



LENS REVIEW

# Canon 600mm f/4 L IS USM II

Canon's 600mm prime super telephoto is a unique piece of engineering designed for unique photographic tasks. Words and images by **Ewen Bell**



**WE NEVER SAID IT WAS SMALL**

If you're considering splashing out on the new and improved Canon 600mm prime, at almost half a metre long you're likely to come up against some packing problems.

**Buying advice**  
Kilos versus quality – what's it going to be? Your images will almost certainly benefit from this monster, but your lower back may not.

» DETAILS

- Price:** \$13,990
- Manufacturer:** Canon
- Website:** canon.com.au
- Features:** Maximum aperture of f/4, achieved with 16 elements in 12 groups
- Image Stabiliser:** 3 modes offering up to 4 stops of shutter reduction
- Minimum focal distance:** 4.5m
- Angle of View:** 600mm focal length yields 4 degrees FOV
- Focus Engine:** Ultra-Sonic Motor (USM) is whisper quiet and power efficient
- Size:** 16.8cm diameter and 44.8cm long
- Weight:** 3.9kg

» VERDICT

There are many ways to add 600mm of telephoto to a DSLR camera, but none will match this lens for speed and accuracy.

» RATING **9/10**

■ **This way to birdlife**  
Shot with a Canon 5DMkII; EF50mm f/1.2L USM lens; 1/800sec; f/2.8; ISO 100



■ **Red-necked Stints in formation**  
Shot with a Canon 1DMkIV; EF600mm f/4L IS II USM +2.0 x Extender MkIII; 1/2000sec; f/8; ISO 800

**B**irds are very small and tend to fly away when you get too close. I didn't need an avian expert to figure out that bit for myself, but I found one anyway. Tim Dolby is an expert on how to find birds, so I enlisted his help to road test the latest release of the Canon 600mm lens – one of the best solutions ever designed for photographers who want to shoot birds.

**Long and little**

For virtually any field of photography, the advice to "get closer" usually holds true, but

with wildlife and sports you can rarely get as close as you'd like. When pushed into the telephoto end of lens design, the quality of image can be very disappointing, as there are a lot of very cheap lenses that offer good reach but appalling images. Flat contrast, soft resolution and slow autofocus are hallmarks of the budget option.

The reason for this is that building a light and affordable telephoto lens presents a distinct technological problem.

Pause for a moment to consider what a super telephoto lens is trying to achieve: every SLR lens is designed like a very small movie projector, »

**VIDEO FOCUS**

Power Focus mode is designed to appeal to cinematographers, offering variable speeds of focus adjustments according to the force applied to the manual focus ring.

■ **Welcome swallow**  
Canon 1DMkIV; EF600mm+2.0x; 1/2000sec; f/8; ISO 2000



**"Better optics, quieter autofocus and revised IS make this lens one of the best ever built by Canon"**



■ Nesting swans at Werribee  
Canon 1D MkIV; EF600mm;  
1/2000sec; f/4; ISO 8000

**“We didn’t get a hint of sunshine, yet the 600mm lens produced startlingly bright images”**



■ So much glass  
The sheer volume of light being fed into the barrel makes for superb quality images

collecting light from the outside world and projecting a scene onto the sensor. A standard lens, 50mm wide, is doing this for a field of view approximately the same as your eyes. Canon’s 600mm lens is taking a minor fraction of that standard view, and yet attempting to offer an image equally bright and detailed, feeding your sensor with a perfect picture of something very small, very distant, or both.

Prime lenses invariably perform better than a zoom, regardless of where it sits on the scale between wide angle and telephoto. The further you extend your reach, the less light there is to work with – and that’s what makes super telephoto lens design so fiendishly difficult. Canon’s 600mm f/4 MkII needs a massive diameter of glass just to gather sufficient light. To maintain optical integrity, the 600mm lens ends up a very heavy beast, weighing in at just under 4kg. This is the mark II version of the lens and the new and improved model

is over 1kg lighter than the previous version. Better optics, quieter autofocus and a revised Image Stabiliser system make this lens one of the best ever built by Canon.

Quality is one thing, practicality is another. How does such a massive lens impact your photographic experience when you head into the field to shoot? With the help of Dolby, a guide and author of birding books, we headed into the wetlands to the west of Melbourne on a cold and dark winter’s day.

**Wet and wilderness**

We didn’t get a hint of sunshine for the entire morning, yet the 600mm lens produced startlingly bright images. Pin sharp and perfectly focused. The dim light and long telephoto reach failed to hinder the autofocus system when shooting on a Canon 1D MkIV. That’s the advantage of such a refined lens: it feeds lots of light into the barrel and makes the most of the technology behind it.

Nesting swans and their young chicks inhabit shallow ponds in the wetlands around Werribee, and are tolerant of onlookers driving along the service tracks. Shooting within a distance of 20 metres, the 600mm lens is almost too long, reducing composition options to just the head

**BEAUTY IN THE DETAILS**

“My favourite shooting of the day was not with very small birds at a very long range, but very small birds at a very close range. Detail is the reward for a super sharp prime lens, and the Canon 600mm f/4 L IS USM II is the one you want when image quality matters most.”



**MANUAL FOCUS MAGIC**

The manual focus grip is unparalleled in its fine control at extreme distances, and is so responsive that shooting with manual focus becomes a real option under quickly changing conditions.



**REAR FILTER**

The outer glass on the lens is a protective layer rather than an optical. It is more affordable to replace if damaged, after all you won’t be getting a screw-on filter very easily for such a massive diameter. The lens barrel is too wide for sensible filter applications, so instead the super telephoto lenses by Canon use a drop-in system at the rear of the lens. The 52mm diameter drop-ins can accept custom gels, polarising filters and more.

and neck. From a 40m range the lens is ideal, and once the chicks came out for a swim we got a chance to test the new lens in combination with an extender.

Canon’s 2x Extender MkIII is an extreme bit of kit. No lens performs its best with an extender attached, making this a litmus test for the worst-case scenario. In dull conditions with two stops of light stolen by the extender, we still managed acceptable focus and image performance. With reeds to hide behind the autofocus was duly tested, and responded well. Picking out the correct focal range was not a problem. »

■ Clean and tidy  
Fluorine coating on the body keeps soiling, smears and fingerprints to a minimum

**HAND-HELD HEFT**

It is possible to shoot hand-held with the 600mm, but at almost four kilos, it's just not sustainable. You'll be needing a tripod – and a very sturdy one at that – to avoid wrist trauma.



Without the extender, this lens is incredibly fast to lock focus. If you have used the 70-200mm f/2.8 IS II by Canon then you have some idea of the performance you can expect. The sharpness is not far behind either – only the action is taking place as a super telephoto level of magnification.

Image stabilisation gets three modes instead of one or two, and focus control is designed to cater to a wide range of specific situations. You can lock in a pre-focus point for situations where the action repeatedly comes back to a specific distance, you can optimise the autofocus for a narrow distance range, and the manual focus grip caters for finer control at long distances than any

**“With reeds to hide behind the autofocus was duly tested, and responded well”**



■ **Pre-focus pocus**  
The ability to lock in focus points ahead of time is a very handy feature



■ **Cygnets through reeds**  
Canon 1DMkIV; EF600mm +2.0x; 1/500sec; f/8; ISO 1600

other telephoto I've seen. It is feasible to shoot with manual focus, such is the responsiveness and travel of the focus grip.

**Size matters**

The one thing the 600mm is not is small. Despite our best effort, we did not easily poke the lens out the window and snap a few shots of Blue-winged Parrots as they flittered by. It is possible to shoot hand-held, but the physical strength required to hold it steady is demanding. In most situations a tripod is essential, and with a quality ball-head that tolerates heavy loading you can nimbly track your subjects without breaking your back.

The tripod collar is designed to be comfortable as a handle for the lens, with ergonomic padding. It provides both stills and video-sized screw mounts in case you want to employ a heavier tripod system that is more suited to the additional weight. You can swap out the tripod plate for a custom alternative, such as a Wimberley lens plate or just a smaller tripod footing if the soft grip version is not to your liking.

When positioned in a bird-hide, or just standing on the shores waiting for waders to come by, the tripod option turns this monster lens into a joy to use.

For a lens with such long reach and shallow depth of field, the performance of the autofocus is absolutely critical. This is where the Mark II version stands out. There are many ways to add 600mm of telephoto to a DSLR camera, but none will match the 600mm f/4 L IS USM II for speed and accuracy. The ability to further extend your reach with the 1.4x or 2x Extender is equally seductive, even though it means reducing the final image quality to a noticeable degree.

As time ran out for our tour of the wetlands, a small flock of Red-necked Stints were wading through the tidal zone in search of a snack. They're tiny little birds barely bigger than a swallow, yet most of them migrate to South-East Asia every year in search of feeding sites. Getting any kind of shot of these shy little waders is something of a challenge, but made a lot easier with a 600mm prime lens that can be comfortably pushed to 1200mm.

My favourite shooting of the day was not with very small birds at a very long range, but very small birds at a very close range. Detail is the reward for a super sharp prime lens, and the Canon 600mm f/4 L IS USM II is the one you want when image quality matters most.



**STEADY AS SHE GOES**

Not only does the Image Stabiliser have three unique modes, but it is able to detect when the lens is tripod-mounted and reduces the coarse compensation accordingly. The tripod-sensing deactivation mode also detects very slow exposures and shuts off the stabilisation, plus it compensates for subtle movements like the mirror slap.

- **Mode 1:** Standard viewfinder and shoot stabilisation.
- **Mode 2:** Panning only stabilisation.
- **Mode 3:** No viewfinder stabilisation, the IS kicks in only when the shutter is depressed.



■ **Blue-winged parrot**  
Canon 1DMkIV; EF600mm +2.0x; 1/2000sec; f/8; ISO 2500

**THE BIRD MAN OF MELBOURNE**

Tim Dolby takes bird watchers on guided tours of the wetlands and forests around Melbourne, and other parts of the country. His book on bird watching in Victoria, *Where to see birds in Victoria*, is a comprehensive guide to finding birds down south, and he's about to release a new book that covers all of Australia. This is not a bird book, it's a bird spotting book that maps out where and when to find beautiful birds. His personal blog is rich with information on bird spotting field trips too. Tweet that! For more information, check out [Tim-dolby.blogspot.com.au](http://Tim-dolby.blogspot.com.au)

