



THE UNIVERSITY OF VERMONT
OFFICE OF RESEARCH

RESEARCH REVIEW 2022



2022 Total Award Funding \$250.1 Million

(NUMBERS ROUNDED)

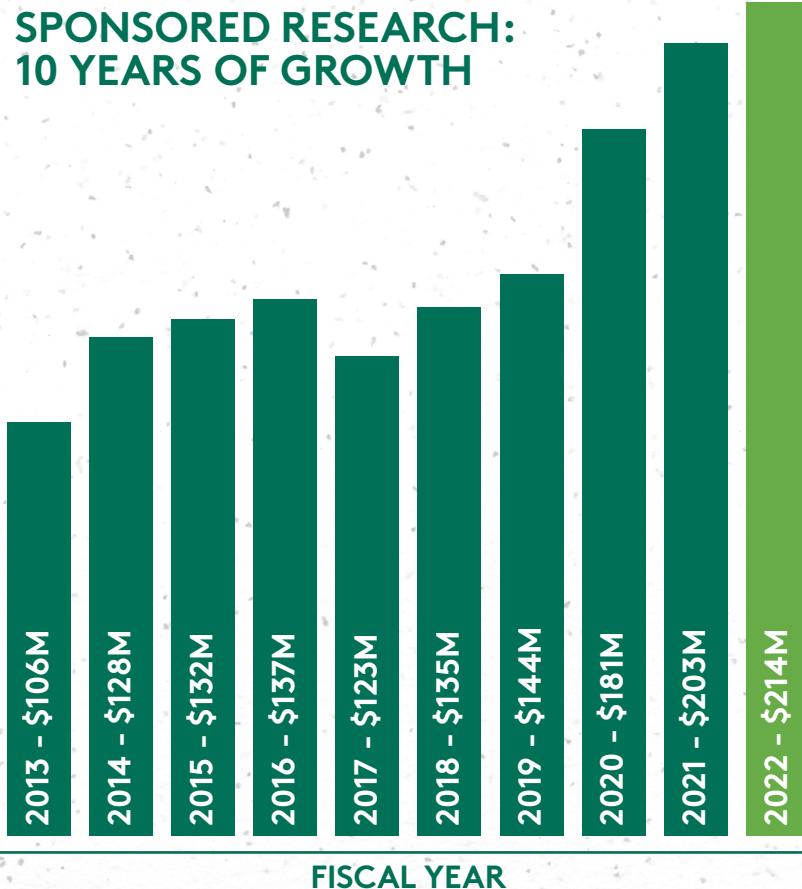
Fiscal Year 2022 was UVM's third "Best Year" in a row.

Sponsored Projects	Gifts	
\$214.1M	\$36M	
COLLEGE	TOTAL FUNDING	TOTAL AWARDS
Larner College of Medicine (LCOM)	\$108M	400
College of Agriculture and Life Sciences (CALS)	\$49.6M	140
College of Engineering and Mathematical Sciences (CEMS)	\$16.3M	74
Rubenstein School of Environment and Natural Resources (RSENR)	\$11.9M	66
Office of the Vice President for Research (OVPR)	\$9.4M	8
College of Education and Social Services (CESS)	\$8.6M	22
College of Arts and Sciences (CAS)	\$7.8M	62
College of Nursing and Health Sciences (CNHS)	\$1.4M	15
Other	\$0.8M	11

Grossman School of Business
Center for Health and Wellbeing
Center for Academic Success

Fleming Museum
Graduate College
Lane Series

SPONSORED RESEARCH: 10 YEARS OF GROWTH



UNIVERSITY OF VERMONT

TOP 100

PUBLIC RESEARCH UNIVERSITY

In 2022, UVM was named a Top 100 public research university in the U.S. based on the National Science Foundation's annual Higher Education Research & Development Survey, ranking 88th.

\$1 Million

The first acquisition of a UVM startup (Packetized Energy) in 2022 pushed the technology transfer revenue over \$1M for the first time in UVM history.

Large Awards

Larger Impact

In Fiscal Year 2022, UVM was home to 43 awards of \$1 million or more.



COLD WEATHER AND SNOW RESEARCH

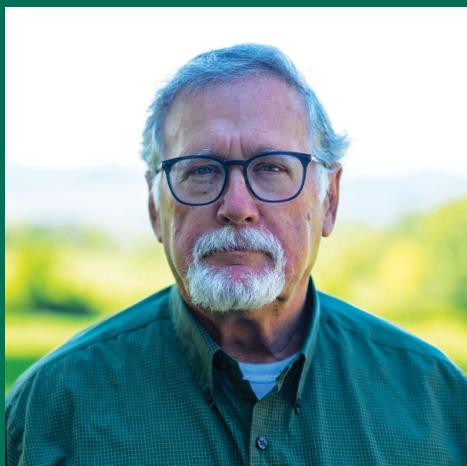
Arne Bombles (CEMS) was awarded \$4.6 M (over three years) from the US Army's Cold Regions Research and Engineering Laboratory to build snow sensor platforms spanning from the summit of Mt. Mansfield to the shore of Lake Champlain to collect data and improve our understanding of snowpack spatial and temporal variability. The project leverages UVM's strengths — machine learning, environmental modeling, and environmental remote sensing technologies — and builds on watershed research to serve as foundational infrastructure for decades of snow monitoring in this time of climate change.

43
Awards



VERMONT CENTER FOR CADIOVASCULAR AND BRAIN HEALTH

The Vermont Center for Cardiovascular and Brain Health (VCCBH), headquartered at the UVM Medical Center, studies the vital health problems facing society: cardiovascular disease, stroke, and cognitive impairment. The VCCBH is a vibrant research center for cardiovascular and brain health that will bring scientific and clinical advances to Vermonters, the nation, and the world. **Mary Cushman (LCOM)**, co-director of VCCBH, was awarded \$4.6 M for the center.



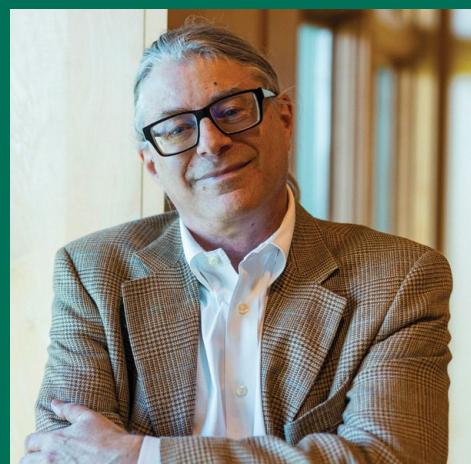
LAKE CHAMPLAIN SEA GRANT

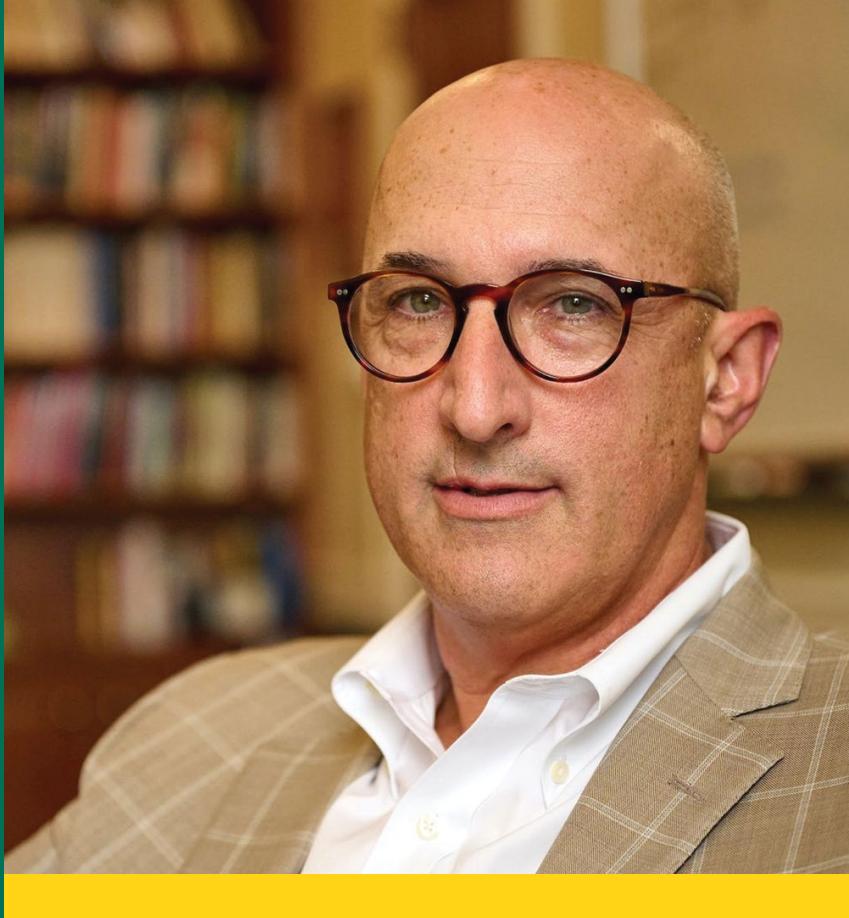
The Lake Champlain Sea Grant, housed within RSENR and UVM, develops and shares science-based knowledge to benefit the environment and economies of the Lake Champlain basin. Through outreach, education, and applied research, Lake Champlain Sea Grant strives to sustain and protect water resources, improve the resilience of coastal communities, and protect, enhance, and restore the Lake Champlain basin's habitat, ecosystems, and the services they provide. **Breck Bowden**, The Lake Champlain Sea Grant Director, was awarded \$1.3 M in FY2022, with similar funding expected annually through at least 2027.

50%
Of Sponsored Projects

VERMONT BIOMEDICAL RESEARCH NETWORK

The Vermont Biomedical Research Network (VBRN) builds a culture to promote biomedical research infrastructure in Vermont, focusing on human health and behavior to build and sustain a culture of research throughout the state by facilitating the research capacity of faculty members, the education of undergraduates, and partner institutions. **Christopher Francklyn, Ph.D.** was awarded \$7.6 M for the VBRN.



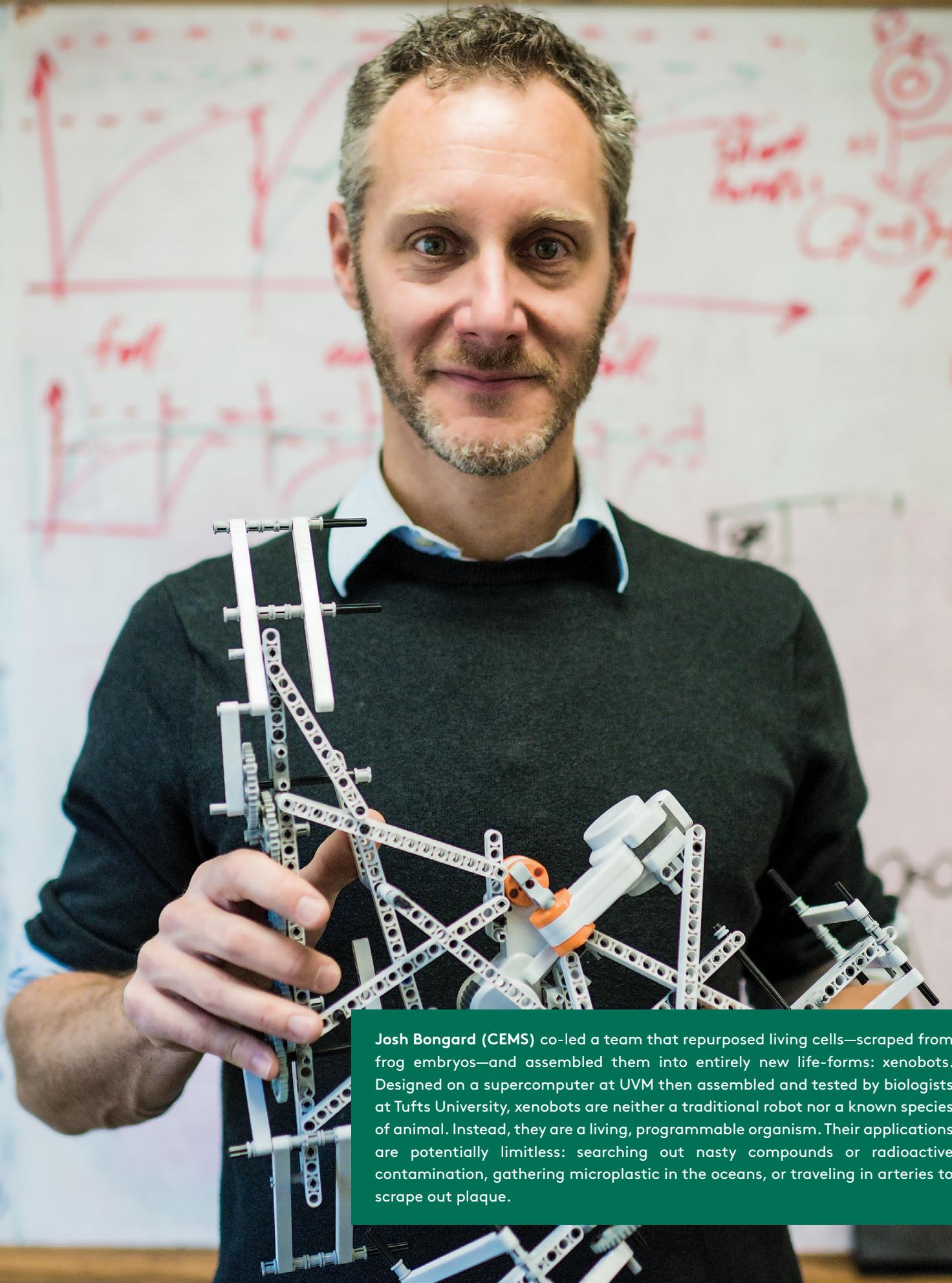


Thanks to the ambition, hard work, and creativity of our faculty, students, and research staff, UVM has attracted \$214 million in sponsored project funding, marking our third consecutive “best ever” year. Combined with philanthropic support from the UVM Foundation, our research enterprise brought in more than a quarter of a billion dollars in extramural funding in fiscal year 2022, up more than 50% since FY2019. This growth reflects great projects both large and small –

from prestigious Guggenheim fellowships for award-winning filmmaking to large research center funding for UVM’s Center for Cardiovascular and Brain Health. External funding also supports UVM’s impact on Vermont, including the Northeast Sustainable Agriculture Research and Education Program, the Lake Champlain SeaGrant, and Educational Teams and Families of Individuals with Low Incidence Disabilities. With commercialization revenues topping \$1 million, we also had a record year in technology transfer.

Beyond the researchers, I’d like to recognize the hard work of the team at the Office of Research who administer these grants, ensure that our research is done in a safe and ethical manner, and provide our researchers with the support they need in areas like animal care and research infrastructure. Much of our research growth has been empowered by the Office of Research Development, while the UVM Office of Engagement ensures that the “front door” to the university remains open to those who need our help. As a flagship university with a land grant mission, we strive to be both comprehensive in our programming and focused on our impacts. Driving this ambition is our goal to create the economic conditions in Vermont that will encourage UVM students to remain here after graduation—bringing with them a top-notch education and the creativity to grow Vermont in ways we have not seen before. Our success in 2022 is moving UVM rapidly toward that goal and fulfilling that mission.

—Kirk Dombrowski
VICE PRESIDENT FOR RESEARCH



Josh Bongard (CEMS) co-led a team that repurposed living cells—scraped from frog embryos—and assembled them into entirely new life-forms: xenobots. Designed on a supercomputer at UVM then assembled and tested by biologists at Tufts University, xenobots are neither a traditional robot nor a known species of animal. Instead, they are a living, programmable organism. Their applications are potentially limitless: searching out nasty compounds or radioactive contamination, gathering microplastic in the oceans, or traveling in arteries to scrape out plaque.



From health sciences and engineering to agriculture and the humanities, our faculty, students, and staff continue to raise UVM's research profile. Our grants and awards illustrate UVM's commitment to healthy societies and a healthy environment—perhaps the most urgent and interdependent demands of our generation.

—**Suresh Garimella**
UNIVERSITY OF VERMONT PRESIDENT

1. Yvonne Janssen-Heininger

Research by University Distinguished Professor

Yvonne Janssen-Heininger (LCOM), Ph.D., focuses on redox medicine, the biochemical process regulating oxidation reactions. Her lab team discovered new tools for determining oxidation targets, designing precise small molecules to treat lung fibrosis and cancer.



1.



2.

2. Tammy Kolbe

Associate Professor **Tammy Kolbe** (CESS) leads research that sheds new light on the critical need to update outdated federal formulas for special education funding, analyzing the Individuals with Disabilities (IDEA) Act, legislation that ensures students with disabilities are provided education tailored to their needs. Her latest research offers several policy simulations that could be used to improve the fairness of the IDEA Act's formula.

3. Dimitry Krementsov

Dimitry Krementsov (CNHS) began researching the basis for genetic diversity in multiple sclerosis, using new genetic models that more accurately approximates the high level of genetic diversity in human populations. Krementsov and his team have confirmed that genetics controls disease course heterogeneity, and are now identifying which gene variants and which cellular mechanisms are responsible.



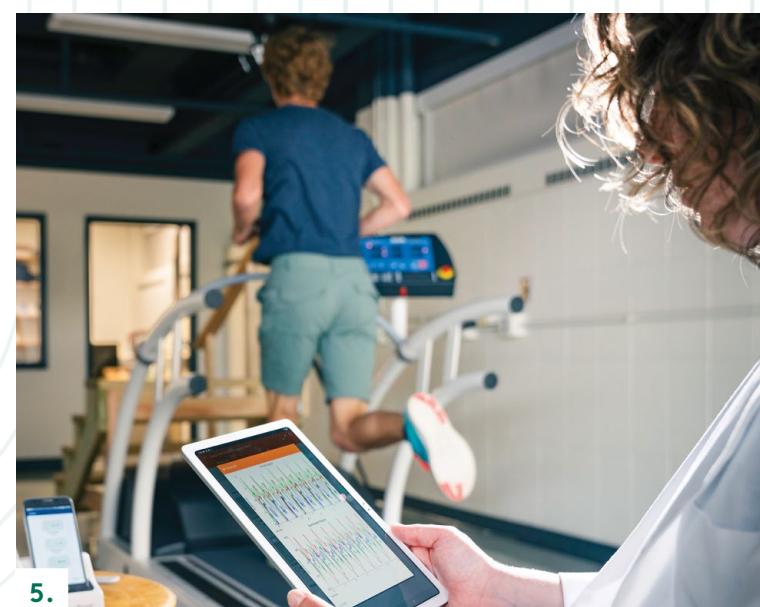
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4.

4. Marieka Brouwer Burg

Marieka Brouwer Burg (CAS) began a new archeological research project in northern Belize exploring pre-Maya or Archaic period land-use strategies within diverse ecosystems, as well as emergent horticultural practices—so critical to the successive ancient Maya civilization—through reconnaissance, survey, and excavation.



5.



6.

5. Ryan McGinnis

As UVM moves to the forefront of revolutionizing patient care and positive outcomes, Associate Professor **Ryan McGinnis** (CEMS) leads the charge. A new partnership with Medidata's Sensor Cloud Network will help his team innovate health technologies for a variety of applications.

6. Honeybee Survey

UVM researchers organized Vermont's participation in the **National Honeybee Survey**, an in-depth, epidemiological approach to document and track honey bee diseases, pests, and pathogens.



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Photos by: Joshua Defibaugh, Bailey Beltramo, Andy Duback,
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