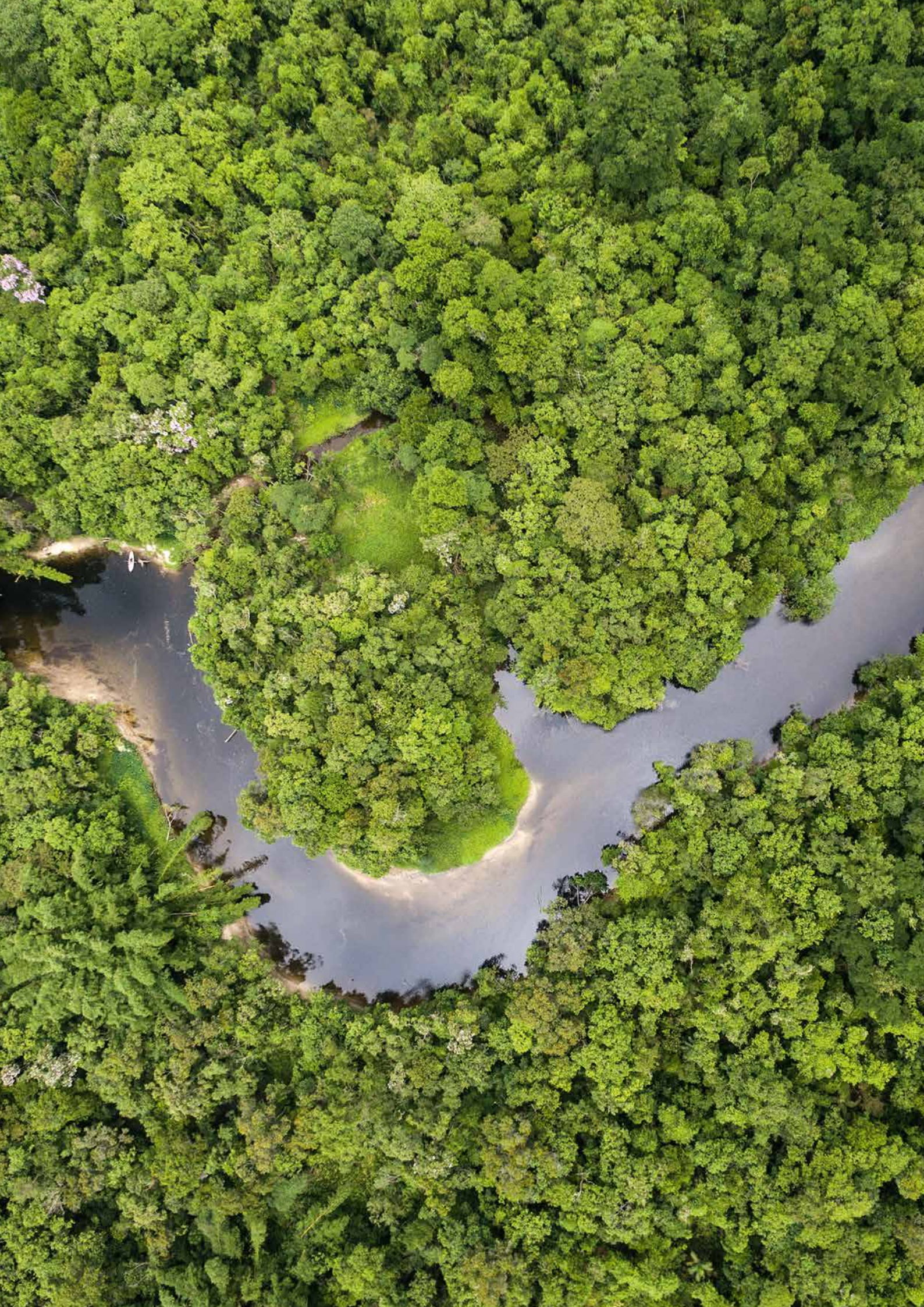


STARLING

VERIFY YOUR
FOREST IMPACT

AIRBUS



Starling

A pioneering industry-wide solution to verify your forest impact.

Born in 2016 from a collaborative venture between Airbus and Earthworm Foundation, Starling is a geospatial solution designed to measure the environmental impact across entire supply chains, aiding in the delivery of deforestation-free and net-zero commitments.

AIRBUS
Earthworm

Challenges

Driven by the need to transform the way supply chains operate, many companies have made **ambitious commitments** to eliminate deforestation from their sourcing practices. At the same time, emerging regulations and sustainability standards are accelerating the adoption of **space-based forest monitoring solutions**.

However, turning commitments into **measurable action** remains a major challenge. Companies must navigate increasingly complex supply chains, access reliable and up-to-date data, and **monitor sourcing regions at scale** with a high level of accuracy.

Our solution

Starling combines Airbus' satellite and geospatial capabilities with Earthworm's on-the-ground supply chain expertise to provide companies with a tool to implement **a robust, global, and cross-commodities sourcing strategy**.

From deforestation risk monitoring, to carbon emissions accounting, and natural ecosystem analysis, companies can rely on **Starling actionable data** to engage their suppliers, mitigate risks and verify commitments.

Key Figures

+37

COUNTRIES COVERED

+20

MILLIONS OF KM² MONITORED

2016

THE YEAR IT ALL STARTED

50+

CUSTOMERS WORLDWIDE

500k

SATELLITE IMAGES USED

7

COMMODITIES MONITORED

Develop traceable, transparent, **deforestation & conversion-free** supply chains

Starling is a satellite-based solution using imagery ranging from 10m such as Sentinel data to 30cm with Pléiades Neo and the Airbus constellation. With an unrivalled level of detail, Starling provides accurate forest cover change data to help companies:

- Understand deforestation risks and drivers within your supply chain to make **informed decisions**
- Stay **compliant** with upcoming regulations such as the EUDR and no-deforestation standards
- Achieve **net-zero targets** and measure Scope 3 carbon emissions
- **Engage stakeholders** towards preventing negative forest impact
- Measure **efforts and impacts** of landscape and nature-based initiatives



Palm oil



Cocoa



Pulp & paper



Rubber



Coffee



Timber



Soy



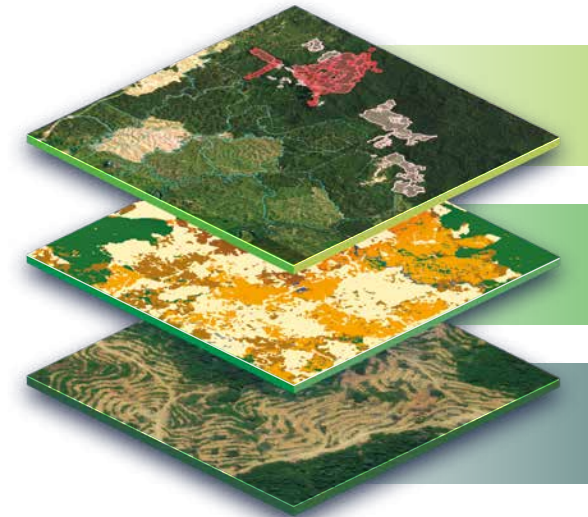
Sugarcane

Starling **scope**

Starling uses **proprietary data layers** to cover key biomes globally, focusing on **major commodity production regions**. This coverage is continuously updated every year based on customer needs, ensuring **high data quality** and consistency.

Starling **foundations**

Based on satellite images ranging from 10m to 30cm resolution, Starling produces its own data layers using its expertise in image processing. These data layers form the foundation of Starling's ability to support industries in all their challenges.



Deforestation Alerts are automatically detected and updated in the platform monthly thanks to the Airbus satellite constellation tracking forest cover change.

Land Cover Map annually differentiates natural forest from planted forest, agroforestry, palm oil, cocoa, coffee, and other land use classes.

Airbus Global Basemap provides worldwide coverage through a mosaic of Airbus very-high resolution satellite imagery, with minimal cloud presence.

Agrifood industries, manufacturers, retailers, traders, consumer goods...

DID YOU KNOW?

Whatever your supply chain challenges, Starling helps you achieve your sustainability commitments and move towards more sustainable sourcing:

Deforestation & conversion-free

Ensure transparency and compliance with EUDR regulations or DCF standard by monitoring deforestation and land conversion within your supply chain.

Net-zero target & nature positive

Quantify your Scope 3 GHG emissions linked to land use change to achieve your path towards credible net-zero commitments and carbon removal.

Resilient agriculture

Enhance resilient, regenerative and carbon neutral crop production systems through insights on crop mapping, water and crop management, and early detection of diseases and pests.



Get support to reach EUDR compliance

In order to reverse deforestation due to agricultural activities, the European Union Commission adopted the EU Deforestation Regulation (EUDR).

Companies' obligations

Operators or traders placing **specific products on the EU market** or exporting them have to prove that their production **has not been subjected to deforestation or degradation after 2020**.

The law is **commodity-specific**: palm oil, cocoa, rubber, coffee, timber, soy and cattle, as well as their derivatives (Annex I of the regulation). It is now mandatory for companies to establish or update their **Due Diligence System** by meticulously documenting their supply chains, and conducting thorough deforestation risk assessments and mitigation.

Starling assets for EUDR

The EU explicitly identifies the **role of geospatial data** in its framework as an essential asset for **achieving EUDR objectives**. Starling can support you by **monitoring your suppliers' activities** and provide you with the risk of deforestation on your plots to complete a **Due Diligence Statement** for all shipment:

- Import batches of plots or supply chain data
- Verify the geospatial validity of the plots
- Check the deforestation status per plot
- Control the legality risk against protected areas
- Supplier risk identification and engagement
- Export your EUDR results to complete your Due Diligence



PLOT COMPLIANCE CHECK

- ✓ Geospatial verification (plot location, surface, geometries ...)
- ✓ Deforestation status per plot of production
- ✓ Control of legality risk (conservation area)



RISK ASSESSMENT

- ✓ Presence of forests in sourcing boundaries
- ✓ Risk assessment at farm level and/or sourcing basin level
- ✓ Possible circumvention of products from deforested areas



RISK MITIGATION

- ✓ Several assessments from contracts to harvest
- ✓ Monitoring and notification of risk and status evolution
- ✓ Alert investigation and follow up
- ✓ Action management and long-term monitoring

Beyond deforestation: land conversion & forest degradation

Beyond regulatory requirements, new sustainability standards are emerging, such as Deforestation and Conversion-Free frameworks, which take a broader view of natural ecosystems.

What is DCF?

A supply chain is considered **Deforestation and Conversion-Free (DCF)** when no raw materials are linked to deforestation or to the **conversion of other ecosystems** (savannahs, grasslands, mangroves) after a set cut-off date. DCF therefore goes beyond deforestation alone: **it covers all vulnerable ecosystems**.

How can Starling help?

Together with Earthworm Foundation, we have built a robust methodology (in accordance with the DCF-CGF pathways) to confidently support companies in **achieving DCF compliance** across entire supply chains. Combining traceability, supply chain analysis, very high-resolution satellite monitoring, and supplier engagement, we provide **global DCF risk assessment at scale**.

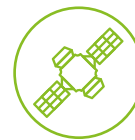
Thanks to Starling, companies can identify their exposure to deforestation and conversion, and determine **the most suitable compliance pathway**, whether through certification, low-risk sourcing, plot-level satellite monitoring, among other approaches.



Certification



Negligible risk area



Remote assessment



Robust control mechanism



How does Starling guide you on your DCF journey?



Scoping and strategic review

Assessment of current DCF readiness, including internal governance, policies, and operations, along with a review of existing strategies and action plans.



Traceability

Full year traceability exercise to map supply chains and suppliers, combined with a supply chain risk assessment to identify high-risk sourcing areas, and set up a mitigation strategy.



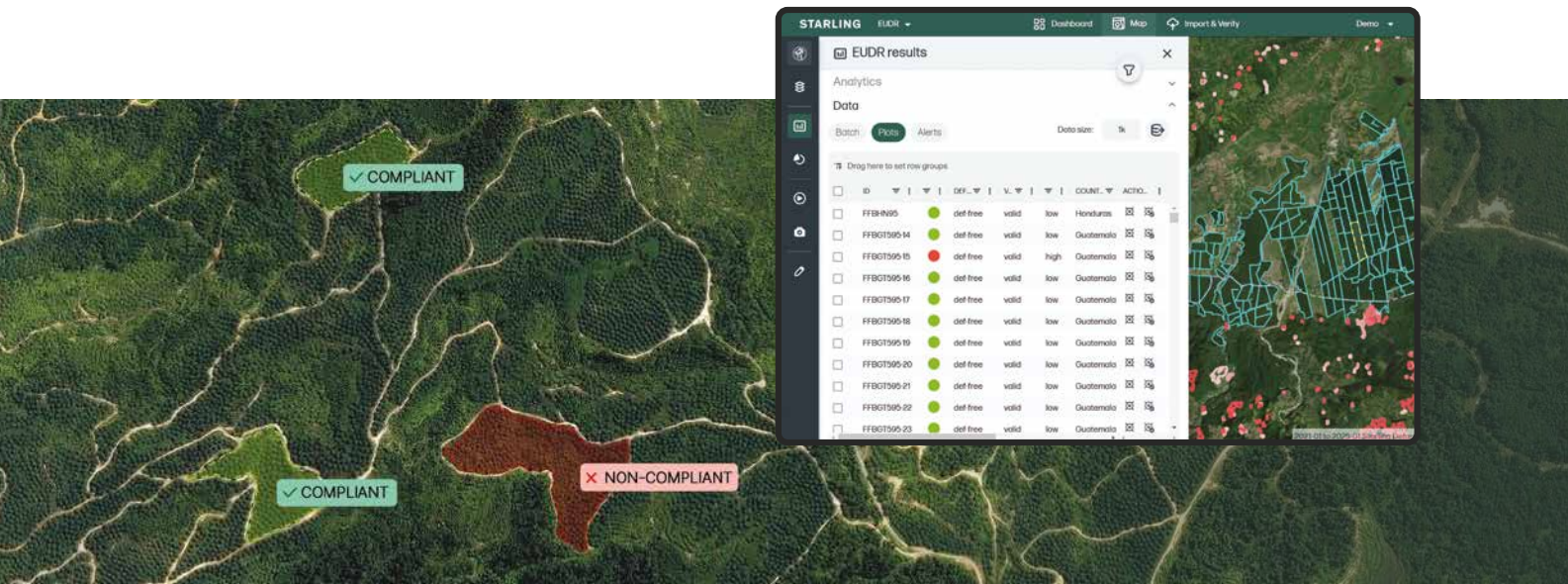
DCF monitoring

Definition of the most suitable pathway based on available traceability, and implementation of Starling satellite-based monitoring with best-in-class land cover and deforestation data.



Follow-up actions

Continuous support for supplier engagement, closing traceability gaps, and assessing newly captured data to improve DCF performance. This also includes adapting compliance pathways where needed.



Land-based carbon emissions accounting in agricultural supply chains

Leveraging high-quality primary data, Starling provides a new generation of carbon monitoring intelligence to support companies in measuring and monitoring their Scope 3 GHG emissions.

Challenges

When **forested land is cut down** or transformed into another vegetation class for agricultural production, **stored carbon is released** into the atmosphere, mainly as carbon dioxide.

Measuring this **carbon footprint** from land use change is a key indicator to help implement mitigation strategies in supply chains. To do this, it is necessary to **understand the changes in land use** that have occurred in the past.

Our solution

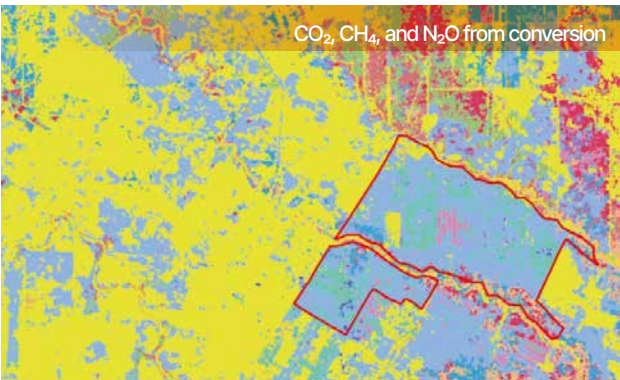
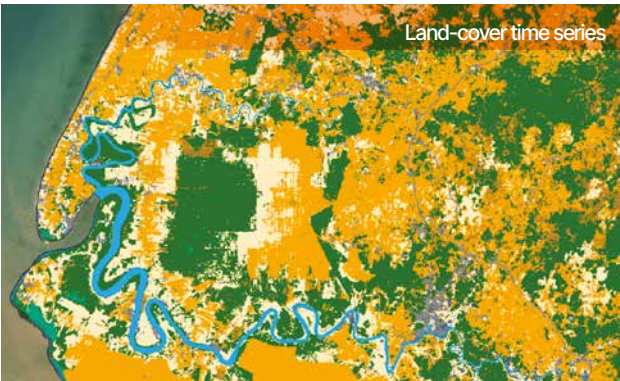
Leveraging over **20 years of time series** on land use change, alongside supply chains data and carbon accounting models, Starling can accurately **quantify carbon emissions due to land use change** across commodity supply chains.

From **farm to landscape level**, these insights can be delivered fast enough to support day-to-day decisions by **sourcing and sustainability teams**.

Outputs and reporting adaptable to supply chain visibility

- **Flexible reporting across dLUC**
Assess and disclose all land-use change emissions within the reported geography, agnostically of the eventual land use.
- **Commodity-linked analysis**
Quantify commodity-specific land conversion to better understand sourcing-related impacts, and support supply chain attributed footprints.
- **Jurisdictional benchmarking**
Compare land-use change performance and emissions across jurisdictions to support risk assessment, target setting, and sourcing decisions.
- **Regional screening**
Identify hotspots of deforestation and conversion in reported regions, as well as the main drivers (historical clearing patterns, peat presence, forest type..).

These insights can be used for identifying high-risk sourcing regions, prioritising supplier engagement, as well as reporting under SBTi FLAG, GHGP LSR, and adjacent frameworks.



Resilient, regenerative and carbon-neutral production systems

Monitor the progress of forest positive initiatives by tracking carbon dynamics, evidencing tree permanence and growth, and assess ecosystem restoration outcomes.

Challenges

To restore ecosystems and **reduce emissions** linked to land-use change, many organisations have put in place **strategies to manage forests sustainably**, such as engaging in Nature-Based Solutions (NBS), tree planting projects or agroforestry practices. Such projects **support the protection of biodiversity**, benefit local communities and strengthen the long-term resilience of landscapes.

Being able to accurately quantify changes in carbon stock associated with such programs is key to **demonstrate their impact and credibility**. Remote sensing solutions constitute a real game-changer in the way we monitor **carbon removal projects**, enabling stakeholders to track carbon dynamics, verify the authenticity and evolution of projects over time, **evidence tree permanence** and growth, and assess ecosystem restoration outcomes.

- **Regenerative agriculture**
- **Agroforestry**
- **Nature-Based Solutions**
- **Tree planting**
- **Biodiversity**
- **Landscape project**

Our solution

By combining **very high-resolution satellite imagery** with **advanced artificial intelligence models**, Starling automatically generates key analytics to monitor the progress of forest positive initiatives.

Airbus' satellite constellation, including Pléiades Neo's 30cm resolution imagery, provides highly accurate and consistent information at scale. This unique expertise enables detailed monitoring of landscapes, from **tree detection and counting** to large-scale **mapping of commodities** such as cocoa and coffee, even within diverse and complex landscapes (shade-grown and agroforestry systems).



Our expertises

Starling is the result of a long-standing partnership of more than 10 years between Airbus, a global leader in geospatial intelligence, and Earthworm Foundation, a non-profit organisation working worldwide to drive positive change.

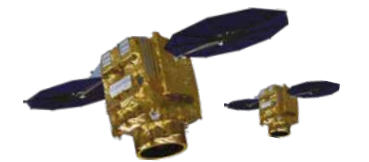
Combining **cutting-edge satellite technology**, advanced analytics, and **deep supply chain** expertise, Starling provides companies with a robust and trusted solution to support their no-deforestation and **responsible sourcing commitments**. Our multidisciplinary teams are located across multiple countries worldwide, enabling us to deliver **unparalleled support to customers** wherever they operate.

Airbus

Airbus Defence and Space plays a central role in the Starling service. With the largest constellation of optical and radar commercial Earth observation satellites, Airbus is a key provider of data and knowledge to support agricultural and environmental applications.

Expertise

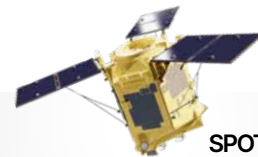
Airbus brings its strong geospatial expertise by covering satellite tasking, imagery processing, and advanced data analysis. Airbus is responsible for worldwide distribution of the Starling service through a dedicated platform, supported by sales and customer service teams specifically organised around Starling.



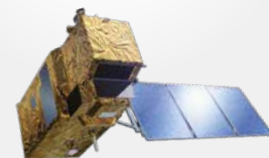
Pléiades Neo
30cm resolution



Pléiades
50cm resolution



SPOT
1.5m resolution



Sentinel-2
(Copernicus program)
10m resolution

They trust us

Working hand in hand for more than a decade, Airbus and Earthworm have supported industry leaders in advancing sustainable sourcing practices and driving positive change across global supply chains. Why not join us?



“Starling’s satellite monitoring is a game changer for achieving transparency in our supply chain. Currently, we cover 100% of Nestlé’s global palm oil supply chains. Starling enables us to manage risks and implement field intervention strategies with our suppliers, facilitating faster and more effective changes.”

Magdi Batato
Executive Vice President
Nestlé S.A.

Nestlé

“Beyond being a trusted, data-driven solution provider, Airbus is a strategic partner for Barry Callebaut in monitoring deforestation risks. The insights provided by Starling have become a cornerstone of our strategy to advance our forest positive commitments.”

Juliette Cody
Director for Global Sustainability
Programs Barry Callebaut

BARRY CALLEBAUT

“Tools like Starling help us better understand risk across sourcing regions and support more informed decision-making on where to focus action. Combined with supplier engagement and on-the-ground partnerships, satellite monitoring enables us to move beyond detection toward prioritisation, response and continuous improvement, recognising that DCF is not a one-time compliance exercise but an ongoing progress.”

Molly Haragan
Senior Manager, Responsible Sourcing
The Hershey Company

HERSHEY

Do you want to know more and discover other use cases?

Explore our solution on

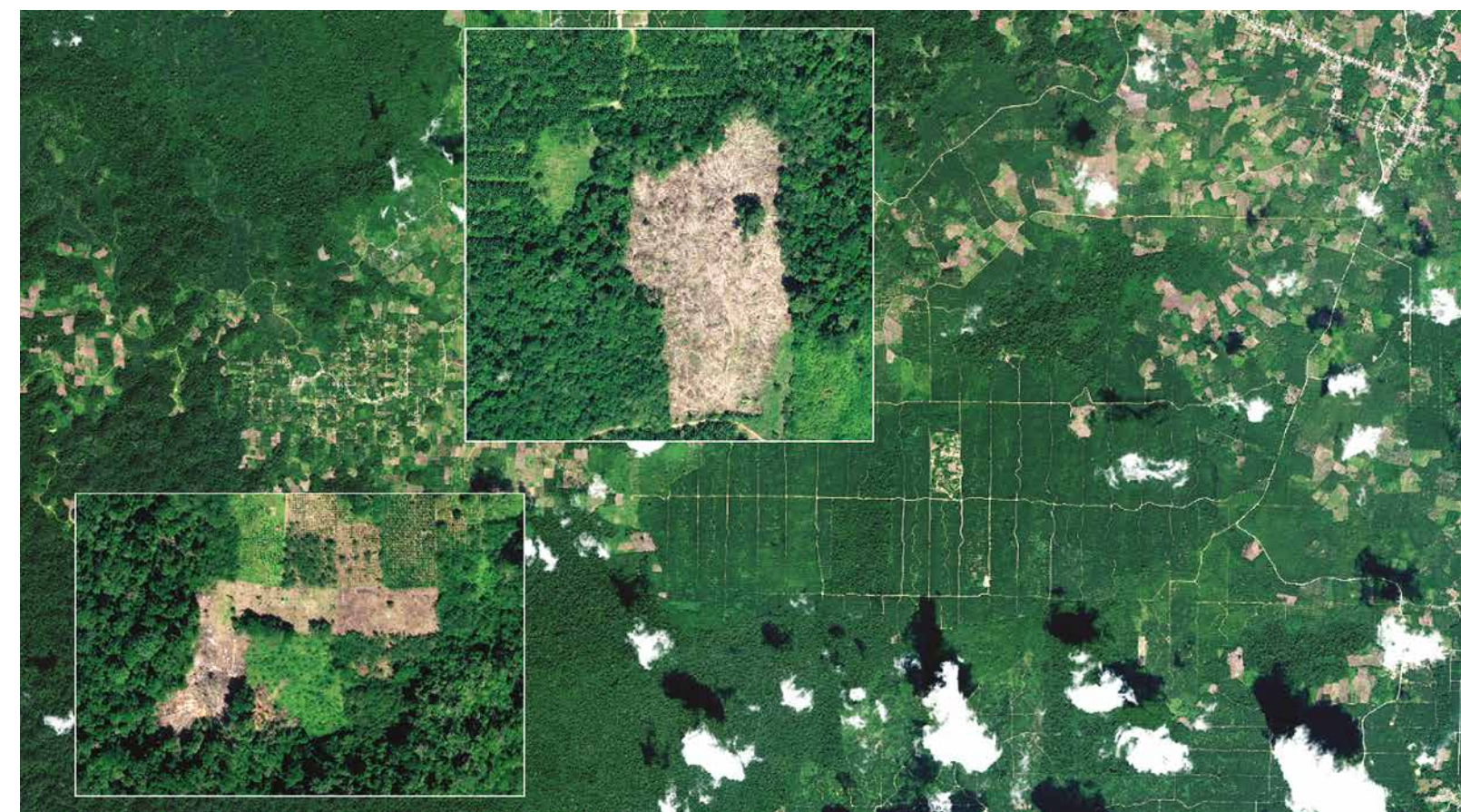
<https://intelligence.airbus.com/industries/forest-and-environment/starling/>

Earthworm Foundation

Earthworm Foundation is a non-profit organisation motivated by the desire to positively impact the relationship between people and nature through transforming supply chains. With much of their staff operating directly on the ground, Earthworm works jointly with member companies and partners to transform raw material value chains that drive positive economic, environmental and social impacts.

Expertise

Earthworm Foundation brings deep **sustainability and supply chain expertise** to Starling through its in-house team of specialists and local field staff across key sourcing regions worldwide. Leveraging Starling data, Earthworm supports companies through **progress reporting**, helping them track performance, implement concrete actions, and communicate on their sustainability commitments. Earthworm also provides strategic advisory services, including sustainability strategy scoping and review, **traceability exercises**, supplier engagement, and grievance management, enabling companies to drive **continuous improvement** across their supply chains.





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