As you gear up (pun intended) for our exciting September expedition to the Galapagos, I thought a few words about photography might be of use. The Galapagos Islands and their unique flora and fauna are so amazingly photogenic that you will find yourself drawn to photography there even if you have never even been tempted before. Truly. Because the animals of Galapagos (and, of course, the plants!) have very little fear of humans, everyone becomes a first-class photographer in Galapagos. Photography has two additional advantages: (1) It helps the photographer focus on a scene and/or organism(s) in new and different ways, thus opening one’s eyes to see the world anew; and (2) it enables sharing the unique experience of Galapagos with friends, family, civic or school groups, and others in ways that exceed the power of words.

For this handout, I will focus on digital still photography. Video is highly recommended and always very effective in Galapagos. But here let me stick here to what I know best: digital stills. Please understand that digital photography is simply a hobby of mine--my favorite hobby, in fact--and I make only a hobbyist’s effort to keep up with changing technologies and philosophies of photography. So do bear in mind that the following are just a few hobbyist suggestions, for whatever they are worth!! We are very fortunate on this expedition to have two talented SCA’s (Sophomore College Assistants) – Tom McFadden who is very handy with video cameras and technology, and Elizabeth Doyle who is an awesome still photographer. Both of them are eager to help as well. One last important note: On land in Galapagos, flash pictures are prohibited (the only exceptions are inside buildings at the Darwin Research Station, or at a hotel or restaurant). On our ship flash will be fine, and in fact, very handy. But whatever you do about camera gear for the expedition, make sure you know how to shut off the flash on the camera you bring! (In the worst case scenario, bring band-aids or other tape to cover the flash every time we are on land!)

1. As you well know, photography is currently in the throes of rapid technological change owing to digital imaging advances. It is impossible to predict with accuracy where the changes will eventually lead, but one thing is certain: digital image processing has forever changed the way we use and appreciate photographs! Since the technology of digital imaging is changing almost week to week these days, with more BIG changes on the way, I would recommend extra caution, and a lot of reading, before acquiring expensive camera gear. It looks to me like cameras are going the way of computers (perhaps with some of the same economic forces and companies behind them…), such that every 2 or 3 years one’s set up is so out of date that even restrained, environmentally-conscious consumers are just about forced to buy new gear. So be forewarned: today’s digital technologies will likely be obsolete in just a few years!

2. So, I am not (repeat, NOT) suggesting that you run out and spend a lot of money on photographic gear to “plug into” all this rapid technology change. What I am suggesting is (a) first choice: consider borrowing a camera from a friend or relative for the purposes of our trip to the Galapagos, and (b) second choice: if you are tempted to buy, or have a major birthday etc. coming up, be extra careful in your selection of gear. No sense going out and spending a lot of money unless and until you are 100% sure you will use it a lot in the next couple of years, and you know exactly what you want. And knowing what you want takes time and experience… so again, I’m back to recommending “Borrow if you can!” Fortunately, for Stanford students in the Field Seminar, we have a lovely backup plan. We have an “equipment pool” of lovely, mostly-new
digital loaners that you are welcome to borrow for the trip. (Alas, I’m sorry we cannot normally extend this offer of a loan to alumni… only if a camera is unclaimed by students.)

3. Because Galapagos is so photogenic and interesting, you will need to bring *lots* of memory for whatever digital camera you bring, or else a reliable mechanism to download and save pictures in some other place (computer, CDs or DVDs). I know you will think I am exaggerating, but it is not unusual even for beginning photographers to take 50 to 100 photos a day. Some dedicated hobbyists take 2 and 3 times that number! There is an advantage to not having to change cards often, so bigger cards like 1G (G= gigabyte) 2G, 4G or more are good. There is also an advantage to not having to download and backup very often, so 2 or 3 such cards can be very handy. We will have two course computers with us on the expedition, and both will have CD burners which can be used to download and back-up (so bring CD’s for this purpose!). But ideally you should still have at least a couple of good-sized memory cards that you can alternate, while awaiting download opportunities. Some folks bring one or two memory cards per day, and thus do not bother with downloading, and that is fine too, although more expensive. What I am suggesting is to think about memory well in advance, and to have a plan for how you will save a lot of pictures. Mark my words: you will enjoy photography more than ever before, and will shoot more pictures, and more good pictures, than you ever dreamed!

4. There are a number of very good photography websites, designed to help everyone from beginners to pros learn about the changing technology. A few that I have found helpful are:  
http://www.dpreview.com/  
http://www.dcresource.com/  
I would love to hear from you about sites you know of, or discover, that prove useful to you. The first of the sites above has on its homepage a window, “Latest Digital Cameras,” that includes a link to a handy chronological timeline of digital product announcements, with links from there to specs and reviews. Very useful.

5. As I look at the photo technology landscape with a hobbyist’s eye in 2009, I see four very good and very different ways one can proceed, each with its own pros, cons, and budget. Let me call them “Digital Point and Shoot,” “Middle Digital” (usually $200 to $500: expensive but not outrageous), “High Digital” (very good but also costly, $500 up to $1800, the Mercedes of the digital world), and “Pro” (the Ferrari’s of digital photography, over $1800 and some over $3000). I generally do not recommend the “starter” digitals with fewer than 6M or “megapixels.” And if you have, or are tempted by, a Pro then you know more about photography than I do, so I won’t discuss those either…

Let me say a word about each of the three remaining good options in turn. My goal is simply to point out some key desirable features; I will not “name names” (ie. brands and models) or recommend specific gear. For that, I will simply refer you to a couple of good comparison sites for online shopping:  
http://www.retrevo.com/ (click on the icon for digital cameras)  
http://www.bestinclass.com/digital-cameras  
Of these sites, the first is especially handy: it pops-up with an attractive “value map” that plots features versus price for a wide range of cameras, and then shows you (via small, adjacent icons) more info on their top 10 picks. You will notice that I divide the camera spectrum differently than they do (for them, everything over $360 is “high end”—I like to break that down a bit). Note also
that their plot by price does NOT include picture quality, only features. So be careful: some mighty good cameras in terms of picture quality (eg. Canon Powershots) are rated lower than they deserve!

So here goes my classification, hoping that it will be helpful to you…

6. Middle Digital. Here is a good place to start: meet the digital technology head-on and begin with a handy, useful rig with room to experiment and grow. Cameras in this group generally have such features as:

- **6M+ CCD** -- meaning the photosensitive “Charge-Coupled Device” (that captures your images) has 6 million or more light dots or pixels. The higher the “M” the better (less grainy) the resolution of your images when printed or projected.
- **8X or more optical zoom** – meaning the camera comes with a zoom lens that will allow you to magnify or “zoom in” on your subjects. Very worthwhile feature: the higher the “X” the better, generally speaking.
- **Image stabilizer**, which provides at least some protection against camera shake. Let’s face it, in the excitement of a hundred boobies plunge diving into the ocean, we can all be a little shaky. I rank image stabilization as a highly desirable feature!

A camera today with these features will provide months of photographic fun and exploration. Please note that cameras in this category do NOT have interchangeable lenses, alas. This feature can mean a loss of “photographic fun” if you are used to good wide-angle lenses, for example, or amazing 400 mm zooms in SLR photography. Still, one can have a great time and do some mighty good work with one of these middle digitals.

7. **High Digital.** If you are an experienced hand at photography, and especially if you have used a film-based SLR in the past, but want to move into something digital, this is a category to consider carefully—especially if you can borrow one! *Their attraction is that they have the same “feel” and lens capacities as the old SLR’s.* Indeed, they may allow you to use some of your trusty old lenses.

The drawback: they are expensive! Here are leading features:

- **10MP+ CCD**—giving excellent resolution to your images, allowing even some selective post-field cropping of images (handy when you just can’t get closer to some subject)
- use removable SLR-type lenses--especially attractive if you have some favorite old lenses, but note that these will add to the overall (high) cost if you don’t already have lenses!
- For use in Galapagos, I recommend a macro lens (for close-ups) and a wide-ranging zoom, like 18-270. All the better if you have, or can afford one, with image stabilization (anti-shake): one such option is the Tamron 18-270 Di II with ‘vibration control.’
- **ISO range** from 100 to 800, or sometimes higher. High ISO numbers (640, 800, 1600, etc) are useful under low-light conditions, though one has to watch out for pixel “noise” in the images at high ISOs. Happily, in Galapagos we will have strong, equatorial sunlight, so high ISO’s aren’t much advantage on this particular expedition.

A camera with these features is “state of the art” today… and you pay for it! But such a rig will allow the most flexibility and creativity as you move into digital imaging. I especially appreciate the cameras in the category that come with built-in pop-up flash.

8. **Point and Shoot.** Let’s be honest: no matter how good a photographer you are, or how fancy your primary photo gear, a digital point and shoot is a useful device. I nearly always carry one in my pocket on a Field Seminar, because (a) they are quick to mobilize (from pocket to shot in 3 seconds with practice) and (b) nearly foolproof, with auto focus, auto flash, and the rest. Some of these handy-dandy units even come with “intelligent ISO” film speed determination: if you or your
subject are moving, for example, the point-and-shoot gives you a higher/faster ISO automatically. Good features to look for in these cameras include:

- 6MP+ CCD
- 3X or more optical zoom, the higher the better (and don’t be fooled by “digital zoom” which is basically just cropping your image to make it look closer: you want real optical zoom.)
- Macro feature (for taking close-ups)

I said I wouldn’t recommend specific brands and I won’t except to say, if you are looking at point and shoots, consider a brand not normally in the top group: Panasonic. They have some small and compact models with up to 12X optical zoom, that also have respectable video modes (check out the DMC-ZS3 or DMC-ZS1 for instance).

9. Whatever category of camera you go with, the very most important thing to do before the trip is to work with it! Practice, practice, practice! So go out and practice here, there and everywhere. Practice taking sweeping landscapes. Practice taking pictures of moving dogs or cats, or flying birds. Practice taking close-ups of insects and flowers. Most of all, get acquainted with the camera you will bring and its main features: you will be especially happy that you did!!

10. Digital Software. So let’s say you’ve borrowed a decent digital camera for the trip, and you are busy practicing with the camera and lens(es) so you really know how to work with it. What does one do with the images once they are safely uploaded to your computer? I recommend two kinds of software to work with and store your images:

   a. Image processing software. You’ll need something like Adobe Photoshop or Photoshop Elements, which will allow you to perform many useful operations on your images (such as cropping, spot removal, brightness or contrast adjustment, printing, etc). They take a while to master, but are highly worthwhile. Recommended.

   b. Image storage software. It is also helpful to have a digital slide sorter with which to order and organize your images, both for presentations and for storage/retrieval. I recommend something like Adobe Photoshop Album or ACDSee Powerpack. I go the plain vanilla route & use ACDSee both to organize and view my images, and to create slideshows for projection: it’s cheap and easy to use.

11. Camera Care. No matter what kind of camera you have or go for, one of the most important pieces of camera equipment that you can own is good lens paper and a cleaning solution, available at any decent camera store. I personally also like a blower brush--but that is old-fashioned--and some “q-tips” for cleaning the surfaces of lens mounts. Lens cleaning at regular intervals is a smart idea in any habitat. But it is CRUCIAL in humid tropical environments! There is a vicious lens fungus that thrives in the humid tropics, etching its way like a frost pattern across your expensive lenses!! Please be warned: even people who know better (like my grad students) often get hit by lens fungus. This will probably not be a problem for us in Galapagos. But still, bring lens paper and solution and you won’t regret it!

Hope these comments shed some light on photography for Galapagos and prove helpful. If you’re left with questions, send me an email and I’ll do my best to answer… Meanwhile, here’s hoping the infamous shutterbug finds and bites you!

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