Kaleidoscope Pro 5
Metadata Workflow

Welcome to Kaleidoscope Pro from Wildlife Acoustics.

This video will explore the metadata workflow and new features in Kaleidoscope Pro version 5.

Hardware devices are used to record wildlife vocalizations and soundscapes. The purpose of collecting these recordings is to provide information regarding animals and other ambient sounds. This can result in literally thousands of digital files. Management and analysis of this information can become a daunting task. Kaleidoscope Pro is here to help you get that job done quickly, efficiently, and in an organized manner.

Metadata is information about the recordings. Metadata is created at multiple stages of the workflow. Ultimately metadata provides the foundation for useful analysis and understanding of what has been recorded.

Kaleidoscope Pro 5 introduces new and powerful features for metadata workflow.

There are actually three sources of metadata when working with Kaleidoscope Pro.

When a recorder creates a digital file, that file contains not only the recording but also information about the recording. The recording device can embed information such as the date and time of the recording, GPS location, and information such as the microphone type, temperature, recorder settings and so on. When audio files are examined by Kaleidoscope Pro, the metadata is also part of that input.

Metadata is created by Kaleidoscope Pro when files are processed. For example, if an Auto-ID for bats batch process is run, the results of that batch process include new metadata.

Metadata can be created by humans. Perhaps you'd like to add field notes, manual reviews, or other customized information.

Once all this information is collected, what happens next? Metadata can be written back to recordings. Metadata can be written to .csv files. Metadata can be added to databases for future searching and analysis.

Video Script

So, we have potentially three basic sources of metadata and three basic destinations for that information. Let's start at the beginning to see how metadata is created.

When Kaleidoscope Pro opens a recording, any metadata embedded in the file can be seen in the Viewer Metadata Panel. I've opened a file and if I scroll down I see a great deal of information that includes things like the recorder model, sample rate, timestamp, microphone used to make the recording, and so on. Kaleidoscope Pro supports the GUANO metadata format, so any other software or recording device that also supports GUANO can share information with Kaleidoscope Pro.

When Kaleidoscope Pro is used to run a batch process, metadata is created regarding that process.

Metadata can be manually created via the Project Form. The Project Form is located under the Batch tab.

Kaleidoscope Pro provides a Default Project Form. The Project Form allows you to add field notes and additional information such as naming of batches, privacy settings for data, and copyright information. When the batch process is run, some of this information will be written back to any recording files created on output. Other information is used specifically for database functions. Metadata is used to create .csv files. A .csv file is a text file with specific comma separated value formatting. .CSV files are commonly used to provide data to spreadsheet programs and other applications.

Kaleidoscope Pro has a default configuration for metadata output. Kaleidoscope Pro 5 adds a powerful new feature in that the Project Form can be customized. Customizing the Project Form will also affect output information. For example, the North American Bat Monitoring Program defines a standard list of data
to be collected. If you want to conform to the NABat suggested standards, you can load a customized NABat Project Form into Kaleidoscope Pro. You also have the option of customizing your own Project Form to collect any type of information you'd like to add to the process.

The Project Form and subsequent metadata output from Kaleidoscope Pro 5 is managed by information known as a MetaForm. Kaleidoscope Pro has an embedded default MetaForm. You can also create and add customized MetaForms. Wildlife Acoustics has created an NABat MetaForm. Let's add the NABat MetaForm to Kaleidoscope Pro.

Go to www.wildlifeacoustics.com. You'll see information regarding how Kaleidoscope handles GUANO formatted data. You'll also see a MetaForm Schema document, which describes how to properly write a MetaForm xml file.

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You'll see downloadable versions of the default Kaleidoscope Pro MetaForm and the NABat MetaForm. The default MetaForm is set up to let you add or delate metadata fields. You can create a Kaleidoscope Pro MetaForm from scratch. In many cases it might be easier to just customize the default MetaForm. The MetaForm is a text file. Any text editor program can be used to open and edit the file.

I'm going to keep it simple and just add the NABat MetaForm to my copy of Kaleidoscope Pro. I'll right-click on the NABat MetaForm to download the document to my computer. Under the batch tab I'll click on the Project Form menu and choose Add or Replace a Project Form. I'll navigate to my downloads folder and select the NABat MetaForm. It's that simple. Now I see I have a choice of using the default Kaleidoscope Project Form or the NABat Project Form. In the NABat Project Form you see there are fields for grid location, site location, project name, deployment dates and so on. These are all data fields as specified by NABat. You can hover your mouse over a field to see descriptive text of that field. If I am processing files and want to be compliant with NABat all I have to do is enter that information and it will be included in Kaleidoscope Pro outputs.

Now that we know how to add and customize metadata with Kaleidoscope Pro, what happens to that data? I've mentioned that metadata can be written back into recording files on output. Kaleidoscope Pro does provide the option to create audio recordings when running a batch process. If you do that, metadata is written into those files using the GUANO metadata format.

Kaleidoscope Pro also creates .csv files when a batch process is run. And again, if you want to customize the .csv output to your own specifications, Kaleidoscope Pro provides that option. Lastly, metadata is also provided for database use. If you have a Wildlife Acoustics Managed Cloud Account, which is available with a Kaleidoscope Pro subscription, or if you want to create your own PostgreSQL database, Kaleidoscope Pro can write its metadata output to that database.

Then for example you could search for auto IDs for any MYOTIS species with a characteristic frequency of 45 kHz or greater.

It's not enough to just collect recordings. You need a comprehensive way to manage, customize, and access data about those recordings in a meaningful way. Kaleidoscope Pro provides the solution.

Thank you for watching.