

HP Earth Insights



Overview

HP Earth Insights is an innovative program that leverages HP's big data solutions to provide a first-of-its-kind, early warning system for endangered species in the world's tropical forests. The initiative applies HP's technology and expertise to the research being conducted by Conservation International (CI), a leading nongovernmental organization (NGO) dedicated to protecting nature for people, plants, and animals, and ensuring a healthy and productive planet. HP's big data solutions help CI scientists dramatically improve the accuracy and speed of data collection and analysis, in addition to generating usable species trends and delivering near real-time data analytics. The project's initial results indicate a decline in a significant percentage of species monitored. These insights will improve leaders' abilities to identify and proactively respond to threats as they emerge, enabling the protection of hundreds of threatened species.

HP Earth Insights is a powerful example of HP Living Progress—our vision for how HP can create a better future for everyone through our actions and innovations. The initiative demonstrates how we empower proactive responses to environmental threats, protect livelihoods, and deliver analytics that businesses can use to fuel growth.

Why biodiversity matters

Tropical forests are a vital part of the planet's life-support system—they support the air we breathe, our drinking water, and a diverse and healthy ecosystem for our agriculture, medicine, and recreation. Biodiversity loss poses a risk to all of us.

- The world's tropical forests are critical because:
 - They are home to some 30 million species, or half of all plants and animals on Earth
 - They generate 40% of the planet's oxygen
 - Approximately 25% of all modern pharmaceuticals originate from tropical forests
- Tropical rainforests are disappearing at an alarming rate of about 18,000 square miles or 4.6 million hectares per year, according to the United Nations Environment Programme.

HP's big data solutions

HP is using its expertise analyzing large quantities and varieties of data to help solve the world's most complex challenges—across industries, sectors, and organizations.

- For this project, HP addressed the specific need to collect, manage, and analyze millions of inputs from climate sensors and camera traps related to species, vegetation, precipitation, temperature, carbon stocks, humidity, solar radiation, and more. As of February 2014, the project currently manages large and growing amounts and varieties of data, including:
 - 3 terabytes of critical biodiversity information
 - More than 1.6 million photos
 - More than 4 million climate measurements
- HP's solutions can analyze the data nine times faster than before, generating species trends and reports on the related impacts of climate, people, and land use across 16 research sites and more than 275 species within 30 hours.

- Companies and organizations can use the same big data technology in virtually any environment to gain critical insights that fuel business growth.

Project results

HP Earth Insights enables the protection of hundreds of threatened species by creating a first-of-its-kind, early warning system.

- Initial findings show that of the 275 species being monitored, 60 species—or 22%—are either significantly decreasing in population or likely decreasing compared with baseline levels.
- Findings indicate 33 of the monitored species—or 12%—have significantly decreased in numbers. These include the sun bear and wild boar found in Malaysia's Pasoh Forest Reserve, the agile mangabey found in the Republic of the Congo's Nouabalé-Ndoki National Park, and the greater grison found in Ecuador's Yasuni.
- The following species are likely declining: the moonrat and masked palm civet found in Malaysia's Pasoh Forest Reserve; the northern tamandua found in Costa Rica's Volcán Barva; the large treeshrew found in Indonesia's Bukit Barisan Selatan National Park; and the banded mongoose, four-toed elephant shrew, and checkered elephant shrew found in Tanzania's Udzungwa Mountains National Park.

Action

HP Earth Insights' analytics enable scientists to identify and proactively respond to threats as they emerge—a huge step forward in the effort to protect nature.

- Findings will be shared with protected area managers and other public officials so that they can intervene to protect threatened species and develop policies to address causes of endangerment in these ecosystems.

HP Living Progress

HP Living Progress is our vision of creating a better future for everyone through our actions and innovations. HP Living Progress is how we do business. It's the way our people and technology come together to help solve society's toughest challenges. By applying HP Living Progress to our every action, we create a stronger, more resilient company and a more sustainable world.

- HP Earth Insights is making the project data publicly available—governments, NGOs, universities, and the private sector will have access to these resources—facilitating information sharing across organizations and geographies.

HP's technology—real-life application

We're focused on driving innovation across the New Style of IT—the convergence of security, cloud, mobility, and big data—to create customized, end-to-end solutions that enable better decision making and create tangible results for our customers and partners, both inside and outside tropical forests.

- HP Software is applying its next-generation HP Vertica Analytics Platform data analytics software—a cornerstone of HP HAVEn—as the central tool that enables CI scientists to manage and analyze large and fast-growing volumes and types of data, as well as to analyze correlations across data sets with amazing speed and unprecedented accuracy. HP is uniquely positioned to tackle the data needs and challenges specific to tropical forests.
 - HAVEn is HP's big data solution that provides the ability to manage, transform, and analyze the full spectrum of structured, semi-structured, and unstructured data.
- HP Enterprise Services software engineers built the Wildlife Picture Index Analytics System—a tool that allows for the visualization of user-friendly, data-driven insights to be accessed anytime, anywhere. The system serves as an early warning system for conservation efforts.
- HP Printing and Personal Systems Group deployed HP EliteBook laptops and HP ElitePad tablets at each of the sites where project scientists are collecting data.

- HP Enterprise Group is powering the back-end data systems with its HP ProLiant servers, and will continue to build out the existing cloud component to meet the ever-expanding data needs for this project.

Conservation International

Building on a strong foundation of science, partnership, and field demonstration, CI empowers societies to responsibly and sustainably care for nature and its global biodiversity to promote the long-term well-being of people.

- Founded in 1987, CI is headquartered in the Washington, D.C. area.
- CI employs more than 800 staff members in more than 30 countries on six continents, and works with more than 1,000 partners around the world.

TEAM Network

CI, the Smithsonian Institution, the Wildlife Conservation Society, and other partners created the Tropical Ecology Assessment and Monitoring (TEAM) Network as a way for scientists to use standardized and innovative methods to measure and monitor the state of tropical forests globally to understand how climate and land use will affect those resources.

- There are 16 TEAM sites in 15 countries, including Brazil, Cameroon, Costa Rica, Ecuador, Indonesia, Laos, Madagascar, Malaysia, Peru, the Republic of the Congo, Panama, Rwanda, Suriname, Tanzania, and Uganda.
- TEAM strategically placed 1,000 camera traps to collect data on animals—which, along with data collected on climate and carbon, contribute to scientists' understanding of what's happening in these tropical forests.



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