

The ELIXIR Domestic Animals Genome and Phenome Community

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The ELIXIR Domestic Animals Genome and Phenome (DAGP) Community connects researchers and data scientists across species and countries to accelerate genome and phenome research in domestic animals.

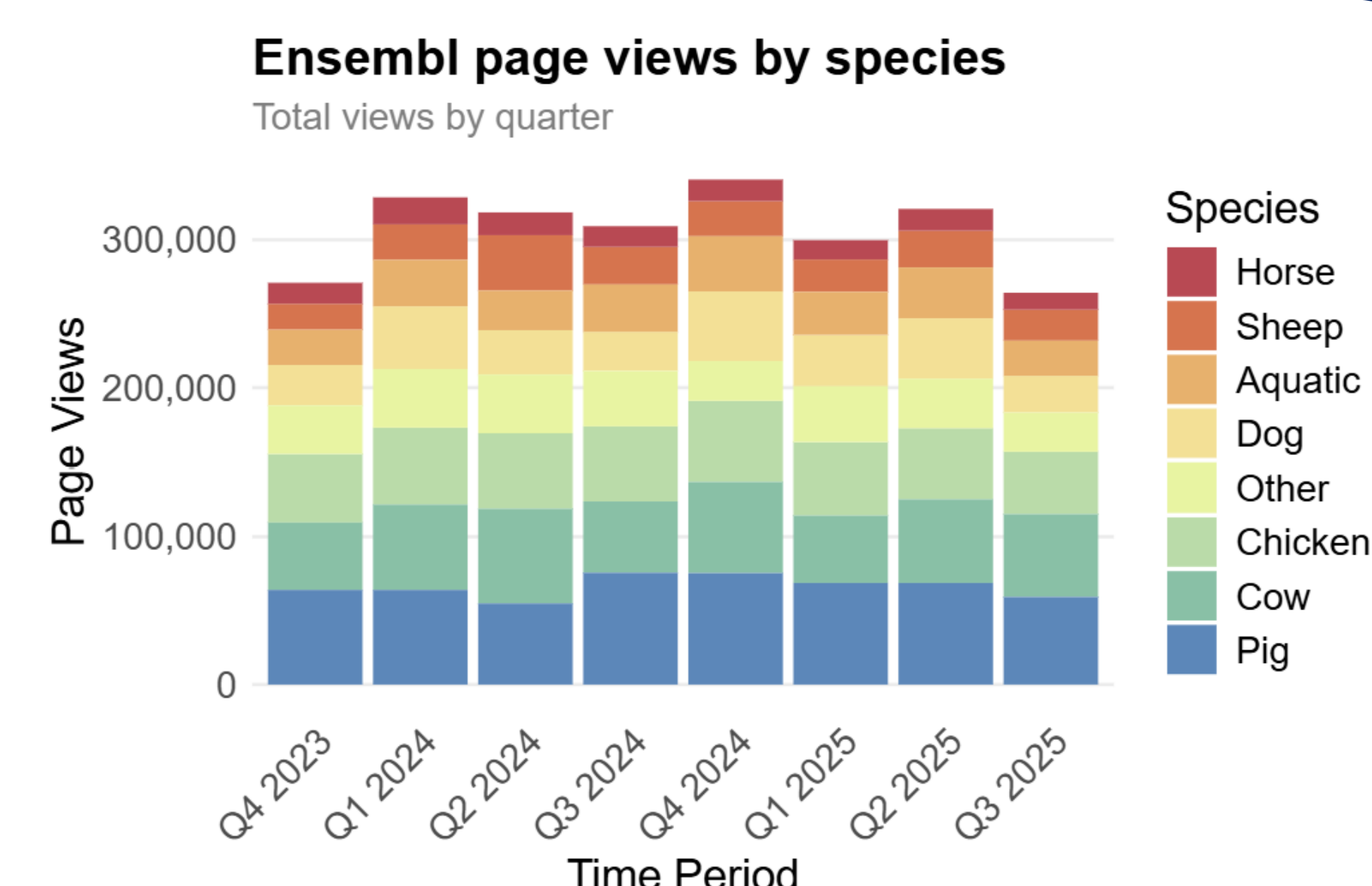
Why

- The well-being of domestic animals is essential for sustainable farming, keeping pets, and in the one health concept that connects the health of people, animals, and the environment.
- However, domestic animals face many challenges, including from extremes of climate and breeding, health and welfare issues, and changing societal expectations around keeping animals.
- **Understanding how genetic information (the **genome**) gives rise to observable traits (the **phenome**) is essential for predicting how domestic animals will meet the challenges of the future.**



Data and resources for domestic animals are popular

- Annually there are 1000's of omics datasets for domestic animals submitted to the European Nucleotide Archive.
- The usage statistics for the domestic animal genomes in the Ensembl genome browser reflect their importance.
- There has been a big uptick in use of aquaculture resources in the last 3 years.
- **Resources for companion animals (horse and dog) also continue to be within the top 8 most accessed genomes by species in Ensembl.**



The Challenge – Data Fragmentation

- The ELIXIR DAGP community builds on the foundations established by the global **Functional Annotation of Animal Genomes** (FAANG) Consortium, European Commission-funded projects under the **EuroFAANG** umbrella, European infrastructures for farmed animal phenotyping, and nationally- funded projects for farmed and companion animals.
- **While data standards and workflows are well established for genome data, particularly for functional genomics data via the **FAANG Data Portal**, the same structure does not currently exist for phenome data.**

ELIXIR

- ELIXIR is an intergovernmental organisation that brings together life science resources from across Europe.
- These resources include databases, software tools, training materials, cloud storage and supercomputers.
- **The goal of ELIXIR is to coordinate these resources so that they form a single infrastructure.**
- This infrastructure makes it easier for scientists to find and share data, exchange expertise, and agree on best practices.
- **The ELIXIR DAGP Community includes 36 members from 19 different ELIXIR member countries.**



Opportunities to work together

Community Goals

- **To develop a coordinated, open and standardised data life cycle for genome and phenome data for domestic animals.**
- Develop FAIR standards for genome and phenome analyses.
- Enable responsible data sharing and infrastructure alignment.
- Build capacity for genome-to-phenome analyses workflows.
- Understand challenges across the data life cycle.



Community impact

- Leveraging FAIR data and data resources to enhance functional and integrative genomics approaches.
- Consolidating data resources for conserving genomic diversity with well-developed standards for phenotyping and biobanking.
- Exploring ways to improve accessibility to and visualisation of dynamic datasets to support animal health and welfare research.
- **Improving interoperability across ELIXIR resources** for submission of multiple data types and providing single portal-based community access points **to maximise data accessibility, visibility and reuse and reduce duplicated effort.**

Contact

Contact physilia.chua@elixir-europe.org, eclark@ebi.ac.uk or domesticanimals@elixir-europe.org if you would like to know more about the Community's work.

<https://elixir-europe.org/communities/domestic-animals-genome-phenome>



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