



Nature Intelligence System



This system automatically analyzes shipment paperwork and identifies questionable shipments and anomalies based on scanned historical shipping data and previous wildlife-related incidences.

Overview

The Nature Intelligence System (NIS) automatically analyzes shipment paperwork and identifies shipments that require additional inspector attention. The technology flags anomalies, supports officers in their decision making by reducing the need to manually sort through paperwork, and provides government officials and the transport industry with a powerful tool to distinguish between illegal and legal shipments of wildlife easily and swiftly. The NIS is a cloud-based platform, managing three workstreams in an integrated manner:

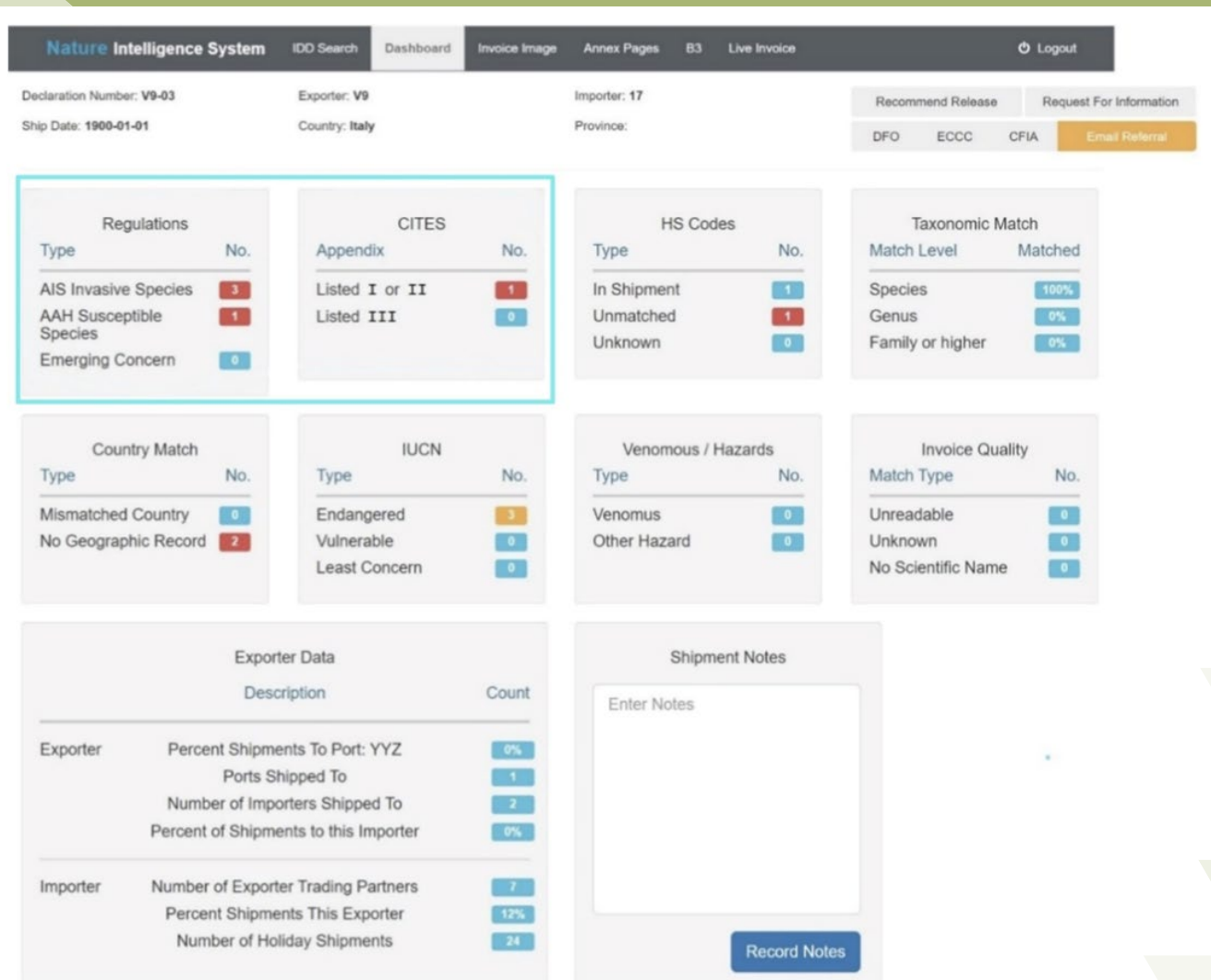
- 1) **Data Pipeline and Management**, which concerns the digitization of shipment paperwork and wildlife
- 2) **Data Analysis and Species Identification**, designed to analyze and cross-reference species from the data pipeline
- 3) the **NIS Dashboard**, which uses insights to automatically identify illegal shipments and fraudulent activity.

What are the current applications of the technology?

The NIS is in its pilot phase. Currently, its going to be tested in one port in Canada.

How is this technology combating wildlife trafficking?

Government officials, custom agents, and the transport sector must assess shipment paperwork and documentation in real time and be able to identify illegal shipments quickly. However, the paperwork is often lengthy and complicated, with species often not visible in shipment boxes. Due to the large volume of shipments, only 10% are inspected, e.g., by hand, scent dogs or x-rays, which leaves 90% of wildlife shipments unsuspected, posing a significant threat to wildlife. This also leads to loss in revenues usually generated by export fees and taxes due to counterfeit activities. NIS is designed to automatically analyze shipment paperwork and identify questionable shipments. Additionally, analysis of bulk data on seizures may provide an understanding of which ports, consignments, or clients are susceptible to smuggling, helping wildlife enforcement officers to allocate scarce resources to areas posing the highest risk.



Top portion of a dashboard of information collected from import documents. This dashboard categorizes the species information on invoices as Aquatic Invasive Species, species subject to Aquatic Animal Health requirements, species that are CITES listed, and species under emerging concerns (e.g., moss balls that may be infested with invasive zebra mussels). This dashboard also contains information on Harmonized System codes declared properly and improperly in the import declaration. While not collected here, historical price data can be collected and dashboarded to determine price anomaly suggesting illegal trade.

Source: ©Conservation International

Websites

Nature Intelligence System

<http://natureintelligence.trade/>

Conservation International

<https://www.conservation.org/>

About the Project/Organization

Conservation International has partnered with Roger Williams University, University of Massachusetts, Boston, and Microsoft to build and scale this technology.

Additional Resources

[Nature Intelligence System Factsheet \(PDF\)](#)



Nature Intelligence System Factsheet

Launched	2020
Number of projects/ places using this technology as of 2021-2022	Testing at 1 port in Canada
Issues addressed	Wildlife trafficking
Species focus	Multiple species
Locations where technology is currently implemented in	Airports; customs, and ports
Data source	Collecting its own data and analyzing/aggregating data from other sources
Current users	Law enforcement (police, customs, etc.); NGOs; private operators; transport sector
Devices and Technologies Used	
Communication devices	Smartphones/tablets; software and other software as a service (SaaS), scanners and potentially eDNA
Detection devices	Visual detection (cameras); X-ray
Infrastructure	Data storage platforms/cloud service
Compatibility with other technologies	Artificial intelligence; mobile applications
Setup and Implementation	
Typical size of implementation	One or more scanners are required
Duration from inquiry until set up	Less than a month, but on-going training is needed until the solution can be adopted by individuals
Costs	\$5,000 to get historical data scanned and for local computer and scanner setup
Operation	
Frequency of interaction with technology	Daily
Days per month for operation/analysis	-
Days per month for maintenance	-
Necessary expertise	Low capacity (basic technological skills)
Outputs	
Generated data	Analytics related to all components of trade
	Need basis, as soon as data is captured
Frequency of data analysis and reports	Yes
Can output or data be integrated into other solutions	