

## Nature Positive Initiative State of Nature Metrics: Terrestrial Pilot Case Study - Sibelco

**Sibelco** is a global material solutions company specialised in mining, processing and selling industrial minerals. The company piloted the State of Nature metrics to minimise the impact of its quarry management on nature and to improve nature outcomes through restoration where possible.

### A) Where Sibelco applied the metrics


<b>Location</b>	<ul style="list-style-type: none"> <li>- Borneo, Indonesia</li> <li>- Cheshire, UK</li> </ul>	
<b>Pilot site</b>	<p>Two owned and operated quarry sites:</p> <ul style="list-style-type: none"> <li>- Capkala clay quarry (Indonesia)</li> <li>- Bent Farm silica quarry (UK)</li> </ul>	
<b>Pilot area size</b>	<ul style="list-style-type: none"> <li>- Capkala: ~200 ha</li> <li>- Bent Farm : 113.6 ha</li> </ul>	
<b>Ecosystems covered</b>	<ul style="list-style-type: none"> <li>- Capkala: Wet, peaty forest type within the highly biodiverse Borneo environment. The quarry is slowly expanding within its permit boundary, with the environment around the quarry also changing due to deforestation, illegal mining, and palm oil plantations</li> <li>- Bent Farm: Agricultural area in a landscape consisting of agriculture, settlements, wetlands and moorlands</li> </ul>	
<b>Metrics piloted &amp; granularity</b>	<ul style="list-style-type: none"> <li>- Capkala: ecosystem extent and proportion of natural or semi-natural habitat were measured at medium granularity level; site condition and species population abundance at low granularity</li> <li>- Bent Farm: ecosystem extent was measured at high granularity level; proportion of natural or semi-natural habitat, site condition and condition of semi-natural habitat at medium granularity; landscape condition at low granularity</li> </ul>	
<b>Piloting partner(s)</b>	BirdLife International	

Figure 1: Sibelco pilot site locations

### B) How and why the piloting project was completed

Sibelco considered this pilot as necessary to help them decide on which metrics to use for monitoring the state of nature, which will support our biodiversity strategy and turned out to be useful as part of preparing for upcoming EU Corporate Sustainability Reporting Directive (CSRD) requirements.



Figure 2: Ecosystem extent outputs for Capkala (left) and Bent Farm (right)



The two sites selected provided a good comparative test case, as data availability was much higher for the Bent Farm site than for the Capkala site so different approaches were required. Free-to-access QGIS mapping software was utilised and Sibelco gathered open-source data inputs. All indicators were measured with the support of the Flemish Institute for Technological Research (VITO) and BirdLife International.

**C) Key measurement approaches and tools used**

	<i>Ecosystem (condition and extent)</i>	<i>Species</i>
<i>Approaches</i>	<ul style="list-style-type: none"> <li>- Developed ecosystem extent maps using QGIS, supported by VITO’s mapping technology for the Bent Farm site;</li> <li>- These ecosystem extent maps were overlaid with existing maps of condition to calculate the site condition metrics and were input to the Fragstats software to calculate structural connectivity for landscape condition.</li> </ul>	<ul style="list-style-type: none"> <li>- Used a species list based on Map of Life, checked the presence of these species with local personnel, and linked ecosystems with species to estimate how ecosystem extent changes can impact the species.</li> </ul>
<i>Tools / data sources</i>	<ul style="list-style-type: none"> <li>- Ecosystem extent: Google Satellite, Sibelco’s own land use mapping based on satellite imagery and local knowledge, UMD Global Land Cover and Land Use, Global Ecosystem Typology. Ground-truthing with satellite imagery and knowledge of local colleagues;</li> <li>- Site ecosystem condition: Forest Structural Condition Index;</li> <li>- Landscape ecosystem condition: Fragstats software.</li> </ul>	<ul style="list-style-type: none"> <li>- Map of Life species range and distribution maps.</li> </ul>

**D) Key challenges encountered and how the framework was adjusted to ensure practicality**



▶ *Data availability for ecosystem classification:* Sibelco found no detailed ecosystem classification for its Capkala site.



▶ *Investment required:* Sibelco highlighted that piloting the State of Nature metrics required notable time and resource input, especially for condition and species metrics.

**NPI notes: How feedback was incorporated**

- ▶ Global Ecosystem Typology Level 3 has been incorporated as an option at medium granularity. The Global Ecosystems Atlas plans to release global terrestrial maps at this level by the end of 2026.
- ▶ A series of guidance updates have been made to streamline the measurement process, including the development of a “base map” approach, whereby one core GIS layer can be input to multiple metrics, and of a Species Selection Filter.



**E) Why is it important for companies to measure state of nature metrics?**

This piloting allowed Sibelco to learn more about the natural environment of their sites and to identify key restoration opportunities. For example, important pockets of pristine natural ecosystems were identified on the Capkala site and addressing fragmentation and connectivity was highlighted as a priority for improving the state of nature on the Bent Farm site.

Overall, Sibelco highlights that State of Nature Metrics facilitated better estimations of nature-related impacts, risks and opportunities. They felt that the piloting programme helped ensure the metrics were suitable for companies to use.

Sibelco considers nature metrics as essential in their license to operate, as they show that the Group is proactively managing nature impacts across the lifetime of their quarries.



*“State of nature metrics for us are essential in our license to operate.”*

Wies Vanstockem  
Manager Biodiversity, Sibelco



Learn more about the State of Nature Metrics: [naturepositive.org/metrics](https://naturepositive.org/metrics)

