

CRITICAL RAW MATERIAL OVERLAP WITH PROTECTED AREAS BY COUNTRY AND COMMODITY

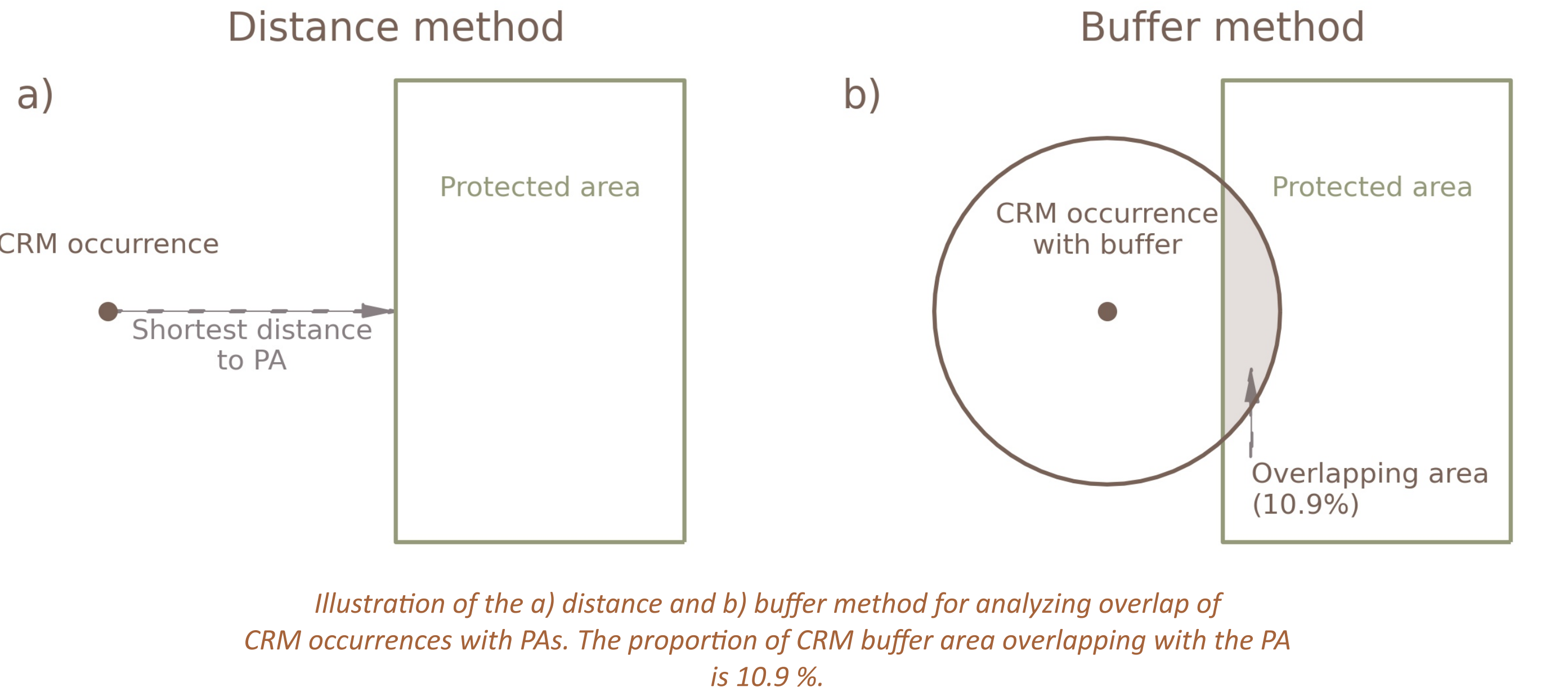
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Introduction

Mining for raw materials is crucial for society, but it can conflict with preserving biodiversity in protected areas (PAs). As demand for raw materials grows, especially those deemed critical (CRMs, European Commission 2023), there is increasing pressure to extract resources from protected lands. PAs currently cover approximately 24 % of the land area in European Union (EU) countries. Consequently, any raw material occurrence on land can be expected to coincide, at least to some extent, with PAs. However, there are differences between EU countries in terms of PA coverage. Furthermore, different CRMs might have different spatial coincidence with PAs.

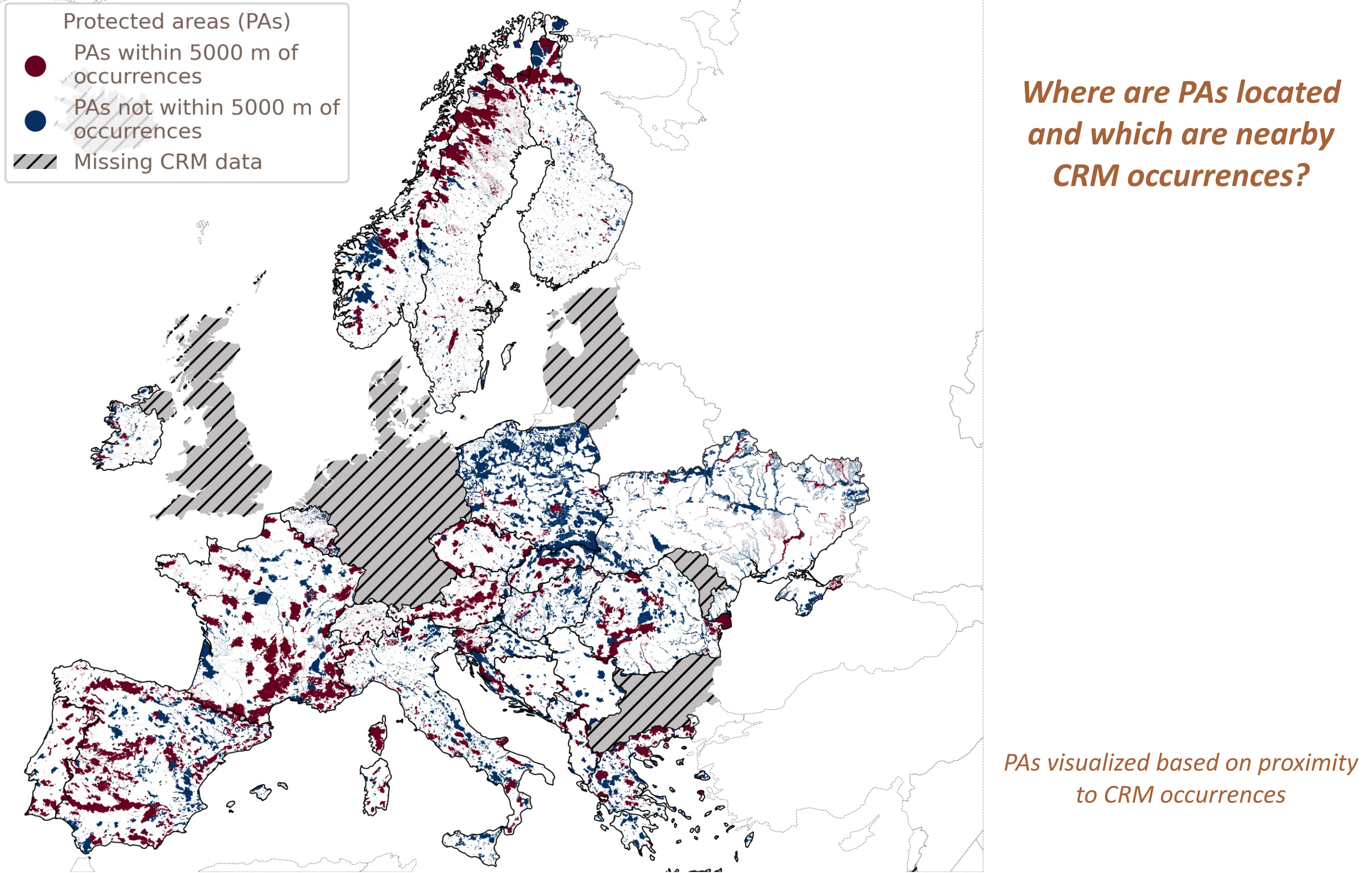
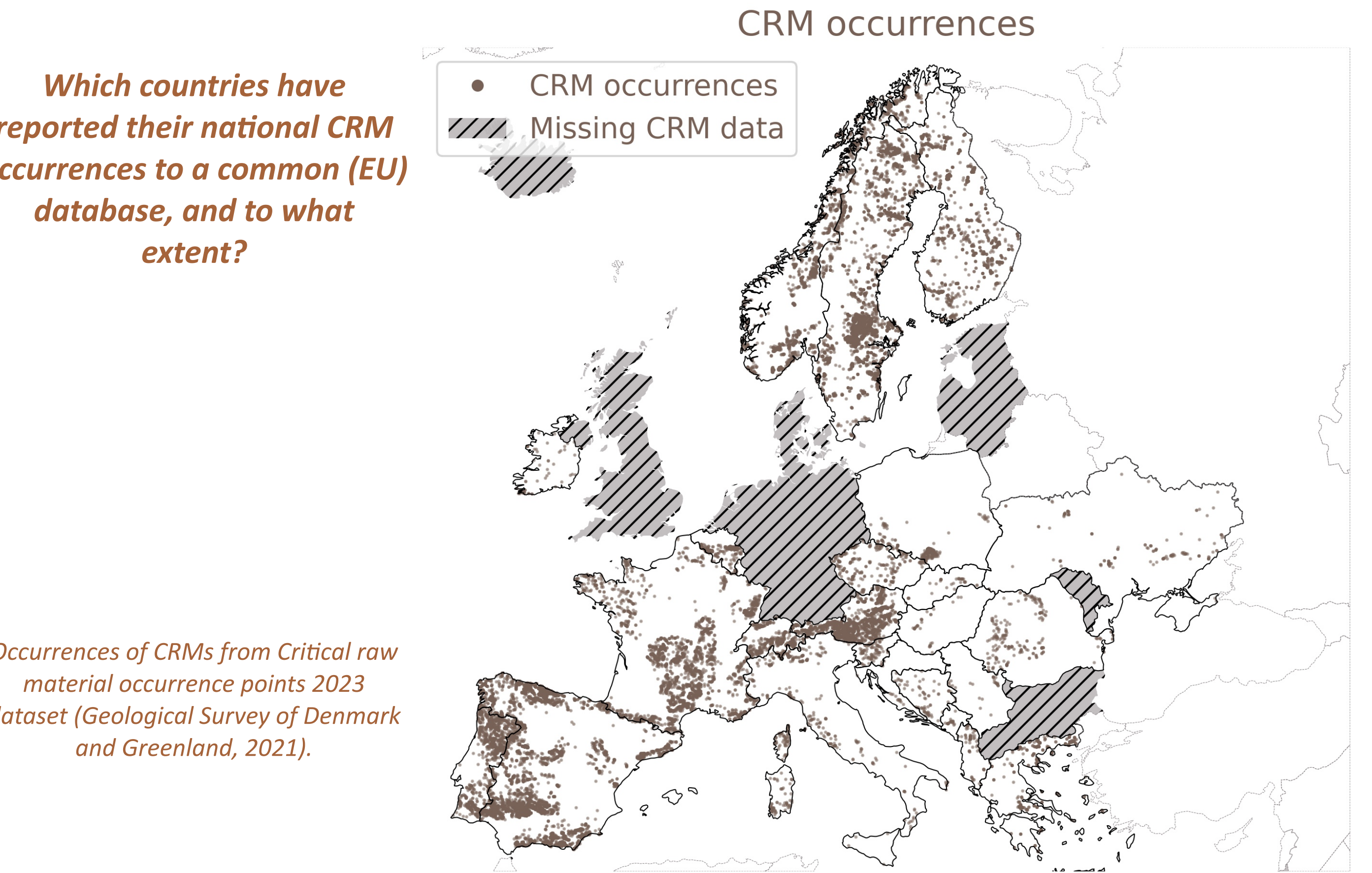
Within the Critical Raw materials extraction in environmentally protected areas (CIRAN) -project, we provide comparable information on the overlap between CRMs and PAs (Natura 2000, Emerald Network and Nationally designated PAs [CDDA]) in an European wide scale which should be taken into account by, e.g., regulators to provide realistic guidelines for raw material extraction. Consequently, we have conducted a spatial analysis of overlap between CRMs and PAs in Europe where individual countries and CRM commodities can be compared in terms of how much they overlap with each other.

Methods for analyzing overlap between CRMs and PAs



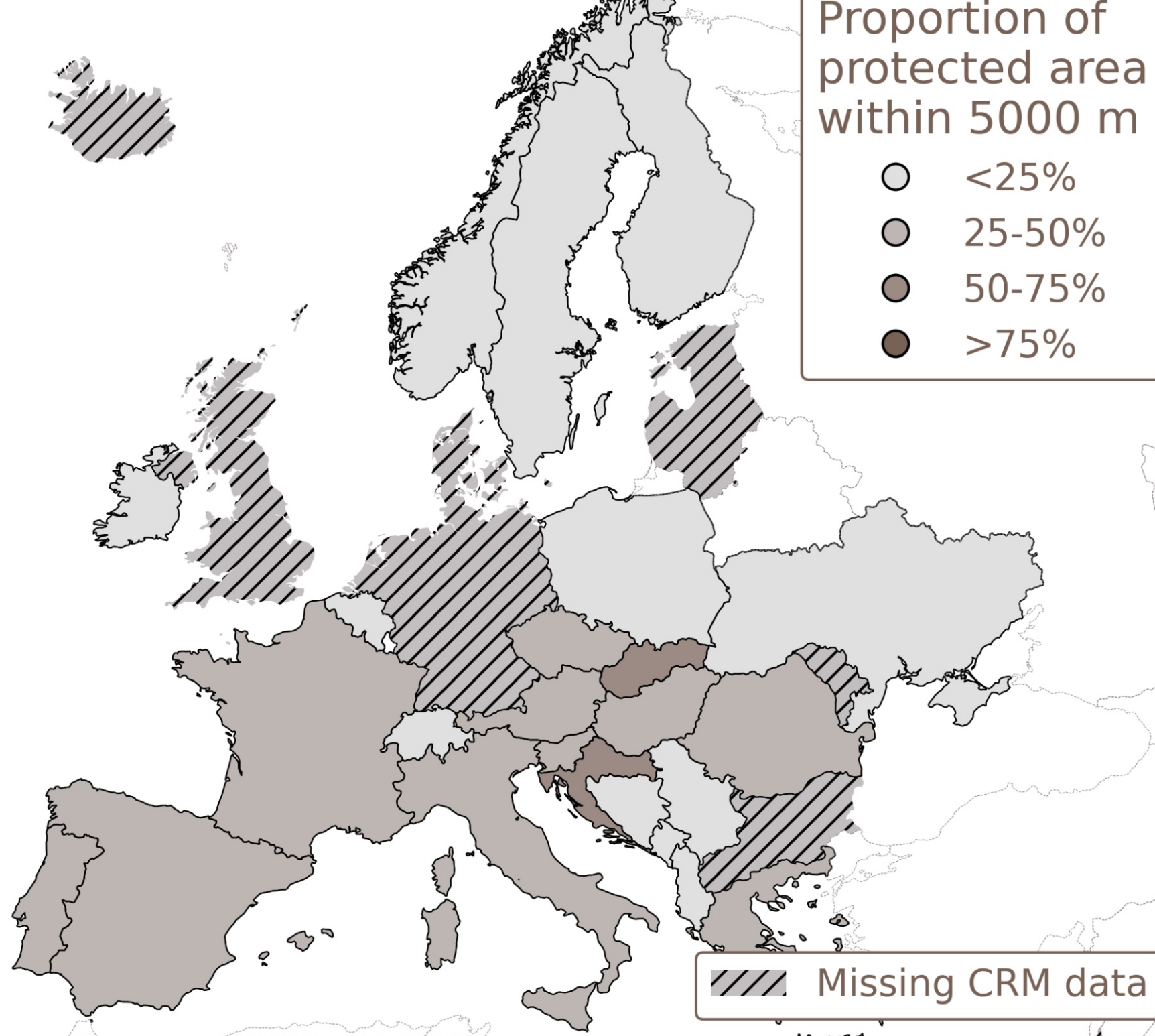
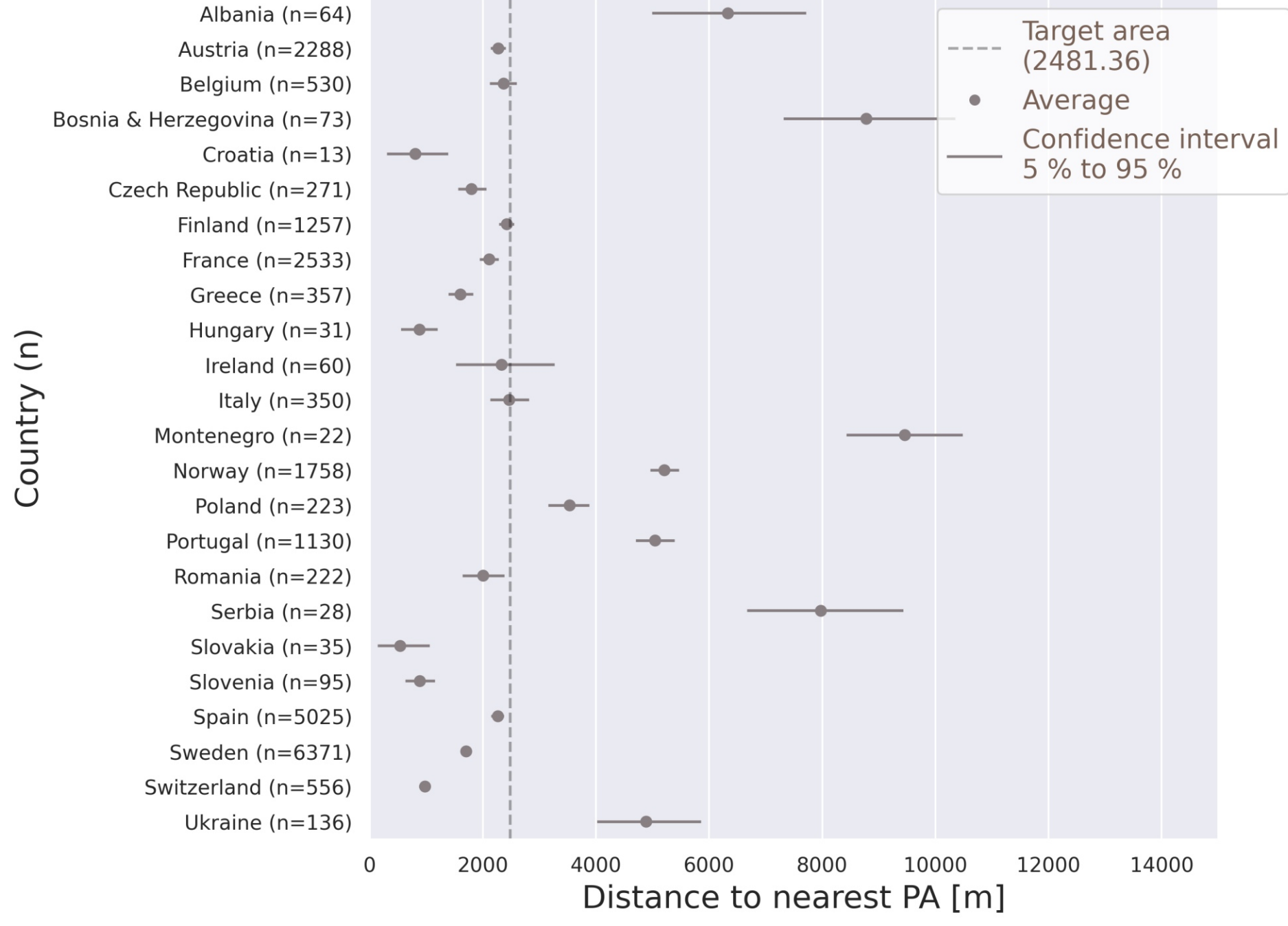
Results

Which countries have reported their national CRM occurrences to a common (EU) database, and to what extent?



How do countries differ in terms of average distance from CRM occurrences to nearest PA?

Distance to nearest PA for each country and the entire target area in meters. The "n" in parenthesis for each country indicates the CRM occurrence count. The target area (=all countries) value is indicated both by the dashed vertical line and in parenthesis in the legend. The dot indicates average for the country. The line range indicates the confidence interval between 5 % and 95 %.

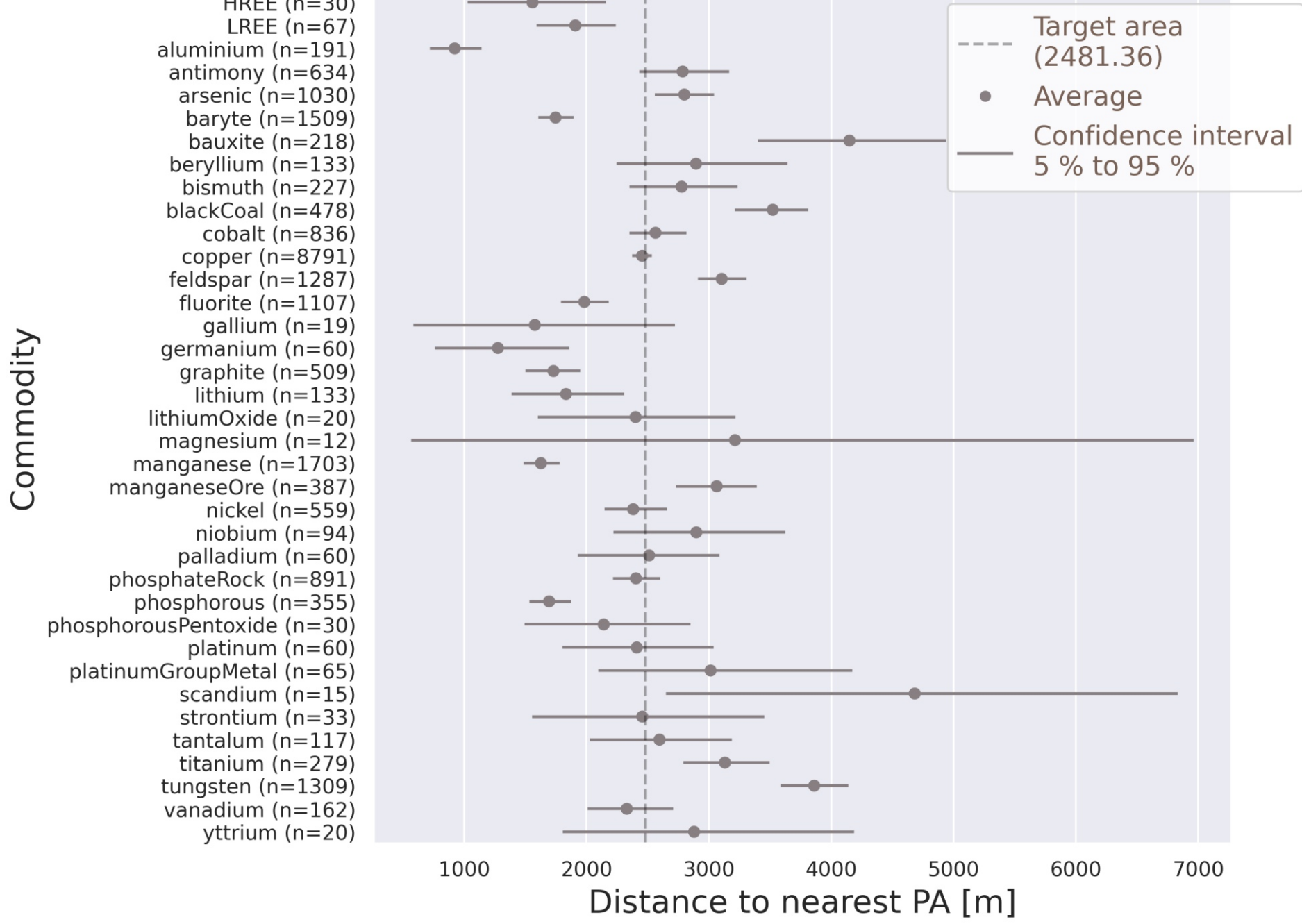


How do countries differ in terms of how much area PAs cover near CRM occurrences?

Average proportion of PA within a 5 km buffer around CRM occurrences for each country. (0 % = They cover none of the area; 100 % = They cover all of the area)

How do commodities differ in terms of average distance from CRM occurrences to nearest PA?

Distance to nearest PA for each CRM commodity and the entire target area. See figure for countries above for symbol explanations.



Key takeaways

- Critical raw material occurrences are often in close proximity to protected areas (Natura 2000, Emerald Network or CDDA)
- Approximately 84 % of the CRM occurrences are within 5000 m of the nearest protected area
- This finding must be considered in the implementation of both the EU biodiversity strategy for 2023 and the Critical Raw Materials Act (CRMA) as it presents the unavoidable requirement for extractive projects and environmental conservation areas to coexist

References

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