Council on Aging, Life Changers, True Purpose Ministries, and many others. With a staff of one full-time chef and three part time federal work study students, food4VOLS collected over 154,000 pounds of food in 2023. That translated to over 56,000 meals for the UTK campus via the ready-to-heat meals, and over 100,000 pounds of food to non-profits in four counties in East Tennessee.

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In 2023 food4VOLS was part of two grants awarded to the University of Tennessee for fighting food insecurity on college campuses that total $790,000. While collecting food from businesses is not a new concept, doing it on a college campus and supporting the university and the surrounding communities is new. Food4VOLS is a program that is easily transferable to other colleges around the state and country. Food4VOLS strives to be an innovator in addressing food insecurity and food waste both on and off college campuses.

2024 Governor's Environmental Stewardship Awards

Vanderbilt University – Campus Dining
Davidson County
Category: Sustainable Performance

Vanderbilt University Campus Dining leads the nation in sustainable dining practices. A founding member of the Menus of Change University Research Collaborative (MCURC), it promotes healthy, sustainable food choices focusing on plant-forward menus and local sourcing. Vanderbilt collaborates with a coalition of 68 institutions to promote healthier, sustainable food choices.

Central to this initiative is a network of 15 hydroponic tower gardens on campus which produced a total of 69.3 pounds of fresh greens and herbs in 2023, which helps minimize the carbon footprint associated with food transport and provides immediate access to fresh, nutritious produce. Vanderbilt's network of local farms and producers supplies the campus with a wide variety of local and small-batch items. Noteworthy are Vanderbilt's partnerships with locally based HydroHouse Farms, Henosis Farms, and Ever Tru Farms that represent a $250,000 plus annual investment in local farmers, ensuring that Campus Dining offers the freshest ingredients while supporting Tennessee's agricultural sector.

Vanderbilt's waste reduction efforts as it relates to campus dining includes the ReusePass program, saving 44,732 single-use containers, serving more than 2.1 million meals in its network of 22 dining halls, markets, and cafes. Vanderbilt fully implemented the ReusePass program in 2023 across campus, which lets all students, faculty and staff members select a reusable bowl or clamshell container for to-go meals at no additional cost. Guests have up to three days to return containers to dish-return areas to be washed, sanitized, and scanned back into stock. ReusePass has made a significant impact with participation of over 4,886 students; 5,596 containers used at least once; and a 97 percent all-time return rate. In total, Vanderbilt's ReusePass program has saved 44,732 single-use containers from landfills and avoided $13,867 in costs. This approach has significantly decreased Vanderbilt's pre-consumer food waste from 188,895 pounds in the 2020–21 academic year to 98,307 pounds by 2022–23, a remarkable 50 percent reduction in just a few years.

In addition to ReusePass Vanderbilt continues to reduce waste elsewhere with the "No.More.Plastic." initiative which eliminates single-use plastic water and soda bottles in dining halls, markets and vending machines across campus. As a result, more than 430,000 plastic bottles have been saved each year since the program began — over 1.7 million bottles during a graduating class's four-year experience. In August 2021, the university expanded the initiative to its athletics concessions program, ending the sale of all single-use plastic bottles at athletics events. Fans now enjoy more sustainable beverage options at sporting events with recyclable aluminum containers or reusable commemorative cups. The impact of this shift has been significant, eliminating more than 25,000 single-use plastic bottles sold annually at Vanderbilt concessions stands.

Vanderbilt also diverts food waste to compost, significantly reducing its environmental impact. These initiatives are part of Vanderbilt's broader sustainability strategy, targeting 30 percent waste reduction and zero waste by 2030. This is further enhanced by its collaboration with The Compost Company, which transforms food waste into valuable compost for campus greenery. Vanderbilt composted 128.15 tons (256,300 pounds) of food waste collected across eight locations.

Vanderbilt University Campus Dining is a model of sustainability and innovation in the food service arena, serving as a catalyst for environmental innovation and community engagement in Tennessee. These initiatives demonstrate Vanderbilt's leadership in advancing sustainable dining and highlight its commitment to supporting Tennessee’s agriculture and economy.

2024 Governor's Environmental Stewardship Awards

Rockwood Sustainable Solutions
Wilson County
Category: Pursuit of Excellence

Rockwood Sustainable Solutions LLC. (RSS) in Lebanon has been growing its recycling company since 2014, serving in the areas of wood, tire, plastic, cardboard, glass, and construction and demolition recycling. RSS has developed collection and a recycling infrastructure that accommodates a project of any size and developed valuable end markets for recycled products to be used in the local economy. Since winning the Governor's Environmental Stewardship award in Materials Management in 2022, RSS has grown exponentially by establishing more recycling markets, processes, and implemented statewide strategies to grow recycling in Tennessee.

In 2022, RSS established a concrete recycling program to allow for the recycling of concrete from construction jobs. In 2023, it established a drywall recycling company known as Arrowhead Ag Solutions to collect, process, and move gypsum drywall across the state for a beneficial end use. To date, RSS has developed the following markets in Tennessee as it relates to material management, recycling trash from locations achieving LEED certification by recycling and sorting onsite; wood recycling of over 87,000 tons annually; concrete recycling of over 150,000 tons each year; drywall recycling of over 20,000 tons annually; tire recycling of over 5,000 tons annually; and other items such as cardboard, plastic, metal, and glass of over 80,000 tons of materials annually.

Most of the recycling markets established by RSS required innovation. With each material RSS wanted to recycle, there were no standards or precedents, so RSS had to work with various governing bodies to establish protocols. Through these efforts RSS has helped establish a process and approved guidelines for using recycled asphalt shingles in hot mix asphalt; wood refuge in gasification or pyrolysis plants to create biochar; and drywall recycling to allow the material to be approved for agriculture use in Tennessee to aid the agriculture community.

Rockwood's leadership and influence can be seen across the state from developing sorting practices and training with local county-run MRF's, to aiding companies with machinery and labor in helping them meet their recycling goals through partnerships. Rockwood has worked to establish recycling markets for their materials and established a model for all other waste and recycling companies in Tennessee.