THROUGH THE LENS

Great People and Great Images Since 1988

Website: www.arlingtoncameraclub.org Email: arlcamclub@yahoogroups.com

Volume 28, Issue 2
December 2015

What is HDR photography? How to shoot and process high dynamic range images

So what is HDR photography all about? In short, HDR techniques allow you to take pictures of high-contrast scenes and preserve all that important shadow and highlight detail. But it comes with a lot of jargon. Here we answer all the common questions about HDR photography.

What does HDR stand for?

HDR stands for high dynamic range; and the abbreviation is often used in a longer form, HDRI – high dynamic range imaging. HDR is a form of photography that enables you to create a picture with a greater dynamic range than is usually possible.

To understand what it is and to appreciate its use, you first need to have a grasp of what dynamic range is all about.

So explain dynamic range to me

Dynamic range is a measure of the range of different light levels – from the darkest black to the brightest white – that can be recorded or displayed by

So explain dynamic range to me

Dynamic range is a measure of the range of different light levels – from the darkest black to the brightest white – that can be recorded or displayed by a device. It defines the amount of contrast you can capture or show without losing detail at the extremes.

The dynamic range that can be captured with your SLR is greater than can be displayed on your monitor.

Why is this important?

Some scenes contain too much contrast for us to capture successfully with our cameras. We avoid taking pictures in the midday sunshine as our cameras can't cope with the full range of light levels. Low-light scenes are another common problem area – we can expose successfully for the shadows, but not for the brightly-lit areas or vice versa.

Exposure for midtones

Are there ways around this?

Digital imaging has made it easier to resolve because we can see the result immediately and take remedial action. We can also use flash to help reduce contrast on a sunny day and use a graduated ND filter to balance the brightness difference between the sky and landscape.

What's more, there are processing tricks we can use in Photoshop, particularly if we shoot in raw, that enable us to get information from the darkest and lightest parts of our pictures.

So where does HDR come in?

HDR enables us to shoehorn a greater range of brightness into an image in a way that a straightforward picture can't achieve. A true HDR image is created from several shots of the same scene taken with slightly different exposures.

Each exposure captures part of the full tonal range. They are then combined into a single image with software. The trouble is that these true HDR images are hard to see…

What do you mean?

A true HDR image contains a far greater range of tones – too many, in fact, to be displayed on a normal computer monitor, or printed out on paper.

They are typically stored as 32-bit files – allowing 4.3 billion shades in each colour channel. By comparison, a standard JPEG image allows 256 (8-bit) shades per channel, and a raw file 4,000 (12-bit) to 16,000 (16-bit) shades per channel.

So what do you do with these very large files?

The next stage in most HDR images is tone mapping. Here the program uses the 32-bit HDR image to create an image with a contrast range that can be shown in print or on a monitor.

Each tonal value is remapped onto a scale that creates an image in which you can see detail in the brightest highlights and the darkest shadows, and without any clipping in these extreme areas of brightness. It's this tonal mapping that creates the controversy with HDR.

Why the controversy?

Tonal mapping brightens shadows and darkens highlights, which slightly flattens the contrast of an image and increases edge definition.

But many HDR enthusiasts use the software to go further, creating an image in which all the detail can be seen clearly, but which no longer looks realistic. The effect is similar to that used in 'hyper-real' styles of painting. Some people like it, some don't.

What sort of software do I need?

There are lots of HDR programs available – including some free ones. The best known is Photomatix Pro, but the latest version of Photoshop (CS5) has a built-in HDR facility.

HDR programs usually have a range of sliders to help you control the tone-mapping effect to your own taste.

How do I take pictures in preparation for HDR effects?

Essentially, the process is the same as that used for bracketing. The number of shots you need is largely dependent on the actual tonal range of the scene you're shooting. The more contrast, the more shots you need.

Three is the usual starting point, but you may need to take as many as nine, each with a one-to-two stop difference. Some SLRs have an AEB (automatic exposure bracketing) function, which will enable you to do this without too much fuss.

Exposure for highlights

What other settings should I use?

Your sequence of exposures should be as similar in content to each other as possible (although obviously, the brightness will vary). Any changes caused by movement can create a ghosting effect that the software will struggle with.

Set the focus manually, use a tripod, and set the exposure to aperture priority (so the depth of field remains constant). Set the camera to the fastest continuous drive setting available.

Is there an easier way?

Creating HDR images involves some effort at the time of shooting and processing but it's relatively straightforward. However, there are easier ways.

A number of programs offer false HDR effects that can create realistic-looking HDR images from just a single picture. Similarly, a number of DSLRs and compacts now have built-in automatic HDR facilities that will take the sequence of pictures for you and compile them into your tone-mapped image in the camera itself.

How to shoot and edit your first high dynamic range image

One of the limitations of digital camera sensors is that they simply cannot record detail in both the shadows and highlights in high-contrast conditions. You'll frequently encounter this sort of situation shooting outdoors on bright days, or when you're photographing interiors or night photography scenes.

Landscape photographers typically resolve this by using graduated filters to balance the exposure between the land and the sky. However, there are limitations with this.

Not only are the filters expensive, they are fiddly to use, and the technique relies on a straight horizon for the best results as there's no way to mask out a lone tree or standing stone that breaks through the horizon.

However, there is another solution. You can take several pictures at different exposures and combine them in the digital darkroom to create an image with an expanded range of tones. This is known as a High Dynamic Range image – better known as HDR photography.

Shooting HDR photography is not as complicated as it sounds. All you need to do is take a sequence of images by bracketing at different exposures, from underexposed to overexposed. How many images you need and what the difference in exposure between shots should be largely depends on what you're photographing.

HDR photography step by step

01 Keep it steady

As you'll be combining multiple shots to make your final image, the composition needs to be exactly the same in each photo. This means a sturdy tripod is vital. You'll also need to take steps to avoid any camera movement between shots, so use a cable release so you don't have to touch the camera at all during the process.

02 Camera settings

Your aperture has to remain constant throughout the sequence, otherwise the depth of field will change between shots and this will make aligning them more of a challenge. So, switch to your digital camera's A, or aperture-priority mode. Now the camera will vary the exposure by changing only the shutter speed. We used an aperture of f/11.

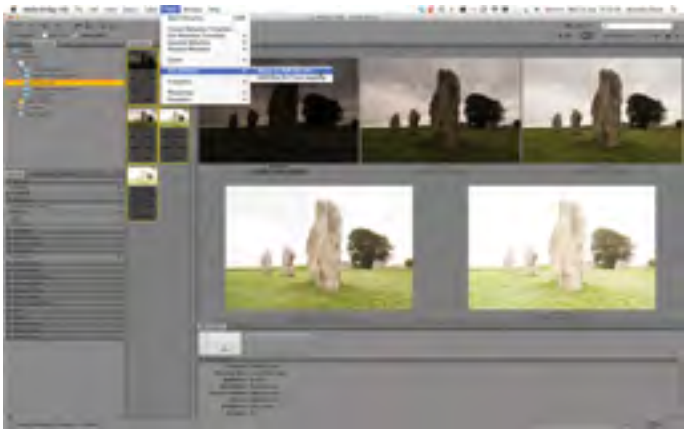
03 How many shots?

In most cases, three to five images with a one- or two-stop difference between one shot and the next is enough for constructing an HDR image, but if the scene has a very wide brightness range you may need to shoot five or seven frames. Most HDR software can process NEF files, so set image quality to raw format for the best results.

04 Auto Bracket
Activate your camera's auto bracket feature. This will calculate and adjust the exposures in your sequence. There are two settings. One is the number of shots – three is the normal number, but some cameras let you shoot five. The second setting is the interval between the shots. This can be 1EV, 2EV or, on some cameras, 3EV.

05 Continuous mode
Now set your camera to the continuous shooting mode. If you have a choice of speeds, pick the fastest available. This will minimise any cloud and tree movement between each shot which can cause nasty 'ghosting'. You'll now be able to take all the shots you need for the HDR sequence without touching the camera.

06 Test shots
Take some test shots before starting. The longest exposure should show detail in the darkest areas, such as the shadows, while the shortest exposure should show detail in the brightest ones, such as the sky. Use the histogram to assess exposure. Our scene had a medium to high brightness range, so we took three shots at intervals of 2EV.



07 Get HDR software
. We've installed it as a plug-in to Photoshop CS5. Browse to your images in Adobe Bridge and select the five raw files. Go to Tools>Nik Software>Merge to HDR Efex Pro. Your images should open in the HDR Efex Pro window. This can take several minutes.

08 Blend your shots
You'll notice presets on the left panel of the HDR Efex Pro window. These are especially handy if you're new to this technique. We used the Realistic Strong preset. These settings can be further refined using the sliders in the panel on the right side. We applied these settings: Stricture 48%, Blacks -44%, HDR Method Clean and Method Strength 35%.

ACC Programs 2015-2016		
9/2/2015	Rich Fisher	
9/16/2015	Sharon Peterson	
10/7/2015	Competition	
10/21/2015	Critique Lab - Norm Plummer	
11/4/2015	Mike Trahan	
11/18/2015	Tom Snitzer - Night/Celestial http:// www.snitzerphotography.com/ Nature-Travel/Galleries/Celestial-Photography/	(Alternate, water using ND filters)
12/2/2015	Competition	
12/16/2015	Critique Boutique; Carol Arnolde vidéo; Holiday treats; Community events video	
1/6/2016	Post processing; Lightroom and Elements complete with work flow	
1/20/2016	Chris Smith - Top 10 processing tips	
1/29/2016	(Friday) Post-Holiday Party & Raffle	
2/3/2016	Competition	
2/17/2016		
3/2/2016	Allison Newberry & Matt Sparapani - Iceland Photographs	
3/16/2016		
4/6/2016	Competition	
4/20/2016		
5/4/2016		
5/18/2016		
6/1/2016		

Arlington Camera Club, Inc. PSA 097108 Since 1988.

PSA Photographic Society of America

Question:

I was wondering if you could explain the differences in Photoshop of canvas size and image size. I am confused as to their differences especially when printing. For example I would like to print as an 8x10 on 11.5 x 8.5 with an even white border all around. Is that possible?

Answer:

Both the Image Size and Canvas Size commands in Photoshop allow you to change the overall dimensions of an image, but they operate in different ways. I think the best way to understand each of these commands is to consider when you would use each of them. The Image Size command is used when you want to change the size of an image, such as to print at a different size than the native pixel dimensions of the image. The Canvas Size command is used for adding space around a photo or essentially cropping the image by reducing the available space.

More Detail

For example, let's assume you have an image that is currently sized at 8-inches by 12-inches at 300 pixels per inch (2,400 by 3,600 pixels). If you want to print that image at 20-inches by 30-inches, you need to change the pixel dimensions of the actual image. In other words, the image needs to be "stretched" to contain 6,000 by 9,000 pixels. In the process, pixel values need to be calculated for all of the "in between" pixels that are created when the photo is enlarged.

The Canvas Size command allows you to add space around an image, or to effectively crop an image. So, for example, let's assume you want to print a photo at 11-inches by 17-inches, but on a 13-inch by 19-inch sheet of paper. This doesn't actually require you to add canvas around the photo. If you print an image sized at 11x17 inches to a sheet of paper that is 13x19 inches, centering the printed image will automatically result in empty space around the photo.

However, let's assume you want to have a colored border around the outside of the image, to simulate an effect similar to matting the image. You could use the Canvas Size command to add two inches to the width and height of the image, using an underlying color layer to apply the color to the "extra" space that is created around the photo.

What all of this really means is that for most photographers with typical workflows, the Image Size command is the only command you need when you need to adjust the output size of a photo. The Canvas Size command, however, can be very helpful in certain specialized situations, where you're essentially going beyond simply working with the image and instead performing some tasks related to page layout.

What is focal length in photography?

What is focal length, many new photographers ask? Focal length is just how long a lens is, right? There's more to understanding focal length than just knowing the range of numbers.

In this tutorial we'll answer some of the common questions photographers have about focal length, as well as compare the effects different lenses can produce.

Contrary to common belief, focal length isn't a measure of how long or short a lens is physically, but the distance in millimetres from the optical centre of a lens to the imaging sensor when the lens is focused at infinity.

Rather than being fazed by the physics, it's easier to think of the way in which focal length affects image size.

For a camera with a full-frame sensor, for example, a standard lens (one that gives a similar perspective to the human eye) is 50mm.

Lenses with focal lengths less than 50mm are referred to as wide-angles – simply because they have a wider angle of view.

Lenses with focal lengths greater than 50mm are known as telephotos, and these offer greater magnification thanks to their much narrower angle of view.

Angle of view? What's that?

Essentially, the angle of view is the amount of a scene that a lens can take in, measured in degrees. For instance, a fisheye lens may offer an extremely wide 180° angle of view, meaning that it can capture everything in front of it (and to each side).

A 200mm lens, on the other hand, will offer a much narrower angle of view of 12.3°. This allows you to fill the frame with a considerably smaller amount of the scene that you're trying to photograph.

Full-frame sensors get their name because, at 36x24mm, they have similar dimensions to a frame of 35mm film. This means that they capture the full angle of view offered by a lens that's been designed for a film or full-frame camera.

So a 75-300mm zoom lens mounted on a full-frame DSLR like the Canon EOS 5D Mark III or Nikon D800 offers a true focal length of 75-300mm.

However, the majority of cameras have sensors that are significantly smaller than full-frame.

Consequently, they're exposed to a smaller area of the image projected by the lens, and it's for this reason that they're known as 'cropped' sensors – although they're not really cropping the image, they're just capturing
a smaller area of the scene at the centre the lens.

Does this make a difference to how I take pictures?

Yes it does. Using the same lens at the same distance from the subject, a cropped sensor camera will capture a narrower angle of view than a full-frame camera.

This can be a problem when photographing landscapes with a wide-angle lens, as you won't be able to get as much of the scene in the picture (at least, not without moving further away and making everything smaller in the picture).

On the other hand, it's good news for wildlife photographers, with animals and birds appearing larger in the frame thanks to the increased effective focal length.

SEE MORE: Manual Focus: what you need to know to get sharp images

What do you mean by the effective focal length?

You'll see this term, or the more frequently used '35mm equivalent focal length', listed in a lens's specs.

It provides a standard measure by which different lens and camera combinations can be compared, and it's calculated by taking a lens's focal length and multiplying it by the crop factor of your camera's sensor.

For instance, the micro four thirds sensor used in an Olympus PEN camera is around half the size of a full-frame sensor. This means that a subject will appear twice as big in the frame when shot on a PEN.

To get the same magnification for a subject using a 35mm full-frame camera, you would need a lens with double the focal length.

The APS-C sized sensors found in most SLRs are slightly bigger than micro four thirds, but they still capture a smaller area than full-frame; Canon DSLRs have a crop factor of x1.6, while Nikon camera bodies are closer to x1.5.

So, a 75-300mm lens becomes a 120-480mm lens when it's used on a camera like the Canon EOS 650D?

In terms of effective focal length, yes. But a 75-300mm lens is still a 75-300mm lens, whether it's attached to a cropped-sensor camera or a full-frame one.

The perspective is constant, as is the image magnification – all that changes is the angle of view. To get around this problem, manufacturers also make a range of dedicated 'digital only' lenses.

What are digital lenses?

These are lenses that have been designed to work on cropped-sensor cameras. A crop factor still has to be applied to arrive at their effective focal length, but they're smaller and (usually) wider than 35mm full-frame lenses.

So a 10-20mm digital lens gives an effective focal length of around 16-35mm (10-20mm x 1.6 or 1.5, depending on the camera model). Digital lenses are not compatible with full-frame bodies, as they can't produce an image big enough to fill the larger sensor.

SEE MORE: DO or Di? Your lens markings explained

Understanding Focal Length: Wideangle vs Telephoto

Wide-angle and telephoto focal lengths each give pictures a very different look and feel. Here's how to make the most of the extremes

Adding depth

A wide-angle lens (above) exaggerates perspective, making the foreground and background appear further apart.

20mm

Adding depth

A wide-angle lens (above) exaggerates perspective, making the foreground and background appear further apart.

85mm

A telephoto lens (above) appears to flatten the image, bringing the key elements closer together. Notice that the tree in the foreground is the same size in each shot.

Cleaning up the frame

Because long lenses have a narrower angle of view, it's easier to keep distracting elements out of the picture and create 'tighter' shots.

Wide-angle lenses take in a much greater expanse, meaning you have
to check the edges of the frame closely for unwanted elements.

SEE MORE: 5 common lens problems and how to solve them

Wide-angle

Controlling distortion

Used at close range, a wide-angle lens (above) creates a distorted image, which can make portraits look like caricatures.

Shot at a longer focal length

For more flattering results, stand further away from your subject and zoom in with a longer focal length (above). The narrower view isolates a cleaner background too.

Type to enter text

Quotes About Photography

"When words become unclear, I shall focus with photographs. When images become inadequate, I shall be content with silence."

— Ansel Adams

"There are no bad pictures; that's just how your face looks sometimes."

— Abraham Lincoln

"All photographs are memento mori. To take a photograph is to participate in another person's (or thing's) mortality, vulnerability, mutability. Precisely by slicing out this moment and freezing it, all photographs testify to time's relentless melt."

— Susan Sontag

"To the complaint, 'There are no people in these photographs,' I respond, There are always two people: the photographer and the viewer."

— Ansel Adams

"A great photograph is one that fully expresses what one feels, in the deepest sense, about what is being photographed."

— Ansel Adams

52 photography projects: photo ideas to try (excerpt 4)

With written permission from Digital Camera Magazine

Photography project 24: selective colour

Rather than shoot in black and white and using pop colour techniques to make an object stand out, this selective colour challenge requires you to nominate a colour and find examples of it in the wider world. You don't have to fill the frame: use clever composition techniques to draw attention to it within the photo.

Photography project 25: naked night photography

Shoot outdoors at night without using flash, a long exposure or a tripod. For this project, challenge yourself to only use available light and a high ISO setting.

SEE MORE: Night photography exposure guide: free cheat sheet

Photography project 26: optical illusions

This project uses forced perspective to play tricks on a viewer's perception of the relationship between differently sized objects in a photo. The

best way to approach this is to shoot a recognisable subject and get them to pretend that they are interacting with a much larger object or subject, which is actually in the background. Choose a small aperture to provide a large depth of field that will enhance the effect.

SEE MORE: The best forced perspective photography tutorials

Photography project 27: small world

Photographing miniature toys and models in real-world environments is a popular photo project and one that you can easily fit around your day job. Try taking a small prop with you and photographing it in a range of situations – everywhere from the daily commute to a weekend stroll. To blend the model in with the rest of the scene you'll need to get close to the subject and balance the light. If your subject is cast in shadow, use your flash to add fill-in lighting.

Photography project 28: recreate a tilt-shift effect

The 'toytown' effect that you can get from using an expensive tilt-shift lens 'incorrectly' is addictive. But you can achieve a very similar look in Photoshop by blurring all but a small area of an image. For the most convincing effect, shoot the scene from a high viewpoint on a sunny day to heighten the 'model village' look.

SEE MORE: Fake a tilt-shift effect in Photoshop Elements

Photography project 29: A-Z photos

Rather than simply shoot a photo alphabet made up of letters on roadsigns and shop fronts, find objects and shapes that resemble letters. For example, the frame of swings in a play-park forming the letter A, or the curve of a rivers forming an S-shape.

Photography project 30: 1-100

Similar to creating a photographic alphabet, this project requires you to shoot objects that illustrate the numbers 1 to 100. You can take pictures of subjects that add up to each number, or shoot objects that resemble the numbers.

Photography project 31: faces in unusual places

An easy and fun photo idea: train your eyes to spot 'faces' unintentionally formed by everyday objects. Everything from a pair of bath taps to a manhole cover is fair game. See the Faces in Places blog for inspiration.

For the "SEE MORE:" sections go to the web site: http://www.digitalcameraworld.com/2015/01/06/52-photography-projects-a-photo-idea-try-every-week-2015/

Arlington Camera Club Exhibits and Field Trips

ONGOING AND UPCOMING EXHIBIT SCHEDULE. From Judy King

December, 2015 - not exhibiting because of the holidays
January/February, 2016 - Arlington Heights Village Hall: Theme - "Think Spring/Arlington Heights". Will be in contact with Derek and let the club know setup time and date
March/April, 2016 - Elk Grove Village Library. Would like to have the new members exhibit here. Two new members to exhibit march and the switch out for 2 other new members
May Through September - Currently Open
if anyone has any suggestions for places to exhibit please let judy know and she or Marietta will check into it
October, 2016 - Schaumburg Library
November, 2016 - Currently Open
December. 2016 - not exhibiting this month
Arlington Heights Village Hall has space for both framed and matted pictures.
Luther Village accepts framed pictures.
Buffalo Grove Fitness Center accepts framed pictures.
Suggestions for places to exhibit should be sent to Judy King
Either Judy or Marietta will check out the following locations after the holidays
Luther Home
Arlington Heights Public Library
Prospect Heights Public Library

Field Trips and Outings

It is up to individual club members, not John and Paula to step forth and suggest and/or lead outings.

Jeff and Paula discussed an outing to Garfield Park possibly the first week in January or Saturday, January 9.

But nothing is yet decided.

Black and White Imaging

Converting color to black and white images

We are limiting membership to 10 people for each group. We do have a couple of openings in Group one. We want to be sure all are contacted and know about this. I did talk about it at the last club meeting.

What happens is one person sends out two color images to the group. Each member of the group has 3 weeks to convert the image to B&W and then print the image and return it to the sender. No mounting required and size is 8X10. Titles are not required as each print will be numbered. You can give it to the sender at a club meeting or mail it or just drop it at their home. Easy peasy.

The sender is then the judge of the prints, Picking a 1st, 2nd, 3rd, and HM for each one. Points are assigned. 4,3,2,1, and sent to the secretary, Walt Hoffman. The judge, can provide comments or not. The prints are then returned to the makers. The judge does not participate in the competition but automatically gets 6 points for judging that round. We will ask the makers to hold all 1st place prints for an annual competition. For this we will select 3 of the group to pick a 1st and runner up of all the 1st place prints.

Now, this is a new venture and changes might occur as we go along.

So, we want to get this started asap and would love for you to join us. Please let us know one way or another. Thanks. What do we need from you? Please respond with your name, address, and your email. Yes a copy of all information with dates will be sent to each member of the group.

If the response is great a group 2 will be formed but will need someone to manage the group. More on that if needed.

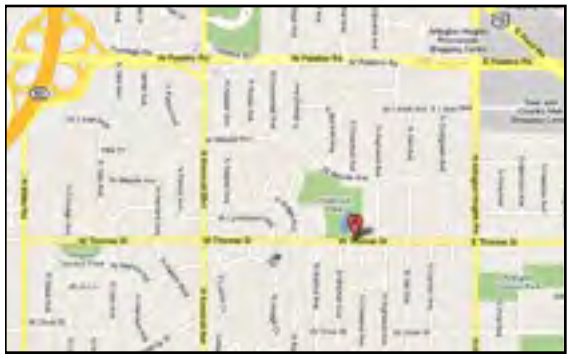
Yes, we did do something similar to this on a one time basis. Everyone totally enjoyed it and a lot can be learned from these workshops. We might even do a night at the club where the winners can talk about what they did.

Contact

Bill Kruser
847-404-9434

Officers and Committee Chairs		
Mike Garber & Jeff berman	***President***	president@arlingtoncameraclub.org
Barrie Burr & Bob reynolds	***V.P. Programs & Workshops***	vpprograms@arlingtoncameraclub.org
Carol Arnolde	***V.P. Competition***	vpcompetition@arlingtoncameraclub.org
Judie Reynolds	***Treasurer***	treasurer@arlingtoncameraclub.org
Roy Lobenhofer & Paul Palmer	***DPI ACC***	dpi@arlingtoncameraclub.org
Ed Martin & Bill Bible	***DPI CACCA***	dpi@arlingtoncameraclub.org
Tim Medema	***Chief Judge***	chiefjudge@arlingtoncameraclub.org
Donna Thomas	***PSA Representative***	psarep@arlingtoncameraclub.org
Jeff Berman & Al Teitsma	***Newsletter***	newsletter@arlingtoncameraclub.org
Mike Nugent	***Publicity***	publicity@arlingtoncameraclub.org
Larry Arends	***Community Activities***	community@arlingtoncameraclub.org
Patty Colabuono	***CACCA Representative***	caccarep@arlingtoncameraclub.org
Joe Beuchel & Norm Plummer	***Webmaster***	webmaster@arlingtoncameraclub.org
Judy King & Marietta Finn	***Photographic Displays***	photodisplay@arlingtoncameraclub.org
Nancy Vanderah	***Membership Chair***	membership@arlingtoncameraclub.org
Jim Narden	***Setup & Take Down***	PFH704@aol.com
Paula Matzek & John Coens	***Field Trips & Outings***	JohnCoens@comcast.net
Carol Arnolde	***Corporate secretary***	vpcompetition@arlingtoncameraclub.org

ACC meets at the Christian Church of Arlington Heights, 333 W. Thomas Avenue, three blocks west of Arlington Heights Road, across from Hasbrook Park on the 1st and 3rd Wednesday of the month at 7:30 p.m.



ACC Mailing Address:

126 E. Wing Street, Suite 233

Arlington Heights, IL 60004

Coming in 2015 and 2016

Aug Mt. Prospect Public Library

Sep Arlington Heights Public Library

Qct Prospect Heights Library

ACC Competition Results – December 2, 2015 –

Corrected December 9, 2015

Small Monochrome Prints

Ken Olsen	Steampunk with Attitude	22	AW	SMPOM
Carol Arnolde	Wolf at Guffy, Colorado	21	AW	
Bob Reynolds	Erie Falls	22	AW	
Jeff Berman	Face of Hearts	21	HM	
Lance Lagoni	Truck in the Lot	21	HM	
Randy Vlcek	Time to go Inside	22	HM	

Large Monochrome Prints

Patrick Grady	Bodie	23	AW	LMPOM
Patrick Grady	Tioga Pass	24	HM	
Mort Lerman	Confederate Captain	21	AW	
Tom Wilson	Tree over Canyon	21	HM	

Small Color Prints

Bob Reynolds	Balloon over the Lake	21	AW	SCPOM
Roy Lobenhofer	Black Canyon of the Denison	21	AW	
Randy Vlcek	Courtyard	23	AW	
Jan Williams	Bridge of Sighs	21	AW	
Tom Wilson	Afternoon Storm	21	AW	
Janusz Chwalek	June	21	HM	
Mike Garber	Close Finish	21	HM	
Rich Hassman	Hefty Wheels	21	HM	
Nancy St. Clair	Train Moving	21	HM	

Large Color Prints

Kathy Grady	Key Hole	25	AW	LCPOM
Carol Arnolde	Lighthouse in Maine	21	AW	
Bob Reynolds	Cascade Gorge	22	AW	
Tom Wilson	North Canyon Pool	22	AW	
Mike Garber	Oregon Lighthouse	20	HM	
Patrick Grady	Eagle Falls	23	HM	
Tim Medema	Underground at O'Hare	22	HM	

ACC DPI Competition Results – December 2, 2015

DPI Monochrome Images

Roy Lobenhofer	Jelly	21	AW	MDPIOM
Nancy Vanderah	Big John Through the Honeycomb	21	AW	
Ed Martin	Is That a Rabbit in your Pocket?	21	HM	
Rich Hassman	Canyonlands	21	HM	

DPI Color Images

Ed Martin	I'm BORED	21	AW	CDPIOM
Barrie Burr	Amsterdam Canal	21	AW	
Rich Hassman	I Like Water	20	AW	
Janis Williams	Waterfall	20	HM	
Bill Bible	Maroon Bells	21	HM	

Members Gallery

December 2015 Results

DPI Mono - Jelly - Roy Lobenhofer

DPI Mono -Big John Through the Honeycomb - Nancy Vanderah

DPI Mono - Is That a Rabbit In Your Pocket - Ed Martin

DPI Mono - Canyon Lands - Rich Hassman

DPI Color - I'm Bored - Ed Martin

DPI Color - Amsterdam Canal - Barrie Burr

DPI Color - I Like Water - Rich Hassman

DPI Color - Waterfall - Janis Williams

DPI Mono - Maroon Bells

Print Mono Small - Steampunk with attitude - Ken Olsen

Print Mono Small - Trucking a Lot - Lance Lagoni
Image not available

Print Mono Small - Wolf at Guffy, Colorado - Carol Arnolde

Print Mono Small - Erie Falls- Bob Reynolds

Print Mono Small - Face of Hearts - Jeff Berman

Print Mono Small - Time to Go Inside - Randy Vleck

Print Mono large - Bodie - Patrick Grady

Print Mono Large - Tioga Pass - Patrick Grady

Print Mono Large - Confederate Captain - Mort Lerman

Prints Mono Large - Tree over canyon -Tom Wilson

Prints Color Small - Balloon over the Lake - Bob Reynolds

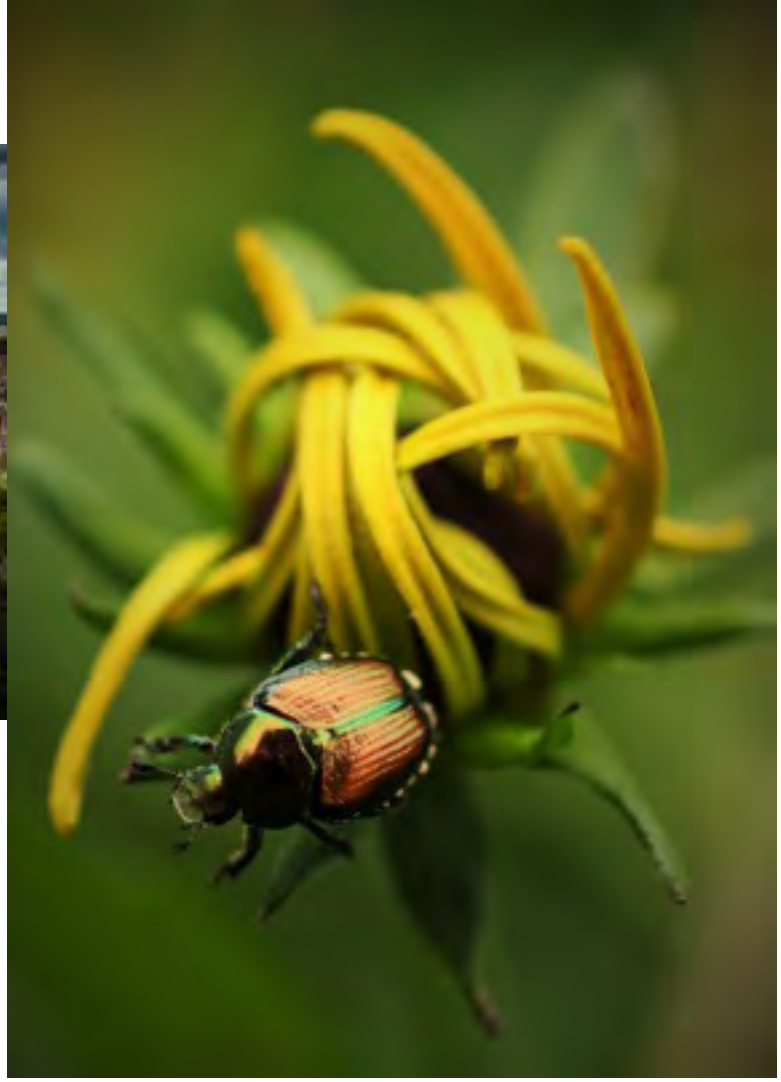
Print Color Small - Black Canyon if the Denison - Roy Lobenhofer

Print Color Small - Courtyard - Randy Vleck

Print Color Small - Bridge of Sighs - Jan Williams

Print Color Small - Afternoon Storm - Tom Wilson

Print Color Small - Train Moving - Nancy St. Clair
Image no available



Print Color Small - June - Janusz Chwalek

Print Color Small - Hefty wheels - Rich Hassman

Prints Color Small - Close Finish - Mike Garber

Print color Large - Key hole - Kathy Grady

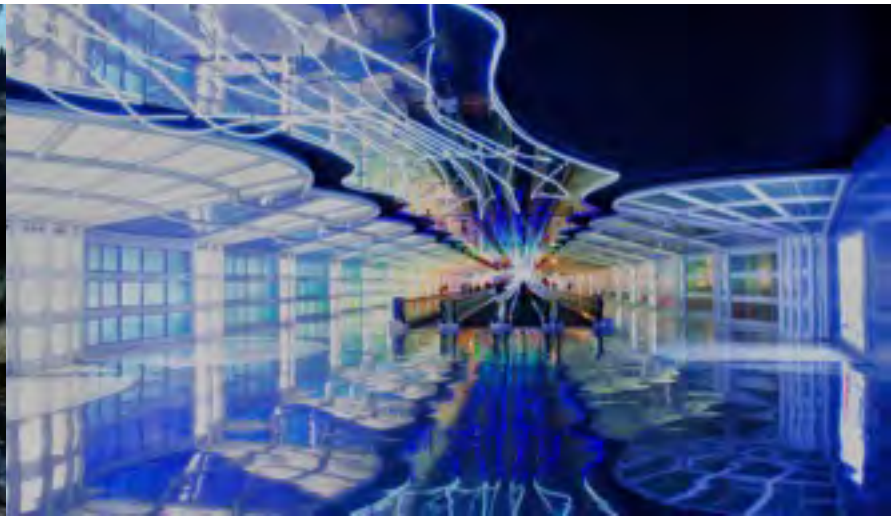
Print color Large - Cascade Gorge - Bob Reynolds

Print color Large - North Canyon Pool - Tom Wilson

Print color Large - Oregon Light House - Mike Garber

Print color Large - Lighthouse in Main - Carol Arnolde
Image not received

Print color Large - Eagle Falls - Patrick Grady



Print color Large - Underground at O'Hare -Tim Medina