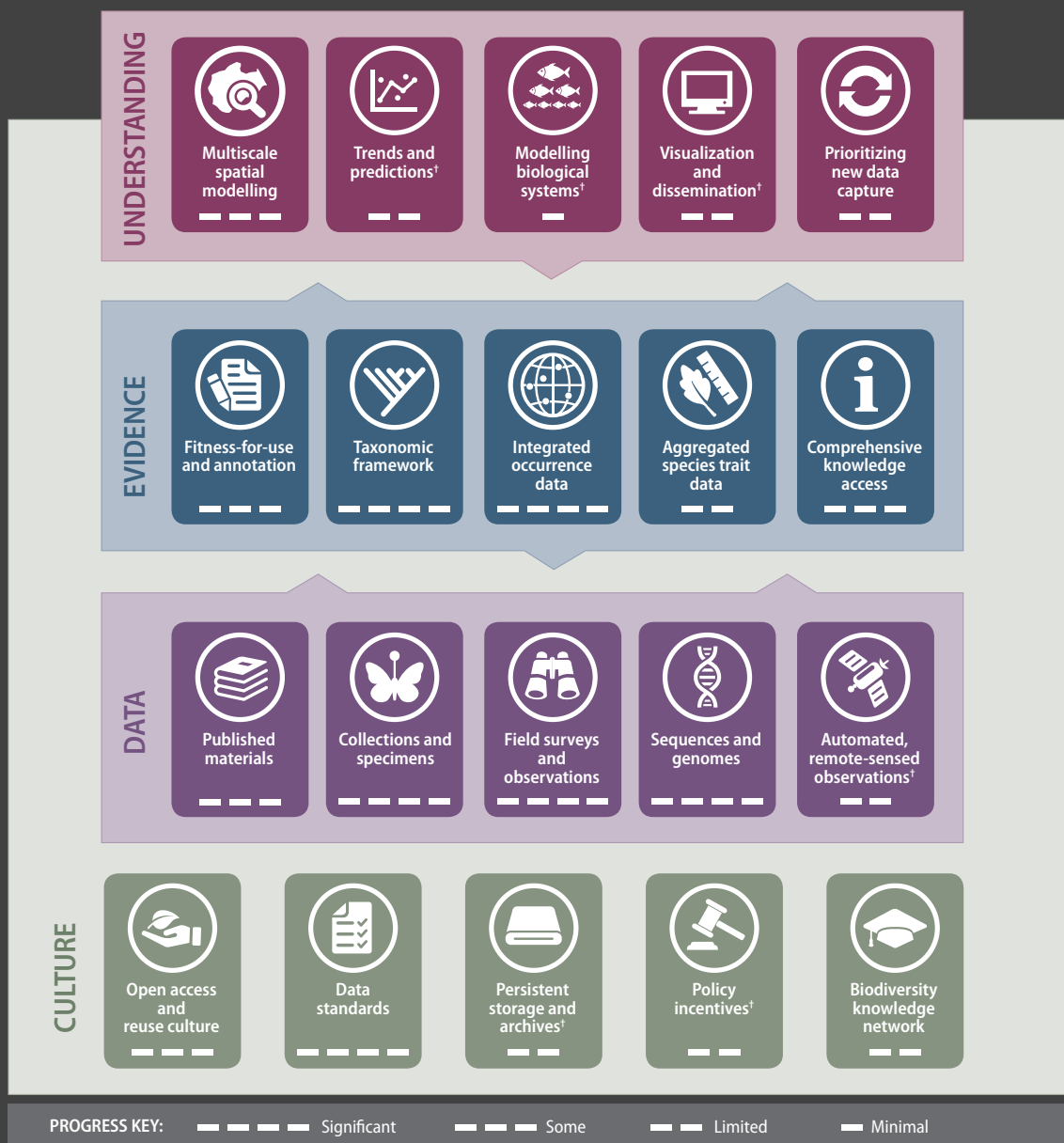# The GBIO framework

The framework described here is organized into four focus areas, each of which is broken down into several core components. All four interconnect and strengthen each other; all four are needed if biodiversity informatics is to achieve its full potential. Each focus area – and the individual components within them – can be progressed independently but as they develop they should start to feed into and reinforce each other, making them together far greater than the sum of their parts.

At the root lies the **culture** focus area which puts in place the necessary elements to turn biodiversity information into a common and connected resource – stable and persistent storage, pooled expertise, the culture and policies to support sharing, and common data standards. Building on those foundations, the **data** focus area aims to accelerate the mobilization of data from all sources, unlocking the knowledge held in our collections and literature, improving data quality and filling in gaps, and bringing observations and data from all sources from satellites to genomes online. The **evidence** focus area deals with refining, structuring and evaluating the data, to improve quality and place it within a taxonomic framework that organizes all known information about any species. Finally, the **understanding** focus area enables a broader synthesis, providing the modelling tools to enable us to look at whole ecosystems, make better policy decisions and react to any changes.

The diagram below shows how the focus areas interconnect, and breaks them down into their individual components.

UNDERSTANDING

| Multiscale spatial modelling | Trends and predictions† | Modelling biological systems† | Visualization and dissemination† | Prioritizing new data capture |

EVIDENCE

| Fitness-for-use and annotation | Taxonomic framework | Integrated occurrence data | Aggregated species trait data | Comprehensive knowledge access |

DATA

| Published materials | Collections and specimens | Field surveys and observations | Sequences and genomes | Automated, remote-sensed observations† |

CULTURE

| Open access and reuse culture | Data standards | Persistent storage and archives† | Policy incentives† | Biodiversity knowledge network |

PROGRESS KEY: — — — — Significant   — — — Some   — — Limited   — Minimal

† Considered to be of high urgency, but have made limited progress to date