



FACT SHEET: HP Earth Insights

OVERVIEW: HP Earth Insights is an innovative collaboration that applies HP's technology and expertise to the research being conducted by Conservation International (CI), a leading non-governmental organization dedicated to protecting nature for people and ensuring a healthy and productive planet for local and global communities. The initiative leverages HP's big data solutions to help CI scientists dramatically improve the accuracy and speed of data collection and analysis. HP Earth Insights has created a first of its kind, early warning system for threatened species by generating usable species trends and delivering near real-time data analytics. The project is already yielding new information that indicates a decline in a significant percentage of species monitored, and its insights will empower proactive responses to environmental threats and better decision-making, enabling the protection of hundreds of threatened and endangered species.

- **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 percent of the planet's oxygen.
 - Approximately 25 percent of all modern pharmaceuticals originated from tropical forests.
 - Tropical forests 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.
 - **Data Managed:** 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. The project currently manages a large and growing amount and variety of data, including:
 - Three terabytes of critical biodiversity information
 - More than 1.4 million photos
 - More than three million climate measurements
 - HP's solutions can **analyze the data nine times faster** than before to generate species trends and impacts of climate, people and land use—for all 16 sites within 30 hours.
- **Project Results:** HP Earth Insights enables the protection of hundreds of threatened and endangered species by creating a first of its kind early warning system for threatened species. Most recently, findings show:
 - Of the 275 species being monitored, 60 species—or 22 percent—are either significantly decreasing in population or likely decreasing compared to baseline levels.
 - Findings indicate 33 of the species being monitored—or 12 percent—have significantly decreased in numbers. Among these are: the sun bear and the wild boar found in Malaysia (Pasoh Forest Reserve), the agile mangabey found in the Republic of Congo (Nouabalé Ndoke), and the greater grison found in Ecuador (Yasuni).
 - The population of the Western Gorilla, which lives in the Republic of Congo (Nouabalé Ndoke) and is considered a Critically Endangered species, is likely declining—approximately 10 percent from the 2009 baseline—according to new data.
 - The following insectivores are likely declining: the moonrat and masked palm civet found in Malaysia (Pasoh Forest Reserve), the banded mongoose, four toed elephant shrew and checkered elephant shrew found in Tanzania

(Udzungwa), the northern tamandua found in Costa Rica (Volcàn Barva) and large tree shrew found in Indonesia (Bukit Barisan).

- **Action:** HP Earth Insights' analytics enables 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 so that they can intervene to protect threatened species and develop policies to address causes of endangerment in these ecosystems.
 - 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.
- **Conservation International:** Building upon 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 in nearly 20+ countries on four continents and works with more than 1,000 partners around the world.
- **TEAM:** Conservation International created its Tropical Ecology Assessment 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 14 countries**, including Brazil, Cameroon, Costa Rica, Ecuador, Indonesia, Laos, Madagascar, Malaysia, Peru, the Republic of Congo, Panama, Suriname, Tanzania and Uganda.
 - HP and CI have worked together to strategically place 1,000 camera traps to allow TEAM scientists to collect data on animals, carbon and climate, which is critical to understanding what's happening in these tropical forests.
- **HP's Technology: Real Life Application:** HP is using its offerings across the New Style of IT—including the HP Vertica Analytics Platform—to create customized, end-to-end solutions that enable better decision-making and create tangible results for its customers and partners, both in and outside tropical forests.
 - **HP Software** is applying its **Vertica Analytics Platform**, a cornerstone of HP HAVEn, and next-generation data analytics software, as the central tool that enables CI scientists to manage and analyze large and fast-growing volumes and types of data, as well as analyze correlations across data sets with amazing speed and unprecedented accuracy. HP was uniquely positioned to tackle the data needs and challenges specific to the Earth Insights project.
 - **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 a dashboard specific to the project—the Wildlife Picture Index (WPI) Analytics System—an analytics 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** team deployed HP EliteBook laptops and ElitePad tablets at each of the sites where the 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.
- **HP's Commitment to Environmental Progress:** HP is applying its innovation and technology capabilities to environmental science through HP Earth Insights, demonstrating the company's longstanding commitment to analyzing problems holistically, catalyzing environmental progress and creating a more sustainable world.