The Heinz Awards

Heinz Family Foundation
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22nd Heinz Awards Honors Ecologist Greg Asner for Science and Technology That Maps the Health, Biodiversity of the World's Forest and Reef Ecosystems in Unprecedented Scale, Detail

Asner's airborne observatory deploys science and technology to influence policy change and solve fundamental challenges around land use, global ecology, forest management and ocean health

PITTSBURGH, September 14, 2017—The Heinz Family Foundation today named ecologist Greg Asner, Ph.D., the recipient of the 22nd Heinz Award in the Environment category. Dr. Asner is recognized for the development and application of ultra-high-resolution imaging technology that provides unprecedented detail on the biodiversity and health of the world's forests and coral reefs, and the impact of threats such as deforestation, land degradation and climate change. His findings are helping to empower government agencies and non-government organizations, and to drive land use and environmental policy decisions in the United States and globally.

As part of the accolade, Dr. Asner will receive an unrestricted cash award of $250,000.

While traditional satellite imagery has allowed scientists to gauge the overall size of the world's forests, Dr. Asner has created the Carnegie Airborne Observatory (CAO), which deploys ultra-high-tech mapping technology and instrumentation loaded aboard a fixed-wing aircraft to reveal in spectacular detail an ecosystem's chemistry, structure, biomass and biodiversity, creating 3D maps allowing surveys over extensive areas. Flying over swaths of thick forest canopy, Dr. Asner and his team are able to image trees down to their individual branches, measuring the carbon stored in the soil, classifying each tree species based on its chemistry and evaluating the health of each tree—all from the air.

The equipment's LiDAR (Light Detection and Ranging) system also allows researchers to map the forest floor, revealing the hidden-under-canopy makeup and any damage from gold mining, land clearing and selective logging that previously would have been undetected. Dr. Asner and his team have mapped 300,000 square miles of the Peruvian Amazon by plane and with satellites, and much of the rain and cloud forests of Ecuador, Borneo, Brazil, Colombia and South Africa, as well as California's forests and Hawaii's coral reefs.

"With the Carnegie Airborne Observatory, we have developed scientific approaches for getting really high-end detail that tells us specifically what is going on in a very large geographic area," said Dr. Asner. "This is critical, because until now, the hardest part has been the ability to measure and map and discuss and bargain and make policy decisions over areas that are large enough to have real impact. We are using science at new scales to affect change not only in the scientific realm and the thinking of scientists, but also to have efficacy in the realms of conservation policy and environmental management. If we can do that, then we know that our science has had an impact."

In the United States, Dr. Asner's research has investigated and called attention to the severity and extent of forest damage caused by the recent California drought. Sweeping over forest areas in both high and low elevations, planes equipped with CAO imaging technology measured the molecular composition and water content of each tree canopy, enabling researchers to identify which trees were too dry to survive, including those that visually appear to be healthy. Dr. Asner's research showed that California's tree die-off was more serious than previously thought and extended into higher elevations well beyond the southern Sierra Nevada. These findings are helping to change the pace and strategy of forest management efforts, as well as to shape climate change policy in California.

"In California, traditionally you have had field work and satellites to collect data, but both are mismatches in scale with the actual problem of managing California's watersheds," said Dr. Asner. "Yes, fire is one of the big questions, but tree mortality is a separate, critical issue. The Sierras and the northern forests are where almost all the water in California comes from. The trees are the great mediators of the snowpack and the rainfall that occurs in the winter months. With the new methods and new instrumentation that we've developed, we can measure the impact of the recent drought, tree by tree, watershed by watershed, in utter detail, so that decisions can have real world applicability, from the single landowner who has a one-acre parcel all the way up to state and federal forest reserves."

As a result of Dr. Asner's findings, along with those of other agencies working on the ground, California Governor Jerry Brown issued a state of emergency declaration in 2016, which helped to release millions in federal management funds to help mitigate the impacts of the drought, with efforts including fire management, construction of fire breaks, tree trimming and protective conservation measures.

Dr. Asner is also working to map coral reefs of Hawaii, Belize and other regions. The State of Hawaii and its partner agencies are looking to measure the extent of coral reef die-off, and where possible, take steps to alleviate stresses on those reefs.

"By providing us with remarkable detail on the complexity and fragility of our world's forests, Dr. Asner is pushing us to respond with greater urgency to the need to protect these resources for the health and future of us all," said Teresa Heinz, Chairman of the Heinz Family Foundation. "Through the technology and scientific applications he has developed, he is not only revolutionizing the way we understand the living world around us, he is equipping us with information that can be shared and directly used to inform policy change—at a time when that has never been more important."

Established to honor the memory of U.S. Senator John Heinz, the 22nd Heinz Awards this year recognizes those who have made significant contributions in five distinct areas of great importance to Senator Heinz: Arts and Humanities; Environment; Human Condition; Public Policy; and Technology, the Economy and Employment. The Heinz Awards has recognized 133 individuals and awarded more than $26 million to the honorees. For more information about the awardees visit http://heinzawards.net/2017.

In addition to Dr. Asner, the 22nd Heinz Awards honored the following individuals, who will receive their awards in Pittsburgh on October 18, 2017:

- **Arts and Humanities: Natasha Trethewey, Evanston, Illinois**
- **Human Condition: Angela Blanchard, Houston, Texas**
- **Public Policy: Mona Hanna-Attisha, M.D., Flint, Michigan**

- **Technology, the Economy and Employment: Joseph DeSimone, Ph.D., Chapel Hill, North Carolina, and Redwood City, California**

EDITORS/REPORTERS: To obtain photos of Dr. Asner or any of the other recipients, please contact Abby Manishor at amanishor@burness.com or 917-539-3308.

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About the Heinz Awards

Established by Teresa Heinz in 1993 to honor the memory of her late husband, U.S. Senator John Heinz, the Heinz Awards celebrates the accomplishments and spirit of the Senator by recognizing the extraordinary achievements of individuals in the areas of greatest importance to him. The awards, administered by the Heinz Family Foundation, recognize individuals for their contributions in the areas of Arts and Humanities; Environment; Human Condition; Public Policy; and Technology, the Economy and Employment. Nominations are submitted by invited experts, who serve anonymously, and are reviewed by jurors appointed by the Heinz Family Foundation. The jurors make recommendations to the Board of Directors, which subsequently selects the Award recipients. For more information on the Heinz Awards, visit www.heinzawards.net.

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