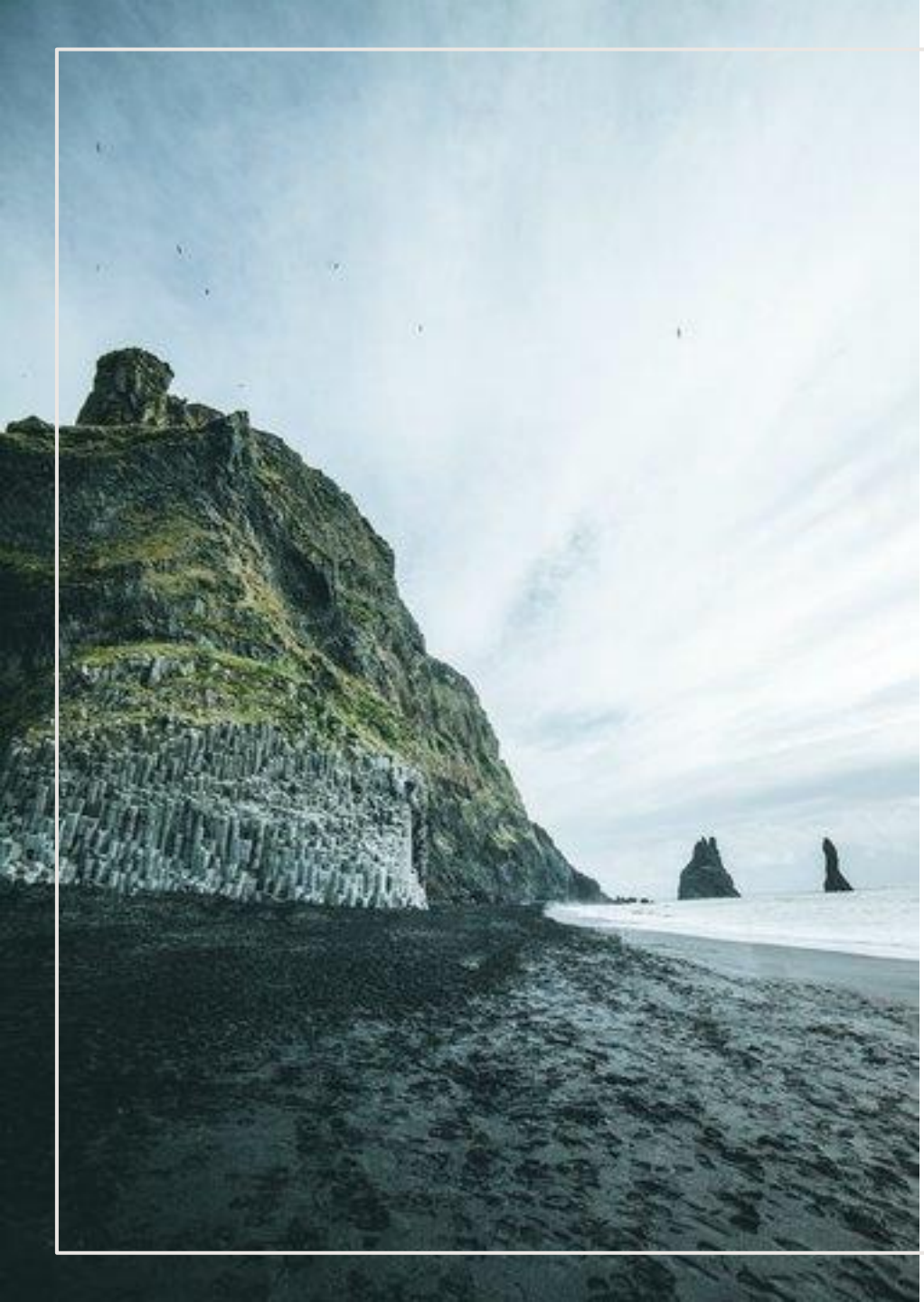


proteus

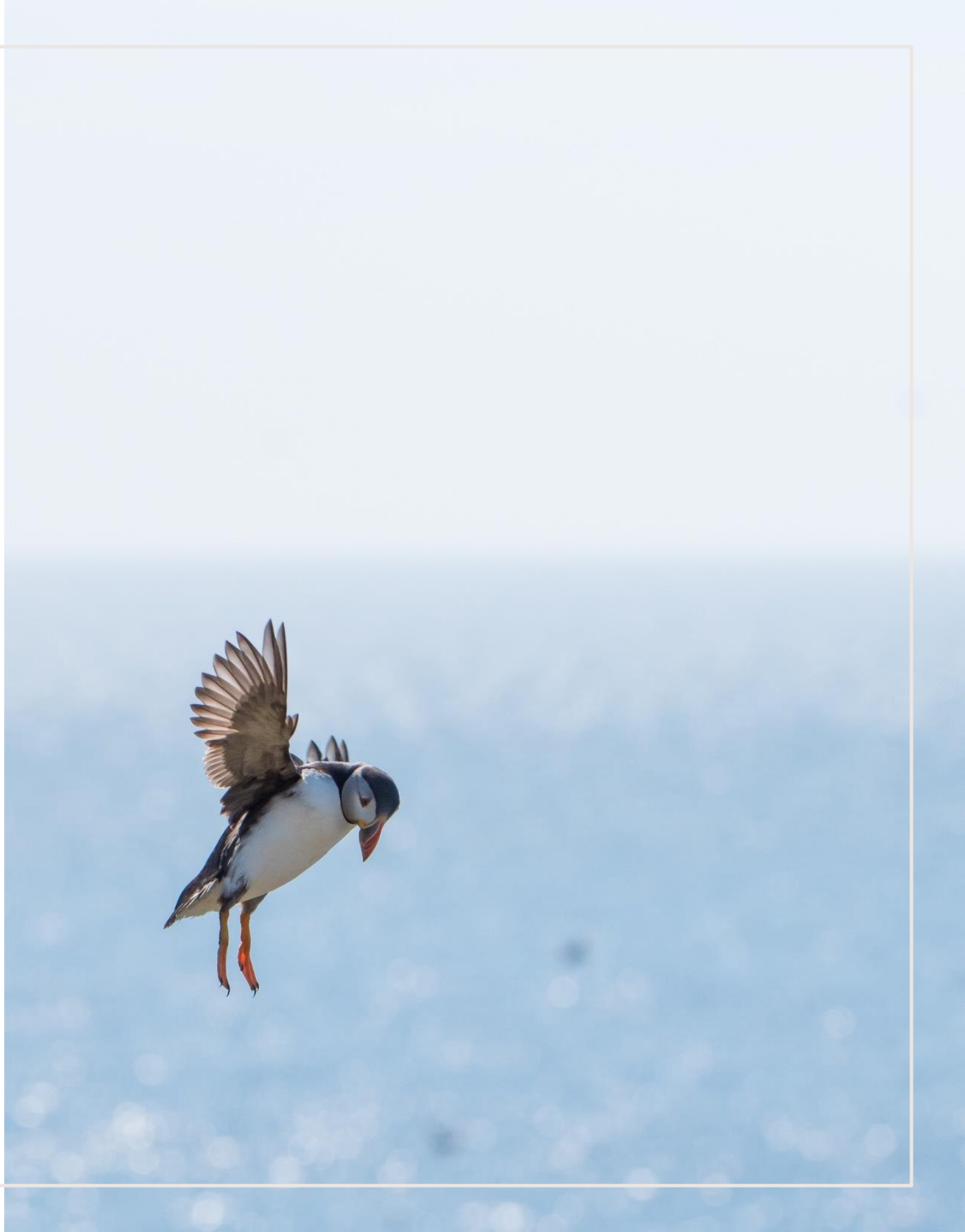
Area of Influence

Defining buffers for site-level screening of biodiversity exposure

2021

Background

- Many regulatory drivers require the estimation of the Area of Influence of sites
- Understanding the appropriate buffers to apply in different contexts during risk screening is relevant for many decision making contexts
- Currently, quantitative guidance is lacking on how to define AoI



The components of an Area of Influence

1. Physical facility or activity footprint

2. Direct impacts (stemming from the site)

3. Indirect and induced impacts

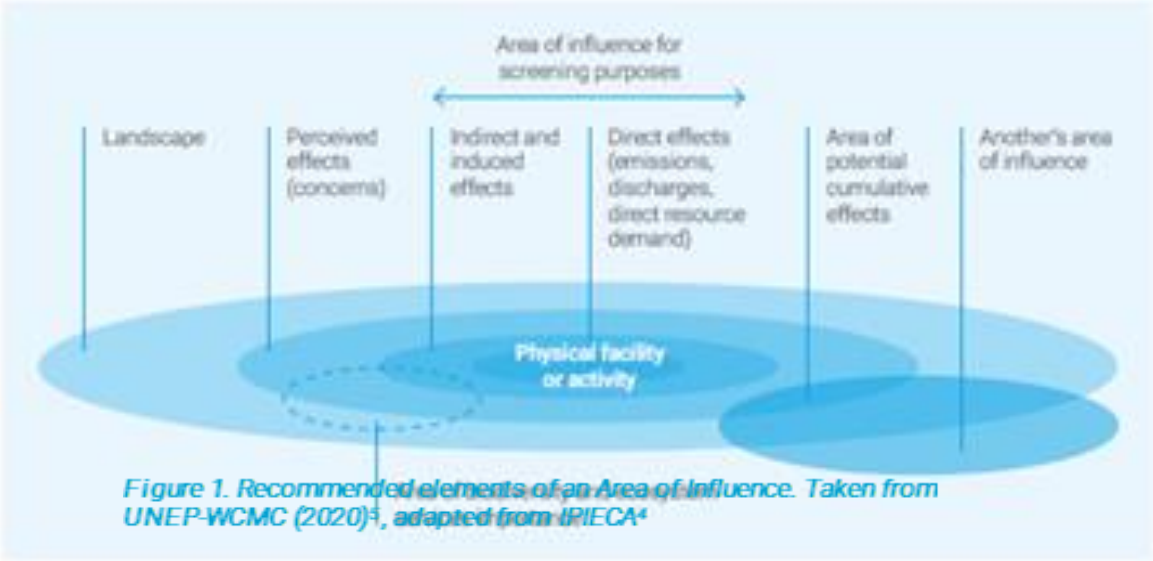


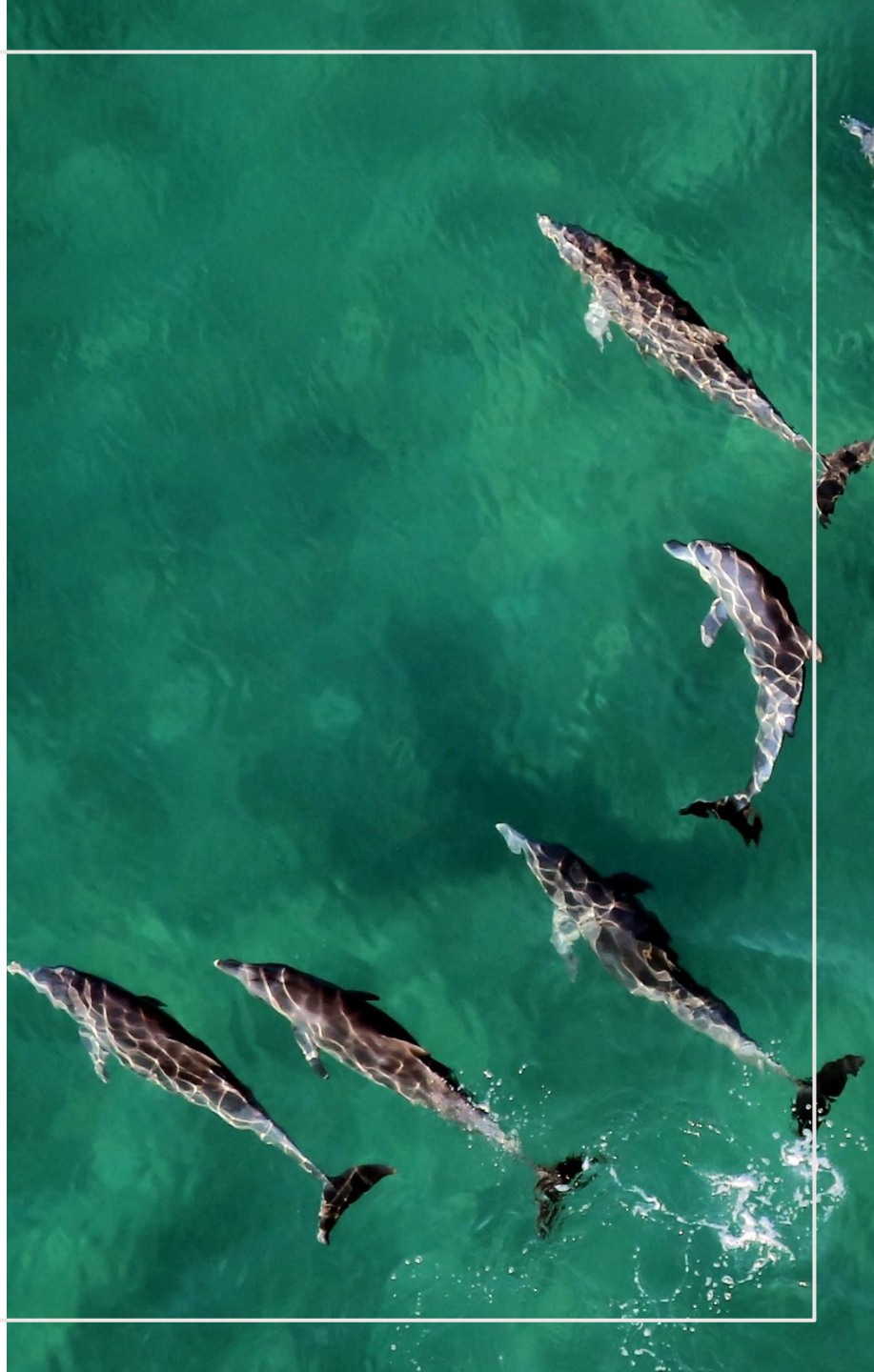
Figure 1. Recommended elements of an Area of Influence. Taken from UNEP-WCMC (2020)[3], adapted from IPIECA[4]

Recommended components of an Area of Influence, Taken from UNEP WCMC (2020), adapted from IPIECA (2015)

Direct Impacts

Methodology

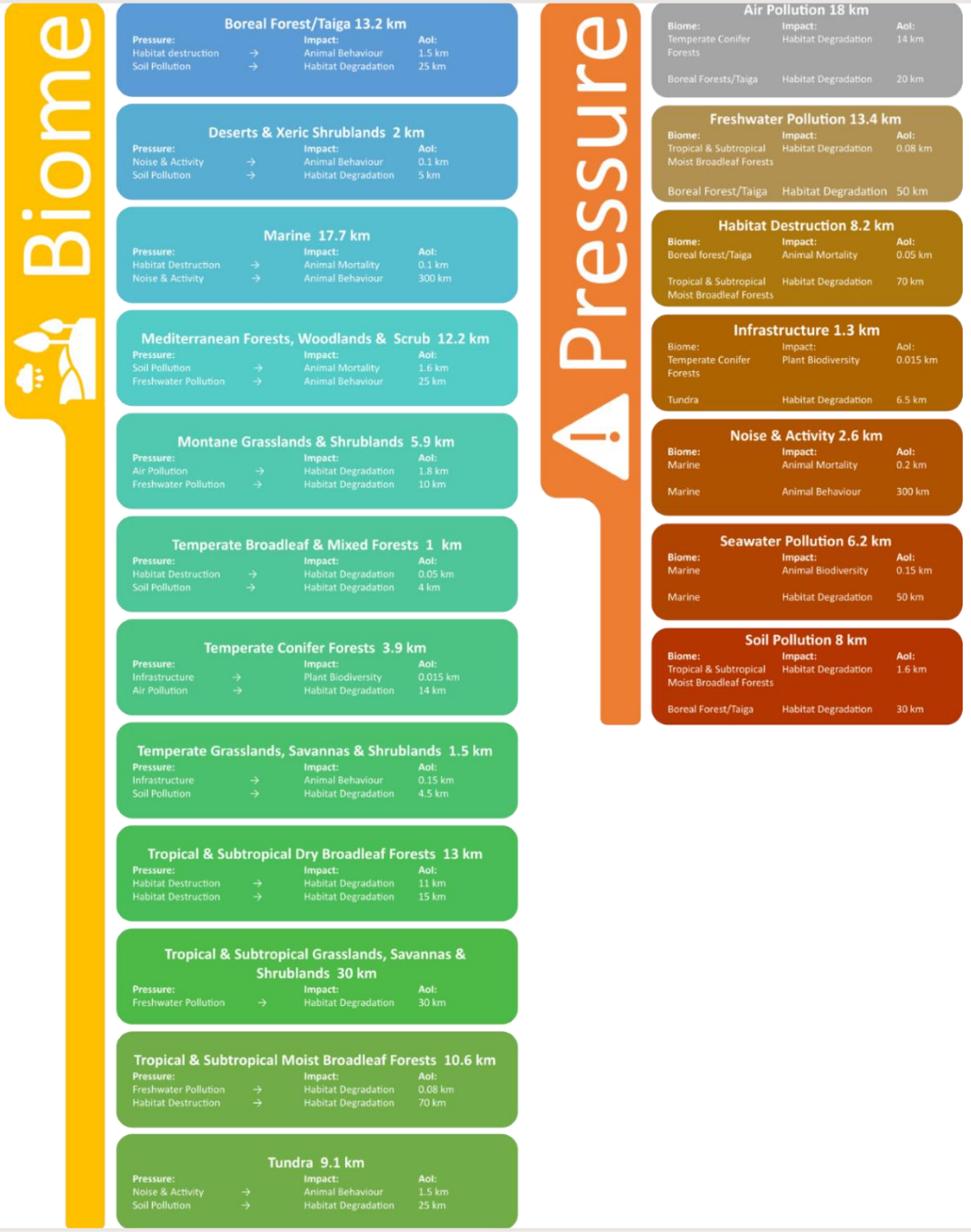
- Literature review of studies that document the distance impacted by different pressures stemming from sites
- Database of 97 pressure-distance records (multiple records per study) compiled
- Average and ranges taken for different activities, pressured and biomes



Direct Impacts

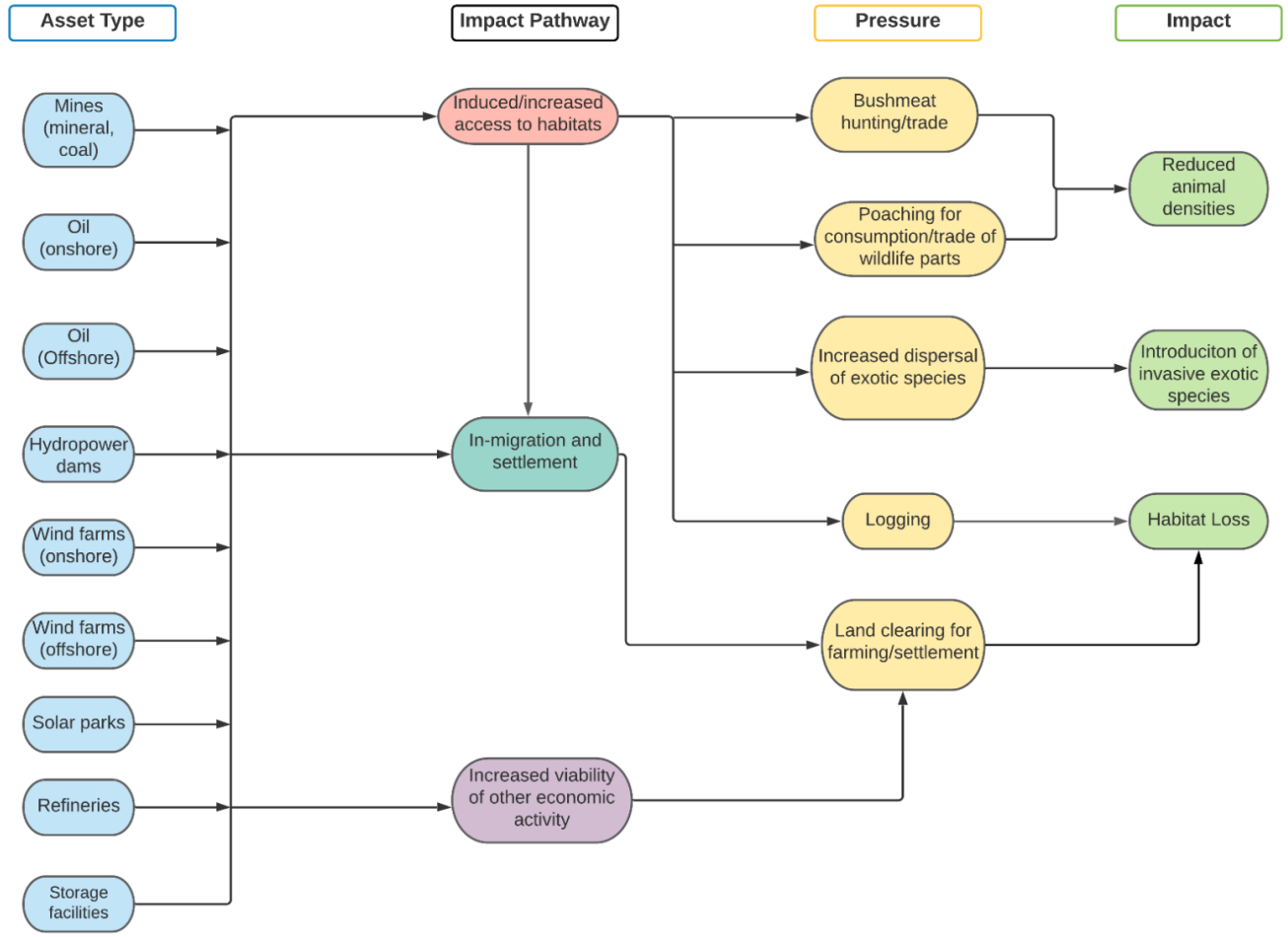
Key findings:

- AoI depends on pressures associated, habitat type operated in and type of impact considered
- 10km buffer is likely to cover the majority of direct impacts of terrestrial mines in most habitats, and, applying a precautionary approach, a 5km buffer likely to cover the impacts of terrestrial oil and gas
- A minimum buffer of 30km should be applied in marine environments for mining, and 20km for oil and gas operations, but extended if there is high potential for noise disturbance.



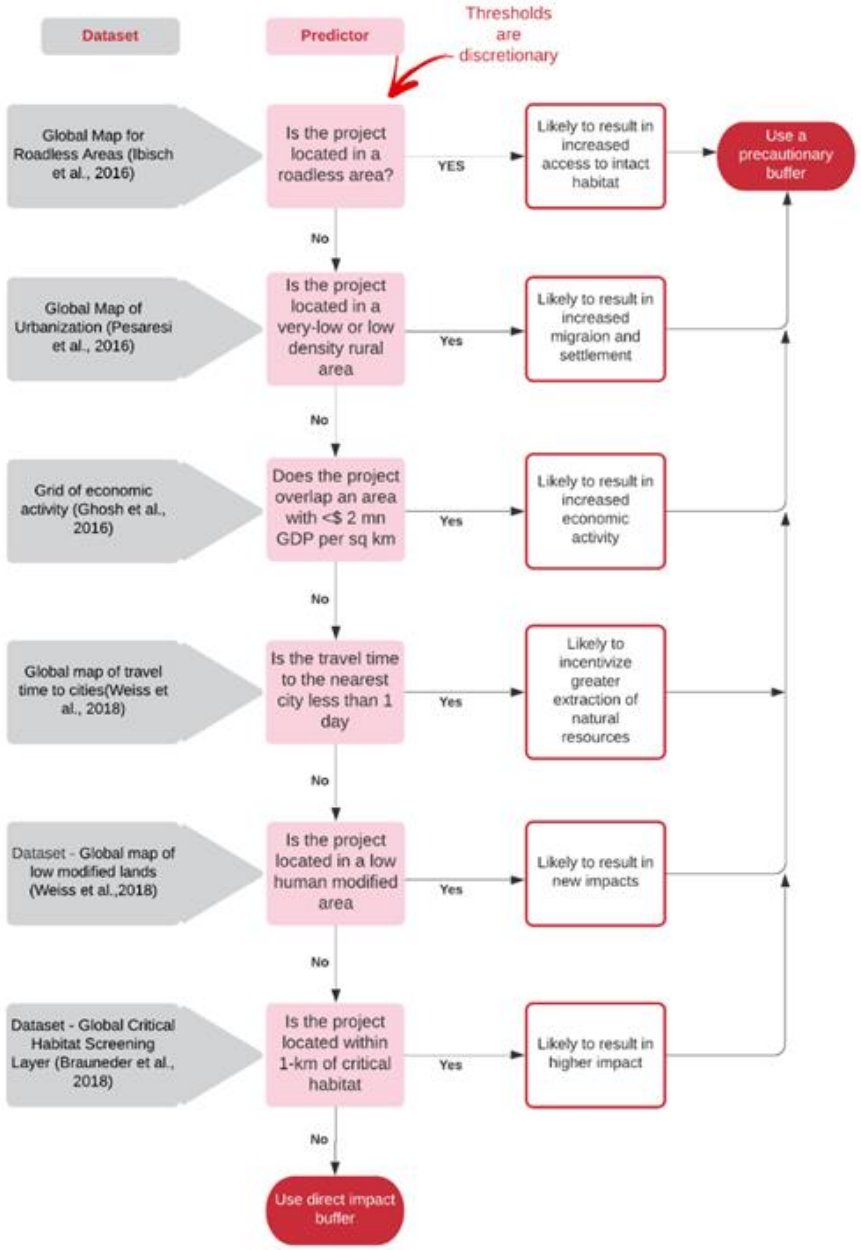
Indirect Impacts

- Site-based operations can affect the extent and intensity to which local actors access, use and impact natural ecosystems, inducing pressures
- Underlying indirect impacts is the linear infrastructure deployed to connect the hub infrastructure with raw material sources, population centres and markets
- Often larger and more enduring than direct impacts



Decision making framework

- Literature review undertaken on the key factors that may affect the likelihood of indirect/induced impacts
- These include degree of roadlessness, human settlement and GDP
- Together, these factors, and associated representative datasets can be used to assign likelihood of indirect impacts, and therefore where a more precautionary buffer should be applied
- For example, impacts of mining on have been shown to reach up to 70km from the site (Sonter)



Conclusions

- Lack of studies examining AoI in a systematic way means it is challenging to provide generalised rules
- The Area of Influence is highly context specific, however, estimates of the minimum that should be applied based on different pressures can act as a starting point
- More precautionary buffers should be applied in certain habitats, and where there is a particularly high risk of inducing indirect impacts
- Further information can be found in the upcoming Proteus briefs on the topic