# Gold, Nature & Biodiversity: An Introduction

Our research on *Gold, Nature and Biodiversity* combines the following:

- An application of the *Nature Risk Profile methodology* (developed by S&P Global and UNEP) to 122 different gold mine sites of different types (approximately 60% open pit, 40% underground), located across 6 continents, in a range of ecosystems and biomes.

- An examination, referencing the impact metrics from the above analysis, of 15 local mine site-level responses, plans and projects seeking to contribute to risk mitigation, and positive improvement in biodiversity and ecosystem services.

- A consideration of the implications and main drivers of progress for the wider gold mining sector, including how disclosures are positioned and received by industry stakeholders and analysts.

The *Nature Risk Profile* methodology, applied to mine site locations, enables us to identify and (to some extent) quantify ecosystem risks, impacts and dependencies in a normalised, comparable way. However, when we examine site-level plans and projects (as reported via public disclosures), we

Nature Risk Profile – site impacts and dependencies on nature
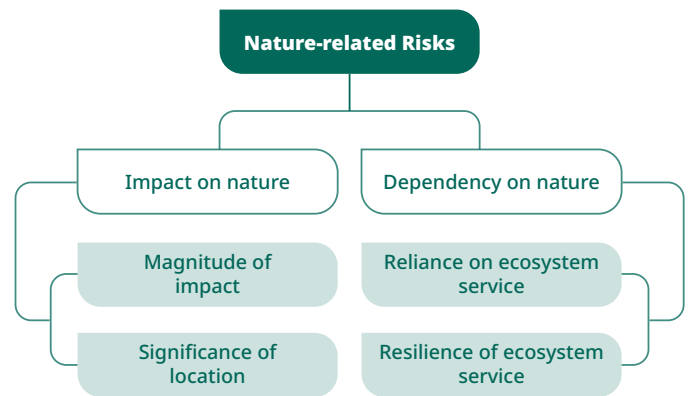
identify a more nuanced, granular view of nature and biodiversity, and a range of practical responses and solutions. Our **analysis strongly suggests a combinational approach which uses a 'standardised' analytical framework but then utilises site-level data and insights** to inform a better understanding of local impacts and solutions.
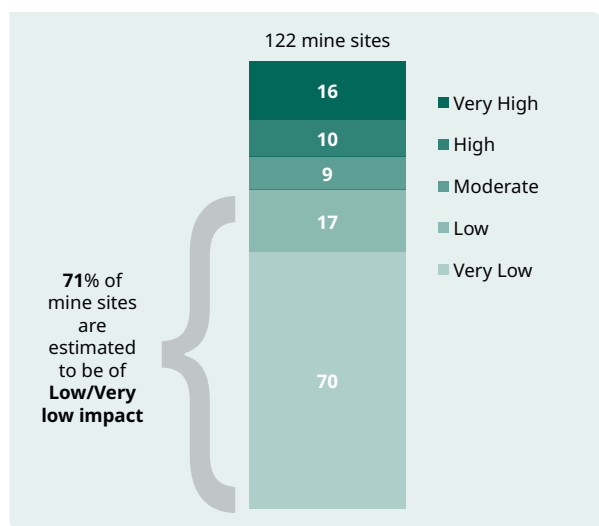
Balancing our overview of the *Nature Risk Profile* of gold mines with a more detailed examination of local conditions and site-level responses, we found a range of examples which cast further light on the practical implications of particular indicators and metrics.
These **Case Studies** include, for example:

- A gold mine in Mexico overlaps with a Key Biodiversity Area due to the presence of an endangered cactus species. While risk metrics highlight some concerns, the mine's biodiversity plan takes a broader, more nuanced approach, via conservation and monitoring programs for vulnerable fauna like wildcats, macaws, and bats. Additionally, the mine explores how bird and mammal distribution affect local flora and crops, aiming for a balanced coexistence between conservation and local livelihoods beyond the mine.

- A mine site in Nicaragua rated as being of high significance to both species and people, but where specific threats are largely attributed to local livestock farming, ranching, and hunting. Nonetheless, the mine has adopted pro-active biodiversity monitoring processes and an ambitious

reforestation programme, in collaboration with local community and government participants.

- A gold mine in Senegal identified as being of low impact but located in a region of ecological significance. While mining activities are not directly linked to pressures on key local species, the mining company has proactively established a 1,500-hectare 'No Go Zone' to protect the critically endangered West African chimpanzee population. Collaboration with local communities plays a crucial role in the mining company's nature-related responses, blending scientific approaches with traditional knowledge to improve ecosystem management.

- Collaboration at a mine site in Canada, where First Nations communities helped enhance local water management with the gold mine's operators. Community members were trained in collecting water and air samples and used their local knowledge to better monitor environmental compliance. The findings were shared between the mine and nearby communities, fostering transparency and mutual understanding, alongside improved water stewardship.

Key Findings

- The overall data shows that the majority of gold mine sites (in our sample) have a relatively low impact on nature and biodiversity. Of 122 gold mines, 71% of mines are classified as being in or below the 'Low' impact category. **This suggests that, as a sector, gold mining may be less impactful on global ecosystems than is often be assumed.**

122 mine sites

16	■ Very High
10	■ High
9	■ Moderate
17	■ Low
	■ Very Low
70	

71% of mine sites are estimated to be of **Low/Very low impact**

- This also suggests that studies identifying gold mining as having a very high and widespread environmental impact (e.g. as a driver of deforestation) may primarily be referring to ASGM activity and impacts, and the data in such **studies should therefore differentiate between the two very different sources of gold production** and their different environmental impacts.

- Of the 16 mine sites estimated to have a *'Very high'* impact, the majority of them are in an area of both very high *ecological significance* and of very high *environmental degradation.* However, it should be noted that there are severe limits to the degree of attribution or causation that can be drawn from these impact metrics, even where analysis suggests mining activity is associated with a particular ' threat' level. A closer examination of many local sites suggests historic causes and/or other local economic activities may be associated with these negative impacts.

- That said, examining 15 mine sites in greater local detail - analysing corporate disclosures and site-level insights - indicated **a welcome level of awareness of local historic and current drivers and conditions, with corresponding measures initiated by gold mine owners/operators seeking not only to rehabilitate degraded land but also protect flora and fauna.** Mining company actions were frequently located well beyond operational sites, often reflecting an **additional awareness of the importance of ecosystem services to local** communities and wider environmental interdependencies.

- Of the 122 mine sites we examined, 17 overlap with a Protected Area, and 8 overlap with a Key Biodiversity Area (KBA). In terms of the sites' footprint in these *sensitive areas*, 6% was sited in a Protected Area and 4% in a Key Biodiversity Area. **If we look at a global overview of these areas, our sample data suggests that the industry's overlap with such designated sensitive areas is very small.**

- An examination of **corporate disclosures on nature-related risks**, in consultation with mining analysts, suggested a number of **elements of good practice**, rooted in the questions investors and analysts consider when evaluating such disclosures:

  - **Identification:** Does the disclosure identify, with adequate specificity, the mining activity that is having direct nature-related impacts or increasing future risks/benefits to either Species or People?

  - **Quantification:** Does the disclosure include factual figures that quantify the activity that impacts Species or People and the scale of those impacts?

  - **Remediation:** Does the disclosure reference remediation efforts that are actioned to reduce risk, or actions taken to improve the impact on Species or People?

  - **Assurance:** Does the disclosure reference collaborations and partnerships with external stakeholders to ensure remediation efforts and conservation actions are appropriate, and validated as likely to achieve the desired outcomes?

We believe that our approach, complementing high-level nature-related risk metrics with local insights and an analysis of mine site-level plans and responses, will contribute to a greater understanding of the status of gold mining's impacts on nature and biodiversity. Specifically, in the language of the *Taskforce on Nature-related Financial Disclosures*, it should help clarify how nature-related risks are *Located* and *Evaluated* – via standardised metrics. An overlay of site-level insights can then help all stakeholders better *Assess* the local risks in practical detail, while companies and their partners can *Prepare* their responses and solutions.