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Source: Journal of Mammalogy, 91(2) : 285-292

Published By: American Society of Mammalogists

URL: https://doi.org/10.1644/09-MAMM-A-271.1

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Journal of Mammalogy, 91(2):285–292, 2010

Talking the talk: giving oral presentations about mammals for colleagues and general audiences

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This paper is based on an oral presentation delivered at the 89th Annual Meeting of the American Society of Mammalogists in Fairbanks, Alaska on 25 June 2009, where I was honored to receive the Society's Joseph Grinnell Award for excellence in education in mammalogy. The motivation for the topic of my presentation was the many ''bad'' talks all of us have endured at scientific meetings and in other situations. As I do for undergraduate and graduate classes, rather than providing a list of seminar ''dos'' and ''don'ts,'' I presented a practical demonstration of many of the ''don'ts'' I have observed and then attempted to present the same information incorporating as many of the ''do's'' as I could. In other words, I delivered a bad and then a good version of the same presentation. My goal was to provide the audience with advice that would be useful when presenting information about mammals to scientific colleagues and the general public (e.g., service clubs or school groups). Given that it is impossible to recreate aspects of my performance using the written word, my purpose here is to summarize my opinions about the key elements of good talks. The goal of a talk should be to maximize the likelihood that it will be perceived as interesting, thoughtful, and purposeful and that the key take-home message(s) will be understood and remembered. It is my strongly held belief, especially with the now essentially universal use of computer slideware (e.g., PowerPoint), that an opportunity exists to enhance the usefulness of oral presentations but a real risk of muddling them to the point where the intended message is lost. I also make some recommendations about how to avoid common pitfalls of using this software. DOI: 10.1644/09-MAMM-A-271.1.

Key words: Grinnell Award, how to, opinion, oral talks, presentations

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I begin by echoing the 2008 Grinnell Award winner Peter Weigl (2009) in finding it difficult to adequately express my gratitude to the American Society of Mammalogists for bestowing the Joseph Grinnell Award for excellence in education in mammalogy on me. I am especially flattered that a cadre of my current and former graduate and undergraduate students would take the time and make the effort to covertly identify me to the adjudication committee. I also concur with Weigl (2009) that this sort of award prompts considerable contemplation about one's career and scholarly activity. The award generated considerable stress for me about what I could contribute by way of a plenary talk in light of recent thoughtful and eloquent presentations by past recipients. Ultimately, I confess that my topic was motivated by sheer selfishness. I have spent more than 25 years attending a variety of scientific meetings and other events and have enjoyed, in some cases, and endured, in others, countless seminars, lectures, and public presentations, all in the name of education. Many of these talks have fallen on my deaf ears or otherwise missed their mark, often for reasons not of content but of presentation. On many occasions I have found it exceedingly difficult to evaluate the quality of the science presented in a talk, because the underlying message was entirely unclear to me. Thus, for my Grinnell Award presentation I chose to give a practical demonstration of many of the ''don'ts'' I have observed and then attempted to present the same information incorporating as many of the ''do's'' as I could. In other words, I delivered a bad and then a good version of the same presentation. By its very nature this exercise induces exaggeration and humor that was intended to enhance the message. This type of presentation is impossible to recreate in words so what follows is a summary of my opinions about some do's and don'ts for giving stimulating and clear oral presentations. I do not include any attempt to make suggestions about how to improve the quality of the science in the presentation because that is an entirely different topic. However, I hope my message will help

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presenters avoid having their science viewed negatively, when really it is their presentation skills that need polishing.

Many useful ''how-to'' sources of information can be found to help scientists present their work, including suggestions about writing manuscripts (Booth 1994; Carraway 2009a, 2009b; Day 1983) and giving presentations (Anholt 2001; Booth 1994; Day 1983; Pickett et al. 1991; Rhodes 1995; Valiela 2001). My own opinions about speaking have been shaped by reading a variety of these sources, listening to the opinions of some exceedingly thoughtful and (thankfully) brutally honest colleagues, giving hundreds of talks and thinking about what did and did not work, and carefully reflecting on the strategies used by other speakers who made their message come through clearly for me. With that in mind, what follows are my opinions alone, and I acknowledge that personal presentation styles vary widely and more than one way exists to give a good talk. My purpose in writing this paper is to stimulate critical thinking about the mechanics of giving talks for a variety of audiences. It is essential to remember that individuals are taking time from already full schedules to listen. Thus the goal must be to leave that audience with a clear understanding of what we mean to convey.

For the purpose of organization, I have classified my suggestions into 3 categories: Purpose and Organization; Mechanics; and Slides (although the term ''slide'' is not a precise descriptor for PowerPoint images, I am unaware of a suitable replacement). Some specific topics do not fit neatly and easily into any one of the categories, so some overlap is found between sections and, as in a good oral presentation, some repetition.

Purpose and Organization

I am convinced that the single most important guiding principle for giving any oral presentation is to *respect* and *understand* the audience, be it a lecture for undergraduates, a session for graduate students, a departmental seminar, a 15-min talk at a scientific meeting, or an illustrated chat for the local 3rd-grade children. In my opinion it *is* possible to make similar points and provide virtually the same information to all of these different audiences if, as the speaker, you work to understand that audience. The major difference is usually only the level of specific detail presented. As a speaker it is critical to never lose sight of the fact that you are, in effect, asking for the privilege of taking the time of every member of that audience.

Although more specialist details would be given to a scientific audience than a 3rd-grade class, many talks in both venues miss the mark by trying to cram in too many details. The success of your talk will be judged by your ability to engage and enlighten the nonspecialists in the audience. It will not be judged, especially if you give general talks about mammals to school children or public audiences, by how much you impress the 2 people in the front row who happen to know a lot about your subject. I think that it is too easy for scientists to forget that no audience can absorb all the details and data stemming from our research. Interested colleagues can find the details and fine-scale data in our published works. It is in those papers that readers should be given the specifics that can be reread at any time and referred to as necessary. Speakers must remember that the purpose of an oral presentation is to provide the audience with a few clear messages that will stimulate them to think about their own work in the context of yours, ponder science as a career, or for mammalogists, simply foster a greater appreciation for the animals we study. On the basis of your talk, no one will or should be asked to remember that the *P* value was 0.013458 or that the home range of the bat was 123.4578 ha. They may remember that bats roost on the sheltered sides of trees, but they surely will remember you were the speaker with the large ketchup stain on your shirt. Furthermore, reporting numbers to multiple decimal points is meaningless given the precision of measurement. Reporting any statistics in talks to nonscientists is usually inappropriate.

Most failures of talks stem from issues of content, not decoration. If your words and images are not to the point, having them (or you) dance in color will not make them relevant. A talk is not a scientific paper and the audience cannot go back and review what you said at some future point. Therefore it is critical to build your presentation around the 1 or 2 take-home messages you want to deliver and then develop the argument for the message, doing it slowly and clearly enough for the audience to follow. By using a title for your talk that is couched as a question, a scientific audience will be able to deduce the hypothesis you tested. A scientific talk should communicate your enthusiasm and ideas, not just data and details. Boil your ideas down to their essence, and plan on how to leave the audience remembering it. I am the first to admit that while saying this is easy, actually doing it is not always simple. I do know that your audience will respect you as a speaker and a scientist if you spend time thinking about making an effective presentation rather than on which animation technique in PowerPoint will make your data look ''neat.'' The message can be enhanced by the medium, but for a talk, the medium should never *be* the message.

Begin by stating the hypothesis that guides or focuses your work. Consider revealing the concluding message of the presentation at the outset. Repetition of the important message will help your audience remember it, and no ''Agatha Christie bonus points'' are acquired for a mystery that keeps the audience guessing to the end. Unlike a written paper (although you will notice that I have repeated myself already in this paper), some repetition during a talk is a good thing. Speakers should be encouraged to reiterate the take-home message of the talk and explain to the audience members where they are in the process of supporting that message.

The introduction to your talk should be brief, just enough to set the appropriate context so that it will be clear why the concluding message is important. When you get to the end, a reference to the context you set up in the introduction will bring the talk full circle and thus to a logical conclusion. Again, unlike a written paper, it is appropriate to give the audience an outline, or my preference—some form of symbolic indication that you come back to and they can

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follow. I think that the methods part of a short talk at a scientific conference should be minimal. For all but a very few specialists in a typical audience, the specific model number of the radiotransmitter, the microsatellite primer, or the manufacturer of small mammal ear tags simply does not matter. If these are important to the specialists in the audience, they will ask a question, find you at the coffee break, or consult your publications. However, most of your audience will believe you used the right ones, and listeners are simply not concerned with these specifics. The results and discussion sections are the key to your talk, and often it works well to present them at the same time. Remember, the goal is not to have audience members remember details; it is to provide the group you are talking to with the ability to assess the quality of your work and the conclusions about what your data mean.

Refer to the structure of your talk as you progress to reinforce the intended take-home message(s). You should have a clear train of thought that the audience can follow so that they always know where you are in the progression of laying out your arguments. The audience should never have to guess why you are saying something or where you are in your argument. These ideas about organization hold true for presentations ranging from talks at the mammal meetings to a presentation about your favorite mammal in an elementary school.

Mechanics

I would argue that most people can give a lucid, thought-provoking talk as long as they pay attention to some fairly simple rules of mechanics (assuming they have done good science). First, the presentation must be prepared and practiced so that it fits the time allowed. It is never, ever okay to go over time. It is far better to cover less information and cover it well than to try to jam more data in and relate it poorly. In my experience it is exceedingly rare for an audience member to leave a meeting session saying: ''I hated that talk; it was only 10 minutes long and they had 12.'' Knowing that you are not going to be rushed for time also means that you do not have to speak so rapidly that you cannot be understood. Furthermore, a small time buffer will allow the audience to settle and unforeseen quirks in lighting or technology to be worked out. For the mammal meetings, session chairs are given strict guidelines about what to do with speakers who go overtime. On this matter I think that session chairs are not nearly coldhearted enough most of the time. A close colleague of mine would suggest that significant voltage applied to an over-time speaker is *the* appropriate antidote for being long-winded. A talk that goes over the allotted time represents an error in judgment and a form of disrespect to the audience, the session chair, and the other speakers in the session. Moreover, it also lessens the respect you can hope to gain from the audience. Likewise, if the talk you have been asked to give as the after-lunch entertainment for the Rotary Club was requested to be 20 min, then stop after 18–20 min. At that point the audience members may actually want to hear more from you and ask some questions rather than be searching desperately for an exit.

Presentations given at meetings or as job seminars are universally referred to as talks, not ''reads.'' So why is it that some speakers take a huge sheaf of notes to the podium with them? By relying on notes you are much less likely to be able to engage the audience, make eye contact, use your slides as prompts for both yourself and the audience members, and judge whether your ideas are being understood. Remember that as the speaker you know far more about the subject than the vast majority of people you are speaking to do. Frequently, you are *the* expert in the area. Many of my students have argued for talking with notes with the question ''but what if I forget something''? My response is that if you forget something important, you will be asked about it in the time that you have left for questions, and you will be all set with the answer. If you forget something relatively minor, no one will even notice that you forgot it. I also argue that to minimize the chance of forgetting something by memorizing your talk brings an even larger set of risks. If for some reason you lose your place on your brain's ''hard drive,'' it can be exceedingly difficult to reboot. I think the best strategy is to design your visual aids as prompts so that they provide clear cues for what you are supposed to say. If they provide good cues then you are highly unlikely to forget the major points you want to make and, even if you get a bit flustered, it is easy to get back on track. In addition, the cues that the slides provide to you as a speaker will likely be clearly evident simultaneously to the audience. When a clear correspondence is made between the spoken and visual messages, it is easier for the audience to follow your train of thought—which goes back to the goal of the talk. If you make it easier for your audience to follow, they will be more attentive and able to concentrate on your message, which is your goal. Often, slides that are only pictures (Young 2004) or even a single word (e.g., Lessig Style—Reynolds 2008) will provide the cue needed to make your point.

Two things to think about before you ascend the stage to give your talk are both related to how you look. The simpler of the 2 decisions is about the conditions in which to start your talk. Remember, the goal of your presentation is to get the audience to consider your ideas, and if you are at a conference, to encourage audience members to talk with you about the merits of your work afterward. To do that they have to find you and recognize you, so start your talk with the lights on if it is possible and do not hide behind the podium. If the audience members can see you, they will gain a better appreciation for what you look like and thus stand a better chance of finding you later at a coffee break or the pub. During your talk having at least some lights on (or bright slides, see below) allows you to better engage the audience and reminds you and them that the talk you are giving is really a dialogue between people, not just people looking at slides. Having some light in the room will enable audience members to take notes and lets you read their faces to make sure that they are understanding the message. An excessively lit room has the downside of making your slides potentially less visible. Anticipate this by checking out the room before your talk and adjust as needed. A good idea is to arrive with 2 sets of slides; 1 for a dark room and 1 for a light one so that you can choose between the sets.

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The 2nd issue to think about before your talk is perhaps more controversial. That is what to wear. Although your appearance has no direct bearing on the actual quality of your science or the novelty of your ideas, it does send a clear message about how you perceive the importance of the presentation. You are showcasing yourself as well as the subject matter every time you talk to an audience. I recommend dressing slightly more formally than the majority of the audience. For me, this means a neatly pressed Hawaiian shirt (as ''loud'' as possible) and clean khakis (although my students would dispute whether this gets me to a level slightly above the audience!). Dress so that you feel and look comfortable, both physically and psychologically. If you have never worn a sports jacket, tie, or high heels, then giving a talk in front of 100 people is probably not the time to give it a first try. Furthermore, for mammalogists, this level of attire is typically far more formal than necessary. A clean, neat appearance not only conveys the message that you care about how the presentation comes across but also that data collection and analysis were done with care and precision. Dirty old jeans with holes, a ratty t-shirt and uncombed hair, or a baseball cap does not convince the audience that you value their opinion. Even more important than dress code, lounging on the podium during your talk or while taking questions gives the impression that you are bored and that giving the talk is the last thing you really want to be doing. All the latter accomplishes is to make the audience wonder why they should bother listening. No matter what the situation, always think that one or several of the audience members may be in a situation to provide an opinion about whether or not you get a job, tenure, promoted, or invited back. My choice of a brightly colored Hawaiian shirt (of which I own several dozen) is purposeful, so that after the fact, interested audience members can find me easily. I readily concede that some may find this inappropriate, and I do not recommend that all speakers wear neon Hawaiian shirts. For one thing, if everyone did this, I would have to wear something else, but, more important, it is critical to wear something that you feel comfortable in.

More critical than wardrobe is practice. It is simply *not* enough for most people to simply read through a talk a couple of times beforehand. Things that read well can sound awkward. Speaking aloud, preferably while standing in front of some type of audience (parent, spouse, friend, or colleague) who will give honest, constructive feedback, will help you find the rough spots. Rehearsals, with visual aids, are utterly essential for timing your talk properly. Your goal is to achieve a comfortable, confident, conversational style without running overtime. Videotaping a practice session is a great rehearsal technique. Many people loathe seeing (or hearing) themselves on tape, but it clearly identifies faults. Watch for these things: Do you make eye contact? Do you ''talk'' with your hands too much? Do you smile occasionally? Do you display appropriate posture? Do you have any distracting mannerisms? This method, although somewhat painful, is brutally honest and therefore extremely valuable. This is not to say that a polished delivery is more important than content, but how you present your material has direct implications for how well it is received. Acknowledging this fact is a large part of the commitment you made in agreeing to speak.

If something goes wrong with your presentation, be it for reasons that you cannot control and even more so for reasons that you should have controlled, never apologize. Sometimes one stumbles over or forgets a word, or at times the wrong word comes out, or perhaps you have to stop and clear your throat, etc. In these cases, apologizing only draws attention to a minor thing so it is better to just keep going instead. If you discover that a point on a graph is incorrectly plotted, a typographical error, or the font size in a table is too small, apologizing to the audience will not make up for what you should have checked before the talk. Do not draw attention to an error that many in the audience may not even notice—simply keep going as best you can. I concur with Janzen (1980) who argued that it is not up to you to apologize but up to the audience to decide whether or not to forgive you.

So you are all set to go and the time has arrived to open your mouth to speak. Before the 1st syllable escapes, remember: volume, cadence, pace, where to put your eyes, and what to do with the rest of your body. For a start, it is virtually impossible to speak too loudly (unless you shout into a powerful microphone), but it is a really common mistake to speak too softly. I always try to speak at a volume that will make it easy for the person sitting in the back row to hear me, and it is important to do this for the whole talk. When in doubt, speak up. I have rarely heard the complaint, ''boy, that guy talked too loud.'' Often coupled with a soft voice is an overly fast pace. A rapid pace is perhaps the best give-away of nervousness. Plain and simple, practice speaking s-l-o-w-l-y. No better alternative can be found than to actually practice speaking in front of people when you *are* nervous. Subject yourself to this situation repeatedly by giving talks whenever you get the opportunity. Couple this with using diction that is as clear as you can muster and your audience will thank you, especially those whose 1st language is not English. I recommend that you speak in short sentences that in most instances have 2 verbs. Occasionally, an exceedingly short sentence can be used for emphasis. Make sure you *finish* every sentence. Many speakers do not do this. Also be aware that many of us unintentionally let the intensity of our voices trail off at the end of sentences. Speaking in short sentences and slowly means that overall you will say relatively few words, probably less than 1,200 in a 15-minute talk (Booth 1994), so it is critical to use simple, clear words. The 1 in 4 people in the audience who likely have hearing deficiencies will greatly appreciate that you use a slower pace, and the whole audience will appreciate your simple, direct, and active words.

As far as cadence goes, variation is the spice of life and monotones are monotonous. However, when you introduce variation in the intensity of your voice, remember that at its softest you must still project to the back of the room. Finally, I think that one of the hardest yet most important parts of a good talk is making eye contact. This is critical to engaging your audience. Pick out a few friendly faces and talk to them. As for

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the rest of your body, make sure that the audience sees your ventral rather than your dorsal or lateral sides for the vast majority of the time you are speaking. Face the audience, not the screen.

Language can also be an issue. English can be spoken in countless dialects and with an almost endless variety of accents. Remember that, to others, you *do* have an accent. Personally I often find it as difficult to understand someone from the southern United States whose only language is English as I do a native Spanish or French speaker speaking in English. I must remember that audience members from other countries may often find my Anglophone Canadian ''oots'' (= out) and ''aboots'' (= about) a challenge to understand. Speaking slowly will always help, but so too will the words you use. At all costs avoid undefined jargon and acronyms because virtually all of the audience will have difficulty catching on to specialized terminology. Keep it simple and clear.

Humor as a component of speaking style is yet another issue. A point illustrated with humor can be of great value, but a prepared joke that bombs will make audience members focus on your attempts at being a comedian and lose sight of the intended message. If you are comfortable using humor then do so; if not, leave it out. Never let your presentation degenerate into a stand-up comedy routine (Bragg 1966). Another controversial strategy is the occasional use of expletives in a talk. Although I use such words at times for emphasis, others view this type of language as a distraction because they deem it offensive. Judging your audience is critical as the response can vary widely.

Virtually everything about speaking comes down to engaging your audience and minimizing distractions. You want the audience to concentrate their attention on the ideas that you are bringing to them, not the fact that you are doing amusing things with the pointer stick, jingling the coins in your pocket, or playing with your piercings. Before your talk get some friendly but critical colleagues to watch you speak and point out the odd mannerisms or excessive needless movements that are distractions. In the age of laser pointers remember that they do damage to the retina, so do not inadvertently point them at the audience. Waving the pointer at the screen aimlessly is another sure sign of nervousness and as likely to induce motion sickness in your audience as it is to highlight critical pathways, trend lines, or values. Hold the pointer steady by resting it on your arm and use it briefly and purposefully. If you cannot hold a laser pointer steady, then do not even pick it up, let alone attempt to use it. Find a stick instead.

Finally, I strongly recommend that you make your enthusiasm for the topic entirely obvious. If you are not entranced by what you are saying, people in the audience will find it difficult to be any different. Enthusiasm does not mean a slick production that glosses over the deficiencies of a poor body of work but rather a rehearsed and thoughtful explanation about research that you have spent a lot of effort and time doing rigorously.

Slides

''Imagine a widely used and expensive prescription drug that promised to make us beautiful but really didn't. Instead the drug had frequent serious side effects. It induced stupidity, turned everyone into bores, wasted time, and degraded the quality and credibility of communication. These side effects would rightly lead to a worldwide recall'' (Tufte 2003). Exactly! Yet slideware in general, and PowerPoint in particular, has become the norm for presentations everywhere. Although presentation software provides tremendous opportunities to enhance talks, inherent risks include falling into traps that reduce audience engagement and distract them from understanding and grasping the take-home message. Visual aids should be prompts for the speaker and for the audience, where prompts facilitate understanding of your spoken words. Each slide should make 1 or at most a couple of related points and serve as a clear cue about the message for both the speaker and the audience. So how do you do this?

As a start, do everything practical to reduce the amount of text on each slide. A word is better than a phrase, a phrase is better than a clause, and a clause is better than a sentence. I suggest you never use sentences. Fewer words on the slide are better because the audience will be more likely to listen to you to get the full message (Figs. 1A and 1B). The visual cue of the slide simply reinforces the message. Remember, the audience can read something 3 times faster than you can talk. If you are just going to put up huge amounts of text, why not give them the manuscript to read? You do not want your audience members to have to divide their attention between listening to you and reading a novel on the screen. At most, a slide should have 5 lines of text. Also, follow the ''rule of 30''—never have more than 30 words on a slide. Try to reduce the overall number of slides in your presentation. For example, why include a title slide? At most meetings and seminars title slides are superfluous because you and your title have just been introduced. Why not get to the point? This opinion is not universally shared, and for some speakers displaying coauthor names and institutional affiliations is important. A title slide also can be helpful in that it provides a moment for audience members to see what you look like.

The text you do put on each slide should be large and clear enough for myopic audience members to read in suboptimal lighting from the back of the room. For me, that means using at least 32-point Arial font when preparing slides. Using text this size means that a minimal number of words will fit, which is a bonus. Couple this with high contrast and your audience will be able to read everything. Although some claim to abhor it, I personally am perfectly satisfied with black text on a white background. It is easy to read and provides lighting for those who want to take notes. Some find it generates glare, so there is no keeping everyone happy. White or yellow text on a black or dark blue background is also high contrast, but in an extra dark room, it may provide added incentive for audience members to catch up on the sleep lost through a late departure from the pub the night before.

A great deal of truth is found in the expression that a ''picture is worth a thousand words.'' We best retain what we see and hear

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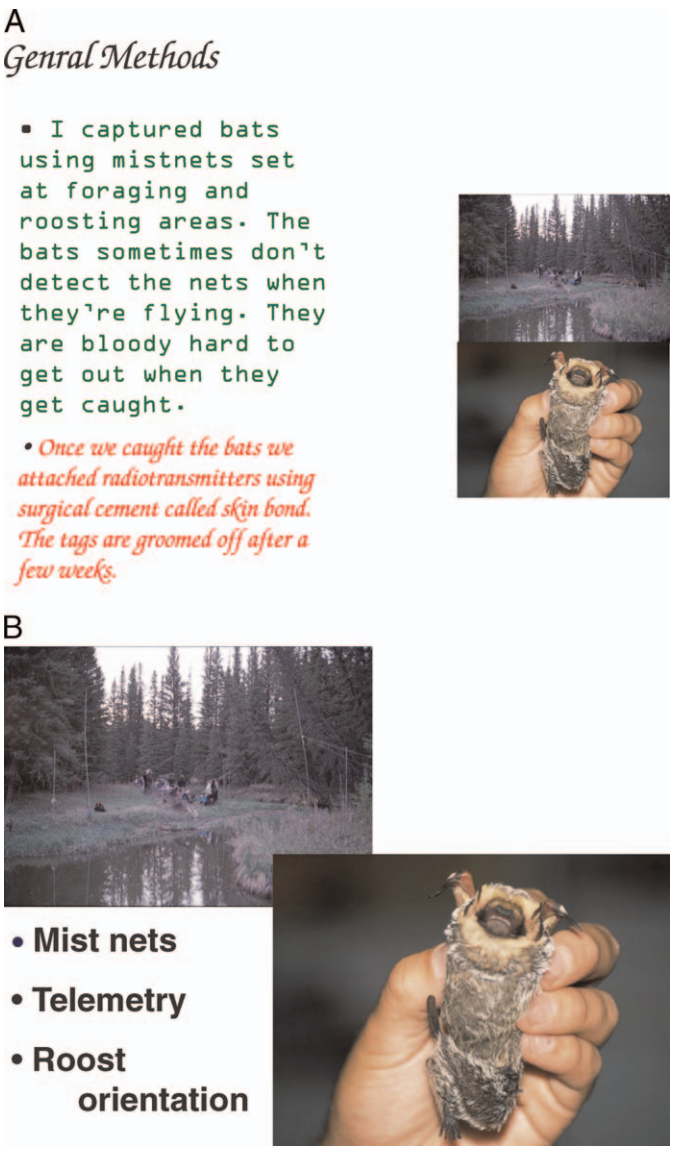


FIG. 1.—Contrasting slides that are (A) bad and (B) good in terms of text size, font style, amount of text, and size of pictures. (B) has much less text, no typographical errors, uses a standard (Arial) font of large size (36 point), and makes use of large photos that provide the speaker and the audience with cues about the words on the slide. Photos by C. K. R. Willis.

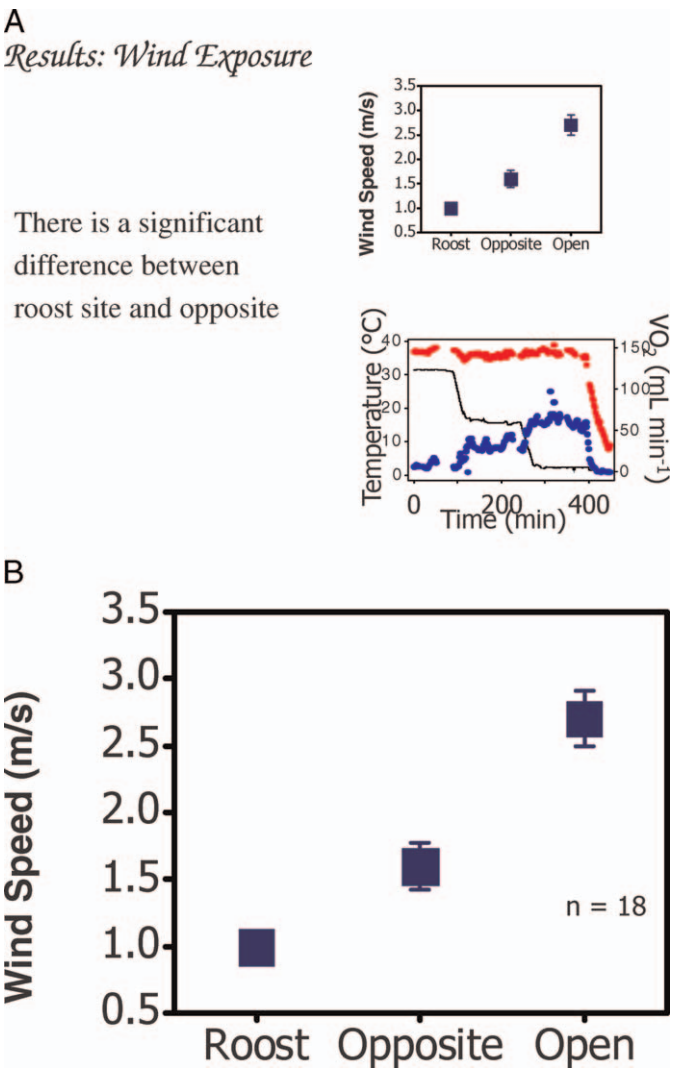


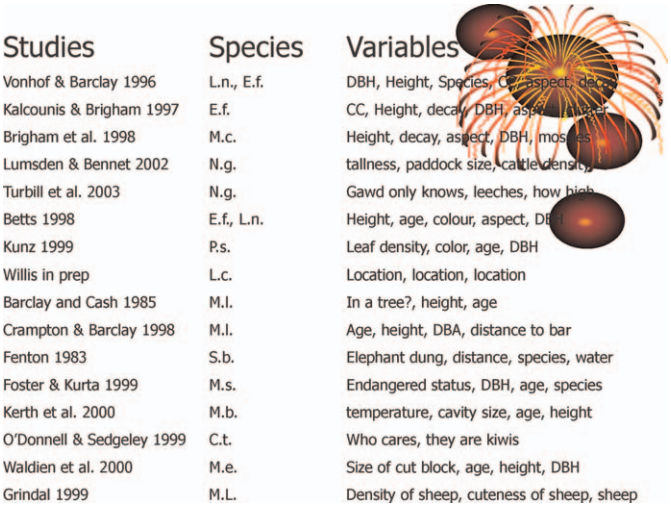
FIG. 2.—Contrasting slides that are (A) bad and (B) good in terms of how to present graphs. (B) has a single large graph with the title deleted, clear axis labels, high contrast, and an indication of variance and sample sizes (which provides a clear indication about statistical significance).

simultaneously. Thus I strongly recommend that to present a summary of data, use a figure rather than a table (Fig. 2B). For many people a diagram, figure, or illustration is far easier to grasp and remember than even the simplest tables. Rhodes (1995) provides several fabulous examples of good and less good illustrations showing clearly what works and why. Graphs need large clear axis labels and indications of confidence limits (e.g., standard error of the mean). Labels often become unreadable when more than 1 graph is on the same slide (Figs. 2A and 2B). For scientific talks, without exception, all data must be in metric units. Virtually the whole world, except for the United States, uses this system in everyday life and for science.

Slides should be prepared specifically for the presentation to that particular audience. This means that you should never give the same talk twice. Even if you simply change a slide or 2, or the order in which some things are presented, some part of the talk should always be new to you. If you are bored giving it, your attitude will be perceived quickly by the audience. This brings us back to respecting your audience and thinking about how best to convey your message to them. What is paramount is the message, not the ''stuff'' that helps you convey it, or some digression that you might think is interesting.

I have a few other simple rules about slides. Do not use borders because they just distract (Fig. 3). We do not need to be reminded on each and every slide you present that you come from the University of Lower Posthole. If we really want to know which institution we should write asking that you never be invited back, we will consult the abstract or the program. Do proofread all of your slides. Typographic and grammatical errors indicate sloppiness. Do use pictures to make points, but make them as large as possible on each slide. Do use animation

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Studies	Species	Variables
Vonhof & Barclay 1996	L.n., E.f.	DBH, Height, Species, CC, aspect, dec
Kalcounis & Brigham 1997	E.f.	CC, Height, decay, DBH, asp
Brigham et al. 1998	M.c.	Height, decay, aspect, DBH, mos
Lumsden & Bennet 2002	N.g.	tallness, paddock size, cattle density
Turbill et al. 2003	N.g.	Gawd only knows, leeches, how high
Betts 1998	E.f., L.n.	Height, age, colour, aspect, DB
Kunz 1999	P.s.	Leaf density, color, age, DBH
Willis in prep	L.c.	Location, location, location
Barclay and Cash 1985	M.l.	In a tree?, height, age
Crampton & Barclay 1998	M.l.	Age, height, DBA, distance to bar
Fenton 1983	S.b.	Elephant dung, distance, species, water
Foster & Kurta 1999	M.s.	Endangered status, DBH, age, species
Kerth et al. 2000	M.b.	temperature, cavity size, age, height
O'Donnell & Sedgeley 1999	C.t.	Who cares, they are kiwis
Waldien et al. 2000	M.e.	Size of cut block, age, height, DBH
Grindal 1999	M.L.	Density of sheep, cuteness of sheep, sheep

Fig. 3.—A classic example of a table with too many rows. A table of this sort is typically accompanied by the speaker telling the audience to ''just look at this part.'' Also unnecessary is the exploding border, short forms for species names, colloquial descriptions, acronyms, and jargon.

if you are confident in working with it and the animation relates to the point you are making and enhances your presentation. Do not use animation if you are unsure about it or its value is questionable. For example, I think that having bullets appear as you speak about the point, or arrows appear to mark a photo or critical point on a figure, can be effective. But gimmicks such as having pictures spin or cartoon bats flap their wings are distracting and of little value. Furthermore, they leave the audience wondering what point is being made.

Remember that 7–10% of males in the audience are red–green color-blind (Chiras 2008). Therefore do not use red and green together on a slide. Use color when it actually enriches your message. Do you really need purple and yellow to get the message across? Again, opinions differ, and some think that pleasing colors have a beneficial effect on the audience. I am more cynical.

No one should ever preface a slide with the words, ''pay attention to this part only.'' By saying that, you mean that the rest of the material is unimportant. If that is true, then you should have changed the slide so that it only conveys the essential information. A common example of this occurs when a speaker shows a Table with 10+ lines of text (Fig. 3). By definition the font size is such that most of the audience cannot read any of the words or numbers anyway, and it is thus impossible to get the point from it. Tables should be specifically prepared to include only those data that are going to be mentioned in the talk.

In scientific talks graphs are typically used to give a visual representation of a pattern in the data. For scientific audiences, and even more so for nonspecialist groups, it takes time to comprehend the intended message of graphs. To be repetitive yet again, keep first and foremost in your mind as you prepare, ''what is the message I want to get across?'' Help your audience by leaving graphs on the screen for extended periods; making axis labels large so they are easily readable; explaining the axis legends; giving the sample size so that the data in the graph are clear; and foregoing the use of a title or a legend so that you can make the graph as big as possible (your job is to describe what the graph means and what the axes, lines, and points represent). Giving a description of the graph means that it is on the screen for more time, which gives the audience a better chance to absorb the material and appreciate how it enhances your message.

The End

So you have come down to the last few seconds and the end of your talk is in sight. Fight the urge to speed up in a sprint for the finish; keep your voice loud and slow. Re-emphasize the conclusions, and tell the audience explicitly what the take-home message is. It is important to indicate clearly when you are actually done so no awkward pause occurs while audience members wait for the possibility of more words; simply saying ''thank you'' is enough. The chairperson, not you, decides whether questions will be taken, so asking for questions is not an appropriate way for the speaker to conclude.

Then it's time for the ''acknowledgments'' slide, right? My opinion, which is probably in the minority on this issue, is to forego it altogether or display it and not speak about it. I recognize that acknowledging funding agencies is important, but I think this is better left to the manuscript you will write. I really think it is a waste of time to tell us about the wonderful field assistants you had when most of the audience have no idea who they are.

So the talking part of your talk is complete and it is now question time (assuming you have left enough time for them). This does not mean your presentation is over. You are still on display so maintain the same level of formality and posture that you used during the body of your talk. Do not be afraid or aggressive. Answer questions succinctly and clearly. Do not give soliloquies as no one else save the questioner may really care about the answer. Always repeat the question, which gives you a few seconds to consider the best way to answer it. In your brain, a second spent thinking will seem like an eternity, but the audience will interpret it exactly as it is, a smart person gathering her/his thoughts before speaking. If you are not sure of an answer, say so, establishing the opportunity for informal discussion after the session. Better to say ''I do not know'' than to try to baffle people with rambling speculation. Everyone in the hall will be able to tell that you really do not have an answer.

My final recommendation is simple … enjoy yourself! This is true whether 8 or 108 people are listening. You are speaking to the ones who want to be there, so have a good time. If you enjoy yourself and let your enthusiasm show, you will have shown respect to the people in the audience and provided them with a take-home message: Science is fun and mammals truly are fascinating.

Acknowledgments

I acknowledge (without permission) colleagues who have provided me with critically valuable comments and suggestions about how to give talks, especially: R. M. R. Barclay, A. C. Brigham, M. B.

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Dunbar, M. B. Fenton, R. D. Fisher, F. Geiser, M. C. Kalcounis-Rüppell, D. B. Gerhard, E. H. Gillam, R. G. Poulin, C. M. Somers, H. G. Weger, and C. K. R. Willis. I thank C. M. Somers, M. B. Fenton, D. A. Kelt, F. Geiser, C. K. R. Willis, P. D. Weigl, and an anonymous reviewer for comments on earlier drafts of the manuscript. I would be remiss if I did not also acknowledge the inspiration provided by countless persons who did not respect the audience enough to spare us from their decidedly poor presentations. Some of the figure slides are from C. K. R. Willis' 463 ''good talk–bad talk'' exercise which he and I both use in our undergraduate classes. I am exceedingly grateful to current and former students, ably marshaled by C. K. R. Willis who covertly undertook the effort to nominate me for this award. Therefore, anything I said was really their fault.

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Submitted 23 August 2009. Accepted 27 October 2009.

Associate Editor was Barbara H. Blake.

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