

Integrating biodiversity into a risk assessment framework

Moody's ESG Solutions Group

Bringing quality, rigor and consistency to the most comprehensive spectrum of capabilities serving core segments as the economy greens

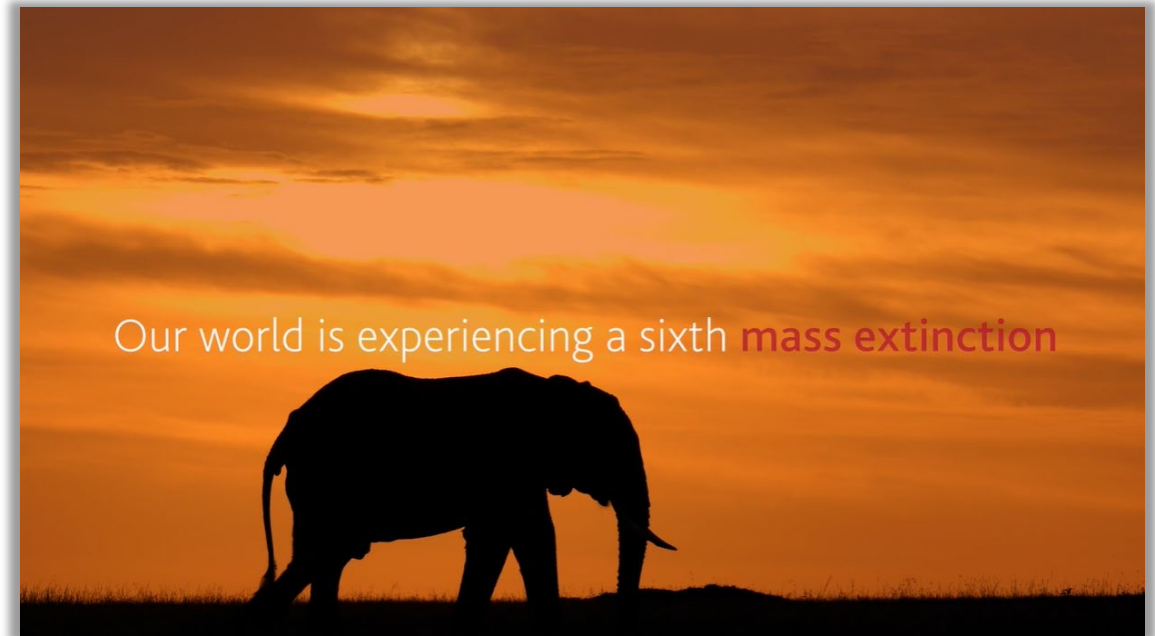
- » Brings together over 30 years of ESG expertise to meet rapidly evolving needs
- » Delivers data, analytics and insight to further enhance best-in-class risk assessment capabilities from MIS and MA



Serving risk management, equity and credit markets

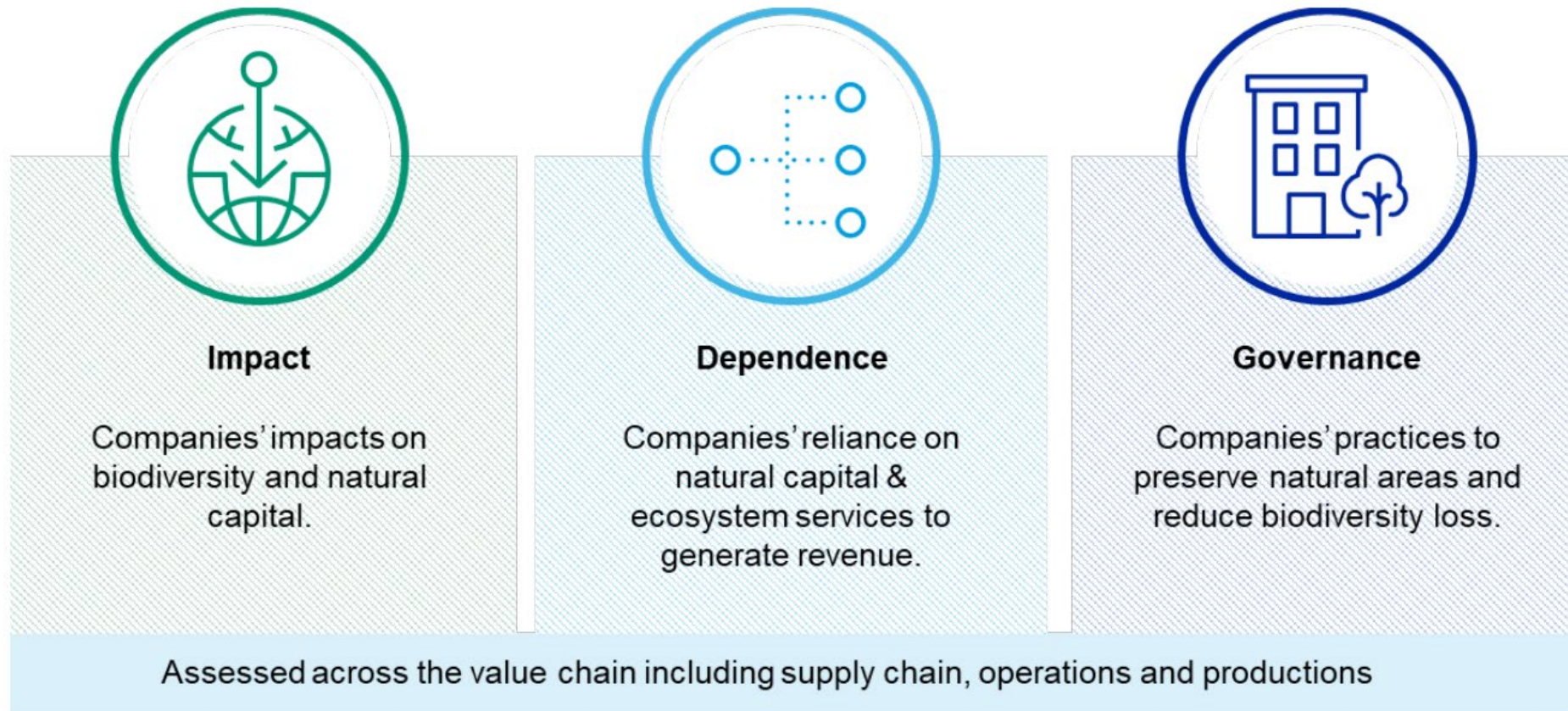
Biodiversity-related risks in the spotlight

- » Nature declining at unprecedented rates
- » Decreasing biodiversity has cascading global implications – climate change, disease, poverty
- » Economic and financial decision-making have not traditionally priced in the value of nature
- » Policymakers globally are beginning to incorporate biodiversity into reporting requirements
- » Industry-led TNFD will develop a framework for biodiversity-related reporting and governance



Source: [Moody's ESG Solutions](#)

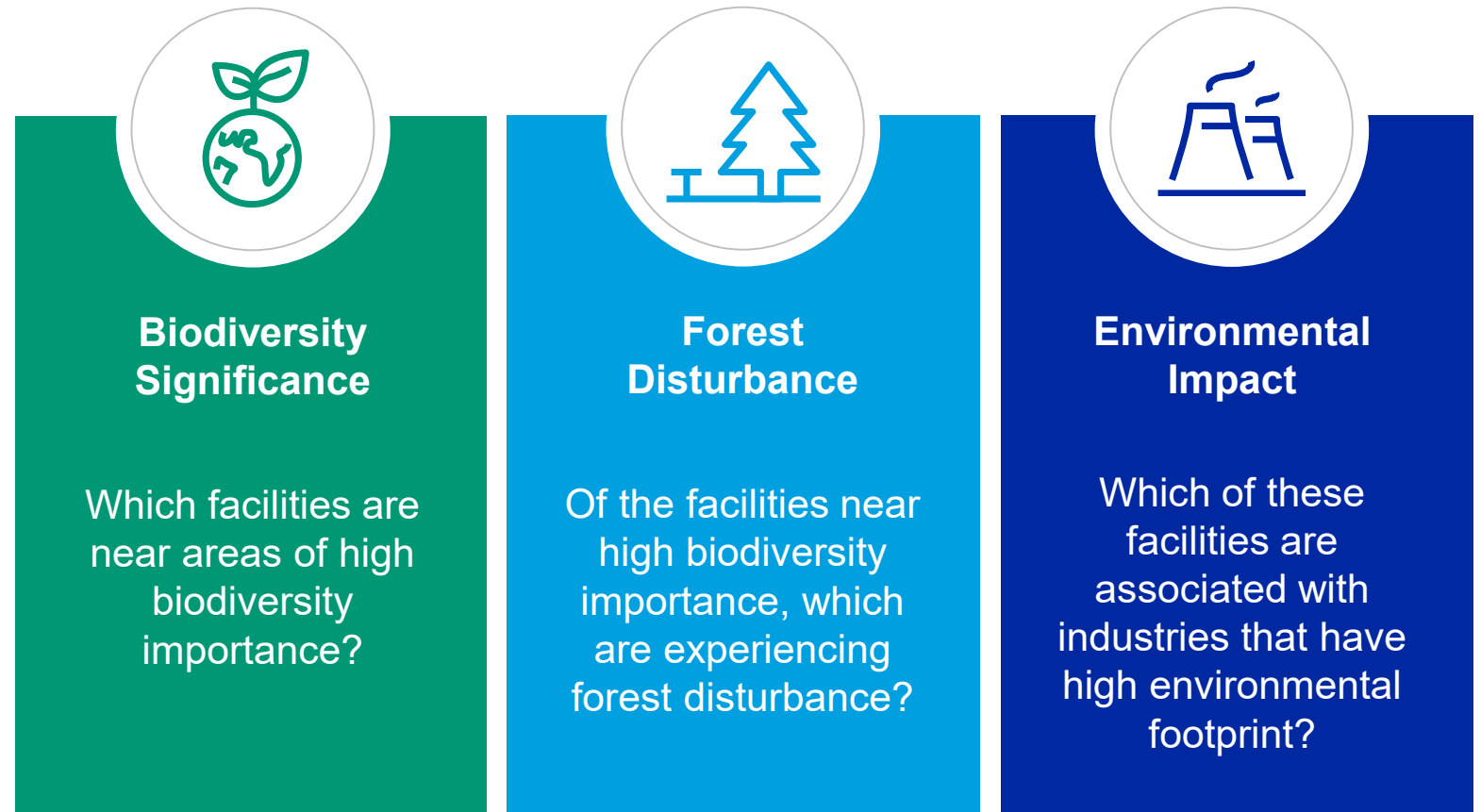
Our framework for assessing biodiversity-related risks



Source: [Integrating biodiversity into a risk assessment framework](#). Moody's ESG Solutions, May 26, 2021

Measuring impact: our habitat loss indicator

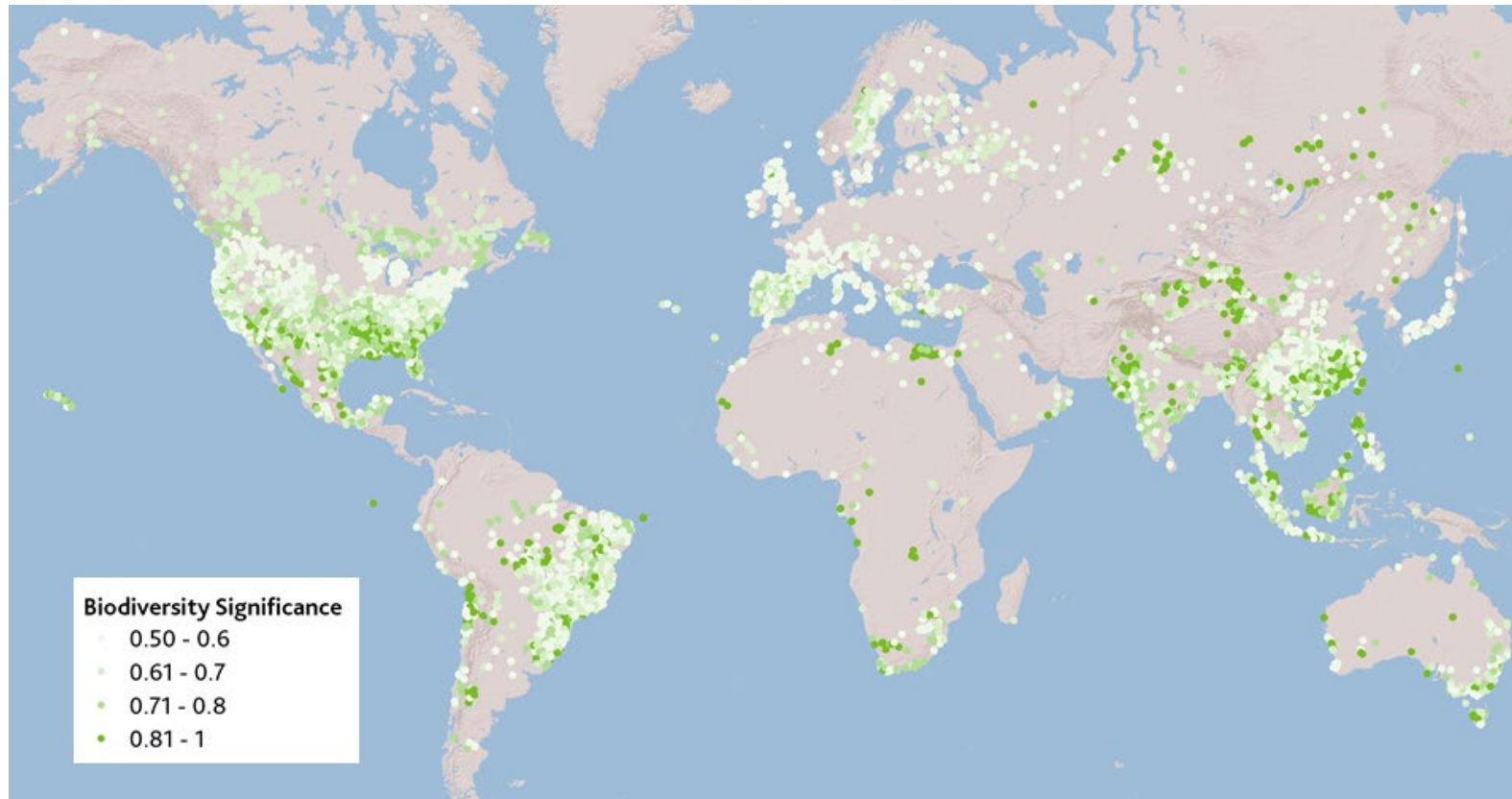
- » We overlay remote sensing data with corporate facility location data to determine which companies have sites/operations located in or near areas of high biodiversity significance where activities of those companies may negatively affect those areas
- » Run facilities through three filters
- » Not a direct measurement of a specific facility's impact



Source: Moody's ESG Solutions

Measuring impact: our habitat loss indicator

Estimated 38% of assessed 5,300 global companies have at least one facility associated with habitat loss



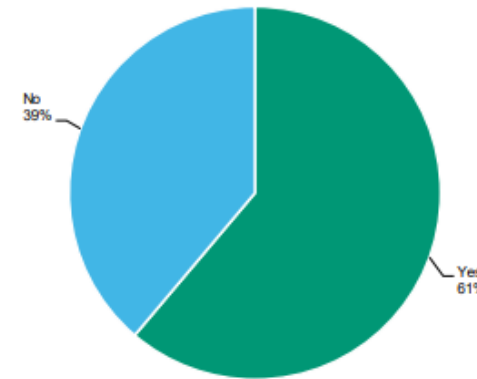
- » Facilities associated with habitat loss colored by the biodiversity significance of their location
 - Darker green facilities are those in locations with higher biodiversity significance, based on species composition and habitat quality
 - Lighter facilities in areas of lower, although still high, levels of biodiversity significance
- » Biodiversity significant values range from 0-1, signifying share of similar habitats that are in poorer condition based on human interference
 - Locations with a value >0.5 are in better condition than over half of similar habitats
 - Values >0.5 considered pass first screening for facility to be associated with habitat loss

Source: Moody's ESG Solutions

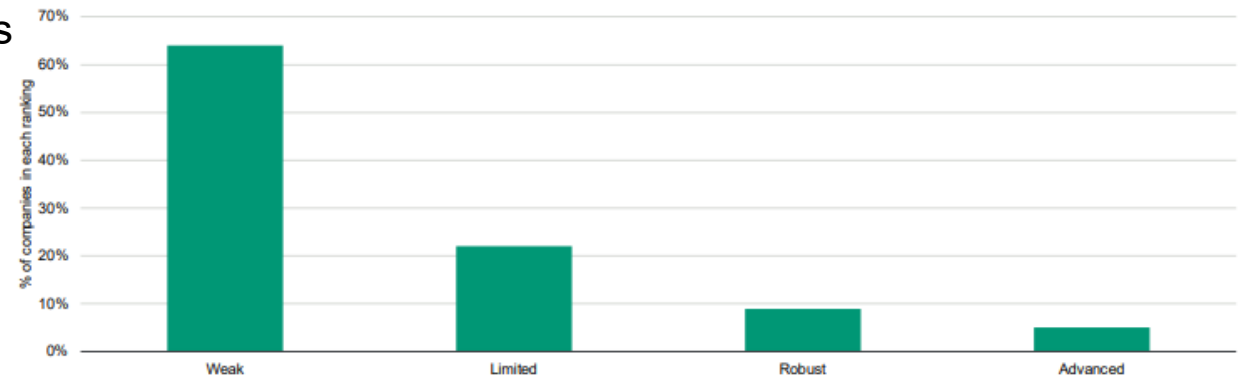
Assessing governance: heavy construction case study

- » We review corporate disclosures, questionnaire responses and public information to identify:
 - Commitments to reduce biodiversity loss
 - Measures companies have implemented
- » Key findings – heavy construction companies:
 - 61% disclose commitments to address biodiversity.
 - 64% of these companies rank as “weak” in terms of implementation, less than 10% are “robust” and only 5% “advanced”

Percent of assessed heavy construction companies that disclose biodiversity-related commitments



Ranking of assessed heavy construction companies based on disclosures of implemented biodiversity-related measures



Source: Moody's ESG Solutions

Assessing governance: biodiversity controversies

- » We identified 337 biodiversity-related controversies from December 2016-April 2021, representing 7% of total assess controversies
- » 53% of assessed biodiversity controversies are in the Mining and Metals, Food and Energy sectors
- » 93% of biodiversity controversies are considered high or significant in terms of their scale and scope

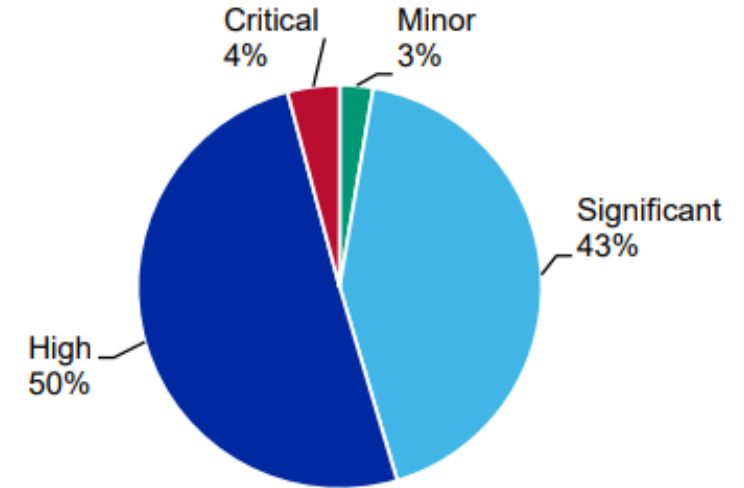


Table 1 Number of biodiversity-related controversies by sector since December 2016

SECTOR	NUMBER OF CASES	% OF BIODIVERSITY CASES	NUMBER OF COMPANIES
Mining & Metals	71	21.1	36
Food	67	19.9	26
Energy	40	11.9	27
Electric & Gas Utilities	15	4.5	13
Chemicals	14	4.2	9
Oil Equipment & Services	12	3.6	10
Home Construction	12	3.6	6
Diversified Banks	10	3	10

Source: [Controversy risk assessment: a focus on biodiversity](#). Moody's ESG Solutions, May 27 2021

Future research

- » Add a **measure of severity of impact** to the Habit Loss Indicator (rather than binary filtration)
- » Integrate **additional datasets** to inform Impact indicators:
 - Remote sensing proxies for biodiversity
 - Species richness and critically endangered species
 - Supply chain data
- » **Expand governance assessment framework** to include sector specific measures, such as biodiversity certified forests



Q&A



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