



Business impact metric for  
biodiversity

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# Aims

- To bring together ***companies and investors*** who want to understand their impacts
- To ***co-develop metrics*** that are influential in decision making, practical to use and meaningful across the value chain





# Biodiversity impact metric

## Impact on Biodiversity

$$= \text{land area} \times$$

(impact on biodiversity **quantity** x  
impact on biodiversity **quality**)

$$= \text{land area} \times (\text{quantity} \ \& \ \text{quality})$$

# Biodiversity impact metric

## Impact on Biodiversity

= land area x (quantity & quality)

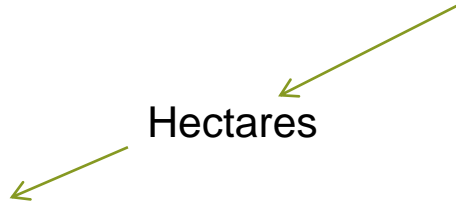
### Key assumptions:

1. The metric focusses solely on the impact of agricultural practices;
2. Impact is based solely on the land required for production;
3. All crop types have the same impact under the same intensity;
4. All livestock types have the same impact under the same intensity;
5. Freely available biodiversity data will be coarse scale.

# Impact on Biodiversity

= land area x (quantity & quality)

Hectares



Calculated using:

- Company data on **quantity of purchased raw materials**
- Company data **on sourcing location**
- **Yield** data (company or external data)

# Impact on Biodiversity

= land area x (**quantity** & quality)

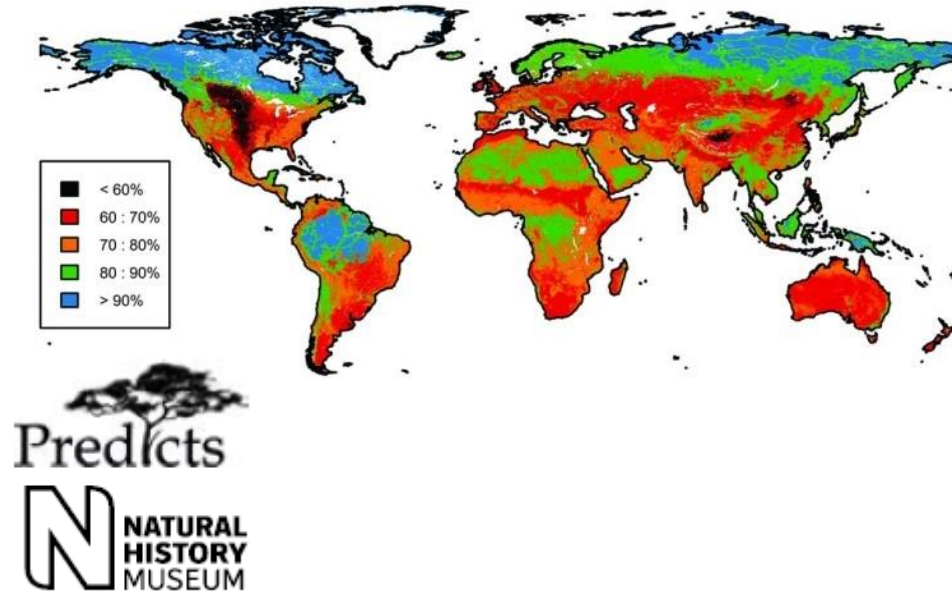
Calculated using the  
Biodiversity Intactness Index

Company input needed to determine:

- **Land use type**
- **Land use intensity**

# Impact on biodiversity: Biodiversity quantity

- Biodiversity Intactness Index
  - Species richness under different land use classes, relative to a pristine environment
- Modelled using species data from PREDICTS database (3 million records from > 50,000 species)



# Impact on biodiversity: Biodiversity quantity

## Land use type

&

## Land use intensity

1. Primary vegetation
2. Recovering/secondary vegetation
3. Plantation forest  
(i.e. timber, fruit, oil-palm or rubber)
4. Cropland (i.e. wheat, rice, cotton)
5. Pasture (i.e. meat, milk, wool)
6. Urban

1. Minimal use
2. Light use
3. Intense use

# Impact on Biodiversity

= land area x (quantity & **quality**)

Calculated using globally available datasets to establish biodiversity context

Company input needed to determine:

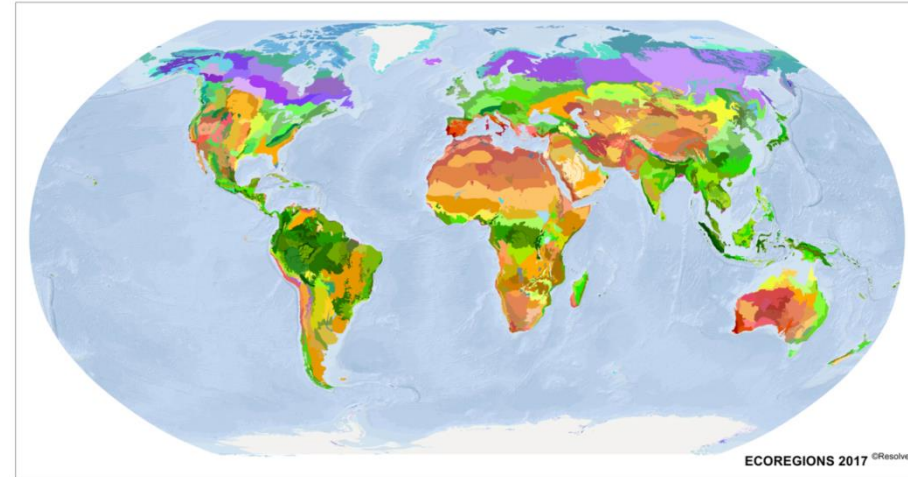
- **Sourcing location**

## Impact on biodiversity: Biodiversity quality

- Weight impact according to the biodiversity importance of the source location.

*Step 1:* Sourcing location is attributed to a particular **ecoregion**:

- Large units of land with distinct assemblage of natural communities and species.

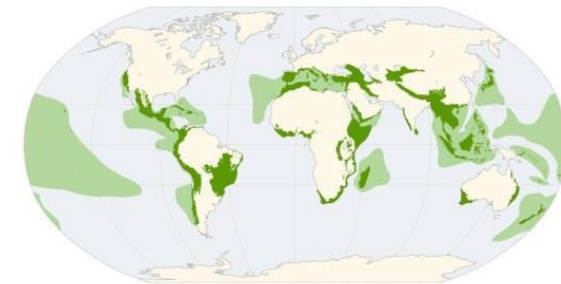
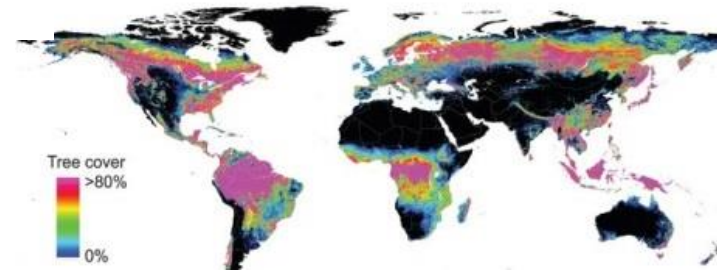


Ecoregion selected

# Impact on biodiversity: Biodiversity quality

Step 2: What is the biodiversity quality of that ecoregion?

- Composite index based on:
  - Average proportion of tree cover in the year 2000 (per 10km<sup>2</sup>)<sup>a</sup>
  - Proportion covered by a biodiversity hotspot<sup>b</sup>
  - Calculated by taking the mean of two values.



Biodiversity Hotspots  
hotspot area  
outer limit



Biodiversity context coefficient



## Approach to include biodiversity friendly activities

- There are a number of possible activities not included in the current framework
- E.g. direct management and use of non-lethal deterrents, wildlife friendly fencing, avoidance of poison, record keeping, no invasive plants, targeted pesticide use.

# Approach to include biodiversity friendly activities



## Impact on Biodiversity

= land area x (quantity & quality)

x *coefficient for local biodiversity impact*

# Case study: Australian sheep wool

## Impact on Biodiversity

= land area x (quantity & quality)

Hectares

Calculated using company data on:

- **Quantity of purchased raw materials** (tons/year)
- **Yield** (tons/animal)
- **Land required** (hectares/animal)

4,806.2 hectares

Biodiversity loss coefficient

Calculated using:

- **Biodiversity Intactness Index**

- Land use type: **Pasture**
- Land use intensity: **Light**

0.294

Biodiversity context coefficient

Calculated using:

- **Sourcing location**
- **Ecoregion map**
- **% Tree cover**
- **Biodiversity hotspots**

0.59

×

×

**= 834 hectare equivalents**

## Comparing impacts on biodiversity

Raw material	Sourcing location	Land area (hectares)	Impact on biodiversity quantity	Impact on biodiversity quality	Total impact
Sheep wool	New Zealand	81.48	0.371	0.85	<b><u>26</u></b>
Sheep wool	Australia	4,806.2	0.294	0.59	<b><u>834</u></b>
Cashmere	China	9,240	0.371	0.3	<b><u>1,028</u></b>
Cashmere	Mongolia	6,200	0.218	0	<b><u>0</u></b>

**TOTAL=1888 ha equivalents**

## Key takeaways

1. The methodology works, we can use it
2. It is providing us with reasonable results
3. It highlighted that we need more diversity of data for the quality coefficient
4. We need more testing!!

## What can a company do with these results?

- How can a company reduce its impact on biodiversity?
  1. Reduce tons purchased
  2. Increase yield
  3. Reduce land use intensity
  4. Change sourcing location
- In reality each of these are difficult to do
- The best area to focus are on practices that reduce “land use intensity”

Thank you

Any questions?

