Reimagining invasive species management through technology use on Alto Velo Island, Dominican Republic

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Dominican Republic, 20 April 2026 – With an area of just 1.02 km², Alto Velo Island, off the southwestern coast of the Dominican Republic, may be small, but it is ecologically significant. Home to the largest breeding colony of sooty terns in the Caribbean, along with brown pelicans and brown boobies, the island also supports important habitats for seabirds, reptiles, and other native and endemic species, including the critically endangered Alto Velo curlytail lizard (*Leiocephalus altavelensis*) and the Alto Velo anole (*Anolis altavelensis*).

However, like many islands worldwide, Alto Velo faces significant threats from invasive mammals such as rats and feral cats, which place considerable pressure on native species and the broader ecosystem.

To address these challenges, a conservation initiative on Alto Velo is applying new technologies to strengthen biodiversity monitoring and support island restoration efforts. Monitoring and managing species in such rugged and isolated environments is inherently challenging. In response, a consortium of organisations, Island Conservation, American Bird Conservancy and SOH Conservación, with financial support from the Critical Ecosystem Partnership Fund (CEPF) is using innovative tools to improve the precision of ecological data collection and the efficiency of field operations.

View of Alto Velo, Dominican Republic. Credit: SOH Conservación.

Thermal drones for detecting invasive species

One of the approaches being incorporated into the project is the use of a drone equipped with thermal cameras, which allows researchers to detect warm-blooded animals by identifying heat signatures in the landscape.

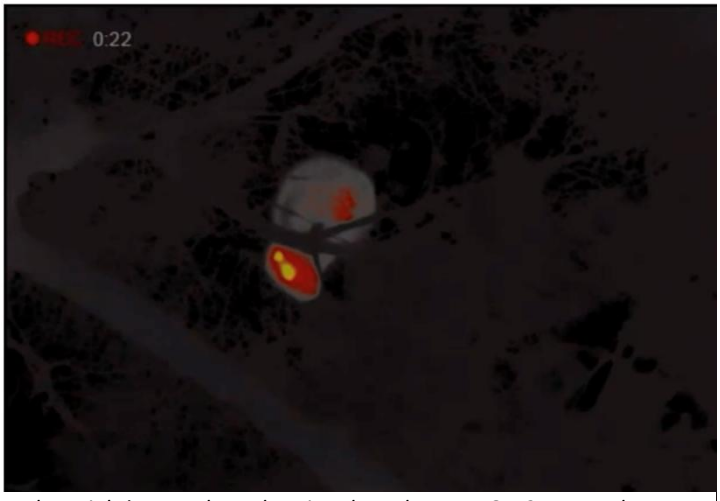
Thermal drone surveys are typically conducted during the coldest hours of the night—around 3:00 a.m.—when the temperature contrast between invasive mammals, such as rats and feral cats, and the surrounding environment is strongest. This method enables conservation teams to detect and map invasive species activity across the island far more efficiently than traditional ground surveys.

The information collected through these surveys will help to identify areas where invasive species are most active and guide future management actions aimed at protecting Alto Velo's native biodiversity.

Camera traps expanding ecological knowledge

In addition to drones, the project has deployed a network of camera traps across different parts of the island. These automated cameras operate continuously, capturing images of wildlife day and night.

Feral cat captured by a camera trap on Alto Velo, Dominican Republic. Credit: SOH Conservación.



Rodent sighting on Alto Velo using the Pulsar HELION 2 monocular purchased with CEPF funding. Credit: SOH Conservación.

Camera traps provide critical information on both native and invasive species, allowing researchers to identify which species are present, understand their activity patterns, and obtain preliminary estimates of relative abundance and distribution.

These data are essential for evaluating the ecological condition of the island and informing conservation planning.

Building local capacity for long-term monitoring

Another important aspect of the initiative is capacity building. Staff from SOH Conservación and technicians from the Ministry of Environment and Natural Resources of the Dominican Republic are being trained in modern biodiversity monitoring techniques using both camera traps and drones.

This training ensures that local conservation professionals can continue applying these technologies in the future, strengthening national capacity for ecological monitoring and management in island ecosystems.

A growing role for technology in island conservation

Camera trap being installed in a tree on Alto Velo, Dominican Republic. Credit: SOH Conservación.

Around the world, innovative technologies are becoming increasingly important tools in island restoration projects. Organisations such as Island Conservation have demonstrated that tools like thermal drones, automated monitoring systems, and remote sensing technologies can greatly improve the detection of invasive species and support large-scale ecological restoration efforts. These approaches have already contributed to successful conservation initiatives on islands across the Pacific and other regions.

On Alto Velo, the integration of these technologies represents a significant step forward. By combining modern monitoring tools with field expertise and strong collaboration between international partners, local conservation organisations, and government institutions, the project is laying the groundwork for more effective biodiversity conservation in Caribbean ecosystems.

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Learn how CEPF's support is enabling other Caribbean CSOs to use technologies in conservation work here: https://arcg.is/vTiGD.