

Atlas of Living Australia

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The Atlas of Living Australia (ALA, <http://www.ala.org.au>) has delivered the following key infrastructure components for the integration and dissemination of Australian biodiversity data:

1. **Species distribution records.** More than 26 million species occurrence records (> 133,000 species) have been integrated from specimen collections, observations, site monitoring, survey data sets, molecular data, images, audio recordings and literature. All records are available from the ALA website, providing a valuable resource for research, policy, management and education.
2. **Data quality control.** Standardised quality control rules and record review processes have been implemented. These processes detect and respond to issues on taxonomy, geography and other components to ensure appropriate handling of records of species considered sensitive from the standpoints of conservation and biosecurity
3. **Information associated with occurrence records.** Additional properties associated with occurrence records includes images, sounds, molecular sequences, links to site- and project-based metadata, descriptive characters, functional properties and legislative status of the associated species.
4. **Geospatial analysis.** The Atlas Spatial Portal provides rich geospatial capabilities including tools for the analysis of species distribution records, over 800,000 named areas and over 250 environmental and context layers. Layers include climate, marine, soil, vegetation, reserves, ecoregions, political and NRM boundaries and fire history.
5. **Digitising biological collections.** The ALA and its partners have made significant progress on digitising the information held in biological collections. The infrastructure enables institutions to image and database their specimens, laying the foundation for future expansion. The ALA has
 - a. Supported the purchase of digital imaging infrastructure and software.
 - b. Established Morphbank as a central repository for the storage, management and sharing of biodiversity images and data.
 - c. Provided an integrated portal to present these data online.
 - d. Supported pilot projects to develop innovative ways to rapidly image and digitise collections—two museums are trialing the use of volunteers to improve efficiency in imaging and digitising specimens.
 - e. Worked with its partners to analyse their imaging procedures, and develop guidance on imaging, image and metadata management and imaging strategies.
6. **National databases.** The ALA has developed integrated digital repositories for biodiversity images, literature, identification keys and species fact sheets.
7. **Field data recording software.** The ALA has developed web-based templates and software for recording and managing biodiversity data in the field. The software and tools are already being used in research projects, urban biodiversity surveys, museum outreach activities, science education, biosecurity monitoring, CMA and Natural Resource Management and reporting.
8. **National Species List.** The ALA is making substantial progress on the most comprehensive and accurate names list for Australian species. The National Species List includes preferred names and synonyms for all described Australian plant, animal and

fungus species, with tools and services to access and use this data set and to download data for further analysis.

9. **Key role with international infrastructure capabilities.** The ALA serves as a gateway for data sharing between Australian projects and international biodiversity informatics programs including the Global Biodiversity Information Facility (GBIF, <http://www.gbif.org>), the Encyclopedia of Life (EOL, <http://www.eol.org>), the Biodiversity Heritage Library (BHL, <http://www.biodiversitylibrary.org>) and the Barcode of Life Database (BOLD, <http://www.barcodinglife.com/>). It provides an efficient model for consistent inclusion of Australian data as a component in these projects, and at the same time serves as a bridge for integrating data from international institutions into Australian data summaries.