

FIELD RECORDING

A pair of Rycote microphones with fuzzy windshields are mounted on a black tripod. The tripod is set up on a rocky outcrop. The background is a vast, hazy mountain landscape under a clear sky. The lighting suggests late afternoon or early morning.

FOR BEGINNERS

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“Sound is the vocabulary of nature.”

-Pierre Schaffer

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About

Hi, I'm Jared Blake. I'm a professional field recordist specializing in recording the quiet, healing sounds of nature.

Through the years, my sounds have been featured in documentaries, apps, awareness campaigns and on TV.

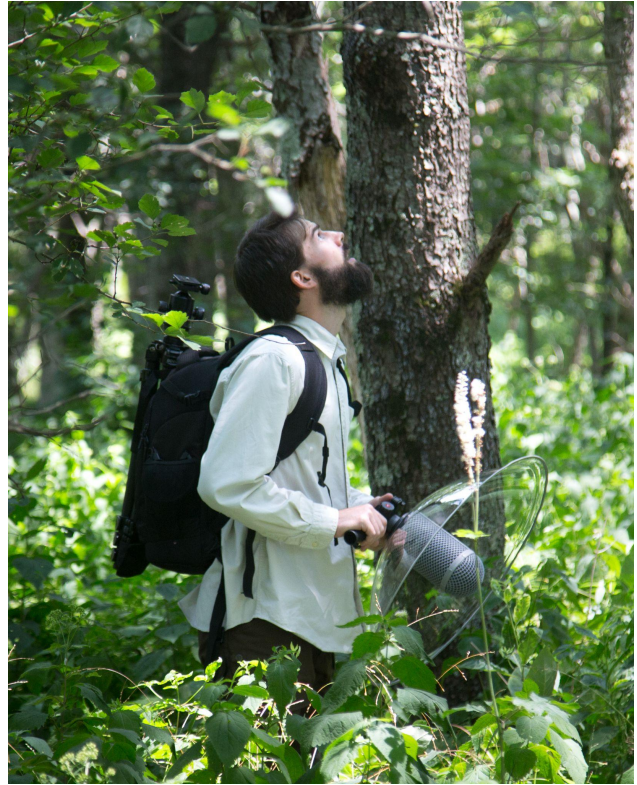
In 2021, I was a featured guest on the PBS show "America Outdoors," where I shared my experiences and field recording techniques with host Baratunde Thurston.

When I first began my career in field recording, it wasn't easy. I didn't know anything about recording audio and was confused by the overwhelming number of specifications, settings, equipment, and technical jargon associated with the craft.

After trying and failing, I buckled down and researched everything I could find about field recording. I read countless blog articles, dove deep into forum posts and listened to some insightful podcasts.

After gaining a solid foundation in audio, I practiced, practiced, and practiced some more, eventually traveled across the United States, and amassed a library of thousands of sounds in my pursuit of recording pure nature sounds.

This book is a resource I wish existed when I was a beginner. It contains everything you need to know to get started and tips and techniques to help hone your skills as a field recordist.

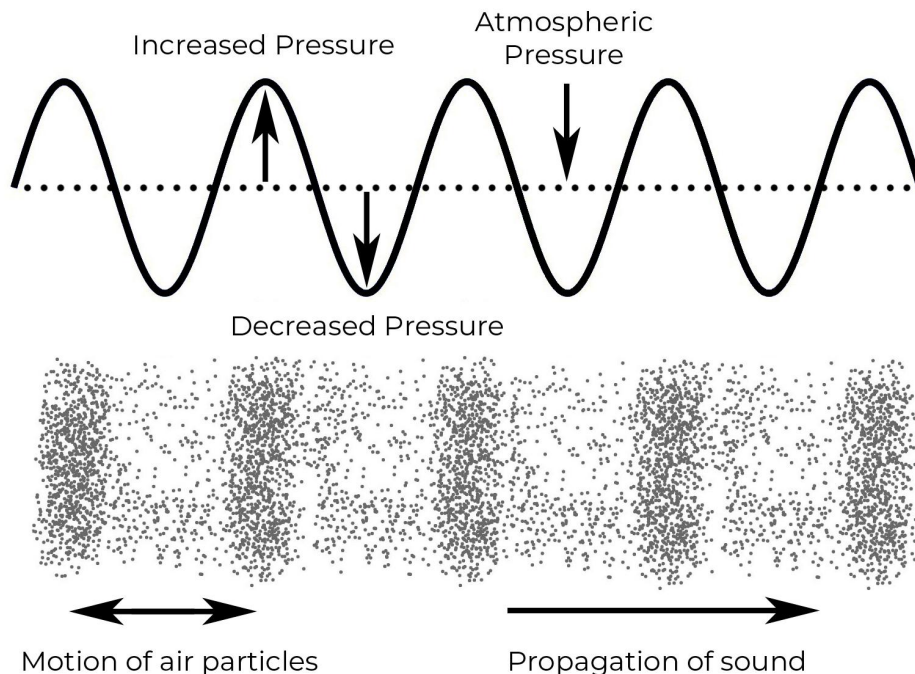


Recording Basics

Before we get into the gear, it's important to establish a solid understanding of some basic field recording concepts and definitions.

In this chapter you'll learn about sound, how audio recording works, and important terms that will help build your foundation of audio understanding.

What Is Sound?



When we hear a sound, our ears are actually detecting tiny changes in air pressure.

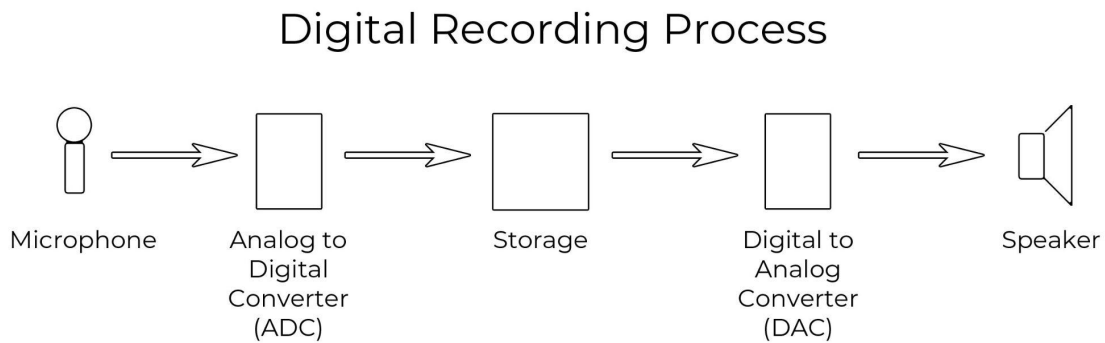
When an object vibrates, it displaces air particles which displace more air particles, creating a chain reaction. This chain reaction creates a sound wave that moves through a medium.

In most cases, air is the medium but sound can travel through many mediums including liquids, solids, and gasses.

How Digital Recording Works

When we record a sound, we're actually recording those changes in air pressure as a series of numerical values.

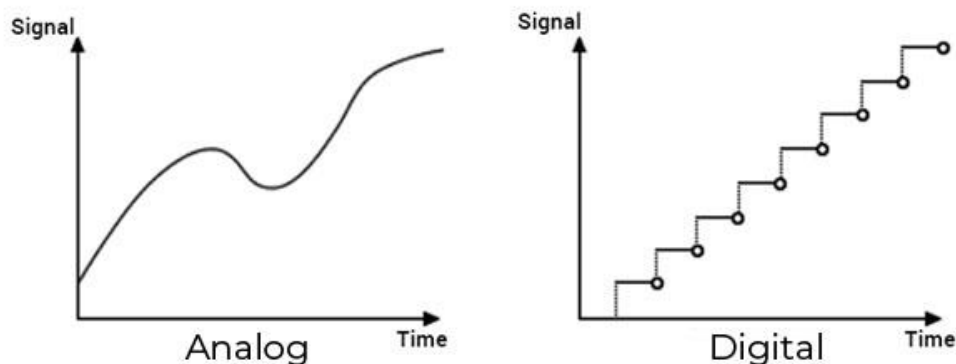
Field recorders accomplish this via a chain of electronic components illustrated in the diagram below.



First, the microphone transforms the changes in air pressure into an electronic signal measured in millivolts (mV). At this point, the signal is analog, meaning that the signal is a continuous stream of data values over time.

In order to record this analog signal, it must be converted into a digital signal with discrete values over time. This process is carried out by the analog to digital converter (ADC).

Analog vs. Digital



Essential Field Recording Gear

This chapter will start with a brief overview of the essentials, with in-depth, dedicated chapters for each item in the “Gear Guides” section.

At the bare minimum, you’ll need the following equipment:

- Field Recorder
- Headphones
- Wind Protection
- Memory Card
- Batteries

Field Recorder

A field recorder is at the heart of every field recordist’s kit. It is the device that will actually record the sounds you’d like to capture.

There are lots of different options available, but for this overview, we’ll split them into two categories:

- Handheld field recorders
- Dedicated field recorders

Handheld field recorders are all-in-one recording devices that are small enough to fit comfortably in your hand. They have built-in microphones and are capable of recording sounds straight out of the box.

Because they need few accessories and are simple to operate, they are popular field recorders for beginners.



Techniques

Field recording is an art form. As a field recording artist, sound is your medium. The techniques you use to capture sound will influence the quality of your work and your overall style.

In this chapter you'll find practical advice and techniques to consider adopting or modifying for your own purposes.

How To Listen

In the field, your ears are your most important equipment.

Before you set your equipment up, take a moment to observe your surroundings. It can be tempting to hit that record button right away, but this extra effort is worth it.

Close your eyes and take mental note of everything you hear. The leaves rustling in the wind; a babbling brook in the distance; talking trees as their limbs rub together.

As you sit in silence, notice how the landscape comes alive with sound.

By mentally plotting the location of these sounds, you can best decide where to put your microphones and how to orient them. If your recording gear simulates a human head, you can use your head (and ears) to find the perfect placement.

With eyes still closed, look left and right, and up and down until the soundscape is the most pleasing. This is where you want to put your microphones.

This technique will help set your creativity free and allow you to capture more interesting and diverse soundscapes. What would have been just a close-up



Microphone Guides

There are many different kinds of microphones used for field recording. Each type provides a unique listening experience within a soundscape.

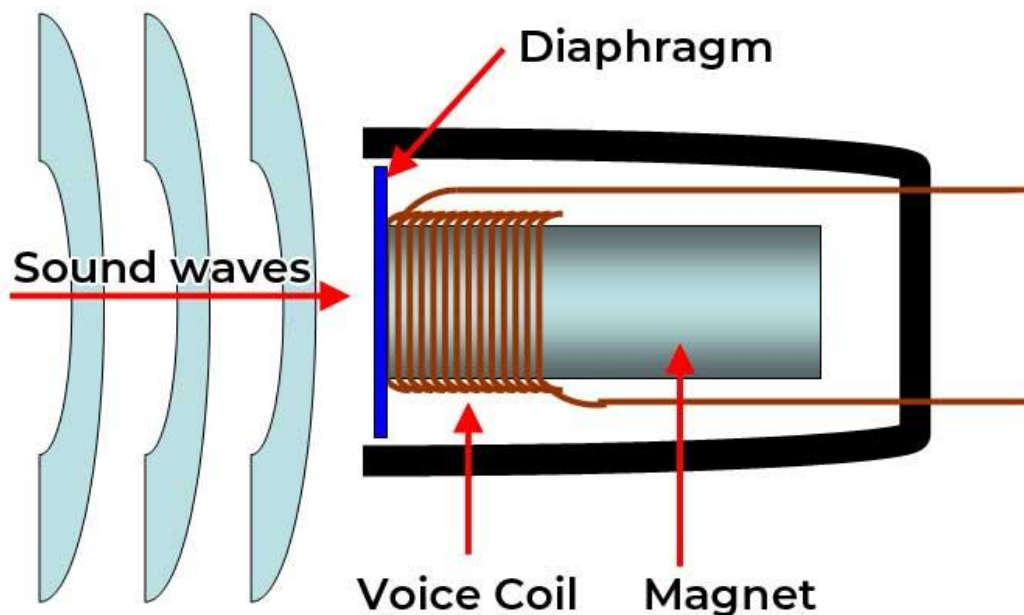
Understanding the different types, learning how they work, and what specifications are important will help you select the best microphone for your specific needs.

In this chapter you'll learn about ten different kinds of microphones and their uses.

Dynamic Microphones

Dynamic microphones convert sound into an electrical signal via electromagnetism.

The primary components are a diaphragm, voice coil, and magnet.



Parabolic Microphones

Parabolic microphones are even more directional than shotgun microphones, work at greater distances, and also amplify the incoming signal, resulting in increased sensitivity and lower noise.

Due to their ability to capture focused sounds at a distance with excellent off-axis rejection, they're the best tool for recording individual wildlife species and are most commonly used by bird recordists.

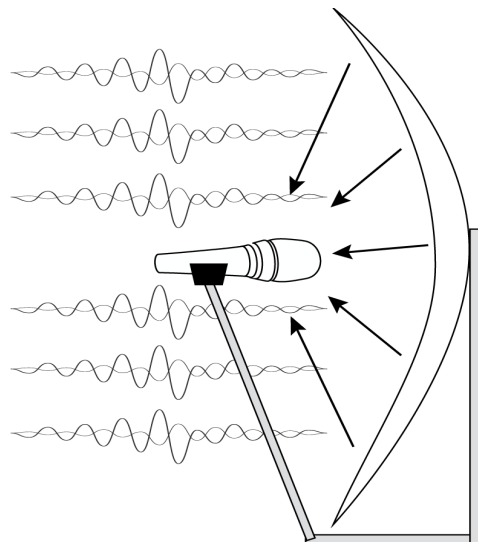


A parabolic microphone being used during a sporting event.

You've probably seen them in use on the sidelines of sporting events to capture detailed sounds of distant athletes on the field.

How Parabolic Microphones Work

Parabolic microphones harness the magic of a parabolic curve into a mirror-symmetrical dish that concentrates incoming sound waves to a single point.



Gear Guides

Before selecting any kind of field recording equipment, it's important to fully understand their important features and specifications.

This chapter will walk you through the significant details of many kinds of recording gear.

Field Recorders



My collection of handheld field recorders.

This chapter is all about field recorders. It will bring you up to speed on all the important features and specifications you need to know before selecting a field recorder.

The best field recorder is dependent on your specific needs. Thoroughly reading and understanding this chapter will help you determine what your needs are.

Metadata

Metadata refers to descriptive text that summarizes the file it is attached to.

By using a list of keywords to describe your sound files, they can be found in seconds with a quick keyword search.

Types of keywords you may want to include in your metadata include:

- Location
- Time of day
- Emotion
- Subject
- Genre
- Equipment used

In its most basic implementation, metadata can be added to any sound file by editing the file name. This way, you can search your entire sound library for a specific keyword natively on Mac or PC.

For more robust metadata options and cleaner implementation, sound library management software is required.

Sound Library Management Software

Sound library management software is used to read and write comprehensive metadata, organize sound libraries, and export detailed file information to accompany sound library products.

Options include Soundminer, Soundly, Soundgrinder, Audiofinder, Pro Sound Effects Search, and Reaper Media Explorer.

[Soundminer](#) is considered the industry standard and includes many advanced features.

[Soundly](#) is a great option for those on a budget. It's available with full functionality for up to 2,500 files for free.

Resources

To further your knowledge and understanding of field recording, please feel free to browse the following field recording resources.

Podcasts

[Tone Benders](#) - Sound design podcast featuring some of the top audio professionals in the world.

[Soundworks Collection](#) - Behind the scenes discussions of sound design for feature films, video game sound design, and original soundtrack composition.

[Field Recordings](#) - Presents stand-alone nature field recordings from around the world.

Specialty Shops

[Stith Recording](#) - Founded in 1965, Stith Recording specializes in field recording equipment for recording birds and other wildlife species, as well as offering an impressive selection of state-of-the-art recording gear not carried by most suppliers. They are one of the few carriers of the popular Telinga Parabolic microphones and accessories.

[Gotham Sound](#) - With physical locations in New York, NY and Atlanta, GA, Gotham Sound is a one-stop-shop for production audio sales, rentals, and used gear.

[Location Sound](#) - In business since 1977, Location Sound is another great supplier for production audio sales, rentals, and used gear.

Noise Pollution Tools

[National Transportation Noise Map](#) (USA) - Noise map of the 50 states including roads and airports. Updated on an annual basis.

Glossary

A-B - stereo miking technique using a forward-facing spaced pair of cardioid or omnidirectional microphones.

Ambisonic - full sphere, surround sound format. Primarily used for spatial audio in virtual reality applications.

Amplitude - the strength or level of sound pressure.

Analog Limiter - limiter occurring before the ADC in a signal processing chain.

Analog Signal - continuous audio signal.

Analog to Digital Converter (ADC) - electronic component responsible for assigning numerical values to an analog signal for digital storage.

Attenuate - to reduce the volume.

Audio Format - file format used to store digital audio data.

Backplate - condenser microphone component held at a set distance from the diaphragm.

Beaufort Wind Scale - empirical method for estimating wind speeds based on environmental observations.

Bidirectional - sensitive to sound in two primary directions.

Binaural - method of recording sound that simulates human hearing. Creates a 3-D stereo sensation for the listener.

Bit Depth - determines how many bits of information are recorded for each audio sample.

Bit - one unit of stored audio data.

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