

# **RESOURCE GUIDE**

Developed for “Beyond the Written Word” (WK 15)  
at the 2014 meeting of the Ecological Society of America  
in Sacramento, CA

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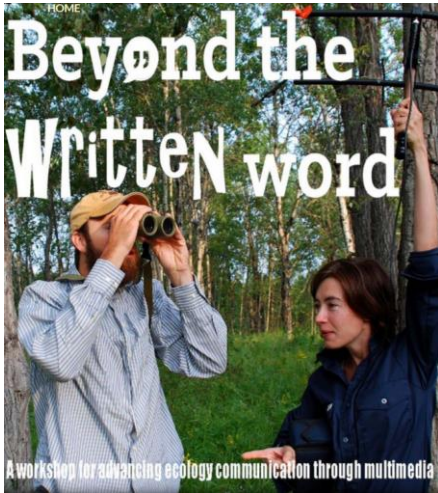
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The rich-text version of this guide is available online at

<http://advancingecocomm.wordpress.com/>

# WELCOME!



Thanks for joining us to help raise awareness and appreciation of ecology. Press officers and journalists are keen for scientists to get involved in documenting their science through multimedia, so we've assembled a crack team to give you a taste of the different ways to tell your stories through audio video (AV), illustration, photography and writing. We're available all week to help you develop and publish your multimedia projects. Our aim is for everyone to produce at least one! The ESA blog, [EcoTone](#), will post our work, and we'll also share it on the [workshop website](#) and on social media. Scared? Don't be. We're all

learning and improving together and this is a great first step on the way to [making your science matter!](#)

Wednesday evening we'll get together for a mixer and troubleshooting session – the **SciComm Innovation Lab Mixer, 6.30 – 8.30pm, Wednesday August 13, Convention Center Room 202**. This is a chance to network, get help with your projects, and to celebrate with a pub crawl afterward. Fair warning to those of you with early Thursday morning sessions, we're going to try and get you out for at least one beer! Or five.

[Here are some articles](#) we wrote for EcoTone that you might find helpful. And we've filled this guide with links to great resources that will help with every stage in the process.

Questions? Get in touch.

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## GETTING STARTED: THE SELF-PROMOTION DILEMMA

- [Why researchers should interact with the public](#) by Karen McKee, *The Scientist Videographer*
- [Making peace with self-promotion](#) by Liz Neeley, *CompassBlogs*
- [A case for scientists to talk to reporters \(and work with PIOs\)](#) by Matt Shipman
- [Why scientists should publicize their findings – for purely selfish reasons](#) by Matt Shipman
- [Self-promotion in science: Poll results and commentary](#)

## GETTING STARTED: GETTING ON THE SCICOMM BANDWAGON

- Begin with these 14 tips by Rob Dunn, which can apply to all media: [“Advice for Scientists Who Want to Write for the Public.”](#)
- [Communicating science: tools for scientists and engineers](#) by AAAS
- [Flowchart for selecting a venue to communicate science online](#)
- [Translating research beyond academia: be your own quartermaster](#)
- [Science-to-Action guidebooks](#) for scientists and decision-makers seeking to bridge science-policy gap
- [Communicating science through context](#)
- [Practical Science Communication Strategies for Graduate Students](#) (*Conservation Biology* .pdf)
- [Climate Change in the American Mind](#): survey data to help you understand your audience
- [12 laws online writers should know about](#)
- [Please Explain: Training Scientists to Be Better Communicators](#)
- [Top five tips for communicating science](#) by Randy Olson

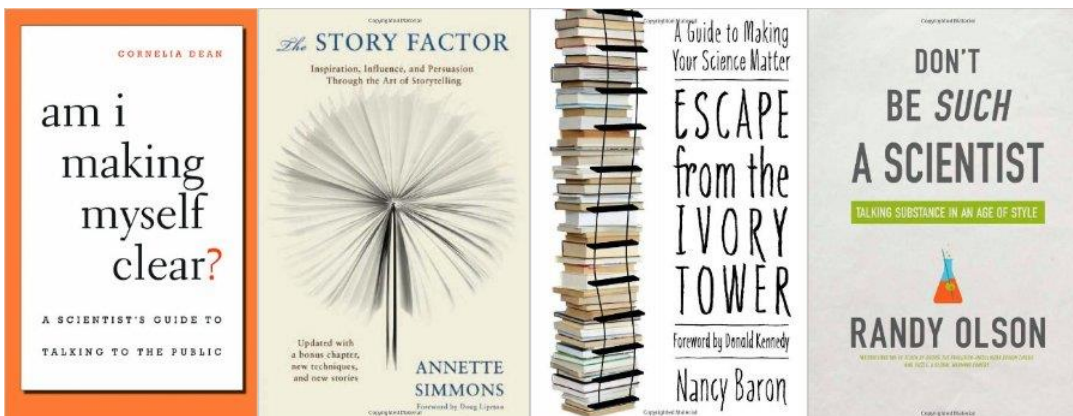
Storytelling is a basic human endeavor, a need even, that helps us assimilate information and make sense of our world.

-Alison Fromme in [“Why Is Storytelling Important in Science Writing?”](#)

## STORYTELLING

- [Can storytelling be factual and effective?](#)
- [Why storytelling?](#)
- [Context, perspective, and the “other”](#)
- [Pixar’s 22 rules for storytelling \(infographic\)](#)
- [Stuck in a moment you can’t get out of](#)
- [What’s Your Story? Your science as a headline](#)

## SOME OF OUR FAVORITE SCICOMM BOOKS



## FELLOWSHIPS & OPPORTUNITIES

- [Leopold Leadership Program database](#): Stanford Woods Institute's well-organized database of fellowship opportunities for science communication and policy
- [AAAS Mass Media Science and Engineering Fellowship Program](#): 10-week summer program places STEM students at media organizations nationwide
- [COMPASS](#): A top-notch scicomm org. that provides training for scientists to bridge science, policy & communication
- [Wilburforce Fellowship in Conservation Science](#): Intensive workshop with COMPASS, followed by a year of additional training and support in scicomm for a conservation-related research project
- [ScienceOnline](#): Premiere annual conference for all things related to leveraging the power of the Web for research and science communication. Additional workshops, tweet-ups, and other opportunities too
- [Alan Alda Center for Communicating Science](#): Scicomm courses in NY & traveling workshops
- [National Association of Science Writers](#)

## CONFERENCES & EVENTS

- [Union of Concerned Scientists scicomm workshops](#)
- [AAAS scicomm workshops](#)
- [ComSciCon](#) workshops for graduate students
- National Academy of Sciences: The Science of Science Communication [2012](#) and [2013](#) (archived sessions)
- [Science Online 2014](#) (videos of most sessions)

## SOCIAL MEDIA

- [A "scientific" guide to the best times for various social media posts](#)
- [How I got a job through Twitter](#)
- [How Twitter amplifies your reach](#)
- [National Public Radio Social Media ethics guidelines](#)
- [Social media: a virtual school of Athens for researchers](#)
- [Social media terms of service – photographers beware!](#)
- [Social media tips for Scientists & Science Writers](#)
- [Social Media 101: Notes From My Talk at Sharing Science](#)

## PUBLIC SPEAKING

- [7 tips for a mind-blowing TED talk](#); equally useful for a good conference or public talk
- [How to speak compellingly & connect with your audience](#); breakdown of TED talk given by Chris Anderson (TED curator)

## SCIENCE FOR KIDS

*Adults often appreciate the same anecdotes and "did you know's" that children do.*

- [Using Picture Storybooks to Support Young Children's Science Learning](#)
- [The effect of anthropomorphic picture books on children's knowledge about animals](#)

### FEATURED EVENT



#scio15: GA Tech - Feb 18-21 - Atlanta, GA

A great annual conference to meet the science superstars of social media, with many regional and topic-specific spin-offs.



# AUDIO & VIDEO

Hi! Here are some tips to get you started on making podcasts and short films. We're going to start with audio because stunning visuals fall flat unless there's great sound.

## CAPTURING GREAT AUDIO



Photo credit: [Luis Lima89989](#)

Podcasting is an easy (and free!) way to start sharing your science. You can use your smartphone to record with apps like [Voice Record Pro 7](#) and edit these on your computer using [Audacity](#). Then you can upload your audio file to [SoundCloud](#) or publish it in [iTunes](#). Of course better quality audio draws a bigger audience so you might like to consider investing in a little handheld recorder – Zoom, Olympus and Tascam are popular brands because of their quality and affordability. These devices are great for recording yourself, doing interviews, and for keeping a record of science events and talks (with permission!).

*Tip 1:* for highest quality recordings use .wav (traditionally for PC) or .aiff (common for Mac) file types because these are uncompressed and preserve more information. After editing convert your file to .mp3 for posting because it's smaller in size and more widely compatible.

### *How long should I make my podcast?*

Podcasts can be as long or as short as you like, but the more succinct and fast paced (without sacrificing clarity) the better! Typical programs are 30 min to an hour but these often incorporate a lot of different stories. Personally I find that anything longer than 20 min starts to lose people. Try to keep segments on a single topic to a few minutes or less.

You'll notice that it gets tiresome listening to the same voice for longer than 20s so whenever possible banter with multiple voices is better. Musical interludes also help transition between segments, add impact and are an opportunity for branding with custom jingles and theme tunes.



To start, you can find some free music and sound effects under [Creative Commons](#) licensing at sites like [SampleSwap](#), [SoundBible](#) and [freeSFX](#) (just be sure to make the correct attributions!).

*Tip 2:* The best way to learn is by listening to great examples and by experimenting with different styles. Here are some examples of great science and tech podcasts:

- [Nature Podcast](#)
- [SciDev.Net Podcast](#)
- [The Naked Scientists](#)
- [Scientists with Stories](#)
- [The Wired.co.uk Podcast](#)
- [60-Second Science Podcast](#)

### *Other uses for your audio recordings*

You can set your audio to slides of photos or pair it with your camera recording for a film with better sound. BBC broadcast journalist, John Escolme, has a great guide on [how to record and produce audio slideshows](#).

*So... I've got an audio recorder and some ideas, now what?*

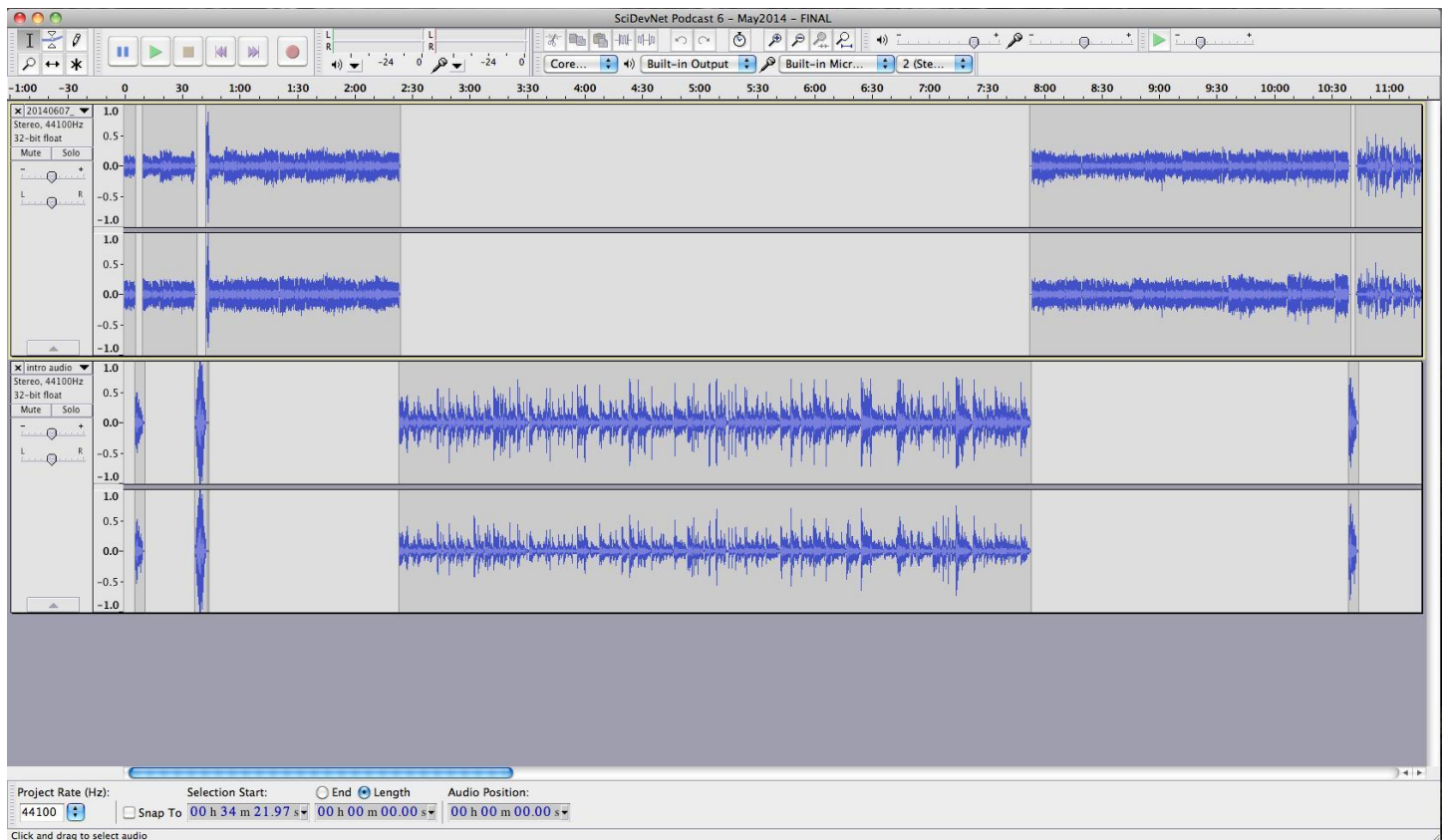
Here's a checklist to help you through your first audio interview recording:

- Got a story? Have you figured out who is your audience and what they want to hear?
- Have you explained the process to the interviewee and have a signed release?
- Is your recorder secure, away from things that make annoying sounds (e.g., air conditioner), and are your audio levels in the middle range to avoid 'pops' and a recording that's too quiet? Adjust recording levels up or down as needed. Wearing headphones during the interview to monitor input helps so you can stop and re-start if needed.
- Have you got 30s of background sound ('atmosphere') recorded with no one talking to use for transitions? Are there any interesting sounds you can record related to the topic that you can use to help tell the story? E.g., creaking opening of sample drawers in a museum, the sound of a lab machine whirring, animal calls, river water rushing downstream, the sound of trees being cut down, etc.
- Did your interviewee introduce him/herself with affiliation on the recording? Especially helpful to know how to correctly pronounce their name if you'll be doing a voice-over narrative later!
- Did you make sure that you and your interviewee avoided fidgeting sounds? If anyone fluffed their words, did you take a long pause (this makes it easy to spot when editing) before repeating and correcting the sentence?
- To have more options when editing and to address anything that was unclear, did you go back to do another take or two? Often the second time around answers are much smoother, more concise and with fewer 'ums' and 'ahs'.

## EDITING YOUR AUDIO

Congrats on doing your first recording! Now it's time to clean it up and put things in order for a compelling listen with logical and seamless transitions between ideas and sound bites. The pre-interview planning and post-interview editing phases are where your creativity is the limit. Here's the [Getting Started](#) guide in [Audacity](#). There's also a detailed [Reference Guide](#), list of [Effects](#) you can use, and a set of helpful [Tutorials](#).

Audacity is a visual interface that lets you manipulate the sound waves. Here's a sample file – I used the top line for the narrative audio and bottom line for the jingles and interview inserts. By pasting audio into different tracks in the same file, you can play with the timing of overlaps and use the [auto duck](#) feature, which allows you to control the volume of one track playing over another. You can listen to this file [here](#).



Highlight the sections you want to adjust and use the toolbars (e.g., go to [Effect](#) to select [Amplify](#), [Auto Duck](#), [Fade In](#), [Fade Out](#), etc.).

*Tip 3:* You can select audio segments then copy, cut and paste them using your keyboard shortcuts (e.g.,  $\text{⌘} - C$ ), and hitting your spacebar will start and stop playback. Have fun!



## CAPTURING GREAT VIDEO

Filming with your smartphone, tablet, camcorder or DSLR has never been easier!



When it comes to lighting and composition, the rules of photography apply here too. A good rule of thumb is to film using **natural light** whenever possible because it's far better than artificial light. If you're stuck indoors, it helps to film near a window or have an extra light to hand to shine directly at your interviewee to avoid the shadows cast by overhead lighting. Aim to get that sparkle in the eye, which captivates an audience.

For composition, the **rule of thirds** is helpful but can be broken too. A good starting point is to position your speaker closer to one side or the other, rather than dead center, and to ask her to angle her body slightly toward one side of the camera, rather than facing it head on. This provides a touch of profile, which is more visually interesting and prevents staring straight into the lens, which can be off-putting to viewers (though can also be used to good effect at certain moments such as a punchline, to emphasize an especially important point or for comedic effect). When it comes to works of fiction, this is often referred to as preserving or **breaking 'the fourth wall'**, but can apply to science films too.

Similar to the podcasts, you want to keep your audience interested by changing things up. This means getting A LOT of different shots and angles whenever possible. It helps if you pair up or work in groups so you can record the same action from different angles and distances simultaneously. You can decide which camera you want for the main footage and then use the others to get '**cutaway shots**'. In your film, the length of shots should be 10s or less! It's also wise to do multiple takes and to provide feedback to your interviewee in between each one to get the most polished performance possible.

*Tip 4:* Try to get establishing shots that show the context for the work, e.g., a wide shot of the field site or lab. These are great for the beginning of the video and as cutaways. Also try to get close-ups of the speaker's face and hands while talking, of any equipment or samples, and for action shots. These are great for cutaways. Panning shots are also useful. Have fun and experiment!

Here's a checklist to help guide your video recording:

- Have you created a [storyboard](#) so you know what shots you need? This can range from simple notes to a shot-by-shot breakdown.
- Have you explained the process to the participants and collected the signed releases?
- Is your camera in focus and secure to avoid shake? Are you away from background noise? Have you connected a better mic to your DSLR or are you using a separate audio recorder at the same time for better quality audio?
- Is your camera at the right height? Filming from too low makes a person look bigger and you can see up their nose! Filming from too high can make them appear too small and distort proportions of the body.
- Have you removed anything distracting from the set and from people on camera? Avoid clothing with stripes and confusing patterns, dangly jewelry, and too much clutter. If using a lapel mic, hide the wire and battery pack under clothes.
- Do you have great lighting and are you avoiding glares and distracting reflections from windows, water, etc.? If possible use translucent powder on the skin to avoid face shine.
- Did your participants introduce themselves with affiliation on the recording? It's also helpful to get them to write their info and email addresses down for you so you can get in touch to share the final product.
- Did you get establishing shots, action shots, close-ups, and different angles? To have more options when editing and to address anything that was unclear, did you go back to do another take or two?

*Tip 5:* Watching and critiquing science videos will help you develop your own style:

- [The Royal Institution – Best Science Videos of 2013](#)
- [The Royal Society – Robostyle – robots dance gangnam style](#)
- [Anole Annals – Great Video of Draco Displaying](#)
- [Day's Edge Productions – Snows of the Nile Trailer](#)
- [La Selva Student Film Festival](#)
- [GE – How Much Science Can You Fit Into 6 Seconds?](#)
- [NOVA's Secret Life of Scientists and Engineers](#)
- [Your Wild Life Project – Big City Social Life & Dr Holly's Cicada Safari 2014](#)

## EDITING YOUR VIDEO

Congrats on getting your film into post-production! Keep those creative juices flowing while you assemble your shots into a compelling story, add in your great audio and any music and sound effects, and apply filters and transitions (judiciously, as needed). You can also save time in your video by using text boxes for name, affiliation and location details. Here's the [help guide for iMovie](#) and the [help guide for MovieMaker](#).

Here's an example of an iMovie project, which I created by first importing my raw footage (above) as an event, before dragging desired clips below into the project (below):



The central line of video is the main footage shot with camera one. The footage above is a cutaway from camera two and some photos (from iPhoto). I inserted multiple audio tracks (from iTunes) and used auto duck for speech on top of background music. You can make your video as simple or fancy as you like – just have fun and explore!

## PREPARING FOR AN INTERVIEW

Think of what you want from the interview ahead of time so you can help guide your interviewee with questions to get the big picture and most important take home messages. Sometimes exciting information is uncovered during the interview so it helps to be a bit flexible too. The first thing I like to do is **break the ice**, get my interviewee a drink, and ask about his or her day (this also gives me a chance to check the audio levels, camera angle, etc. while we chat). Make sure you get the release form signed and out of the way and you've described how the whole process will work, from interview through to publishing, before the interview starts. Enjoy the process!

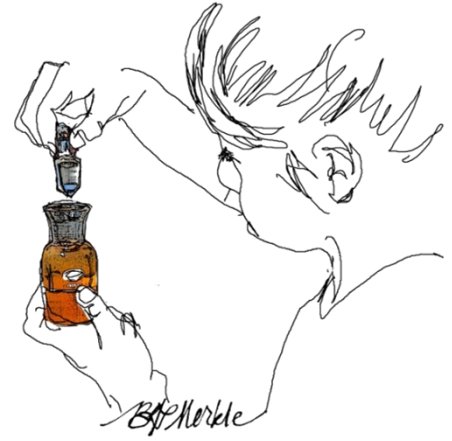
*Tip 6:* There are more useful tips on how to approach science interviews in [The Science Writer's Handbook](#).

# NOTES

*Audio & Video*

# RESOURCE GUIDE

## for Sketching & Illustration



**You want people to care about what you are doing, right?**

Well, humans think in images.

Our brains understand images faster, and remember images longer, than words. Clearly, the images we use to communicate our science matter.

Researchers have demonstrated that drawing can help clarify what you know, assist instructors in assessing student knowledge, and enhance public communication efforts. And, there is evidence that collaboration between scientists and artists may result in better science.

**This makes sense, because the history of science and art are closely intertwined.**

Prior to the advent of cameras, scientific inquiry required drawing. The drawings and paintings of Leonardo da Vinci, Maria Sybilla Merian, John James Audubon, or the maps drawn by Samuel Champlain and Lewis & Clark drove scientific discoveries around the world. Fast forward to the modern era – our understanding of the world back then would be impoverished had those scientists and citizens not made drawings.

**Today, we collectively avoid sketching because drawing has become art, and art (like science) has become professionalized.**

**And yet, drawing is not a domain exclusive to the pros.**

After all, the curiosity, close observation, recording, and critical thinking required for drawing should seem quite familiar to you as a scientist.

**"Sounds neat, but I'm not an artist."**

Everyone can sketch, even you. It could be argued that humans are actually born knowing how to draw. Our ability to draw goes back even further. Archaeological records indicate that drawing was the first visual representation method.

**That being said, modern drawing basics are learned, not inherited.**

Fundamental skills, techniques, and knowledge of different media (ex: watercolors, pencils, pen and ink) can be taught, practiced, and improved upon.

Thanks to this combination of your childhood aptitude and basic drawing techniques, anyone can learn to make a sketch.

**Why not just take a photo?**





## Four reasons to draw

1. **Sketching is a great learning tool.** You must observe carefully to make an accurate sketch. Looking this closely increases your knowledge of your subject and helps you remember it better.
2. **Sketching is a valuable data collection method.** A sketch enables you to do something a photograph cannot – you can highlight key features, combine elements, and depict fleeting or rare events. And, a sketchbook and pencil cannot run out of batteries, short circuit, or lose functionality because you forgot the proper cable.
3. **You can produce a sketch that is both data and an illuminating figure.** Consider the proven lifespan of paper records vs. our knowledge of digital archiving; your sketches may very well outlive your digital data, which means your sketches can inform not just your work, but that of generations to come.
4. **Sketching offers you a multidisciplinary way to connect** with your environment, new places, and nuances of everyday life that you might not notice otherwise.



## But, I'm still not an artist.

That's okay. The main hurdle in making sketches is self-doubt.

If you can agree that the point is to use drawing as a way of enhancing your research and communication, you'll be fine.

Perfect artwork isn't required for either.

## Great SciComm using sketches & illustrations

1. **If you read nothing else about why a sketch or illustration can enhance science communication, read this entomologist's explanation of how she balances research and drawing science comics.**
2. ***Field Notes on Science & Nature***, edited by Michael R. Canfield with a foreword by E.O. Wilson is a candid and insightful glimpse into field notebooks and sketches, of twelve well-respected ecologists (esp. chapters 7, 8 and 12).
3. **Buzz Hoot Roar** offers succinct (300 words max.) cheeky-yet-elegant science writing that showcases a wide variety of illustrators and drawing styles.
4. ***Scientific American* has a blog called Symbiartic** which is an insightful exploration of the "sum is greater than the parts" potential in melding art and science. They also curate **the #sciart list on Twitter**, which yields ever-evolving examples of how a sketch or illustration can be part of the scientific and scicomm processes.

## What about using sketches for science communication?

Imagine seeing a lively hand-drawn sketch instead of a dense hard-to-read figure the next time you look at science results. You can include your sketch in conference presentations, public talks, academic or popular manuscripts, blog posts, and social media posts..

**Your sketch, hastily scribbled in your field or lab notebook, tells a story.** That story could be the key to helping someone connect to you as a person. Drawings expose the seams behind science; they remind us that science is done by humans and that it's accessible.



5. **Science comics** such as xkcd and Piled Higher and Deeper (PhD) articulate what it's like to do science in a way that academics and the general public can appreciate.

## So, what do I need?

Just something to draw on and with. There are no 'magic' tools. Choose materials that feel comfortable or motivating and practice with them.



# Sketching materials, tools & equipment

Whatever drawing materials you choose, they should fit into your pack, bag, or purse, not weigh a ton, and be of sufficient quality that your sketches will last. You should be able to find plenty of options in the art department of your university book store.

**Paper:** Consider unlined sketchbooks with black hardcovers. They're durable, the paper is archival quality, and they look tidy on a shelf. [Stillman & Birn](#) produces a top-notch product in lots of sizes, and lots of other brands make good sketchbooks. If you don't use art-quality paper, be sure to get acid-free paper, or your notes will eventually fade and disintegrate.

**Pens:** Waterproof fountain pens are refillable and work with watercolor (and rain), as do permanent fine-point pens. A basic fine-point Sharpie works great, too, and some science illustrators swear by ball-point pens.

**Pencils:** Soft pencils (marked with a B) make rich dark lines which look great and scan well – but, they smudge easily. Hard pencils (marked H) resist smudging much better, but make lighter marks. [Johnathan Kingdon](#) recommends a basic B pencil, kept quite sharp.

**Color:** Use a small watercolor kit with a water brush (which has a water reservoir in the handle). It's a light-weight hard-to-improve-upon combo. Watercolor pencils are another good option for quick coloring that still offers some room for creativity.

**Digitizing:** Digitizing your sketch can be frustrating, but it doesn't have to be. [Click here for four easy tips that make it almost fun.](#)

**Digital drawing:** There are LOTS of apps for computers, phones, and tablets that enable you to create digital drawings on the go. The advantage is you don't have to clean up a sketch when digitizing it. The disadvantage is that you're more likely to check your email and snap a photo than actually make a sketch.



RAT NE - We've seen them in the pond despite proximity to a small lake, several times 31 MAY 2013

## Sketching resources

### Practicing sketching

- [5 simple sketching techniques even non-artists can use](#) (plus an intro to field journaling)
- [Sketching animals – good \(albeit casual\) tips from 8 sketchers](#)
- [3 free online sketching workshops](#) from Strathmore (art supplies company)
- *First Step Series: Sketching and Drawing* (Cathy Johnson, 1995)
- *The Sierra Club Guide to Sketching in Nature* (Cathy Johnson, 1997)
- *Urban Watercolor Sketching* (Felix Scheinberger, 2011)

### Field journaling

- CANPS curriculum (below)
- *A Life in hand: Creating the illuminated Journal* (Hannah Hinchman, 1991)
- *Keeping a Nature Journal* (Clare Walker Leslie & Charles E. Roth) and any of Clare's other books.

### Using sketching in your classroom

- [CA Native Plant Society field journaling curriculum](#) (GREAT intro to nature sketching material, whether you're a teacher or not.)
- [Drawn to Science](#)
- [Picturing to Learn](#)

### Working with an illustrator

- [So you want to hire an illustrator...](#)
- [Why hire a professional illustrator?](#)
- [Why it's helpful to work with a scientific illustrator](#)

# NOTES

*Illustration*

# PHOTOGRAPHY

## DEFINE YOUR PROJECT

Always start by drafting your story, deciding on the final project format (digital, print, multimedia, etc.), and making a [shot list](#).

## TAKE MORE COMPELLING PHOTOS

- Always read your manual and get to know your camera!
- Learn from online sources such as:
  - [www.improvephotography.com](http://www.improvephotography.com)
  - [National Geography photography tips](#)
  - [Webinars from the American Society of Media Photographers](#) (ASMP has a [great blog](#), too!) – note that most webinars and articles focus on the business and craft of photography.
- Know your light! Here are a few tips for [outdoor](#) and [indoor](#) settings.
- Study and mimic other photographs: [NY Times Lens Blog](#), [Nikon Small World Competition](#)
- Take [Craftsy](#) short courses to learn specific techniques like [Macro Photography by Clay Bolt](#) or [Photographing Birds in the Wild by Neil Losin](#), or go all out and head to Belize with Alex Wild and friends on a [BugShot](#) trip.
- Learn about and follow full-time conservation photographers like [Morgan Heim](#).
- Get creative with your equipment. Try out new projects such as: [GigaPan](#), [The Swamp School's Wetland PlantCam](#), [Phototrap](#), [Aqua-Vu Underwater Viewing Systems](#), [GoPro Wearable Digital Cameras](#).

You don't take a photograph,  
you make it.

- Ansel Adams

## WHY IMAGES MATTER

- [Communicating science through context: visualizations](#)
- [What if all the images went away?](#) *Scientific American* explores scicomm without images
- [Why images are more powerful than words, and where to find good images online](#)

## IMAGE RIGHTS *(same rules apply for illustrations)*

- [Is saying "Photo by Google" good enough for crediting images found online?](#)
- [Who owns the copyright when it's your camera but someone else takes the photo?](#)
- [Are you really giving away your intellectual property rights when you share your images on social media?](#) Maybe. Here are some best practices for sharing while retaining your rights.

## COLLABORATE

- Find/hire a photographer thru [NANPA](#), [NPPA](#), local photography clubs, or photography/photojournalism degree programs.
- Most parks, preserves, and natural areas have a few resident photographers, often retirees. Just ask around if you are new to an area.

# NOTES

*Photography*

# CREATIVE WRITING

## RESOURCES

- [Science Writer's Handbook + Pitch, Publish, Prosper blog](#)
- [Terms that have different meanings for scientists & the public](#)
- Size comparisons in science writing: [Bigger than a breadbox](#); [Small Stuff](#); [Impossibly Vast](#)
- [Translate obscure technical measurements](#) with [Wolfram Alpha](#)
- Carl Zimmer's [Note to Beginning Science Writers](#) and [List of Banned Words](#)
- [8 Tips for Starting a Science Blog](#)

## INSPIRATION

- [Toe Fungus & Why No One Loves a Science Writer](#) by Erik Vance
- [Joyas Volardores](#) by Bryan Doyle – short essay that starts scientific and goes literary/personal
- [The Great Giant Flea Hunt](#) by Carol Kaesuk Yoon
- [A moth, a fern, a feline: a species name story](#) by Terry Wheeler
- [Andrews Forest Quartet](#) – poems by Alison Hawthorne Deming – and more from the HJ Andrews Forest in [The Forest Log](#)
- [Conserving Quebec's caribou](#) – award-winning series about caribou researchers by Bethann G. Merkle
- [Clappers](#) – essay by David Gessner in the excellent literary journal *Ecotone: Reimagining Place*
- [A crappy little bastard that tastes great](#) – dealing with invasive species by eating them, by Erik Vance
- [Consider the Lobster](#) – a funny and informative essay that tackles ethics, too, by David Foster Wallace
- [New species at risk book written in indigenous languages](#) by GNWT departments of Environment and Natural Resources and Education, Culture and Employment, and the Sahtu Renewable Resources Board (illustrations by [ecologist and artist Jean Lieppert Polfus](#)).
- [Why Do You Watch Birds?](#) by Lili Taylor
- [On the bison trail](#) – a series written by ecologist Jerod A. Merkle & scicomm artist Bethann G. Merkle
- [Going Deep](#) – northern gannets up close, by David Gessner
- [Redefining "wild" to include humans](#) by M. Sanjayan
- [Ten historic female scientists you should know](#) by [Sarah Zielinski](#)
- [Yellowstone wolves take a blow to their rep](#) – debate over ecological influence of carnivores in YNP by Liza Lester
- [While Our Backs are Turned](#) – scientist-communicator Clarisse Hart on imperiled hemlock trees

### Crossing the Swamp

by Mary Oliver

Here is the endless  
wet thick  
cosmos, the center  
of everything—the nugget  
of dense sap, branching  
vines, the dark burred  
faintly belching  
bogs. Here  
is *swamp*, here  
is struggle,  
closure—  
pathless, seamless,  
peerless mud. My bones  
knock together at the pale  
joints, trying  
for foothold, fingerhold,  
mindhold over  
such slick crossings, deep  
hipholes, hummocks  
that sink silently  
into the black, slack  
earthsoup. I feel  
not wet so much as  
painted and glittered  
with the fat grassy  
mires, the rich  
and succulent marrows  
of earth—a poor  
dry stick given  
one more chance by the whims  
of swamp water—a bough  
that still, after all these years,  
could take root,  
sprout, branch out, bud—  
make of its life a breathing  
palace of leaves.

## SOFTWARE & APPS

To tell a good story, you often need to do historical/cultural research beyond your own science.



- **EVERNOTE**: an excellent way to organize all types of media for a story

Once your writing is published, these widgets can help you keep track of where it lands online.



-  : more comprehensive than Google Alerts – tracks webpages *and* social media mentions

## SCIENCE JOURNALISM

- **Interacting with the media**
  - [Why engage with the news media?](#)
  - [Writing science op-eds: finding your authentic voice](#)
  - [Top tips for media work](#)
  - [Tips for dealing with reporters](#)
  - [Tips for PR \(public relations\) writing](#)
  - [Writing a Press Release: Death by Six-Shooter](#)
  - [Peter Campbell, Public Information Officer](#) - What does *that* Pete Campbell (of *Mad Men* infamy) have to do with telling the world about your science?
- **Freelancer's resources**
  - [How to report from a science conference](#)
  - [Weekly tip sheets](#) from the Society of Environmental Journalists – offers background and story ideas on particular environmental topics (e.g. “Coastal Risk and Resilience in the Gulf Region”)
  - [Doing journalism with data](#) – an excellent free online course (open until Dec. 31, 2014)
  - [Online course in data journalism \(5-part series\) from the Knight Lab](#)
  - [National Association of Science Writers](#) – events and resources galore
  - [10 entrepreneurial journalism tools](#)
  - Journalist's Toolbox (from the Society of Professional Journalists)
    - [Data visualization & infographics](#)
    - [Environmental topics, resources, tools, etc.](#)
    - [Science resources & news](#)
    - [Writing with numbers](#)
  - [www.statisticbrain.com](#)
- **Ethics & guidelines**
  - [Ethical Journalism Network](#)
  - [Society of Professional Journalists' Journalist's Toolbox \(ethics\)](#)
  - [National Public Radio ethics guidelines](#)
  - [National Union of Journalists \(United Kingdom\) code of conduct](#)
- **Inspiration**
  - [SciLogs: Six Incredible Things Before Breakfast](#) by Malcolm Campbell
  - AAAS [Science Shots](#)
  - Science journalist Maggie Koerth-Baker's [well-curated rundown of science news](#)



# **NOTES**

*Writing & Journalism*

# GRAPHIC DESIGN

- [How do I make my communications look good if I'm not a designer?](#) Free apps and online tools that make graphic design (much) easier.

## FREE DESIGN TOOLS

- [The best free graphic design software](#) – a blog post detailing options for vector, image editing, 3D, infographics, and more

*Our picks include:*

- [Canva.com](#) – specializes in website-friendly templates
- Charts: [gliffy.com](#), [icharts.net](#), and [lovelycharts.com](#)
- [www.dipity.com](#) – online interactive timelines
- [GIMP – similar to Photoshop in capacity](#)
- Infographic design options: [www.easel.ly/](#) and [www.piktochart.com](#)
- [www.serif.com](#) – offers free (and paid) versions of design, photo editing, and drawing software

## PRESENTATIONS

- [Great hacks for improving your efficiency when making better PowerPoint presentations](#)
- ["Pimp your PowerPoint"](#) from *The Scientist* magazine
- [PowerPoint design mistakes and how to fix them](#), from a science illustrator
- [10 best ways to make a bad PowerPoint presentation](#) (yes, it's meant to be funny)
- [Picturing a poster for phones](#) by Ben Landis

## WEBSITES

- [6 nonverbal hacks for your website, so it captures attention](#) – these tips could apply to other visual communication, too.
- [Expert tips for improving your website on a budget](#)