
Supplementary information

The role of conservation bioacoustics in achieving global biodiversity goals

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Supplementary Materials for:

The role of conservation bioacoustics in achieving global biodiversity goals

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Supplementary Table 1. Major bioacoustic AI model and data resources available by the end of 2025, including (A) foundation and task-specific models, (B) benchmark datasets, often used to test new models, and (C) sound libraries and repositories, often used to train models.

Resource	Citation	Taxa / Sound Type	Notes / Accessibility
A. Foundation & task-specific models			
AVES	Hagiwara 2025	Biotic & environmental sounds	Transformer-based audio representation model
BatDetect	Mac Aodha et al., 2018	Bats	Bat species detection
BatDetect2	Mac Aodha et al., 2022	Bats	Bat classification foundation model (including pretrained classifier for UK bats)

BioLingual	Robinson et al., 2023	Biotic & environmental sounds	Audio-language foundation model
BirdNET	Kahl et al., 2021	Birds, anurans (applied to bats, marine mammals)	Widely used; task-specific
BirdSet ConvNeXt	Rauch et al., 2024	Birds	Benchmark model
BSG-BATS	Meramo et al., 2025	European bats	Species classifier & community-driven annotation portal ²
Google Multispecies Whale Model	Allen et al., 2024	Eight baleen whale species	Public model via Kaggle ¹
iNatSounds ViT	Chasmai et al., 2024	Birds, insects, amphibians, mammals, reptiles	Vision transformer
NABat ML	Khalighifar et al., 2022	North American bats	
NatureLM-audio	Robinson et al., 2025	Biotic & environmental sounds	Audio-language foundation model
NightHawk	Van Doren et al., 2023	Avian nocturnal flight calls	Specialized task
Perch	Ghani et al., 2023	Birds (with applications to bats, marine mammals, anurans)	Foundation model
Perch 2.0	van Merriënboer et al., 2025	Birds, insects, amphibians, mammals, reptiles	Multitaxa foundation model
Silbido Profundo	Conant et al., 2022	Odontocete whistles	Marine mammals
SurfPerch	Williams et al., 2024	Coral reef soundscapes	Marine soundscapes

B. Benchmark

datasets³

AcousticTrends	Miller et al., 2021; Schall et al., 2024		
_BlueFinLibrary	al., 2024		
AnuraSet	Cañas et al., 2023	Anurans	
BEANS	Hagiwara et al., 2022	Aquatic mammals, bats, birds, dogs, mosquitoes	
BEANS-Zero	Robinson et al., 2025	Same as BEANS	Earth Species Project ⁴
BirdSet	Rauch et al., 2025	Birds	

BIRB	Hamer et al., 2023	Birds, katydids, orthopterans	
iNatSounds	Chasmai et al., 2025	Birds, insects, amphibians, mammals, reptiles	
InsectSound1000	Branding et al., 2024	Insects	
FishSounds	Lobby et al., 2025	Fish	https://fishsounds.net/
WABAD	Pérez-Granados et al., 2025	Birds	

C. Sound libraries & repositories

ANWC Sound Archive	—	Birds, mammals, amphibians, invertebrates	Contact required
Bird Sounds Global	Lauha et al. 2025	Birds	Published dataset; open to access for future editions
Borror Laboratory Archive	—	Birds, mammals, reptiles, amphibians, fish, insects	Contact required
eBird	—	Birds	Research access upon request
Fonozoo	—	Birds, amphibians, insects, mammals, fish, reptiles	Research access upon request
FrogID	Rowley et al. 2019	Australian frogs	Research access upon request
Global Library of Underwater Biological Sounds	—	Underwater sounds	Research access upon request
Macaulay Library	—	Birds, amphibians, insects, mammals, fish, reptiles	Research access upon request
NOAA passive acoustic data portal	—	Marine soundscapes, marine mammals	Research access upon request
Orthoptera Species File (OSF)	—	Orthoptera	Open access
Songs of Insects	—	North American insects	Freely accessible online

Tierstimmenarchiv (Berlin)	—	Birds, mammals, fish, amphibians, reptiles, insects	Contact required
WildTrax	—	Birds, mammals, amphibians, insects	Open access; API
Xeno-Canto	—	Birds, bats, frogs, insects, mammals	Open access; CC licensed; API

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1. Google Multispecies Whale Model available via Kaggle: <https://www.kaggle.com/models/google/multispecies-whale>
 2. Annotation portal: <https://bsg.laji.fi/bats/identification/instructions>
 3. A more comprehensive list of datasets is available at: <https://bioacoustic-ai.github.io/bioacoustics-datasets/>
 4. <https://huggingface.co/datasets/EarthSpeciesProject/BEANS-Zero>

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