

BIOSPHERE OPEN MICROPHONES

Perspectives on Listening
Queensland Conservatorium Griffith University
Brisbane, Australia 7-9 December 2017



Overview

A multi partner project for a network of open microphones in the UNESCO Biosphere Reserves, relaying real-time sounds and establishing new long-term databases for public engagement and research.

BIOM brings together a group of pioneering arts and science initiatives and builds on them to establish new live streams from places of exceptional ecological and acoustic interest.

It relies on technical and other approaches developed by Biosphere Soundscapes (Brisbane, Australia), Locus Sonus (ESAAix, Aix Marseille Univ, CNRS, PRISM, Marseille, France), Cyberforest (Tokyo, Japan), Jasper Ridge Biological Preserve (Stanford, CA, USA) and SoundCamp (London, UK).

It will set up high quality streams from a variety of habitats to provide distinctive resources for research, monitoring, artistic work and community engagement. This will provide a basis for extending the network, towards a real-time observatory reflecting the diversity of terrestrial and aquatic biomes.

Working Group (in collaboration with BRs and partners - see by site)

Biosphere Soundscapes (concept, coordination, training, engagement)
Cyberforest (concept, microphone installation, data storage)
Feral Arts (interactive platform, community engagement)
Jasper Ridge Biological Preserve (live streams, citizen science, research)
Locus Sonus (concept, streaming server, artistic projects)
SoundCamp (concept, coordination, real-time projects)

Expert Associates

SABIOD (CNRS, University of Toulon - data analysis, research, concepts)
René van der Wal, (Univ of Aberdeen - design, ecology, environmental engagement)

Affiliates and Supporters

World Network of UNESCO Biosphere Reserves
UNESCO Man and the Biosphere Program (MAB)
Balance-Unbalance (conference, platform)
Sound + Environment (launch partner) with S+E Research Group (Univ of Hull)
Ecoacoustics 2018 Congress & WFAE 2018 Conference (Brisbane)
Streaming Museum

Objectives

To install resilient open microphones in selected BRs, with the sounds publicly available for remote listening in real-time (streaming servers to be hosted by Locus Sonus, ESAAix, Aix Marseille Univ, CNRS, PRISM, Marseille).

To record the audio from the open microphones, creating long term data-sets for the sites over decades. (archive servers to be hosted by Cyberforest, University of Tokyo).

To analyze the sounds using the latest evolving technology (post-Fast Fourier technologies led by SABI-OD, Univ of Toulon).

To develop and evaluate citizen science activities within and across sites, creating innovative kinds of engagement locally and remotely, with reference to existing work at Jasper Ridge and Cyberforest, such as remote bird census and field work with young people.

To establish excellent ecological research design and a robust evaluation strategy at and across sites (with Aberdeen Centre for Environmental Sustainability).

To involve local communities throughout in the setup and maintenance of the streams, making them a hub for learning and engagement locally.

To grow the network in 2 initial phases, as a basis for convergence with the Man and the Biosphere Strategy 2015-25 and Lima Action Plan 2016-25.

Aims

Biosphere Open Microphones will link participating UNESCO Biosphere Reserves in a network of real-time sounds: an acoustic commons. The project will work with local groups to set up outdoor microphones in the BRs, so sounds from these sites can be both heard in real time and archived, creating free and open resources for researchers, artists, activists and other listeners. They will create points of engagement with selected sites of acoustic and ecological significance, and long term data-sets for environmental monitoring and analysis. They will explore innovative kinds of relations between people and their environments, involving local communities and linking the very local and the global, as imagined within the frame of the UNESCO Man and the Biosphere Programme.

Pilot Project Sites - First Phase 2017 - 2020

Cumbria Open Microphone Network (COMN)

South Walney Island, Cumbria, UK
Cumbria Wildlife Trust, Octopus Collective,
SoundCamp



CWT and Octopus Collective, a sound arts organisation based in Barrow in Furness, are collaborating on a live stream from a remote coastal location on South Walney Island as part of a program of public engagement with the site - an SSSI with a distinctive shingle ecology. A Raspberry Pi based streambox places the listener on the beach among seal and seabird communities. A residency includes field studies, DIY audio workshops and a live stream installation in the market at Barrow, exploring connections between the city and the island. The image shows nuclear waste vessel Pacific Heron passing the microphone location. Photo by Andrew Deakin. (Demonstration - not in a BR)

cumbriawildlifetrust.org.uk/reserves/south-walney
octopuscollective.org/
soundtent.org
Listen live at http://locus.creacast.com:9001/south_walney.mp3

Jeju Biosphere Reserve

Jeju Island, South Korea
Weather Report, Gotjawal People



Temporary open microphone by Weather Report, an arts collaborative based in Jeju and Seoul, and the NGO: Gotjawal People. The collaboration is developing site specific approaches whereby audiences locally and further afield can become more aware of acoustic and environmental changes over time. This links to research and advocacy around planning and development in the area, characterised by patches of biodiverse bush forest on volcanic substrate (Gotjawal). Solar powered broadcasts in the early morning and over the seasons engage often digitally accomplished listeners locally and in urban areas. Interventions include soundcamps, musical improvisation, environmental monitoring and field trips.

Jeju BR <https://goo.gl/oGBa9N>
weatherreport.kr
gotjawal.com

Golden Gate Biosphere Reserve

Jasper Ridge Biological Preserve, CA, USA
Stanford University, Golden Gate Natural
Recreation Area, Bodega Marine Reserve



The BR is a highly diverse and culturally rich complex of urban, multi-use and wild environments with coastal forests, chaparral, scrub, prairies, rare serpentine grasslands, and islands. Birdcast, a live audio stream by Trevor Hebert, shares a changing soundscape of waterfowl, amphibians, songbirds, large mammals and overflying aircraft. Launched in 2013, Birdcast soon became popular with online communities, letting ornithologists and lay experts supplement conventional bird surveys, listen out of hours and hone ID skills, and providing contact with the site for older and less able birders. New streams, archiving and additional remote sensing equipment would reach new ecosystems above and below water, opening collaborations with other stakeholders.

Golden Gate BR: <https://goo.gl/ANHHqr>
jrpbp.stanford.edu/about/facilities/live-audio-stream
Listen at locus.creacast.com:9001/jasper_ridge_birdcast.mp3
nps.gov/goga/index.htm
bml.ucdavis.edu/bmr/about.html

Noosa Biosphere Reserve

Noosa, Queensland, Australia
Biosphere Soundscapes



The Noosa BR comprises 60 distinct ecosystems, with more than 300 bird species and 1300 plant species, with many endemics. An ocean corridor supports marine fauna including some 18,000 humpback whales on annual migration. Permanent streams are under development as part of an extended research and public engagement project by Biosphere Soundscapes, exploring the Biosphere Reserve via a range of recording, field studies and live streaming activities, and through public and specialist research programmes with attention to both terrestrial and aquatic ecologies.

Noosa BR <https://goo.gl/ZyvWkK>
noosabiosphere.org.au/
biospheresoundscapes.org

Shiga Highland Biosphere Reserve

Shiga Nature Education Park, Nagano, Japan
Cyberforest (Univ of Tokyo), Shinshu Univ
Institute of Nature Education



A long term stream is operated in the BR by the Cyberforest programme at the University of Tokyo in collaboration with the Shinshu University Institute of Nature Education. The project comprised real time stereo sound transmission, data logging and public engagement, including remote bird census using the open microphones, phenological research, citizen science activities and machine based audio analysis by the SABIOD big data programme at CNRS, University of Toulon. The live data includes a video link. Part of a programme streaming live data from the Univ of Tokyo forests since the early days of the internet.

Shiga Highland BR: <https://goo.gl/YSZSRp>
cyberforest.jp
Project page: <http://cf4ee.nenv.k.u-tokyo.ac.jp/en/pad/otanomo.php>
Listen live at http://mp3s.nc.u-tokyo.ac.jp/OTANOMO_CyberForest.mp3

North Devon Biosphere Reserve

Braunton Burrows, Cornwall, UK
Braunton Burrows BR, SoundCamp



A new stream is in preparation with the BR and SoundCamp for Balance-Unbalance 2017. The proposal includes elements of public engagement, participatory technology development and art-science research, with details to be agreed worked out in partnership. The North Devon BR is twinned with the Malindi-Watamu BR in Kenya. We imagine the live open microphone technology can contribute to building this two-way link, through sharing sounds and experiences more widely than would be possible through conventional exchanges.

North Devon BR northdevonbiosphere.org.uk/
soundtent.org

Pilot Project Sites - Second Phase 2018 - 2022

A second phase of pilots is planned for 2018 - 22 at sites in Brazil, Estonia, Australia, India, Mexico, Tanzania and Wales.



Timetable

Launch: Sound + Environment, Hull, 29/6 - 2/7 2017
<https://soundenvironment.net/>
Presentation + new stream: Braunton Burrows, N Devon BR, Balance-Unbalance, Plymouth, 21/8 - 23/8 2017
<http://balance-unbalance2017.org/>
Perspectives on Listening, Brisbane, 7-9 December 2017
Ecoacoustics conference, Brisbane 2018. Convergence with the MAB Strategy 2015-25 and Lima Action Plan 2016-25
<http://unesdoc.unesco.org/images/0024/002474/247418E.pdf>

Dissemination / Presentation / Engagement

We envisage the production of site-specific sound art installations in public spaces and an online platform for the live streams. Field studies activities, DIY broadcasting workshops and outdoor gatherings are opportunities for new publics and volunteers to engage with the sounds and ecologies of the sites - locally and remotely. Community involvement in the setup and maintenance of the streams will make them a hub for learning, innovation, and citizen science.



Images (Top to Bottom): Split Soundscape, Grégoire Lauvin. 2017; Insect day field workshop, Stave Hill Ecological Park, London, SoundCamp, 2016.

Large images: Microphones at Shiga Heights, Cyberforest; Sound map of live streams. Locus Sonus, screenshot 2016; Weather Report soundcamp at Gyorae Forest Park, Jeju, May 2017. Photo: Jiyeon Kim.