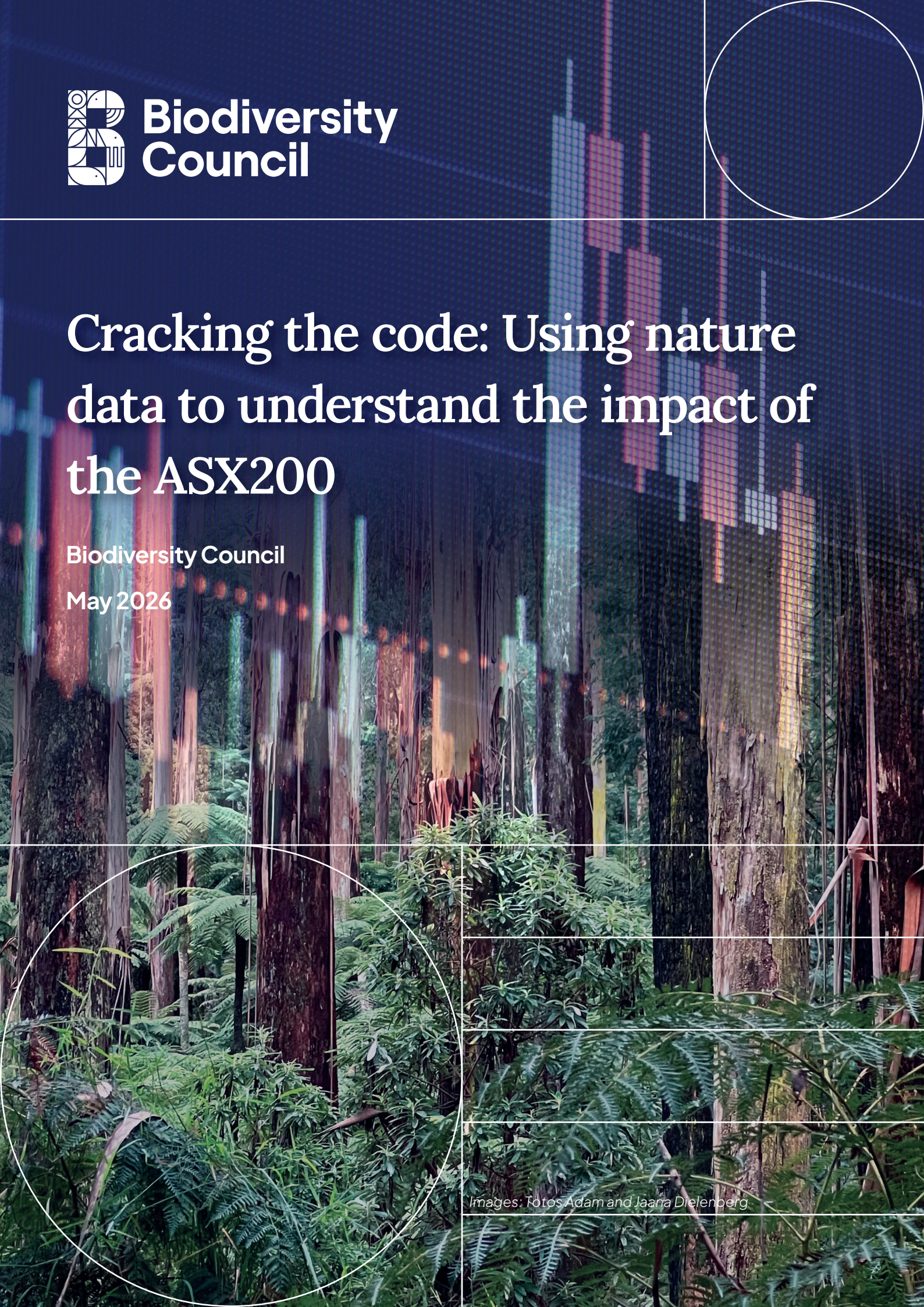
Biodiversity Council

Cracking the code: Using nature data to understand the impact of the ASX200

Biodiversity Council

May 2026



Images: Fotos Adam and Jaana Dielenberg

Acknowledgement

The Biodiversity Council acknowledges the First Peoples of the lands and waters of Australia, and pays respect to their Elders, past, present and future and expresses gratitude for long and ongoing custodianship of Country.

Further information

For more information

Contact: enquiries@biodiversitycouncil.org.au

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Authors:

Brendan Wintle[1], Sam Hickman[1], Lis Ashby[2], James Trezise[2]

[1]The Unviersity of Melbourne, [2]Biodiversity Council.

Graphic design: Jaana Dielenberg[2]

Biodiversity Council

Australian Ethical Foundation

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Executive Summary

Nature underpins economic activity and business performance across Australia. An estimated 49.3% of Australia's GDP is moderately or highly dependent on natural systems, yet biodiversity and ecosystem services are in sustained decline. This deterioration presents material risks for companies and investors, including supply chain disruption, rising operating costs, regulatory and legal exposure, and reputational risk. Globally, and particularly in Australia, the pace of biodiversity loss and ecosystem degradation is accelerating. Ongoing degradation of the vital ecosystem services provided by nature to companies is anticipated to cause an annual global GDP reduction of to 2.3% by 2030.

This report assesses the nature-related impacts and dependencies of Australia's ASX200 companies, with a focus on implications for listed companies and their investors. The analysis draws on data from three widely used assessment tools GIST Impact, MSCI, and S&P to provide a comparative view of nature-related impacts across sectors and companies.

We found that across all three tools, utilities, energy, materials, industrials and consumer staples consistently emerge as the highest impact sectors for biodiversity loss. These impacts are driven primarily by greenhouse gas emissions, water consumption and land use pressures. Our analysis reveals substantial variation within sectors and systematic under-measurement of impacts that occur through supply chains and financial activities where lack of data remains a significant impediment to understanding individual company supply chain impacts. Modelling of value chain impacts can provide insights at a sectoral level.

Sectors that appear to have lower impact when assessed on direct operations alone, particularly financials, IT and consumer staples, often exert significant influence on nature through capital allocation, energy and water demand, and global value chains that can create impacts on ecosystems far from the physical footprint of a company. These impacts are currently difficult to capture using existing datasets but represent a growing source of unpriced risk for investors.

While there are significant gaps in the data available to assess nature-related impacts and dependencies, these gaps do not justify inaction. The direction of risk is clear, and evidence across multiple datasets supports consistent sector level conclusions. Differences between tools primarily reflect methodological limitations, particularly the partial treatment of supply chain and financed impacts, rather than disagreement about the sectors in which nature-related risks are concentrated. Where data limits understanding of individual company impacts, engagement to encourage better company-level understanding becomes crucial.

The Taskforce on Nature-related Financial Disclosures (TNFD) provides a practical and credible framework to improve awareness, disclosure and decision making. Broader adoption of TNFD aligned reporting, and eventual mandatory disclosure (especially value chain-inclusive nature disclosure) would improve data quality and comparability, support investor engagement and incentivise companies to identify, manage and reduce their material impacts on nature.

Companies should assess nature-related impacts and dependencies across operations, supply chains and financial exposures; prioritise material risks using consistent methods; set time-bound targets aligned with the mitigation hierarchy; and disclose governance, strategy and metrics in line with TNFD.

Investors can use capital allocation, system stewardship and company-specific engagement to address systemic and company-specific nature-related risks. Investors can use data from assessment tools and company reporting to identify drivers of nature loss, and the investors' points of leverage to address those key drivers. Leverage points may not necessarily be the companies with the largest direct nature impacts. It may be public policy advocacy for strong nature laws, or for government investment into nature restoration that unlocks opportunities for nature-positive private investment. It may also include engagement with companies with high impact value chains.

Context

Biodiversity loss is accelerating at an unprecedented pace.[1] Approximately 75% of the Earth's land surface is significantly altered and approximately 25% of species are threatened, and many may become extinct within decades.

Australia continues to have one of the highest rates of species decline among countries in the Organisation for Economic Co-operation and Development. The *Australia State of Environment Report 2021* shows that Australia's environment is poor and still deteriorating.[2] More than 2,200 Australian species and ecological communities are at risk of extinction and 19 ecosystems are showing signs of collapse. [3]

This environmental crisis poses serious economic threats, as more than 50% of the world's GDP relies moderately or highly on natural systems and their associated services.[4] Ongoing degradation of these vital ecosystem services is anticipated to cause an annual global GDP reduction of up to 2.3% by 2030.[5] According to the World Economic Forum's (WEF's) *Global Risks Report 2026*, biodiversity loss and ecosystem collapse remain the second most severe 10–year global risk, underscoring the continued economic dependence on natural systems. However, WEF's short-term (2–year) risk assessment focusses on immediate geopolitical and economic challenges (e.g. geo-economic confrontation, misinformation). This reflects a view that nature-related risk is not immediate but something to worry about in the future, making focus on nature-related risk difficult to achieve, particularly in the face of climate risk reporting burden and fiscal pressure.[6] And yet, tipping points such as desertification and ocean warming are fast approaching and are irreversible on human timescales.

Despite the risk of biodiversity decline, approximately US$7 trillion of investment is directed each year toward activities damaging nature.[7] The private sector contributes roughly US$5 trillion of this total. Around $25B in Australian Government subsidies provided to companies every year are known to be harmful to nature.[8]

In 2022, the 196 Parties to the Convention on Biological Diversity (COP 15) adopted the Kunming-Montréal Global Biodiversity Framework (GBF). The framework calls on actors across society and our economies – including the private sector and business – to take urgent action to halt and reverse biodiversity loss to put nature on a path to recovery for the benefit of people and the planet. More specifically, Target 15 of the GBF calls for large companies and financial institutions to assess and disclose nature-related risks, impacts and dependencies.

Direct and indirect nature impacts

Direct impacts refer to impacts arising within its corporate footprint from a company's own operations and assets. Indirect impacts refer to impacts that occur through supply chains, product use, and, for financial institutions, through financing and investment activities that may occur a long way from a company's physical assets and direct corporate footprint. In practice, most nature impact assessment tools prioritise direct operational pressures, such as facility level emissions or water withdrawals, because these are most consistently disclosed and easiest to measure. Indirect impacts are typically modelled using economic input/output assumptions or sector averages, which introduces greater uncertainty but is essential for understanding system level exposure. When assessing impacts using assessment tools or approaches that ignore indirect impacts, the impacts of businesses in sectors with large supply chain footprints or financed impacts may be underestimated.[9]

Impact and dependency

Here we focus primarily on the impacts that business activity can have on nature. When nature is damaged, this can degrade ecosystems or environmental services provided by nature to humans. These services are sometimes referred to as Nature's Contributions to People[10] (NCPs). Many businesses are deeply dependent on NCPs. For example, agricultural enterprises are deeply dependent on pollination and soil decomposition. Businesses that are highly dependent on nature can be vulnerable to nature decline, presenting a financial risk associated with nature loss. In short, nature dependencies describe how much a business relies on ecosystem services, such as water availability, pollination, and buffering from extreme weather events, and the financial risk arising when those NCPs are diminished through nature loss. Approximately half of global GDP is thought to be directly dependent on nature.

However, detailed measurement of nature dependency risk is challenging and tends to be less well documented than corporate nature impacts. Both impact and dependency are important to consider as sources of financial risk; however, here we focus primarily on impact, acknowledging that better quantification of dependency risk is an important area of active research.

Approach to assessing impacts

Many tools exist to assess a company's impact on nature. The website of the Taskforce for Nature-related Financial Disclosures (TNFD) lists over 200 tools and datasets.[11] This analysis draws on data from three tools – MSCI,[12] S&P,[13] and GIST Impact[14] – to understand the impact of Australia's largest companies and key sectors of the economy. Working with multiple tools provides a sample of the range of possible analysis methods, and these three tools are well-known incumbents within the investment community with whom members of the Biodiversity Council had pre-existing research relationships. The tools have widespread use that draw on varying methodological assumptions and submodels.[15]

Using the three datasets, each company within the S&P ASX200 was ranked from lowest to highest impact. Ranking firms within the S&P ASX200 thus preserved comparability across the tools' different assessment methodologies and metrics.

The 2018–2023 *Exploring Natural Capital Opportunities, Risks and Exposure* (ENCORE)[16] dataset was used to assess the materiality of environmental impacts in the major economic sectors to assess alignment with sectorally averaged impact scores estimated by MSCI, S&P, and GIST Impact.

Image: The empty Darling River channel near Louth NSW during a drought. Low river flows were greatly exacerbated by upstream water extraction for agriculture, leaving the river largely dry. Image: Jaana Dielenberg

Who's having the greatest nature impact?

Our analysis found that of the largest 200 companies in Australia, companies with the highest impacts exist in the utilities, energy, materials, industrials and consumer staples sectors – with median impact rankings significantly higher than other sectors (Fig. 1). The true impacts on nature of financial, IT and consumer staple sectors is likely to be higher than represented here because our analysis of the ASX200 companies only considers direct impacts. We present an analysis of the full value chain impact on nature for a smaller subset of companies below (see Fig. 4).

The utilities sector, while having the highest median impact, contains relatively few companies on the ASX200, and these all demonstrate consistently high biodiversity impacts across assessment tools. However, six of the ten firms with the greatest nature impacts are in the materials sector. This concentration underscores the outsized influence of large-scale mining and materials companies on nature. The materials and energy sectors show large variation between companies. Although both sectors have high median impacts overall, some individual companies within these sectors have lower nature impacts. In the energy sector, Deep Yellow (ASX:DYL)[17] and Boss Energy (ASX:BOE)[18] are relatively small players, operating modest-sized uranium mines with correspondingly low water use and greenhouse gas emissions. As a result, the nature impact tools do not model them as having high overall impacts. In the materials sector, a similar pattern emerges. Smaller companies with lower water use and greenhouse gas emissions are assessed as less impactful, particularly those that pair their smaller operational footprint with stronger sustainability commitments. Notable examples include Liontown (ASX:LTR)[19] and Bellevue

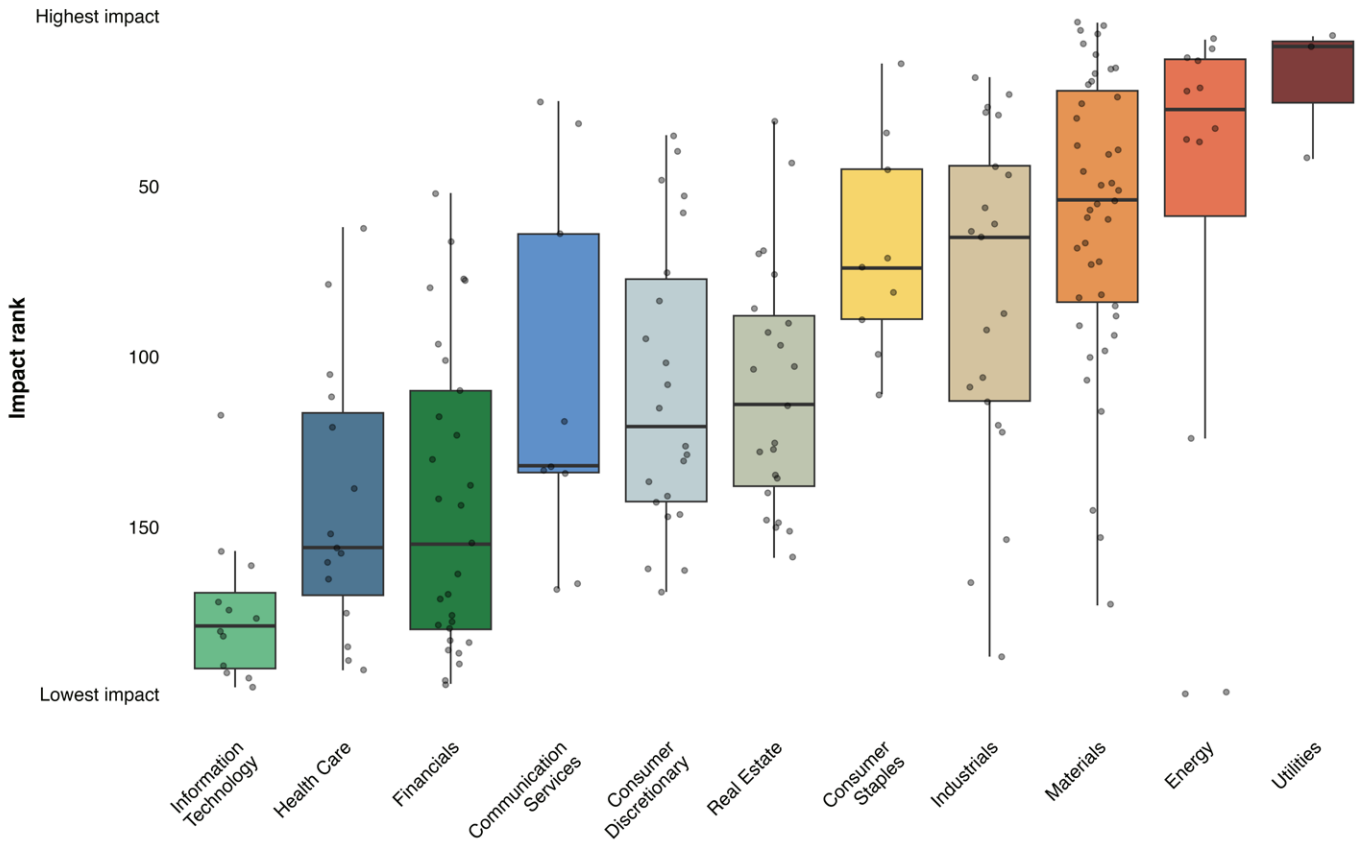


Figure 1. Ranked assessment of nature impacts for S&P ASX200 companies, grouped by major economic sector. *Sectors are arranged from left to right by median impact rank, from least to most impactful. To illustrate the dispersion of firm-level rankings within each sector, we overlaid individual company data points (hollow black points). Each company's ranking was calculated using an average of impact data from S&P, MSCI, and GIST Impact. Non-overlapping boxes suggest statistically significant differences in the median impact ranks of the relevant sectors.*

The utilities and energy sectors have the greatest impacts on nature . Image: Andrey Metelev

Gold (ASX:BGL),[20] both of which have relatively small operations and a more explicit focus on sustainability compared to many peers in the sector. Previous studies have scaled impact by revenue,[21] acknowledging that impact per dollar represents a trade-off between impact and value that may be more relevant than raw impact. However, here we focus on raw or unscaled impact as a flag to the businesses that present the most immediate and material nature risk for investors.

The tools used to assess corporate impacts of the full ASX200 companies did not consider indirect impacts (upstream, downstream). Methods that do consider indirect impacts (e.g. GIST LCE - Fig. 4) are largely estimated using EXIOBASE data in cases where companies have not disclosed sufficient supply chain information. Such data points reflect upstream and downstream sectoral average impacts where company specific supply chain data are not available. This reflects the generally low level of supply chain data disclosure. This highlights one of the key challenges in understanding the nature impact of companies through often poorly documented supply chains and partly explains why materials and energy sector companies tend to have higher apparent nature impact than the finance sector that provides capital to those sectors, or the IT companies that use the energy they produce.

There is substantial variation in nature impact estimates between companies within the same sector (Fig. 1). While certain sectors tend on average to be more impactful, company-specific factors play a significant role in determining actual environmental performance. This highlights the importance of investors and analysts looking beyond broad sectoral rankings and evaluating individual company impacts in an attempt to understand the type and gravity of their impacts – often referred to as materiality. Access to this data for investors depends critically on corporate disclosures that follow guidelines such as the TNFD.

The most impactful companies in the ASX200 and the nature of their impacts

To explore further the scale and nature of individual company impacts, we present data from GIST Impact's Land Conversion Equivalent (LCE) metric, which translates potentially disappeared fraction of species (PDF)[22] impacts into an equivalent area of land converted from a mostly-natural baseline to urban use, based on global averages (Fig. 2). It does not indicate actual land use by the company but allows investors and board members to visualise scale of biodiversity harm.

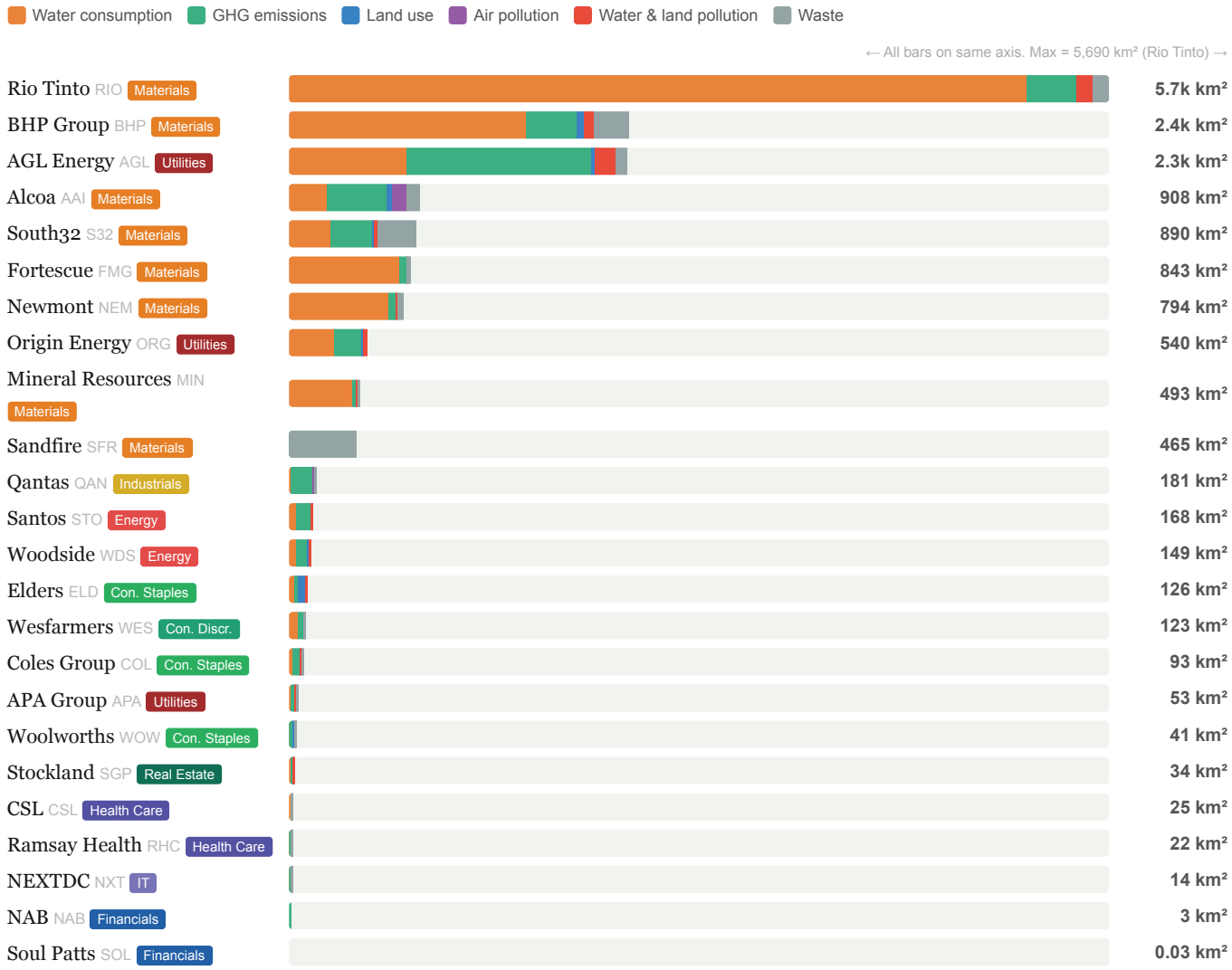


Figure 2. Stacked bar plots of ten highest impact companies according to GIST Impact and cross sectoral mix of interesting companies. *The plots display GIST Impact's Land Conversion Equivalent (LCE) values for these companies, scaled using a logarithmic scale. LCE represents the hypothetical area of natural land that, if converted to urban use, would generate the same magnitude of global species extinction risk as the actual pressures generated by the business (expressed in km²). Values are decomposed into six environmental pressures – GHG emissions, land use, water consumption, air pollution, water and land pollution, and waste – which are shown as stacked bars and identified by colour in the legend. Values have been log-transformed to bring them onto the same visible scale. If viewed as raw LCE area, the companies to the bottom of the graphic would not be visible. More detail on a selection of ASX200 companies and other analyses can be found in our online appendix* [23]

A clear pattern emerges. The companies with the largest nature impact are in the mining and energy sectors, driven largely by their GHG emissions and water consumption and pollution. Companies in IT, consumer staples, banking and finance have very low footprints, highlighting that value chain impacts, especially through land-use, are not particularly well characterised at this stage. A more detailed and deliberative analysis of the nature impacts of a subset of individual companies is provided at the online appendix.[23]

An alternative view on environmental impact materiality – ENCORE

Our ENCORE analysis for the ASX200 companies provides another perspective on the environmental pressures generated by companies within different sectors. ENCORE is based on expert opinion about the relative pressures on nature generated by different sectors. While most sectors drive environmental damage through GHG emissions, and to a lesser extent water use,

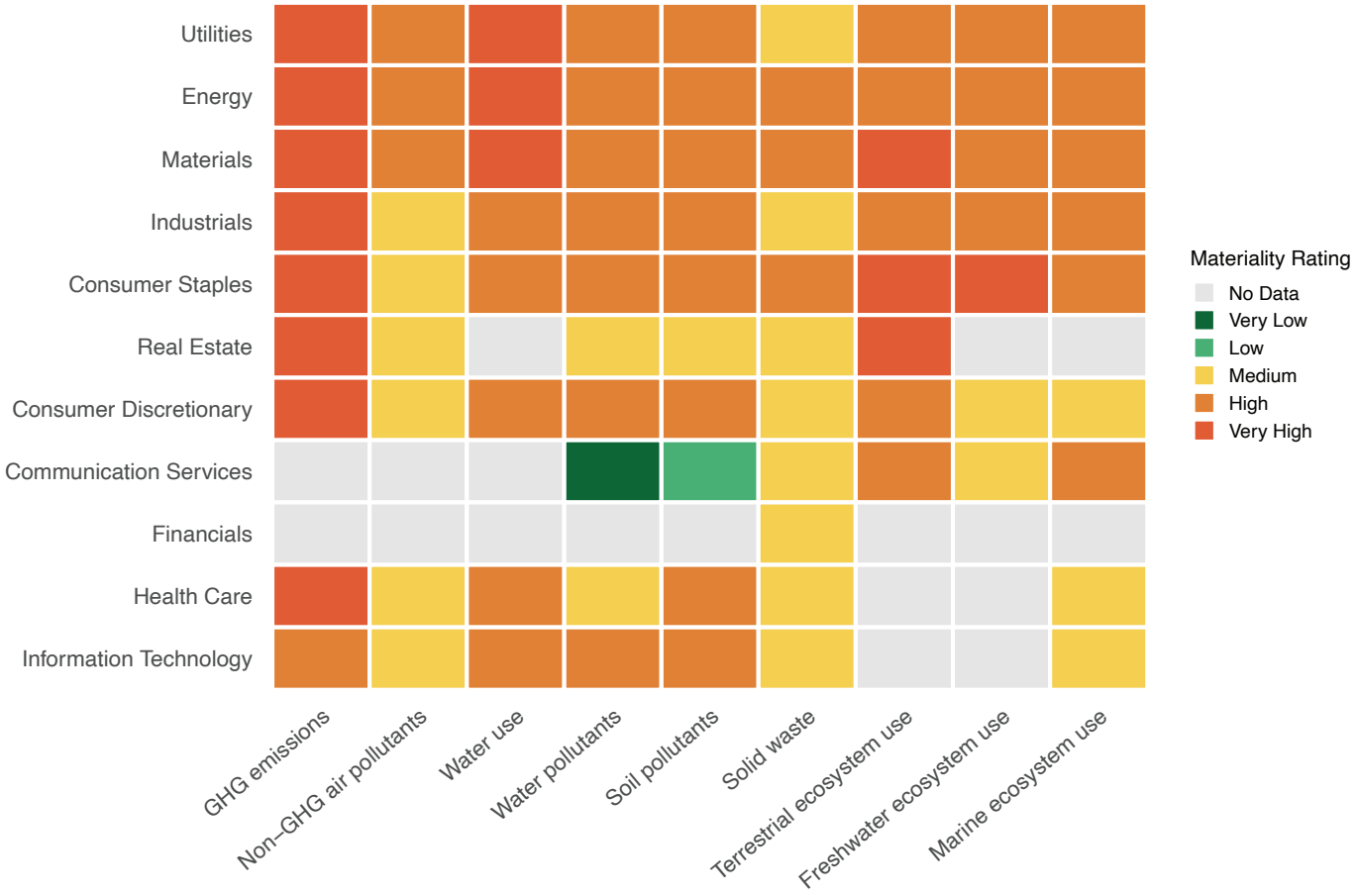


Figure 3. Heatmap of sector-level materiality of environmental pressures, based on the ENCORE assessment tool. *The figure draws on the 2018–2023 ENCORE dataset, which classifies 92 production processes across 11 GICS sectors. The GICS sectors are listed on the y-axis, with the pressures on the x-axis. Each cell represents the median materiality rating of the underlying production processes for a given industry sector and environmental pressure. This materiality rating shows broad agreement with the sectoral summary of the individual ASX200 company analysis (Fig. 1), but the drivers of impact spread more evenly across environmental pressures under the ENCORE analysis.*

the lower-impacting sectors are distinguished by generating lower pressures in terms of soil pollutants, solid waste, terrestrial, freshwater, and marine ecosystem use. It is worth noting the comparison between the qualitative ENCORE assessment that identifies risks for high-impacting sectors across all environmental pressures (Fig.3), compared with the GIST Impact LCE analysis (Fig. 2) that identifies water use and GHG emissions as the dominant drivers of nature impact caused by most sectors – particularly utilities, energy, and materials.

Notably, the financial sector had very few materiality ratings, highlighting the challenge that many tools (including ENCORE) have traditionally focused more on direct, rather than indirect pressures generated by businesses. We strongly encourage investors to consider both the direct and indirect impacts and dependencies that may arise for all companies, even if indirect impacts are less visible and more difficult to measure.

Healthcare has upstream impacts, through the emissions and resource use embedded in medical and research goods and downstream, through the generation of both toxic and non-toxic waste. Image: Natanael Melchor

How can companies reduce their impacts?

Nature-related risks are increasingly translating into *real operational risks*,[24] including resource scarcity, supply chain disruptions, rising costs, regulatory pressures and reputational risks, which can directly impact business continuity and asset performance. As a result, corporations should take *proactive, risk-informed action* by embedding nature into enterprise risk frameworks, conducting location-specific assessments, strengthening supply chain resilience, and investing in resource efficiency and nature-based solutions to build long-term operational resilience. However, getting started can seem daunting.

Taskforce for Nature-related Financial Disclosures (TNFD)

By Tony Goldner

Launched in 2021 with the support of the G20, the Taskforce on Nature-related Financial Disclosures (TNFD) is a global initiative with a mission to bring nature into mainstream corporate reporting practice in order to help shift the flow of capital away from nature-negative outcomes and towards nature positive outcomes aligned to the Global Biodiversity Framework (GBF) agreed to by over 190 governments. To achieve that objective, the TNFD has also provided market participants with a range of internal assessment tools covering all nature-related issues (except GHG emission, covered by the Task Force on Climate-related Financial Disclosures (TCFD)).

The TNFD published its recommendations in September 2023 and as of November 2025, over 700 organisations, US$9 trillion in market capitalisation and US$22 trillion in global assets under management, are now committed to nature-related corporate reporting aligned to the TNFD recommendations. Over 500 first and second generation TNFD reports have now been published, providing investors and other stakeholders with information about nature-related dependencies, impacts, risks and opportunities within their capital portfolios.

Australia has consistently been one of the top 10 markets globally for engagement on the TNFD, with over 25 Australian companies now underway with nature-related disclosures as part of their annual reporting activities. Dozens more Australian companies and financial institutions are now undertaking internal assessments of their nature-related issues aligned to the TNFD's LEAP assessment approach. The Australian Government and the Macdoch Foundation have both provided funding support for the work of the TNFD.

In late 2022, when Treasurer Jim Chalmers announced the government's intention to move forward with mandatory climate reporting building on guidance developed by the TCFD and new standards produced by the International Sustainability Standards Board (ISSB), he also signalled that nature would likely be the next sustainability topic for consideration. In November 2025, the ISSB announced plans to commence standard setting work on nature-related issues building on the guidance developed by the TNFD, setting the stage nature-related standards guidance in the coming years likely to inform reporting requirements in Australia.

The Taskforce on Nature Related Financial Disclosures has produced guidance on the identification and assessment of nature-related issues. Image: TNFD

Consumer-facing businesses may carry significant upstream impacts embedded in their products, such as timber and steel. Image: Gary Houston

Assessment

Companies should assess biodiversity impacts from individual projects, through entire value chains and their financial portfolios and identify opportunities for avoiding impacts and maximising potential benefits.[25] Depending on the sector, the large sources of negative biodiversity impact may not be in the business' direct operations, but embedded in their value chain.[26] Traditional procurement practices may only capture data from direct suppliers, but to truly assess impacts on biodiversity a thorough assessment is required.

The TNFD and the International Union for Conservation of Nature (IUCN) *Nature Positive for Business* report provide guidance on undertaking these assessments, including some sector-specific guidance. TNFD has developed the LEAP approach to guide internal assessments of nature-related risks or dependencies and impacts. LEAP involves four phases: 1) Locate your interface with nature, 2) Evaluate your dependencies and impacts on nature, 3) Assess your nature-related risks and opportunities and 4) Prepare to respond to, and report on, material nature-related issues, aligned with TNFD's recommended disclosures.[27]

TNFD guidance and published examples on measurement, metrics and approaches to reporting provide a broad framing for businesses that shows at what level of detail measurement and reporting should be undertaken. However, local advice and support from local experts will inevitably be needed to allow businesses to identify appropriate measures and measurement approaches that fit their local context.[28] The TNFD pilots with Australian businesses and financial institutions may provide useful examples and learnings about applying TNFD.[29]

The NEXTDC *FY25 Climate and Nature Report*[30] explores nature impact and dependency, disclosing metrics that are relevant to understanding their businesses environmental performance. Crucially, NEXTDC acknowledges there are limitations to their assessment, which are unavoidable as organisations begin the process of learning how to complete TNFD-aligned reports. A baseline of operational water use is provided (774ML/yr - about half of Melbourne's daily water use - a lot) that could be monitored to ensure water use efficiency is improving over time and overall water use is decreasing.

Airlines face the immense challenge of decarbonizing in an industry fundamentally reliant on fossil fuels. Image: Josh Withers

Addressing impacts

Companies should commit to addressing the most material impacts on nature. This means setting baseline(s) and committing to ambitious, time-bound, science-informed goals and targets to address the most significant impacts. Goals and targets should be embedded across value chains, sites and landscapes,[31] and reflected in a road-map that includes clear timeframes and responsibilities. To be effective, this work must be led by the board and executive, not simply delegated to sustainability teams.[32]

Actions taken by a company to address impacts on nature should follow best-practice implementation of the mitigation hierarchy.[33] The first step is to avoid impacts on nature. This could be achieved by choosing locations with low biodiversity or substituting materials with high biodiversity impact with those of lower biodiversity impact. The second step is to minimise unavoidable impacts; for instance, through sourcing products with a sustainability certification, designing projects to have a lower impact where they are sited, or reducing pollution. The third step is to restore biodiversity directly damaged by a project. Once all other actions have been taken, the final step is to compensate for biodiversity losses. It is essential that compensatory actions improve the biodiversity assets that are affected by residual impacts, and not just general actions to enhance biodiversity. For value chain impacts, this may be more difficult to achieve due to the lack of visibility and control over the biodiversity assets being impacted. This makes engagement with suppliers a critical activity.

It is insufficient, and risks greenwashing, if a company only undertakes (or funds) actions that benefit the environment without also understanding and addressing the damages occurring through their business activities.[34] Projects focused on nature recovery are valuable, but must be undertaken after, or alongside, actions to avoid and compensate for the negative impacts a company is having on nature.

A lack of comprehensive data should not be used as a justification for a lack of action to reduce impacts on nature. Threats to biodiversity are clear and there are likely to be immediate choices that a business can make to reduce impacts.

Actions taken to address impacts on biodiversity will vary significantly between companies depending on what sector they are from, where they operate and the types of impact they have.[35] Companies in sectors that directly impact biodiversity through their operations and projects (e.g. utilities, energy and materials), are likely to see the biggest biodiversity gains by locating their projects in areas of lower biodiversity value.

In contrast, companies which impact biodiversity primarily through their value chains are likely to see bigger gains by engaging with their suppliers to understand their biodiversity impacts, and by sourcing materials and energy with a lower biodiversity footprint. In the information technology sector, this could mean using recycled water and renewable energy for data centres.

Measure and report on progress

Measuring the progress towards reducing biodiversity impacts should focus on material risks identified during assessment. These risks might sit in direct operations or in value chains. There exists significant expertise in the university, consulting and citizen science sector to support measurement and reporting of the outcomes of impact mitigation efforts, and to help grapple with challenging issues – including indirect and cumulative impacts, leakage effects, or substantial impacts within value chains that if ignored can lead to perverse outcomes.[36]

Advocate for sectoral improvements

Companies should work within their sector to reduce impacts. Sector-wide approaches to reducing nature impact including common definitions, methodologies, implementation and compliance. Robust and credible industry standards are critical to ensuring that companies leading efforts to reduce impacts are not at a competitive disadvantage relative to laggards.

The metals and mining sector includes companies with high impacts on the environment.
Image: CHURIG/iStock

What should investors do?

Investors have three distinct but complementary levers to address systemic and company-specific nature-related risks:

Capital allocation can be used to increase the cost of capital for sectors and companies with high and avoidable nature impacts, while directing capital toward lower-impact alternatives or nature solutions. This does not imply blanket exclusion of all high-impact sectors. From a risk perspective, diversification across sectors remains important. From an impact perspective, exclusion alone fails to distinguish between unavoidable impacts associated with essential activities and impacts that are unnecessary or poorly managed. At scale, sector and company-level capital allocation choices can shift relative costs of capital, create market signals, and contribute to norm-setting and movement-building.

Investors can use various quantitative tools to identify companies with the highest impacts on nature, including those used in this study (MSCI, S&P, and GIST Impact). However, these tools should not be used in isolation as they have been shown to vary in their assessments of company impacts.[37] Using data across multiple tools like in this report can help guard against this uncertainty. Ideally, quantitative tools should be complemented with more deliberative qualitative analysis focused on how companies are managing nature-related risks and reducing their impacts. One framework that can assist with qualitative assessments is the Layman Company Maturity Model,[38] which provides a structured way for investors to differentiate companies on their nature risk management.

The Layman Company Maturity Model – key components:

Level 1 – Awareness: explicitly recognises nature decline as a relevant risk/opportunity.

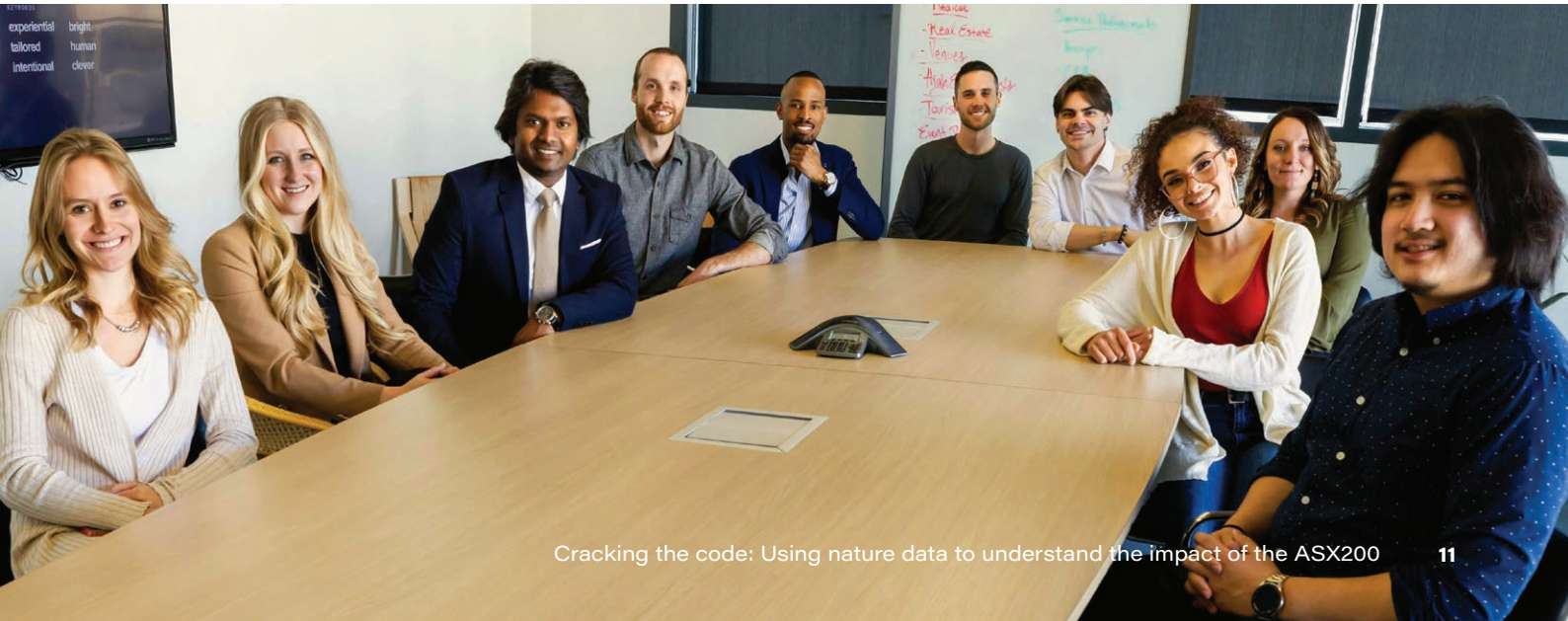
Level 2 – Assessment: publishes information on operational positive/negative nature impacts.

Level 3 – Operations: integrates nature into operational decisions and takes action to reduce operational impacts (e.g., board/committee responsibility; independently verified assessments).

Level 4 – Strategy: integrates nature into strategic decisions and acts across upstream/downstream impacts (e.g., targets, incentives, strategy integration).

Level 5 – Sector: takes action to drive sector-wide improvements.

Investor decisions and actions have a strong influence on nature-related issues. Image: Memento Media



Stewardship and systems influence can be exploited by long-term and universal owners to address system-level drivers of nature loss. This includes coordinated engagement, escalation, voting, and public policy advocacy aimed at enabling transitions. In this context, stewardship may be targeted at key system leverage points rather than necessarily at the companies with the largest direct impact. It may involve supporting actions that increase costs or constrain revenues at the company level where doing so reduces economy-wide nature risk and protects long-term portfolio outcomes.

One example is advocacy to Government for stronger nature laws to reduce corporate risk by creating clear, consistent rules, levelling the playing field, and ensuring responsible businesses are not undercut by those externalising environmental harm. Clear rules also reduce reputational and transition risk by providing credible standards and policy certainty, enabling companies to plan ahead and demonstrate alignment with stakeholder expectations. Another crucial area of advocacy is to encourage governments to provide the initial funding in blended finance solutions, de-risking nature solutions unlocking private capital.

Company-specific engagement and disclosure can improve governance and management of nature-related impacts, dependencies, and risks, particularly in high-impact sectors or where companies lag peers. Engagement should prioritise better reporting aligned with credible frameworks such as the TNFD, alongside credible action to mitigate material nature impacts. Improved company-level disclosure strengthens stewardship, informs capital allocation decisions, and raises baseline expectations across sectors. Engagement can yield high leverage private equity ownership outcomes both through influencing high impact assets and demonstrating innovation and leadership in nature positive privately held equity and credit.

"Private markets offer an opportunity to make investments that advance nature-positive outcomes. Australian Ethical invests across renewables and the circular economy where we can deliver attractive financial risk-adjusted returns whilst also influencing real-world outcomes. These investments expand renewables generation and storage capacity, improving resource efficiency and reducing landfill, and improving environmental outcomes across land, energy, and resource systems.

"Having intent is central to this approach. We work directly with partners and management teams where possible to integrate impact and shape outcomes as asset owners. Combined with stewardship across policy and market settings, this demonstrates how private market ownership can deliver positive outcomes: shaping future-focused assets while also modelling innovation and leadership in nature-positive investment for the wider market."

- Adam Roberts, Australian Ethical Private Markets Investment Lead

Stewardship case study (Australian Ethical Investment)

Australian Ethical Investment (AE) identified livestock-driven deforestation as a primary driver of nature loss in Australia. It targeted the major supermarkets, and agriculture-exposed banks, as key leverage points to influence change.

Since 2021, AE has used collaborative investor engagement forums (including Nature Action 100, Climate Action 100 and the Financial Sector Deforestation Action initiative) to influence Woolworths' deforestation policy, complementing the important work of NGOs and others. Over the engagement period, Woolworths moved from a "no net deforestation" commitment to a "no deforestation commitment" which protects regenerated forests as well as primary forests.

In 2025, AE escalated its multi-year bank engagement on deforestation by co-filing an Australian Conservation Foundation (ACF) shareholder resolution with NAB, building institutional investor support for the resolution through public questioning at NAB's investor sustainability roundtable and speaking at an ACF investor briefing.

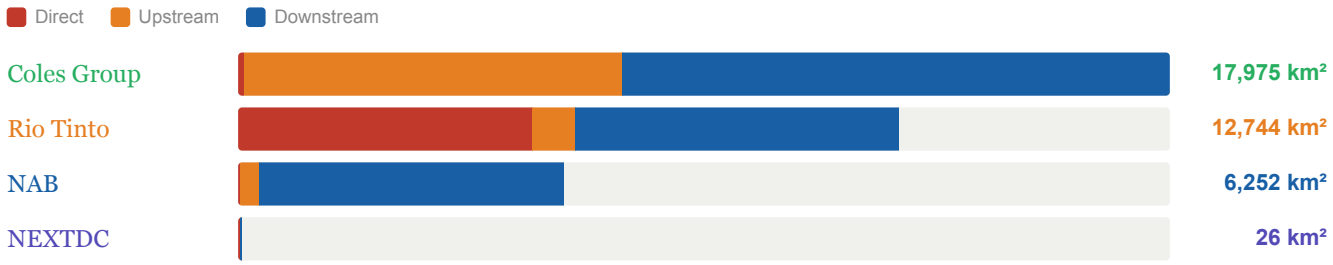


Figure 4. Estimates of direct and value chain nature impact for a few key companies measured using GIST Impact's Land Conversion Equivalent (LCE) index. *While Coles Group Ltd. has a relatively small direct footprint, its reliance on products with large GHG emissions and water use in their supply chain, and high waste in their downstream value chain, mean that their nature impact potentially dwarf even a mining giant such as Rio Tinto, remembering that these are modelled values, not directly measured for each company.*

Understanding impacts across the full value chain

As we have noted, it is challenging to quantify nature impacts across the full value chain, given the current state of value chain knowledge and publicly available data on value chains. Nonetheless, it is possible to utilise Environmentally Extended Input–Output (EEIO) modelling approaches (e.g. EXIOBASE), that draws on sectoral average consumption to estimate value chain impacts for individual companies (Fig. 4). Because these values are modelled rather than derived from specific knowledge of company activity, they should be interpreted as at best indicative of the general direction and relative intensity of impacts. Known structural limitations of EEIO models, such as sectoral aggregation and reliance on secondary data, reinforce the need for improved primary disclosures across value chains.

Based on absolute LCE impacts across the full value chain, Coles Group Ltd. exhibits the highest biodiversity impact profile, with direct impacts of ~93 km², and substantially larger upstream (~7,292 km²) and downstream (~10,590 km²) contributions. This indicates that Coles' biodiversity footprint is predominantly driven by supply chain and consumption-related activities rather than direct operations.

This is followed by Rio Tinto, with a direct impact of ~5,690 km², alongside upstream (~833 km²) and downstream (~6,221 km²) impacts, reflecting its extractive, land-intensive operational model and associated processing and distribution effects.

Agriculture can be a major driver of deforestation and user of freshwater. Image:Jaana Dielenberg

National Australia Bank Ltd. records a relatively low direct impact of ~3 km², but still shows meaningful upstream (~411 km²) and downstream (~5,838 km²) contributions, driven primarily by financed emissions and indirect value chain exposures rather than physical operations.

NEXTDC exhibits the lowest direct operational impact (~14 km²), with upstream (~3 km²) and downstream (~9 km²) impacts primarily linked to energy use and digital infrastructure supply chains. Given the likely very high water use of NEXTDC as an IT company owning data centres, we suspect these numbers may need updating and note the risks data centres can generate in water-stressed ecosystems and communities. These results highlight that biodiversity impacts are not solely determined by operational activity, but are strongly shaped by value chain structure, with retail and consumption-driven systems exhibiting disproportionately large upstream and downstream pressures.

Conclusion

Nature-related risks are increasingly material for Australian companies and investors, with clear implications for business resilience and long term value. While data gaps remain, the direction of risk is unequivocal and supported by evidence across multiple datasets, sectors and methodologies.

Companies should assess their nature-related impacts across projects, value chains and financial portfolios using standardised methods aligned with the TNFD and its LEAP approach. Where material impacts are identified, the mitigation hierarchy provides a high level guide to action, but must be supported by local and expert knowledge about where and how nature impacts are likely to occur and what business transformation opportunities exist to become nature positive.

Investors have a number of levers to address systemic and company-specific nature-related risks. Capital allocation, investor stewardship including using shareholder influence and policy advocacy can drive system-level transitions. Individual company engagement can encourage better corporate reporting on nature-related risks, impacts and dependencies, and support can be provided to help companies understand impacts in the whole value chain, not just in direct operations. Leverage can also arise through direct ownership, engagement in privately held assets, and through the terms of private credit. Corporate support for pro-nature legislation and government investment in nature based solutions and infrastructure are the single most effective response at the systems level. These should be encourage by risk-aware investors.

Companies that delay action face escalating exposure as biodiversity loss undermines supply chains, increases operating constraints and heightens regulatory and reputational risks, while investors that fail to engage risk mispricing assets that are materially exposed to nature degradation. Frameworks such as the TNFD provide a practical pathway to improve understanding and decision making, but the effectiveness of these tools ultimately depends on how they are used. The critical question is no longer whether nature-related risks are financially relevant, but how quickly companies, investors and regulators translate what is already known into concrete action.

An urban development causing habitat loss and fragmentation in south eastern Queensland, Image: Jaana Dielenberg

The site of the last known population of the Critically Endangered Victorian grassland earless dragon was discovered on private property that had been slated for development. Image: Peter Robertson

Endnotes

1 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (E. Brondizio, S. Diaz, J. Settele, & H. T. Ngo, Eds.; Version 1). Zenodo. https://doi.org/10.5281/ZENODO.3831673

2 Creswell, I., Janke, T., & Johnston, E. (2021). Australia State of the Environment 2021: Overview. Department of Agriculture, Water and the Environment. https://doi.org/10.26194/F1RH-7R05

3 Bergstrom, D. M., et. al.. (2021). Combating ecosystem collapse from the tropics to the Antarctic. Global Change Biology, 27(9), 1692–1703. https://doi.org/10.1111/gcb.15539

4 World Economic Forum (WEF). (2024). The global risks report 2024: Insight report (19th ed.). https://www.weforum.org/publications/global-risks-report-2024/

5 Ibid.

6 WEF. (2026). The global risks report 2026: Insight report (21st ed.). https://www.weforum.org/publications/global-risks-report-2026/

7 United Nations Environment Programme (UNEP). (2023). State of finance for nature 2023: The big nature turnaround – Repurposing $7 trillion to combat nature loss. https://wedocs.unep.org/20.500.11822/44278

8 Australia Biodiversity Council. (2024). Identifying and assessing subsidies harmful to biodiversity in Australia. https://biodiversitycouncil.org.au/resources/identifying-and-assessing-subsidies-harmful-to-biodiversity-in-australia

9 https://www.financeforbiodiversity.org/publications/multi-tool-study-assessment-of-the-biodiversity-impacts-and-dependencies-of-globally-listed-companies/

10 IPBES. (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services (S. Díaz, J. Settele, E. S. Brondízio, H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. I. J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, … C. N. Zayas, Eds.; Version summary for policy makers). Zenodo. https://doi.org/10.5281/ZENODO.3553458 IPBES. (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services (S. Díaz, J. Settele, E. S. Brondízio, H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. I. J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, … C. N. Zayas, Eds.; Version summary for policy makers). Zenodo. https://doi.org/10.5281/ZENODO.3553458

11 https://tnfd.global/assessment-guidance/tools-catalogue/

12 https://www.msci.com/data-and-analytics/climate-solutions/nature-and-biodiversity

13 https://www.spglobal.com/sustainable1/en/solutions/nature-and-biodiversity

14 https://www.gistimpact.com/

15 Hickman, S., Cantele, M., Balogh, A., Dyndo, M., Willetts, J., Morgain, R., Geary, W., & Wintle, B. (2025). Making money talk nicely: Biodiversity impact assessment for investors. SSRN. https://doi.org/10.2139/ssrn.5283115

16 https://www.encorenature.org/en

17 https://deepyellow.com.au/sustainability/

18 Boss Energy (2024). Sustainability report 2024. https://bossenergy.com/images/documents/Sustainability_Report_2024.pdf

19 https://www.ltresources.com.au/sustainability/our-esg-approach/developing-natural-resources-responsibly/environment/

20 https://bellevuegold.com.au/sustainability/

21 Hickman, S., Cantele, M., Balogh, A., Dyndo, M., Willetts, J., Morgain, R., Geary, W., & Wintle, B. (2025). Making money talk nicely: Biodiversity impact assessment for investors. SSRN. https://doi.org/10.2139/ssrn.5283115

22 Kuipers, K. Jj., Melki, A., Morel, S., & Schipper, A. M. (2025). Relationships between mean species abundance (MSA) and potentially disappeared fraction of species (PDF) are consistent but also uncertain. Environmental and Sustainability Indicators, 26, 100652. https://doi.org/10.1016/j.indic.2025.100652 Kuipers, K. Jj., Melki, A., Morel,

S., & Schipper, A. M. (2025). Relationships between mean species abundance (MSA) and potentially disappeared fraction of species (PDF) are consistent but also uncertain. Environmental and Sustainability Indicators, 26, 100652. https://doi.org/10.1016/j.indic.2025.100652

23 Appendix: https://biodiversitycouncil.org.au/resources/appendices-cracking-the-code-using-nature-data-to-understand-the-impact-of-the-asx-200

24 Taskforce on Nature-related Financial Disclosures (TNFD). (2025). Evidence review on the financial effects of nature-related risks. https://tnfd.global/publication/evidence-financial-effects-of-nature-related-risks/

25 Maron, M., Quétier, F., Sarmiento, M., Ten Kate, K., Evans, M. C., Bull, J. W., Jones, J. P. G., Zu Ermgassen, S. O. S. E., Milner-Gulland, E. J., Brownlie, S., Treweek, J., & Von Hase, A. (2023). 'Nature positive' must incorporate, not undermine, the mitigation hierarchy. Nature Ecology & Evolution, 8(1), 14–17. https://doi.org/10.1038/s41559–023–02199–2

26 White, T. B., Bromwich, T., Bang, A., Bennun, L., Bull, J., Clark, M., Milner-Gulland, E. J., Prescott, G. W., Starkey, M., Zu Ermgassen, S. O. S. E., & Booth, H. (2024). The "nature-positive" journey for business: A conceptual research agenda to guide contributions to societal biodiversity goals. One Earth, 7(8), 1373–1386. https://doi.org/10.1016/j.oneear.2024.07.003

27 TNFD. (2023). Guidance on the identification and assessment of nature-related issues: The LEAP approach (Version 1.1). https://tnfd.global/wp-content/uploads/2023/08/Guidance_on_the_identification_and_assessment_of_nature-related_Issues_The_TNFD_LEAP_approach_V1.1_October2023.pdf

28 Smith, G. S., Ascui, F., O'Grady, A. P., & Pinkard, E. (2024). Indicators for measuring and reporting corporate nature-related impacts, dependencies, and risks. Environmental and Sustainability Indicators, 22, 100351. https://doi.org/10.1016/j.indic.2024.100351

29 Department of Climate Change, Energy, the Environment and Water (2025). Investing in nature. https://www.dcceew.gov.au/environment/environmental-markets/investing-in-nature

30 https://company-announcements.afr.com/asx/nxt/f209311f-83e1–11f0–8c97–9ec1d8f4dacb.pdf

31 Baggaley, S., Johnston, M., Dimitrijevic, J., Le Guen, C., Howard, P., Murphy, L., Booth, H., & Starkey, M. (2013). Nature positive for business: Developing a common approach. International Union for Conservation of Nature. https://portals.iucn.org/library/node/51299

32 Ibid.

33 Maron, M., Quétier, F., Sarmiento, M., Ten Kate, K., Evans, M. C., Bull, J. W., Jones, J. P. G., Zu Ermgassen, S. O. S. E., Milner-Gulland, E. J., Brownlie, S., Treweek, J., & Von Hase, A. (2023). 'Nature positive' must incorporate, not undermine, the mitigation hierarchy. Nature Ecology & Evolution, 8(1), 14–17. https://doi.org/10.1038/s41559–023–02199–2

34 Maron, M., Evans, M. C., & zu Ermgassen, S. (2023). 'Nature positive' isn't just planting a few trees – it's actually stopping the damage we do. The Conversation. https://theconversation.com/nature-positive-isnt-just-planting-a-few-trees-its-actually-stopping-the-damage-we-do-213075

35 White, T. B., Bromwich, T., Bang, A., Bennun, L., Bull, J., Clark, M., Milner-Gulland, E. J., Prescott, G. W., Starkey, M., Zu Ermgassen, S. O. S. E., & Booth, H. (2024). The "nature-positive" journey for business: A conceptual research agenda to guide contributions to societal biodiversity goals. One Earth, 7(8), 1373–1386. https://doi.org/10.1016/j.oneear.2024.07.003

36 Ibid.

37 Hickman, S., Cantele, M., Balogh, A., Dyndo, M., Willetts, J., Morgain, R., Geary, W., & Wintle, B. (2025). Making money talk nicely: Biodiversity impact assessment for investors. SSRN. https://doi.org/10.2139/ssrn.5283115

38 Layman, H., Akçakaya, H. R., Irwin, A., Zu Ermgassen, S., Addison, P., & Burgman, M. (2024). Short-term solutions to biodiversity conservation in portfolio construction: Forward-looking disclosure and classification-based metrics. Business Strategy and the Environment, 33(3), 1778–1793. https://doi.org/10.1002/bse.3570

Biodiversity Council

The Biodiversity Council brings together leading experts including Indigenous Knowledge holders to promote evidence-based solutions to Australia's biodiversity crisis. It was founded by 11 universities: The University of Melbourne, The University of Western Australia, The Australian National University, The University of Adelaide, The University of Sydney, The University of Queensland, Deakin University, The University of Canberra, Monash University, Macquarie University, and The University of New South Wales. It is host by The University of Melbourne. It receives support from The Ian Potter Foundation, The Ross Trust, Trawalla Foundation, The Rendere Trust, Isaacson Davis Foundation, Coniston Charitable Trust and Angela Whitbread.

Image: Koalas are one of many species that have been strongly impacted by landclearing for agriculture and urban development. Photo by Vince Russell on Unsplash