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# Large Format in Nature Photography

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In this first installation of my Large Format column I wanted to address some of the common fears and doubts shared by many who are either considering or are new to the format, and to describe a detailed workflow addressing all the various aspects of working with a view camera in the field.

Fear of the unknown is understandable and the scarcity of available resources (compared to other photographic topics) can be a hurdle. The purpose of this column is to be a resource to those who are already pursuing or are planning to pursue Large Format photography for Nature Photography field work.

Allow me to first dispel a common myth – Large Format photography is neither difficult nor complicated. It does require learning some new skills and workflows, but it is no different in this respect from any other type of photography. All it takes is a little dedication and practice.

#### A Note to those Versed in Other Systems

Coming from other photographic systems (35mm, digital, or Medium Format) you are undoubtedly accustomed to some degree of automation that you will find lacking in a Large Format system. As with everything else in photography, there are trade offs with every decision. What you give up in automation and speed, you will gain in image quality, and control over your final image.

I will warn in advance that your first steps in Large Format photography are likely to involve some frustrations and missed opportunities. As with every new skill, it takes some time and practice to achieve the desired results. Allow yourself this time to experiment, and be prepared to accept some initial disappointments in stride as you make your first steps.

Another thing you may want to be aware of is that your choice of subject and composition may not carry over from other systems. It is not uncommon for new Large Format users to discover they are using different types of lenses and making different types of images than they used to. The new capabilities, different workflow, frame aspect ratio, and amount of detail possible with the format, all contribute to new possibilities you may not have explored before.

#### What to Carry in the Field

#### Camera

Large Format cameras generally fall into two main categories – monorail cameras, and flatbed (also referred to as "field") cameras. Monorail models generally allow the most flexibility in movements and bellows draw, but most of them are designed for studio use and are heavy and awkward to carry in a backpack, or to set up in the field. Some monorails however are specifically designed for field use and may present a great option for those who require this degree of flexibility. Flatbed cameras, on the other hand, are specifically designed to be portable and used out of doors. They fold into a relatively compact size and are quick to unfold and set up. They're often not as full-featured as their monorail counterparts and may be limited in bellows draw (and thus are more limited in lens range selection). Whichever camera you choose, make sure to research the options and pick one that most closely matches your intended use.

#### Lenses

Most Large Format photographers find that a small selection of 2-4 lenses usually covers all their needs. This may be partly attributed to their subject matter (e.g. landscape or close-up work); although another likely consideration is that the flexibility afforded by movements and the ability to focus most lenses from mere inches to infinity adds to the range of possible uses for any one lens. Those who own more lenses usually do so for special circumstances and are not likely to carry their entire collection on a hike or a backpacking trip. A typical range of lenses covers the wide end (75-90mm), normal (135-180mm), and somewhat longer (240-300mm).

Corresponding Large Format focal lengths to 35mm may be a confusing exercise. The difference in aspect ratio will result in a different look even with the same angle of view. The angle of view can be calculated based on frame height, width, or diagonal (producing a different conversion factor each time). As a rough estimate you can use a 1:3 ratio to convert from 35mm to 4x5 (e.g. a 50mm lens on your 35mm camera is roughly similar to a 150mm lens on a 4x5 camera), though you will do much better thinking of each format in its own terms.

You should be careful in your use of the term "telephoto" since its meaning is somewhat different than that used in other systems. Telephoto lenses are designed so they can focus at infinity using a shorter bellows than would be required in a standard design. This capability unfortunately comes at the expense of a smaller image circle (restricting range of movements) and inability to use at close focus. Still, when bellows length is a limiting factor, a telephoto lens will still allow you to use a longer focal length than you otherwise could. It shouldn't be a surprise then that you can find 300mm standard design lenses, and 300mm telephoto lenses. Both have the same focal length but are meant to serve different purposes.



Large Format lenses are mounted in shutters which in turn are mounted to lens boards.

Many cameras share the same board size, making lenses easily interchangeable, though for the most part any lens can be easily mounted to any board so you are free to choose from a huge array of options. When choosing a lens make sure it covers your format of choice with enough room for the movements you are likely to use. The shutter allows you to open the blades for focusing, set the desired aperture and shutter speed, and synchronize with a flash. Since these are leaf type shutters you can synchronize at any speed (though the top speed for most shutters is 1/400th - 1/500th of a second).

## Film and Holders

For 4x5 you have a choice of traditional reloadable holders or packet film holders (such as Fuji Quickload, Kodak Readyload, or Polaroid). Formats larger than 4x5 only offer the traditional holders. Another great option is a roll film back, using Medium Format film (120 or 220) in various formats. See below for more information on managing film in the field.

## Tripod

Most any sturdy tripod will hold your camera steady. Unless you're using extremely long lenses, you can use lightweight tripod models with no concern. Most cameras are very well balanced and the absence of a mirror eliminated concerns of mirror slap or vibrations from other moving parts.

#### **Light Meter**

A handheld light meter is very convenient. Spot meters are very popular with Large Format photographers, allowing accurate metering of small areas and the use of Zone System exposure principles. Ambient light meters are also very useful when you can place yourself in the same light as your subject. Alternatively you may use a separate camera with a built-in meter (35mm, digital, etc.) as your light meter. If you do the latter, make sure to verify it is set to the correct ISO and learn to extrapolate from one reading to another (for example – most lenses in smaller formats stop down to f/22, yet in Large Format it's pretty common to use apertures of f/32, f/45, or even smaller). Digital cameras capable of displaying a histogram are particularly powerful metering tools that may well make other methods unnecessary in most situations.

## Odds and Ends

You will also need a standard cable release (you may want to carry more than one, for backup, or keep one attached to each of your lenses for convenience), a good loupe for critical focusing, a dark cloth (or other dark fabric you can use to shade the ground

glass screen), and a selection of your favorite filters, filter holders, and step-up rings. A gray card may also be useful in determining exposure in tricky situations.

## **Managing Film**

One of the more challenging aspects of using a Large Format system in the field is managing film. Unlike other systems that allow a relatively large number of exposures on a small sealed roll of film, sheet film needs to be loaded into the camera for each shot. The physical size of sheet film also results in bulk that restricts the amount of film one can feasibly carry.

One obvious solution is to carry a roll film back. Depending on format it will allow you to make 10-20 images on rolls of 120 or 220 film, which are pretty compact. Some down sides are that you're not making the most out of the available image area (believe me, once you see a 4x5 or larger chrome, anything smaller pales in comparison), and that you become limited on the wide end (a 90mm lens that is very wide on 4x5 will only be considered "normal" in 6x7 format, for example).

As mentioned above, 4x5 sheet film can be purchased in bulk (usually in packs of 10 or 50 sheets) and manually loaded into traditional holders (2 sheets per holder), or it can be purchased pre-loaded in individual packets (e.g. Fuji Quickload or Kodak Readyload).

The following table sums up the main pros/cons of each option:

	Bulk Film	Packet Film
	00.05%/	
Pros	<ul> <li>20-25% less expensive</li> <li>Less bulky if 50 or more sheets need to be carried in a pack</li> <li>More emulsions available</li> <li>Less wasted packaging (for the environmentally conscious)</li> </ul>	<ul> <li>Less hassle (no need to load/unload film before/after a shoot)</li> <li>Less bulky if 50 sheets or less need to be carried in a pack</li> <li>Not prone to dust and scratches from direct handling of film</li> <li>Can be hand-inspected at airports without risk</li> </ul>
Cons	<ul> <li>Loading/unloading holders is time consuming and inconvenient</li> <li>More prone to dust and scratches as a result of direct handling</li> <li>More bulky in quantities of 50 or less</li> <li>Requires carrying a changing bag/tent</li> <li>Requires carrying a spare film box to unload exposed film (though it's possible to unload film to the same box as the unexposed film, using a separator of some sort)</li> <li>May be difficult to inspect at airports (boxes must remain closed to avoid exposing the film)</li> </ul>	<ul> <li>20-25% more expensive</li> <li>More bulk and weight if large number of sheets need to be carried in a pack</li> <li>Fewer emulsions available</li> <li>Wasted packaging</li> </ul>

For formats larger than 4x5, bulk film is the only option. The "right" option really depends on the situation at hand, your personal level of comfort, and for many – price.

Many 4x5 photographers use both bulk film and packet film, depending on the situation. For example:

- For air travel where film inspection is required, packet film is a much better option. Bulk film boxes must remain closed or the film will be destroyed, which may present a problem if a security officer wishes to inspect the box contents.
- On a long backpacking trip where you wish to carry 100 or more sheets, bulk film is easier and lighter to pack (with 4-5 reloadable holders)
- Professionals who submit film and need to produce several in-camera dupes for every image will likely prefer bulk film to reduce costs, whereas someone who photographs at a relatively low volume may not consider the added expense significant enough to justify the inconvenience.
- When photographing in areas where sand or dust is an issue, packet film may be preferable to prevent accidental damage as a result of handling the film directly.

Newcomers to Large Format photography are often intimidated by the prospect of loading film. In reality it's actually a simple procedure that should not deter anyone. You may find the cost saving to be well worth the minor added effort.

All you will need is a dark bag or changing tent and a couple of film holders. Modern plastic holders from Lisco, Fidelity, Riteway, and the likes are generally easier to work with than the older wooden models.

Each holder can hold two film sheets (one on each side). Each side has a dark slide that can be pulled out to expose the film.

Each dark slide has two sides – one with a white strip at the top, and the other with a black one. When you load the film, make sure the white side is facing out. After exposing, reverse the dark slide so the black side is facing out. This way you can always know which sheets have been exposed and avoid reusing exposed film.

Different holders have different ways of locking the dark slide to prevent accidental opening. The most common method is a small metal hook (see <u>Image 1</u>). This is also the least reliable as the hook can be easily bumped. Some holders (e.g. Riteway) have an internal locking mechanism that is released by a small flat knob (see <u>Image 2</u>). This knob is automatically pushed in when the holder is inserted into the camera, allowing the slide to be pulled). These are somewhat more secure. Many photographers simply place a rubber band around the holder to prevent accidental opening.

Each film box is made of 3 parts creating a light trap, and making sure the box remains light-tight. Do not remove any part of the box outside of a changing bag/tent or a darkroom. To load/unload film in a changing bag/tent, just follow these simple steps:

- 1. Insert film box(es) and holder(s) into the changing bag/tent, and zip it shut (make sure to use both zippers). If unloading, also insert a spare box to unload film into. You can unload/reload film in one take but I find it easier to do them separately.
- 2. Insert hands into the sleeves making sure they are wrapped tight around your forearms.
- 3. Open film box. If this is a new box, remove film from packaging material by tearing the pack (use your fingertip to find the notch on the pack that will allow you to tear it open easily). Place packaging material out of the way so you can dispose of it later.
- 4. Pull out dark slide, and flip open the lower lip (see Image 3)
- 5. If unloading, carefully pull exposed film out of the holder, place it in the unload box, and reverse the dark slide (to make sure the white side is facing outwards).
- 6. If loading, take a new sheet out of the box and use your fingers to locate the notch code (see <u>Image 4</u>), then carefully insert film into holder making sure the notch code is on the upper right corner. If you encounter resistance, don't force the film in pull it back out and try again until it slides in smoothly all the way.
- 7. Close holder lip, and push in the dark slide. Verify that the lower lip cannot be open this will make sure the dark slide is properly inserted.
- 8. Repeat with other side of holder.

## **Composition and Focusing with Movements**

Composition is a topic warranting a much deeper discussion. It is also a matter of personal vision and preference. In this article I would like to review some simple compositional aids that may assist you in the field.

Given the involved process of setting up the camera, most Large Format photographers determine their composition before ever taking the camera out of the pack (as opposed to more hand-holdable formats that allow you to easily examine a scene through the finder). These visual aids can be invaluable in determining whether a good composition exists and the most appropriate perspective and focal length to use. Also keep in mind that images on the ground glass appear reversed - upside down and flipped left to right, which may throw some people off initially (though some say it actually helps with composition since it allows you to study form and placement with less distraction from the literal view of a subject).

A cutout frame of the same size as your film can be extremely useful in determining composition and appropriate focal length. To identify the effects of various focal lengths, tie a small string to the cutout and mark it at distances corresponding to the lenses in your system (or use multiple strings – one for each of your lenses), then use the string to hold the frame at that distance from your eye (see <u>Image 5</u>).

A slightly more sophisticated compositional aid is the portable viewfinder. These can be easily worn around your neck and are quick and easy to use. Some will allow you to zoom through a range of focal lengths.

Last but not least – a small digital camera can double as a compositional aid and a sophisticated light meter all in one. Reviewing a composition on the small LCD screen or in a finder can help eliminate distractions and give you an idea of what the final image will look like. Remember to compensate for the differences in aspect ratio and, if metering with the digital camera, to accurately calculate the appropriate exposure at the aperture and film speed you plan to use.

Focusing the view camera is perhaps the most daunting task to most beginners. The ability to move the film plane and focus plane independently of each other introduces new possibilities (and potential errors) that don't exist with other systems. Following a careful workflow will make focusing a breeze.



For most situations (i.e. where you want to capture a scene "as-is" without special optical effects), the most common focusing method uses only one of the

camera's movements. To decide which movement, you will need to understand the Scheimpflug Principle (named after Theodore Scheimpflug) which in simple terms, states that:

Focus and optimal depth-of-field is achieved when the subject plane, lens plane, and film plane, all intersect at the same point.

The subject plane is of course a given, and in the most common situation, either the film plane or the lens plane is perpendicular to the ground, leaving you with the simple task of placing the remaining plane in the right position. This is done by either tilting one of the standards forward/backward, or swinging it to the left/right. Image 6 illustrates the three planes and their intersection per the Scheimpflug Principle (in this example front forward tilt is required to bring the lens plane to the right position so it intersects with the others).

Once you know what movement is required to achieve best focus, follow this simple workflow:

- 1. Open the shutter and set the aperture dial to its largest setting (smallest number)
- 2. Use the focus knob to focus on the closest object in your frame (in a typical near-far composition this will be at the top of the ground glass).
- 3. Move the appropriate standard per the Scheimpflug Principle until the farthest object in your frame comes into focus (in a typical near-far composition you will be tilting one of the standards until objects at the bottom of the ground glass come into focus)
- 4. Go back to the closest object (which will likely be out of focus now after moving the front standard) and use the focus knob to bring it back into focus again
- 5. Go back to the farthest object and adjust the appropriate standard movement until it comes into focus again
- 6. Repeat until both near and far subjects are in focus
- 7. Lock focus and all movements to prevent accidental bumping

A good loupe will be very helpful in determining accurate focus. You will notice that with each iteration a smaller correction will be required until finally, after 3-4 of them, both near and far objects will be in focus.

Note: the Scheimpflug Principle also holds true, mathematically speaking, when two of the planes are parallel (as in the case of most other camera types or when the subject plane is parallel to the film plane) in the sense that parallel lines intersect at infinity (remember Calculus?), meaning that when two of the planes are parallel, best focus is achieved when the third one is parallel to the others as well.

More advanced focusing and use of movements will be discussed in future columns.

## Metering and Exposure

You should now have the camera set up, your image composed and focused on the ground glass, and all movements locked. Before exposing film, it is always helpful to do a quick pass with a loupe around the frame's edges to make sure no out-of-focus objects are peeking in, as well as to take a small step back and study the frame as a whole to make sure everything is properly placed within its boundaries. Once satisfied with the composition, your next task is to determine the appropriate aperture. This can be done using a DOF chart if you have one, though some (myself included) prefer to do it visually – determine the farthest object from your plane of focus that you want to appear sharp (remember the plane of focus is not necessarily perpendicular to the ground as it would be with other cameras), place the loupe over it, and slowly stop down the aperture until it appears sufficiently sharp. You may want to set it a further stop down since the threshold of sharpness on the ground glass is not the same as it would be when enlarged. Image 7 illustrates how to find the farthest point from the plane of focus.

From this point on, your creative work is done and all that's left to worry about is the mechanics of exposing the film properly. Again, following a simple workflow will make sure you don't miss anything:

- 1. If your aperture is not already set (e.g. if you determined it using a DOF chart instead of the ground glass) set it now
- Attach any filters you wish to use. If using a graduated filter place it accurately by studying the ground glass after setting the aperture.
- 3. Close the shutter
- 4. If your cable released is not already attached attach it now
- 5. Insert film holder (if using packet film, insert packet into the holder)
- 6. Use your meter to determine required exposure and set the shutter speed appropriately
- 7. Cock the shutter
- 8. Pull out the dark slide (or envelope if using packet film)
- 9. Trip the shutter (if wind or other motion is a problem you may want to wait for a lull)
- 10. If using packet film, push envelope back in and release the packet from the holder, then mark the packet "exposed". If using a standard holder, reverse the dark slide so the black side is facing out, and insert it all the way in and remove the holder from the camera

If your exposure required pushing or pulling, make sure to mark it on the holder or make a note of it in a notepad. Packet film provides you with a small area you can write notes on. If using standard holders, you may want to number them (assign separate numbers to each side) so you can keep notes for each.

Congratulations! You have now captured a Large Format image.

## Back Home – Working with a Lab

Most professional labs will be willing to unload your film for you, if you're using conventional holders, however this may be a hassle. If using bulk film, simply unload it into an empty box when you get home and submit it to the lab.

A few things worth noting:

- Regardless of film speeds, if using a standard process such as E6 for transparencies, C41 for negs etc., you can bundle all your film of the same type into one box (e.g. you can mix Fuji Velvia 50 with Kodak E100G in one "E6" batch). The only exception is if you need to push or pull some sheets, in which case you will want them in a separate box.
- Mark on the box:
  - The required process (E6, C41, B&W etc.)
  - Any special instructions (push/pull, instructions for B&W development etc.)
  - Your name and telephone number
  - Number of sheets in the batch
- If using bulk film, make sure to tape the box shut. Labs will not take responsibility for accidental opening (some will not even accept film in open boxes)

I personally recommend developing a working relationship with one lab you're happy with. It is often worth paying a little extra (if needed) for peace of mind and for being treated well by the staff.

#### GT-NPN 0440

Comments on NPN large format nature photography articles? Send them to the editor.

**Guy Tal** resides in Utah, where most of the Colorado Plateau's breathtaking grandeur can be found, and where issues of preservation and land-use are among the most prominent on the political agenda. Guy's large format photography can be viewed on his website at <a href="http://scenicwild.com">http://scenicwild.com</a>.

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