



# *Photo Techniques*

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# Portraits



This was photographed using the EF 85mm f/1.2L II USM medium telephoto zoom lens, which is the standard portrait lens. The objective is to focus on the eyes and adjust the image using a blur effect to transmit a feeling of the surroundings.

## Photography that takes advantage of the superiority of large-aperture lenses

Communication between the photographer and the model in portrait photography is very important. For this reason among others, lenses between 50mm and 135mm are often used, in order to maintain a certain distance from the model. The standard zoom lenses which are often sold together with camera bodies cover this focal length range, and are therefore generally suitable for this type of photography. Sometimes, however, it is necessary in portrait photography to use a large-aperture lens with a larger maximum aperture than is offered with such zoom lenses. It goes without saying that getting the most out of the lenses you already have is a good thing, but the powerful effect afforded by a large-aperture lens is the *ne plus ultra* of interchangeable lenses in SLR photography.

The first element is the beauty of the blur. The wider the aperture, the shallower the depth of field becomes, increasing the blur in the out-of-focus areas. 85mm lenses, which are often used for portrait photography, can deliver an impressionistic background blur effect since they are much brighter than zoom lenses. Single focal length lenses generally have a brighter maximum aperture than zoom lenses, making them ideal for photography using a shallower depth of field. And of course if you want to reduce the blur a bit all you have to do is close the aperture the required amount, which gives large-aperture lenses a broader range of expressiveness.

Using f/1.2



When shooting with a large-aperture lens with the aperture open, only the main object clearly stands out.

Using f/4.5



When using a standard zoom lens, the background might not sufficiently blur even when photographing with the aperture open.

IS OFF



This is a hand-held photograph of a city corner at nightfall using an EF 28-135mm f/3.5-5.6 IS USM. The shutter speed was slow and the image is not clear due to shaking.

Canon has a large line-up of large-aperture lenses with outstanding optical characteristics. Not only do they allow you to emphasise the subject with their shallow depth of field, but they also deliver excellent image quality compared to zoom lenses.

The extremely shallow depth of field offered by large-aperture lenses when used at maximum aperture means that you have to be extra careful with focusing. Most USM lenses are equipped with full-time manual focusing, making it possible to make small adjustments to the focus even when in autofocus mode, which can be a great help when you have to get the right focus rapidly in difficult focusing conditions.

IS ON



The images of the person in the front and the background appear crisp. The images of the people walking in the background are blurred showing that this photograph was taken with a slow shutter speed.

### IS lenses which make shake-free handheld photography possible even in dark places

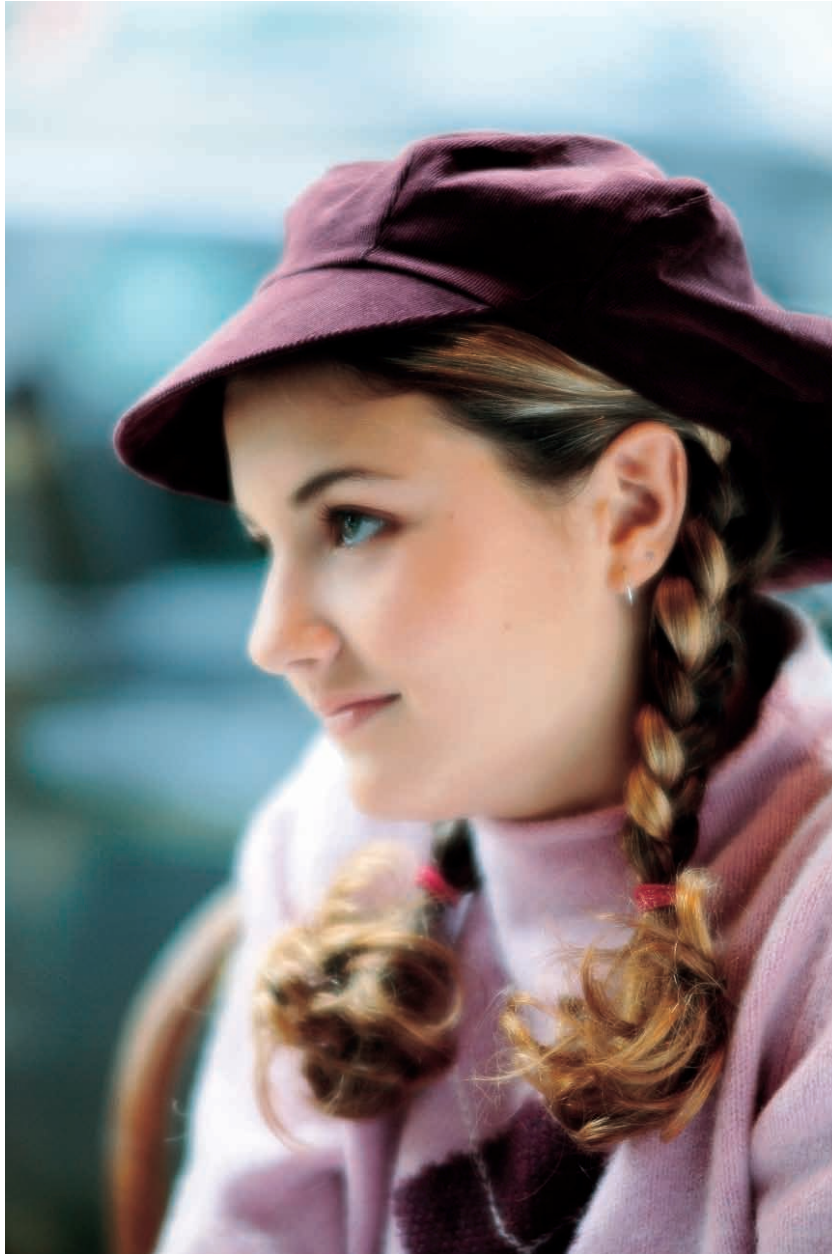
Portrait photography is not always done outside on sunny days or in a studio with professional lighting equipment. Often the greatest photo ops come outside at dusk or in a poorly lit interior. And there are many places that don't allow the use of tripods. All of these difficult lighting situations are ideal for IS lenses to show off their capabilities.

No matter how beautiful the model's smile or the location, any hand movement during the shot will ruin the photograph. This type of shaking requires the utmost caution and attention especially when blowing up photographs taken with digital cameras.

Methods for preventing the shaking effect of hand movement include using a flash, high sensitivity film for film cameras, and a high ISO sensitivity setting for digital cameras. However, flashes can destroy the lighting atmosphere of a location, high-sensitivity film is grainy, and a high-sensitivity setting on a digital camera will cause noise to be generated in



#### Soft value 1



This portrait was photographed using an EF 135mm f/2.8 lens with a built-in soft focus mechanism. The soft value was set to 1. This image has a soft tone while keeping the facial outline crisp.

the resulting image. With an IS lens, not only does handheld photography become possible in these situations, but image quality is maintained because the effects of hand movement can be suppressed even when using low-sensitivity film.

#### Using soft-focus lenses

Soft focus is sometimes used when taking portraits of women. This can be done by using either a special soft-focus lens or a soft-focus filter.

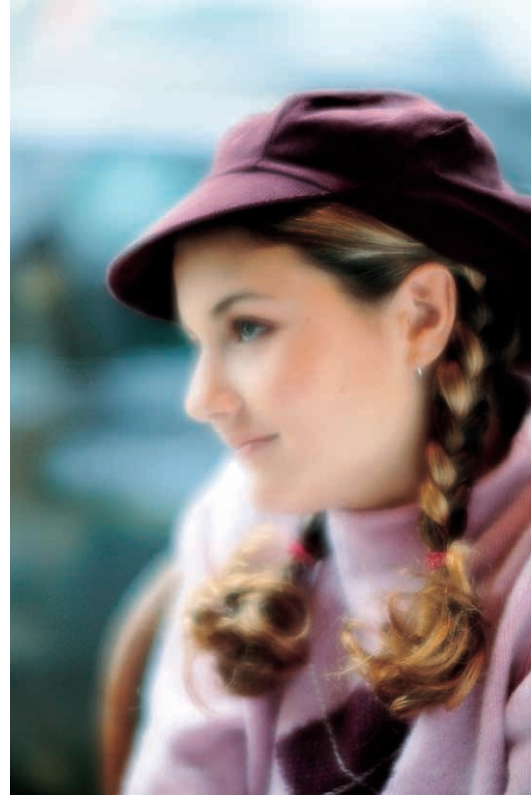
Soft-focus filters are inexpensive, but they require care when being used. Many of them achieve the soft focus effect through a clear pattern on the surface of the glass, which can often cause the blurred areas of a photograph to appear

Soft value 0



Setting the soft value to 0 produces a sharp image.

Soft value 2



Setting the soft value to 2 produces a softer image.

plotchy or become too evident and ruin the photographic image. In contrast, specially designed soft-focus lenses deliver a natural, beautiful softening effect that envelops the subject in a soft light, throughout the whole image, and the effect can be adjusted. The EF lens series includes a 135mm soft-focus lens that is easy to use in portrait photography, allowing you to achieve expressive and beautiful soft-focus effects.

#### **Shorten the closest focusing distance with an extension tube**

Using medium telephoto and super-telephoto lenses allows you to bring a model's face completely into the frame when using a 35mm or digital SLR held horizontally. However, when you want to get that one step closer for a shot with greater impact, an extension tube can be useful. Although using one will cause distant objects to go out of focus, it will reduce the closest focusing distance of the master lens.

Extension tubes are attached between the lens and the camera body and can be used with most EF lenses, including the EF-S series lenses. They come in two types, the EF 12 II and EF 25 II, with different thicknesses (approximately 12mm and 25mm respectively), and the EF 25 II can be used at closer distances. The amount you can get closer depends on the master lens being used.

Photographed at the EF 70-200mm f/2.8L IS USM's closest focusing distance (1.4m)



When shooting portrait photography, a child's face can be made to fill the entire screen.

Photographed using an extension tube



Using an extension tube brings the subject even closer. This is effective when you want to further emphasise impressive areas, such as the eyes or smile.

# Macro photography



Capturing a newly emerged swallowtail butterfly in soft light. EF 180mm f/3.5L Macro USM·4sec.·f/5.6

## The Beautiful World of Macro Lenses

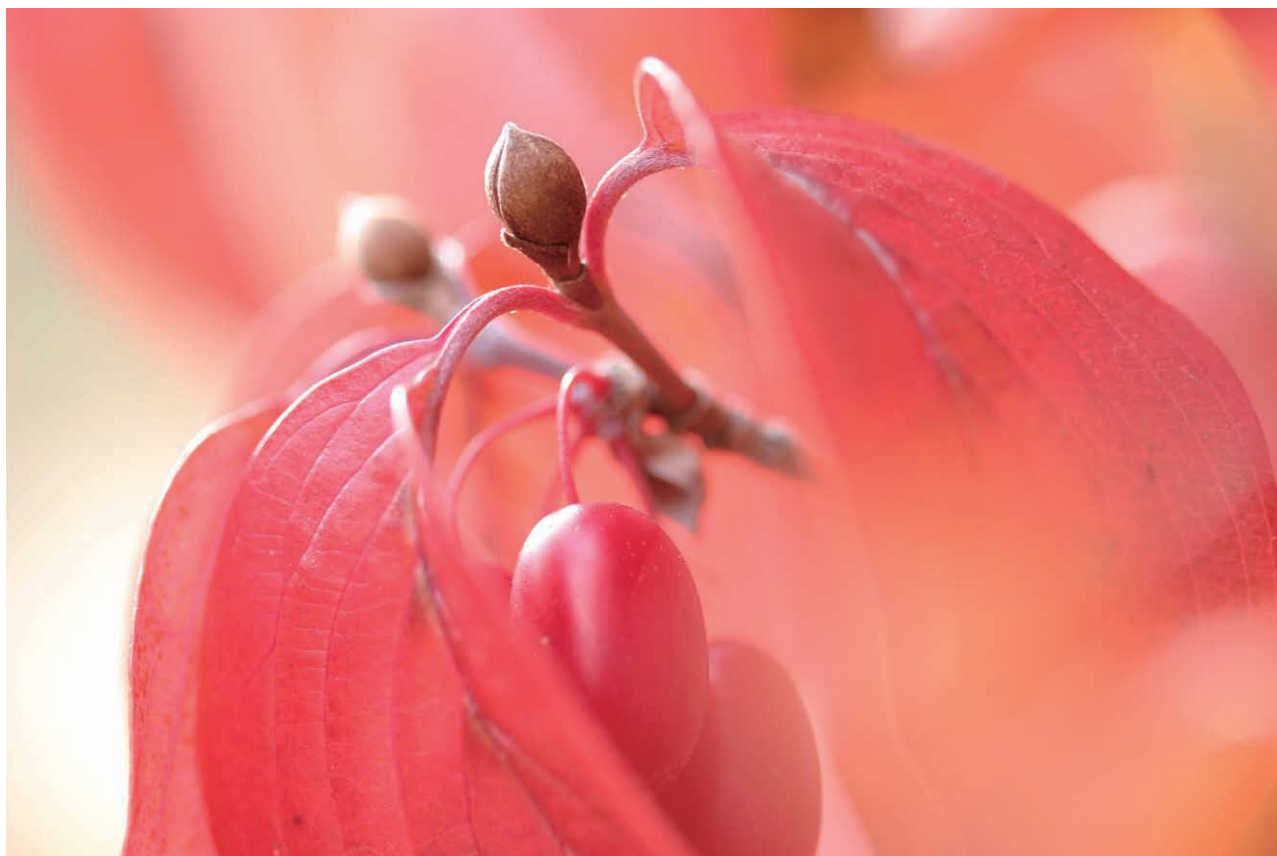
Within the EF Lens Series, including EF-S Lenses, there are several macro lenses with different focal lengths and maximum photographic magnification to match all subjects and situations. There is always something new to discover when you glimpse into the world of macro lenses.

Many people think they can photograph flowers and the like with their standard zoom lens, making it unnecessary to buy a macro lens. True enough, many common standard zoom lenses come with a macro function, and are designed to allow a certain level of close-up photography. But using a macro lens which is specifically designed for close-up photography

Canon macro lens series







Focusing at a bud and adjusting the lens opening to make leaves blurred nicely, I captured a mysterious breath of new life.  
EF-S 60mm f/2.8 Macro USM·1/50 sec.·f/3.2

makes it a completely different experience thanks to its much higher photographic magnification. And not just with flowers either – attach a macro lens to your camera and take a look at some of the things around the house for some fun. It's just like when you were a kid and went around looking at things through a magnifying glass. Macro lenses maintain high image quality during the high magnification photography of life-size, 0.5× size, and even 5× magnification. EF 50mm f/2.5 Compact Macro, EF 100mm f/2.8 Macro USM, EF 180mm f/3.5L Macro USM and EF-S 60 f/2.8 Macro USM can focus up to infinity, and not just to close distances, so they can be used

like normal lenses for landscape and portrait photography. In addition, the brighter maximum aperture of macro lenses provides a greater blur effect for backgrounds. Macro lenses are no longer just for close-up anymore, and can even be used for subjects which are far away. Your photographic enjoyment will grow by adding a macro lens to your standard zoom lens.

Note: At Canon, a lens is called a macro photo lens if it is designed for high magnification with a maximum photographic magnification that exceeds life-size magnification.



Being able to show the subject close up and beautifully blur the background to produce a mysterious effect is the major characteristic of the macro lens. EF-S 60mm f/2.8 Macro USM·1/80 sec.·f/8.0 (1 x magnification)



Photographed at the EF 28-135mm f/3.5-5.6 IS USM's 0.19 magnification. 1/250 sec.·f/8.0

## ●Choosing by focal length

Choosing macro lenses according to focal length actually means choosing according to the desired focusing distance and depth of field. Photographing still-life compositions (which by definition don't move) poses no particular problems, but it is always best to use a telephoto macro lens in order to maintain reasonable distance from the subject when taking pictures of insects and other living creatures that are likely to flee at the sight of a photographer. However, using a telephoto macro lens often makes it difficult to fit the entire subject

inside the depth of field because it becomes too shallow. In such cases, a standard macro lens with a shorter focal length can be handy. Of course, if you want to emphasise the subject by blurring the background, a telephoto macro lens is a good option. The medium telephoto EF 100mm f/2.8 Macro USM and EF-S 60mm f/2.8 Macro USM lenses are halfway between standard macro lens and long telephoto macro lens, making it a popular, easy-to-use choice for beginners and pros alike.

## Difference in how the background appears depending on the focal length



EF 50mm

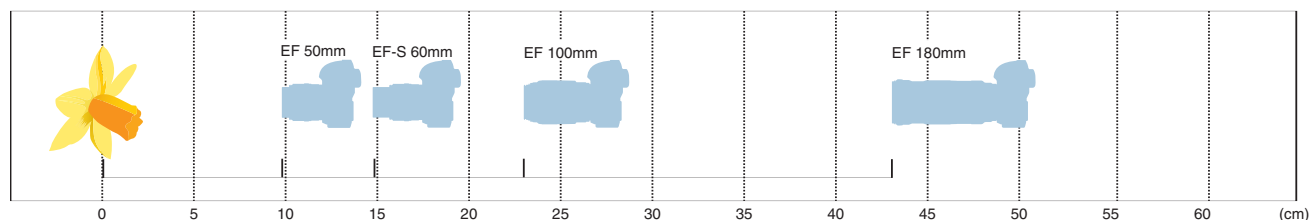


EF 100mm



EF 180mm

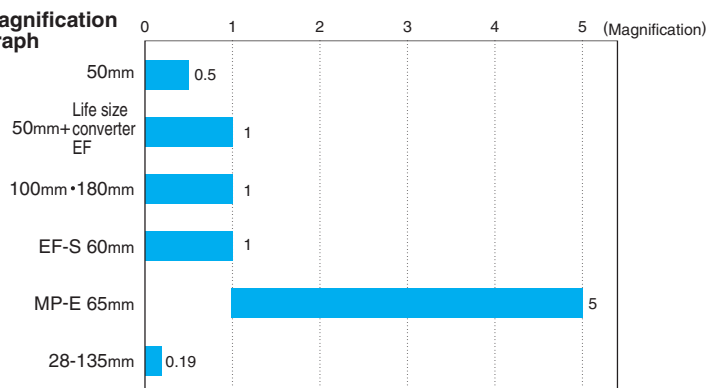
## Working distance at an image magnification of 0.5x (Distance from the end of the lens to the subject)



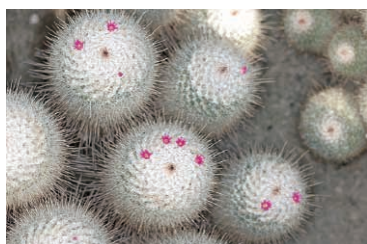
## ●Choosing a Magnification

Another factor is photographic magnification. Photographic magnification is how much larger the subject appears on the film or the photographic elements than in real life. Maximum photographic magnification is a lens's magnification when it photographs a subject as large as it can. The EF 50mm f/2.5 Compact Macro used by itself has a magnification of 0.5x, the EF 100mm f/2.8 Macro USM, EF 180mm f/3.5L Macro USM and EF-S 60mm f/2.8 Macro USM have equal magnification, and the MP-E 65mm f/2.8 1-5x Macro Photo specially designed for close-up photography has a magnification of 5x. Choose a lens which best suits your subject size and purpose.

## Magnification graph



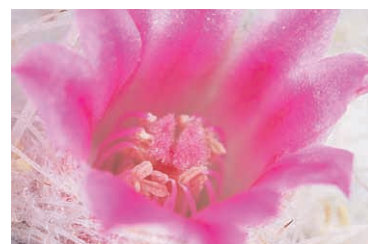
## Difference in how the subject appears depending on the image magnification



0.5x

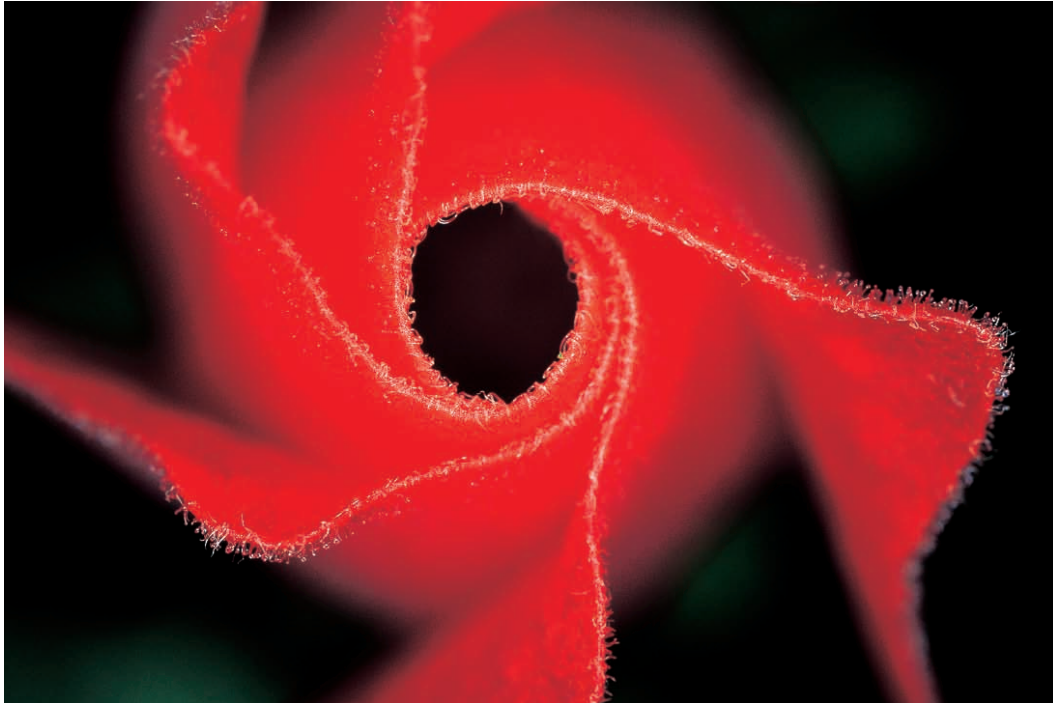


1x (life-size)



5x





When shooting high-magnification microphotography to capture the mysterious world at that scale, special care must be taken to prevent hand shaking. Clear pictures without blurring can be shot by using a tripod and macro flash. MP-E 65mm f/2.8 1-5x Macro Photo-1/125 sec.-f/11 (2x magnification)

### Points to keep in mind when doing macro photography

When taking photographs with a macro lens, controlling the depth of field and preventing the camera from shaking are very important. Compared with ordinary photography, the depth of field with a macro lens which has a short focusing distance is extremely shallow. 1:1 photography with a 180mm macro lens offers a depth of field of less than 1mm at maximum aperture. By blurring the area before and behind the subject taking advantage of the shallow depth of field, it is possible to emphasise the subject. That said, when you are taking a photograph of merchandise for an advertisement and want to make sure the entire subject is in focus, close the aperture and position the camera so that the subject is as parallel as possible to the camera's focal plane.

When the depth of field becomes this shallow, you need to pay careful attention to focusing, as it can be thrown off by even the smallest adjustments in the position of the focus ring, resulting in an out-of-focus photograph. Basic rules of thumb include focusing on the center of a flower when photographing flowers and the eyes of an animal when photographing animals. If the location which you want to put in focus is small, the autofocus may latch onto a different location depending on how the photograph is framed. However, the full-time manual focus function on the EF 100mm f/2.8 Macro USM, EF 180mm f/3.5L Macro USM and EF-S 60mm f/2.8 Macro USM can fix this by allowing you to make minute adjustments to the focus even after the autofocus lamp comes on indicating focus has been achieved.

Furthermore, the higher the image magnification, the higher the risk of hand or camera shaking with lenses that have a long focal length. The most common way of calculating the threshold for handheld photography is to limit it to a shutter speed equal to 1/focal length, but this doesn't work for macro photography, which requires the use of an electronic flash and/or a solid tripod and remote shutter switch to prevent blur caused by camera movement.



Shaking occurs easily during macro photography, so as far as possible, use a tripod that can be used for low-angle photography. Be sure to use a remote switch and release it so as not to jar the camera.

# Landscape



A wide-angle lens is the best for capturing the grandeur of nature. Here an EF 28mm f/1.8 USM is used to capture the composure of the distant mountains. EF 28mm f/2.8-1/180sec.-f/11

## Selecting a lens for its mobility

Landscape photography is done with a broad array of lenses, from ultra wide-angle to ultra telephoto. Driving around in a car is useful for getting shots of everyday life around town, but if you're looking for scenes in nature, you'll find yourself climbing mountains and trekking along snowy trails, using a lot of energy, so you won't want a lot of heavy equipment dragging you down. For these situations, selecting zoom lenses for their mobility and ease of carrying is the most effective answer.

The EF lens lineup includes the high-performance EF 16-35mm f/2.8L USM, EF 24-70mm f/2.8L USM, and the EF 70-200mm f/2.8L IS USM and EF 70-200mm f/2.8L USM. While they may not rival a single focal length lens in terms of brightness, they are nevertheless a large-aperture zoom lens set with a bright maximum aperture of f/2.8 covering the whole range from a very wide 16mm to a telephoto 200mm. If it's light weight you're looking for, there are also the EF 17-40mm f/4L USM, EF 24-105mm f/4L IS USM, EF 70-200mm f/4L IS USM and

EF 70-200mm f/4L USM, which have a maximum aperture which is a bit smaller at f/4. None of these high-performance zoom lenses will let you down no matter what conditions or scenes you come across in the field.



When traveling, this is a lightweight and compact combination of zoom lenses. A three-lens set with an F value of 2.8 is optimum for photography utilising a large aperture. In addition, the three-lens f/4 set is lightweight and compact while allowing you to enjoy shooting with an L lens.



Photographed using an aspherical lens



The evening sky with beautiful light sources is an attractive subject. Using an aspherical lens you can clearly capture the various points of light.

Photographed using a spherical lens

### The power of the aspherical lens

Taking photographs of scenes that include many pinpoints of light, such as night scenes, often causes those points to appear blurry due to the effects of spherical aberration in the lens. Spherical aberration also causes wide-angle lenses to produce images which appear distorted. To eliminate these effects, the EF lens series has benefited from the development of four types of aspherical lenses, (ground aspherical lens, replica aspherical lens, glass molded aspherical lens, plastic molded aspherical lens) which correct this aberration. The L series, in particular, delivers images with little or no blurring or distortion even at wide angles and large apertures.



Here you can see that lights at the edge of the frame are blurred.



Photographed using tilt



A tulip field that stretches as far as the eye can see. A TS-E 45mm f/2.8 lens's tilt mechanism is used to achieve a pan focus effect that allows focusing all the way to the back.

Photographed using reverse tilt



Reverse tilt greatly reduces the range in which focusing is possible. This allows you to enjoy the composition of the colour tones.

### Tilt and shift photography using TS-E lenses

Capturing the image you see without changing it. This is the goal of all photographers, but it is often hampered by the optical characteristics of the lens. For example, tall buildings and trees often seem to taper annoyingly when photographed with a wide-angle lens due to the low angle from which they

are inevitably shot. Not only that, it is often difficult to keep the entire subject in focus from top to bottom.

To solve this, we use what is known as tilt and shift. Tilt and shift functions exist as a standard feature on large-format cameras, in which the lens, the film, and the focusing adjustment are each designed independently of each other.

Photographed using shift



Photograph of a building taken using TS-E 24mm f/3.5L. Shift was used to adjust the image to keep the building perpendicular all the way to the top.

For 35mm and digital SLR cameras, only Canon's TS-E lens series offers tilt and shift with automatic aperture control. Tapering and other types of perspective distortion are corrected using shift. Also, you can make sure the entire length of a receding subject is in focus by using tilt. With ordinary lenses, it is often impossible to fit the entire subject into the depth of field, even when the aperture is closed to the smallest size. The tilt function overcomes this obstacle by changing the normally perpendicular relationship between the optical axis and the camera's focal plane. As an added plus, you can use shift and tilt in situations where it is not required, to achieve surreal effects. This is known as reverse tilt and shift.

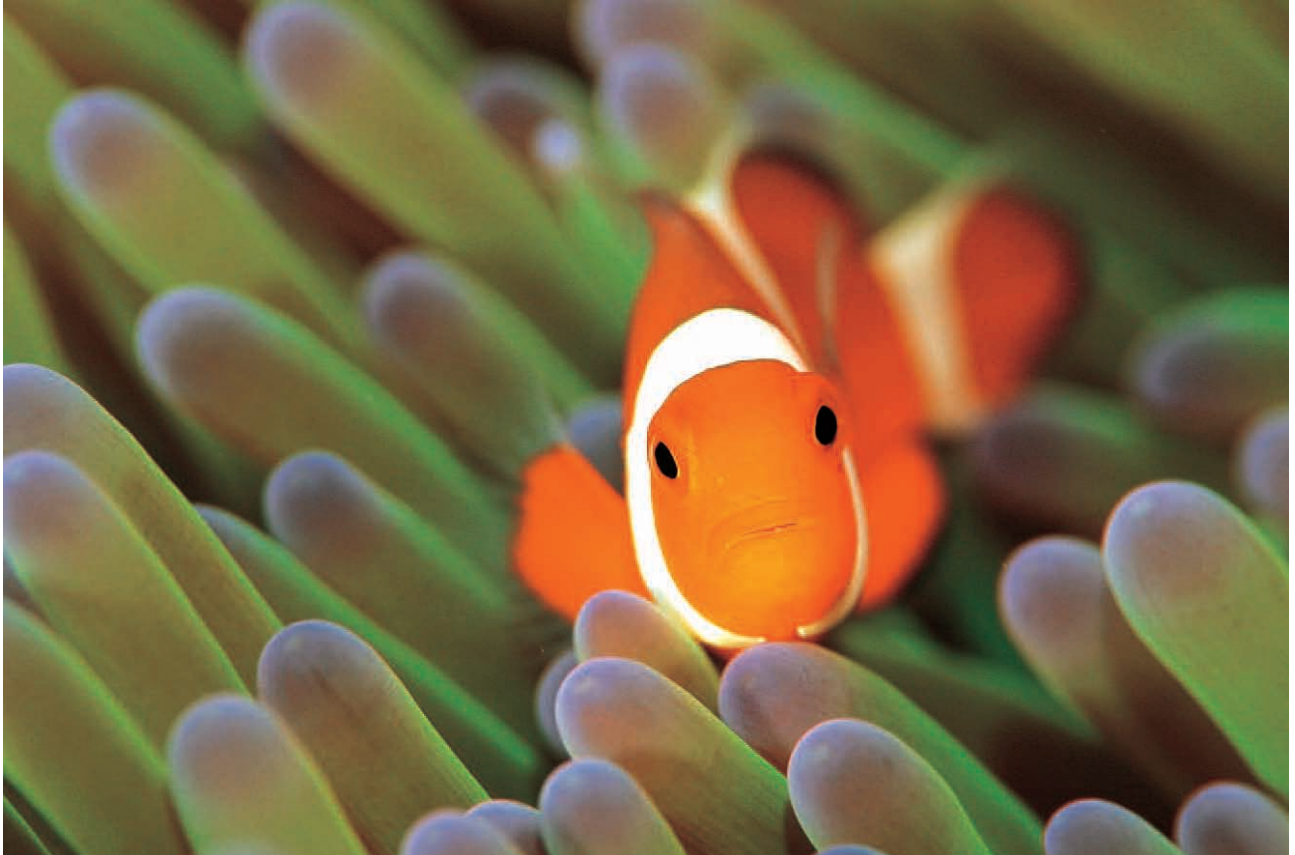
Photographed without shift



Photograph of the same building as above taken without using shift. The intrinsic wide-angle perspective causes the image of the building to lean in at the top.



# Underwater photography



Even the nimble amphiprion ocellaris can be captured in focus using autofocus. Location: Ishigaki Island, Okinawa Prefecture (Japan)-water depth: approximately 8m/26ft.-EF 180mm f/3.5L Macro USM-1/125sec.-f/8-ISO/200-white balance/auto white balance-underwater housing-2 underwater flashes-autofocus

## Using wide-angle lenses and macro lenses when each is most appropriate

The undersea world is filled with bright colours and strange shapes that do not exist on land. To take photographs underwater, however, you need to put your camera and lens in a waterproof, pressure-proof case known as an underwater housing, or a blimp. These are often sold in diving shops.

The switch to digital photography has been a boon to underwater photography because photographers are no longer restricted to a measly 36 exposures per roll and also because they can now check each shot as it is taken. The only problem that remains is the impossibility of switching lenses underwater, forcing photographers to choose between a wide-angle lens or a macro lens.

Before you start shooting, take some time to find out what creatures inhabit the area you will be visiting and imagine the types of photographs you want to take. For example, a 20mm, 14mm, or 15mm fisheye lens would be good if you were going to be taking photographs of manta rays, which can

reach up to 4m/13.2ft. in size. If you are going to be taking shots of small creatures, or you want close-ups of the expressions on the different creatures' faces, use a 100mm macro. And if you are dealing with timid little fish like gobies, a 180mm telephoto macro would be best.



The underwater housing is vital for underwater photography. Dome ports (for wide-angle lenses) and macro ports (for macro lenses) are available depending on the lens being used.





An *Ecsenius yaeyamaensis* with a cute, slightly bewildered expression, caught by waiting for the creature to peek out from the coral. Location: Iriomote-jima, Okinawa Prefecture (Japan)-water depth: approximately 9m/30ft.-EF 180mm f/3.5L Macro USM-1/125sec.-f/8-ISO/200-white balance/auto white balance-underwater housing-2 underwater flashes-autofocus



A female cocktail wrasse peeking out from behind some undersea vegetation, showing the beautiful nuptial colouration indicating spawning season. Location: Atami, Shizuoka Prefecture (Japan)-water depth: approximately 17m/56ft.-EF 100mm f/2.8 Macro USM-1/125sec.-f/11-ISO/200-white balance/auto white balance-flash underwater housing-2 underwater flashes-autofocus

### Getting as close as you can to the subject

The trick to taking good underwater photographs is to get as close as possible to the subject, in order to reduce the amount of water between the lens and the subject, as the water is filled with plankton and other flotsam and jetsam, which reduce the clarity of the photograph.

You have to decide whether you are looking for dynamic photographs of the subject taken with a wide-angle lens at very close distances, or shots of the subject only, using a macro lens. In order to develop your own sense of what you want, you should become very familiar with one kind of lens. The most appropriate lenses for this purpose are the EF 20mm f/2.8 USM, EF 28mm f/1.8 USM, EF 50mm f/2.5 Compact Macro, and EF 100mm f/2.8 Macro USM. The lens ports on the housing (the part of the housing that holds the lens) come in two different shapes: a dome port for wide-lenses and a macro port for macro lenses. When selecting one

of these, you should think about how to approach the subject, and how to frame it. It is probably better if you choose a slow subject at first. Look through the finder and try different shots at different angles. If you are using a digital camera, you can see the image as you aim, so the results of your experimentation can be applied right away.

Note: regarding captions with underwater housings: dome port housings (for wide-angle lenses) and macro port housings (for macro lenses) are available. WB: white balance. AWB: auto white balance.



This excellent example of a sea fan is 3m wide by 3m high. I waited until the sun was in just the right position in the background to take this silhouette. Location: Iriomote Island, Okinawa Prefecture (Japan)-water depth: approximately 18m/59ft.-EF 15mm f/2.8 Fisheye-shutter speed priority AE-1/125 sec.-ISO/200-white balance/electric bulb-underwater housing-autofocus

### Securing your body

Because the sea is filled with currents, eddies, and tides, which can all cause your body to move around, the most common shooting problems are focusing errors and camera movement. Focusing errors can occur because the lens may have been aimed at something other than the subject when the picture was taken, and unwanted blurring can occur if the camera moves during the exposure.

In order to prevent this, you must take steps to prevent your body from moving – usually by standing, kneeling or lying down on the sea bottom. Another way is to add weight to the weight belt, removing some of the air in the BCD (the diving equipment which helps to adjust your float as well as keep the air tank on your back).

You can also hold your body still by straddling rocks, pinioning yourself between rocks, or gripping with your elbows. If you are dealing with a sandy bottom, you can simply lie down on it commando-style, with one of your legs out and bent at the knee (making the shape of a “4”) to stabilize yourself. None of this should ever be done on a coral reef, however, since this will destroy the coral, so choose a place without coral.

The ultimate way of stabilizing your body is a breathing method. When you are underwater, inhaling fills your lungs with air, making them act like flotation devices, while exhaling has the opposite effect, making you sink. Floating up and down as you breathe is one factor in camera movement, so you should try to breathe as slowly as possible, especially when you press the shutter button.



### Using autofocus underwater

It used to be that using autofocus underwater was pointless because of the low precision, but now with all the advances that have been made in autofocus sensors on the camera, almost all underwater photography employs autofocus, especially when using wide-angle lenses. The autofocus is in fact more accurate than manual focus when you are dealing with a backlit situation, so depending on how you choose the area for autofocus, you should definitely take advantage of elements which allow you to focus on a spot which will let you take the photographs you have in mind.

With macro lenses – especially the EF 100mm f/2.8 Macro USM – preferences regarding autofocus and manual vary. Once you get used to it, manual focusing delivers more in-focus photographs, but at the same time, if the autofocus is used correctly, it can give you some pretty sharp shots. The trick is to set the camera to one-shot autofocus and use the autofocus lock by pressing the shutter button halfway. Then, move the camera forward or backward until the shot is in focus, and press the shutter button the rest of the way.

If you are using the EF 180mm f/3.5L Macro USM, it is better to use autofocus. Coastal waters tend to be murky, presenting many problems, but the focus can be accurate in very interesting ways in Okinawa (Japan) or other locations where the sea is very clear. One thing you should keep in mind, however, is that overusing the autofocus will consume electrical power, so you should have extra batteries handy.



The 4m/13ft.-long manta ray - the star of the diver's world. White balance manipulated using tungsten film under natural light in order to bring out the mysteriousness of the creature. Ishigaki Island, Okinawa Prefecture (Japan)-water depth: approximately 8m/26ft.-EF 15mm f/2.8 Fisheye-1/125sec.-f/8-ISO/200-white balance/auto white balance-incandescent lighting-natural light-underwater housing-autofocus



The *Serranocirrhius latus* in deep seas with its beautiful colouring. Ishigaki Island, Okinawa Prefecture (Japan)-water depth: approximately 30m/98 ft.-EF 180mm f/3.5L Macro USM-1/125sec.-f/6.7-ISO/200-white balance/auto white balance-underwater housing-2 underwater flashes-autofocus





Amboseli National Park is home to many African elephants. When an elephant calf is born to the herd, the herd encircles it like a wagon train to protect it from predators. If you try to approach it, one of the adult elephants will always block your view, but if you keep your distance, you are able to see the elephant family in their natural habitat.

African elephant-Amboseli National Park, Kenya·EF 500mm f/4L IS USM·aperture priority AE·f/4

## Keep your distance with a telephoto lens.

Wild animals are very cautious, and run away at the slightest whiff of danger – you can only get so close to them. To overcome this obstacle, photographers use telephoto lenses. One technique is to lie in wait for the animal, with the distance predetermined, but if you are new to the location or the animal, you might want to test your stealth and get as close as you can. Some animals require distance, so you will need a lens with a long focal length, which you can then use to get closer and closer until the animal fills the frame.

African elephants and other large, powerful animals do not tend to run at the sight of a car, although they might get excited and approach the car. If a baby elephant is with its mother, she won't take any chances and will generally get in the way between the camera and her offspring. In this type of situation, a 500mm super-telephoto lens should allow you sufficient distance to capture photos of the elephants without alarming them.

Of course, you may not necessarily want close-ups of wild animals. Placing them in their surroundings is another way of achieving beautiful wildlife photographs. You won't have the freedom to walk around and position the camera at any angle you want, since you are dealing with untamed animals, which require delicate handling. Even if you are including the surrounding scenery in the photograph, a telephoto zoom lens

like the EF 70-200mm f/2.8L IS USM or the EF 100-400mm f/4.5-5.6L IS USM may come in handy to allow you to keep the animal as the central emphasis of the shot. Let the zoom do the walking, as it were.

Sometimes, if you are lucky, you can get an otherwise unapproachable animal to approach you if you keep your distance and don't move. If you succeed in making the animal



Amboseli National Park at the foot of Kilimanjaro is a marshland formed by the ground water from the mountain. For this reason there are few roads, making it difficult to position yourself as you might want to, to get the pictures you want. A lot of triangulating is needed if you want to include the looming form of Kilimanjaro as the backdrop to a photograph. So let your zoom do the walking. African elephants and Mt. Kilimanjaro-Amboseli National Park, Kenya·EF 70-200mm f/2.8L IS USM·aperture priority AE·f/4.5

understand that you do not intend to hurt it, then it might come really close. Examples are the Japanese macaque, which tends to converge in groups on natural hot springs in the mountains, and baby seals. If you're in a wildlife park in Africa, families of elephants may pass by your safari car, so an EF 16-35mm f/2.8L USM will be useful in letting you achieve the wide angle needed to capture such a large animal from a relatively close distance, while including the surrounding savannah too.

If you're after something a bit more pastoral than that, then you probably won't need a telephoto lens to capture images from afar. For instance, a standard or moderate telephoto lens can be handy to capture horses and cows on a ranch, taking close-ups with the background slightly blurry, emphasising the subject and giving the image that much more impact. The relatively wide angle of view gives you more freedom to experiment with the background, such as capturing the vastness of the open plains, being careful to exclude unnecessary elements.

### **A shallow depth of field only possible with a telephoto lens.**

Wild animals don't always go where you want or expect them to go. They often hide in dense undergrowth, in the tops of trees, or in deep grasses, which can get in the way of a good shot. You want a clean, clear shot, but you've got branches and leaves and all sorts of other things in the way. What to do? You can take advantage of the shallow depth of field of a telephoto lens to put everything but the subject of the photograph out of focus, thereby drawing the viewer's attention to the animal and not the surroundings. The longer the focal length, or the larger the aperture, the shallower the depth of field becomes. The grass that was in the way of the animal's face as seen with the naked eye is no longer so



August is the best time to see gnus crossing the Mara River, often in herds of thousands at one time. I was training my 500mm on the activity, when suddenly those gnus were right before my eyes. An alligator had approached, spooking the gnus in their crossing and making them run up the river. I was able to capture the moment with the 70-200mm zoom I had on another camera. Gnu-Maasai National Reserve, Kenya-EF 70-200mm f/2.8L IS USM-aperture priority AE-1/4



Lions lie in wait for their prey, hiding in the tall savannah grasses. The grass and the lion's protective colouring, in addition to the grass in front of its face makes the lion hard to make out with the naked eye, but if you use a 500mm super-telephoto lens and its unrivalled shallow depth of field, you can put everything but the lion's face out of focus. Be careful to make the lion's eyes your focal point. Lion-Buffero Spring National Reserve, Kenya-EF 500mm f/4L IS USM-aperture priority AE-1/4

visible through the viewfinder at maximum aperture.

This method can be used at zoos, too, to keep obstructions like cage bars and fences out of the photograph. The shallow depth of field of a telephoto lens lets you blur them out of the shot, leaving only the pacing panther as the center of attention. Bring the camera as close to a shaded part of the fence as possible and photograph the animal when it is some ways from the fence. Telephoto lenses – they're not just for mountaintops and sporting events anymore.

One thing you have to be careful to do, however, is to focus on the animal's eyes. This is a generally applicable rule. When taking a picture with a telephoto lens at maximum aperture, the depth of field becomes very shallow, and if your focal point is the animal's nose or mouth, the eyes will be out of focus.

### **Getting closer to the sun with the Extender EF 2xII**

Wildlife photography involves capturing the environment surrounding the animals, and not just close-ups of lions, bears, and gazelles. One element that no photographer can even hope to get close to is the sun. The focal length of a lens must be very long to produce a photograph in which the sun fills a sizable area of the frame. The sun takes up an area about 1% of the focal length in the frame, so its diameter will be 2mm if the lens used is a 200mm lens, or 5mm for a 500mm lens. So if you want it to fill half the viewfinder, you will have to use the





Birds are more cautious than other animals, making it hard to get close to them. If you get too close, they simply turn their backs and fly off. One evening a flock of pelicans were all facing the same direction waiting for the wind to rise, when they started taking off one at a time. The image was a bit too small even when I used the 500mm, so I attached the Extender EF 1.4x II. I followed the pelican with the camera as it took off, leaving the focus up to the AI servo.  
Pelican-Lake Nakuru National Park, Kenya-EF 500mm f/4L IS USM + Extender EF 1.4x II -aperture priority AE-f/5.6

Extender EF 2xII in combination with a 600mm lens, resulting in a focal length of 1200mm, and giving you a sun 12mm in diameter. And if you're using a digital camera, which has a smaller image size than a 35mm film camera, the sun will appear even larger, so there may be times when the Extender EF 1.4xII might be the better choice. You have to place the camera at just the right distance for an animal – say a goat on top of a hill or a bird in a tree – to capture it in combination with the sun at the available focal length. The sun seen through a super-telephoto lens does not stay still, either, so there is but a moment when it will form the right composition with the animal. As a reminder, these recommendations are only appropriate when the sun is very low in the sky, such as at dawn or dusk. Staring at the sun at other times, whether it's with the naked eye or through the viewfinder of your camera, is extremely dangerous unless proper precautions are taken to prevent eye damage or blindness, not to mention possible damage to your camera.

#### **Rapid response to unexpected situations**

You have to guess where animals are going and choose a focal length to suit. There are many unknowns, though, and you never know what they will do from one moment to the next. That's where a zoom lens can come in very handy,

because you won't have to miss any shots while switching lenses. The EF 70-200mm f/2.8L IS USM is great anywhere. If 200mm doesn't give you enough distance, attach an extender. The bright maximum aperture lets you use the lens as though the extender weren't there. And with the EF 100-400mm f/4.5-5.6L IS USM, you won't have any problem finding the right angle of view when you need it thanks to the 8x magnification it offers. Speed is often of the essence when photographing in the wild.

#### **A super-telephoto focal length and IS function – an invaluable combination for bird photography**

There are more birds out there than you could count in a lifetime, and some of them are pretty small – so small, in fact, that you will probably need a lens with a long focal length if you want to get a reasonably sized shot of one. Even larger birds, like cranes, white herons, and eagles, tend to be cautious, and will fly away at the first click of a shutter, so getting close-ups of them is difficult. Photographers often turn to a combination of super-telephoto lens plus extender, which is unfortunately accompanied by the drawback of making the lens even harder to keep still than usual. Even more care is needed to keep the subject inside the viewfinder, requiring care with focusing and avoiding shaking the camera.





It is no easy task to keep a bird in the frame when it is in a tree whose branches are swaying in the wind. The shallow depth of field means that with each gust of wind the bird goes out of focus. This problem was resolved by using an Extender EF 1.4xII with the EF 500mm f/4L IS USM, taking advantage of its autofocus and IS functions to keep the bird's head right in the focus frame. I placed the lens on the window frame of the car to maintain more sharpness, in a halfway hand-held type of situation.  
Long-crested eagle-Buffalo Spring national Reserve, Kenya-EF 500mm f/4L IS USM + Extender EF 1.4xII -aperture priority AE-f/5.6

Use the EF 300mm f/2.8L IS USM with the Extender EF 2xII or the EF 500mm f/4L IS USM with the Extender EF 1.4xII and you can still use the autofocus. When used in combination with the IS function, you can reduce the risk of blurry pictures even more, allowing you to move the lens to capture a bird suddenly taking off or a flock in flight.

If you want to take a slow-shutter moving shot of the flapping wings of a swan taking off, the IS function's mode 2 is effective. Keep the bird in the viewfinder as it flies past you and use a shutter speed of 1/15 sec. to take multiple shots. Of the shots you take, one or two are bound to be keepers.

All the L-type super-telephoto EF lenses have outstanding optical characteristics, yet their true worth (as well as that of the IS function) can only truly be understood when you make large prints of a photograph taken with a digital SLR camera.

### Switching between auto and manual focus using the full-time manual focus

Animals don't keep still for very often, which means you'll find yourself relying on the autofocus more than you normally would – even at times when it really isn't appropriate, such as when a fox gets behind a fern in the undergrowth, and the lens refuses to focus on the fox, or when the wind kicks up a cloud of dust partially hiding a herd of giraffes. At times like these, you can use the full-time manual focus (a standard feature on many USM lenses) to make slight adjustments to the autofocus without having to switch into manual focus mode, allowing you to concentrate on the photograph instead of the camera.

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