Western Soundscape Archive
Case Overview

This case is based on a real logic model developed by a participant in Shaping Outcomes Continuing Education.
For more information, please see the attribution box at the end of the logic model.

What does the arctic fox look like and what sound does it make? What sound does the ice breaking on a large lake make? The Western Soundscape Archive (WSA) answers these questions and more, and is useful especially for those who work in education, science, the arts, and conservation advocacy. WSA recognizes the vital connection between places and their soundscapes and features audio recordings of animals and environments throughout the western United States. Begun in November of 2007, the archive is housed at the University of Utah's J. Willard Marriott Library and features recordings contributed by volunteers, state and federal agencies, and conservation groups.

The project's geographic focus includes 11 contiguous western states — Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington and Wyoming — as well as baseline sound monitoring in the Arctic National Wildlife Refuge in Alaska. The WSA typically features three types of recordings: individual species, ambient soundscapes and interviews.

Individual "species cuts" are often relatively short recordings that are commonly used for species identification and call analysis.

In most cases, the WSA focuses on terrestrial vertebrates, including amphibians, birds, mammals and reptiles. Ambient soundscapes are usually longer recordings — up to an hour or more — that feature all of an area's sonic components together in concert. The National Park Service defines soundscape as "the total acoustic environment of an area." Interviews with scientists and other experts are included to give added context to the sounds, and are occasionally featured on radio broadcasts and podcasts.
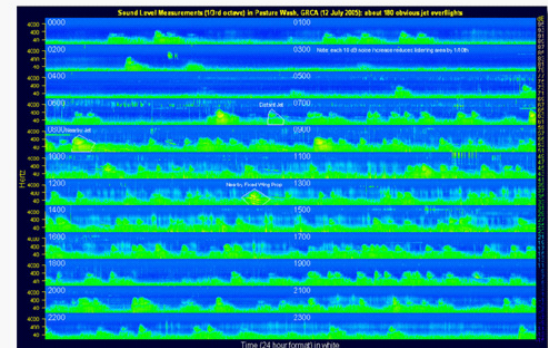
In addition to photographs and recordings of various species, WSA has made available maps of where the various species can be found, as well as spectrograms (at left) -- visual renderings of sounds made over a period of time.

In September of 2007, the archive was the recipient of a three-year National Leadership Grant from the Institute of Museum and Library Services (IMLS). WSA is supported by and collaborates with National Biological Information Infrastructure (NBII), the National Park Service (NPS), NatureServe, and the State of Utah Natural Resources Division of Wildlife Resources.

For more information, visit: http://westernsoundscape.org/index.php

Profiles of Stakeholders

These are fictional statements typifying attitudes and illustrating needs, not actual direct quotations.

University of Utah Marriott Library

"Having strong undergraduate and graduate programs in the sciences, it is important to us to be able to provide resources to our students. The WSA holds a wealth of information valuable to the study of the Western state environments."

IMLS

"Being able to provide funding for a project that will educate both young students as well as seasoned researchers is important to us. With humans ever encroaching on domains primarily belonging to wildlife, we feel that education in this area will encourage preservation as well as provide historical information on various wildlife and their environments."

Utah Museum of Natural History

"Projects like the WSA allow us to add another dimension to our exhibits. This cooperative project provides resources to our patrons in a time of tight budgets. Through this project, our visitors will see and hear those wildlife and environments not previously recorded. It provides us a starting point for marking history."

Volunteer Recordist

"The archive allows me to not only showcase my hard work, but also to give back to the community and share something that is very important to me. I am happy to contribute to the WSA."

Elementary School Teachers

"I am trying to teach my 3rd graders about the importance of our natural resources, and the archive helps me to put a "face" on these different resources. The children get to see pictures of the various wildlife in various media, but they can also HEAR these creatures, which, until now, was not possible for us. The kids are very impressed with the archive and perhaps, in the process of learning, I can help induce a few of them to be ecologists or conservationists."

Researchers

"There is so little data on many of our natural resources. Quite frankly, as much as I would like to traverse the different habitats, I simply do not have the time or the funds. The WSA makes it easy for me to do important research without having to go any further than my laptop, and easy for all scholars to draw on the efforts of each researcher."

Logic Model Worksheet

I. Situation: program partners and stakeholders	
What is the program's **name**?	**Western Soundscape Archive**
What **partners** are involved?	University of Utah Marriott Library Institute of Museum and Library Services Other contributors: • US Geological Service • National Park Service • Utah Division of Wildlife Resources • NatureServe • Utah Museum of Natural History • Volunteer recordists and conservation groups
Who are the program's **stakeholders**?	What does each **stakeholder** want to know?
University of Utah Marriott Library	Is the web site being used by a wide variety of target audiences? Are best practices being observed when uploading data?
IMLS	Is the WSA program effective?
UMNH (Utah Museum of National History)	Will the sounds from the WSA improve museum programs by adding an aural dimension to museum exhibits and the museum-going experience? Will more people understand the benefits of the museum's collections and services?
NatureServe (a science and nature network: www.natureserve.org)	Will Natureserve data be effectively integrated into the WSA web site? Will there be an increased audience for NatureServe?
National Public Radio	Will the sounds from the WSA enhance their radio programs?
Volunteer Recordists	Are their sound clips being used? What about their copyrights?

National Park Service	Will exposure of NPS spectrograms create increased interest in researching noise conditions in national parks? Will NPS spectrograms increase awareness of noise pollution?
Educators	Do the aural materials enhance student learning in terms of wildlife knowledge and attitudes about the environment? Are there effective lesson plans for my students?
General Public – People interested in bird sounds, including birdwatchers, teachers, and people with an interest in conservation.	Will the sound clips help to identify birds in the wild? Can the sound clips be used to engage students in a unit on biology? Can the sound clips be used to promote conservation activities?
Researchers, in biology and the environment	Will the contents of the WSA enhance my research?

II. Program planning: connecting needs, solutions, and results

Who are the **audiences**?	General public – Adults living in western states. Bird hobbyists Educators - middle school and high school Academic researchers

What are the **needs** of the audience?	Most audience members will want to quickly and easily search for sounds. Audience members will have differing levels of bird knowledge, e.g. some will want to search for very specific sounds by species type while others will be content to browse for general sounds. **General public and bird hobbyists** Need a comprehensive resource of natural sounds that represent the area they live. **Educators** Need to make lessons about the environment and biology compelling to their students, incorporating content that appeals to multiple learning styles. **Researchers** Need robust access to previously uncollected and unpublished data about vertebrate species and noise pollution in the western United States.
What are some **audience considerations?**	Varied technical skills, rate of internet connectivity (broadband vs. dialup), level of sophistication in the type of searching they will want to do. Audience will also have varied awareness of western animal species, and different amounts of time to commit to learning about or using the resources offered by the WSA.
What **solution** fulfills the needs?	Create, maintain, and enhance access to a sound archive of bird songs, in a variety of formats – web based, radio programs, museum programs, downloadable podcasts. Effective metadata for the collection accommodates searches from both skilled researchers and members of the public with a more general interest.

What will be the **desired results?**	Sounds from the WSA are disseminated in a variety of ways, appealing to target audiences with a variety of skill levels, learning styles, and interests: Website Radio programs Museum programs Podcasts Interactive tutorials/presentations As a result, audience members: • General public, educators - Demonstrate an increased awareness of threatened species in the western United States. • Bird hobbyists – After taking a short class on the WSA, demonstrate increased knowledge of regional bird species. They are more easily able to identify bird calls after using the sounds in the archive as a reference. • Researchers - Use data from the archive to enhance their academic research.

III. Logic model summary: program purpose statement

We **do** what?	Develop an organized archive of "soundscapes" from western areas (Western Soundscapes Archive), with dissemination through a wide variety of programs, both online and offline (tutorials, web site, radio, short classes, museum exhibits) in order to reach a wide range of target audiences.
For **whom**?	Target audiences of varying technical abilities and levels of interest: adults with a casual interest in nature, children in schools/teachers, and researchers.

For what **outcome**/benefit(s)?	Birders, the general public, researchers, and educators access relevant, compelling sound files in a wide range of settings and increase their awareness of conservation issues and the unique western animal species represented by the archive are increased.
	Bird hobbyists use sounds as reference material for their hobby, allowing them to quickly identify birds after listening to regional dialect bird recordings.
	Educators demonstrate increased awareness of threatened species in the western united states by using WSA sounds to enhance educational units.
	Researchers demonstrate increased ability to use visual based sound data by incorporating spectrograms in various types of research (such as noise pollution).

IV. Program elements

Inputs	Outputs (or counts)
Sound clips (from volunteers and professionals)	1,000 + clips
Web hosting	Amount of server space, staff time to administer
Administrative time to coordinate staff contributions	One administrator at 30% time, two Principle Investigators
Space for working	Computer lab availability for participants
Student workers	1 student @ 10 hours a week, 2 additional students hourly as needed

Activities	Outputs (or counts)
Collect sound clips and copyright permissions from donor recordists.	Sounds from all vertebrate species in western states are represented in WSA, including at a minimum: 53 frog and toad species 24 reptile species 100 western mammal species 586 resident and migratory birds, emphasizing recordings of regional dialects

Catalog and make sound clips available on web site	Sound clips are searchable by 2 distinct methods – keyword/subject based searching or through GIS based interactive species distribution maps.
Create collection guides and tutorials highlighting how to search sub-collections in archive.	Users are introduced to WSA collections, understanding how to read a spectrogram and how to search using interactive map application.
Administer digital archive	Web server and metadata for WSA hosted and maintained for the future
Field recording trips to gain additional sounds	Targeted sound clips from specific species are collected
Coordinate library staff contributions	Library staff from varying departments contribute their expertise in building web site, designing marketing plan, and creating educational materials for users.
Services	**Outputs (or counts)**
Provide a robust, easily searchable archive, and materials for educational and other forms of use.	# of uses (hits, downloads, educational lessons, broadcast uses) by types of users.
Provide podcasts	Podcast downloads
Provide sample lesson plans.	# of uses (hits, downloads) of lesson plans
Link sounds to appropriate museum exhibits	Exhibit attendance
Provide broadcasters with appropriate soundscapes; contact National Public Radio for use in programs on conservation and environmental issues	# of broadcast uses/audience sizes
Bird hobbyists participate in workshop on using the WSA.	Attendance at WSA-enhanced workshops

V. Outcomes

Outcome 1: Academic researchers utilize the WSA, successfully incorporating both visual and aural data into their research.

Indicator(s)	Applied to	Data Source	Data Interval	Target
# and % of academic researchers who utilize spectrograms in their research	Sample of academic researchers at western institutions	Articles, white papers, citation analysis through library databases	1 year post-completion	10 researchers
# and % of academic researchers who perform geographical based searching of sound clips for western species	Members of relevant scholarly list-servs in which WSA is publicized	Survey posted to academic listservs after WSA site is publicized	6 months post publicity	25 researchers

Outcome 2: Birders feel more confident about identifying western bird species after listening to WSA sound clips.

Indicator(s)	Applied to	Data Source	Data Interval	Target
# and % of birders who report feeling more confident about being able to identify western bird calls	Birder workshop participants	Survey	At end of each workshop	75% of workshop participants report feeling more confident

Outcome 3: General public using WSA web site gains knowledge of threatened species by effectively searching for and listening to sound clips.

Indicator(s)	Applied to	Data Source	Data Interval	Target
# and % of users who complete tutorials and perform targeted searches that represent their interests	Random sampling of WSA users	Web-based survey, web statistics and search logs	Every 6 months	60% of surveyed users report having successful searches

# and % of users who view collection guides and WSA introductory materials	Random sampling of WSA users	Web-based survey	Every 6 months	75% of users report changed awareness of threatened western species

Outcome 4: Educators incorporate WSA content into their classes.

Indicator(s)	Applied to	Data Source	Data Interval	Target
# and % of educators who download sample lesson plan	Random sampling of WSA users	Web-based survey, web statistics and search logs	Every 6 months	60% of surveyed users report having successful searches
# and % of educators who incorporate WSA content into their classes	Educators at schools that receive targeted publicity about WSA	Survey	May of year of publicity	5% of educators at targeted schools