sharp shooting

Canon's RF 100–500mm zoom lens

TEXT & PHOTOGRAPHS **PETER RYAN**

I heaped praise on Canon for its two new mirrorless camera bodies, the R5 and R6 (*African Birdlife* 9(3): 56–60). The main attraction for birders is the cameras' excellent autofocus, which manages to track birds against complex backgrounds appreciably better than Canon's SLR cameras. The mirrorless cameras also enable you to take advantage of the budget RF 600mm and 800mm f11 lenses, which are not available for use with SLR bodies. However, these lenses do have their drawbacks. Most serious photographers will want a lens with the option of having a wider aperture and where the active focus zone covers the full field of view.

You can use existing EF lenses with a small adapter, but Canon is also in the process of releasing mirrorless versions of many of its popular EF-series lenses. So far, the most useful of these for bird photography is the RF 100–500mm zoom. Canon will soon release RF versions of its top prime telephoto lenses: the 300mm and 400mm f2.8 lenses and the 500mm and 600mm f4 lenses, but at prices that are likely to make them unattainable for most southern African birders.

The new RF 100–500mm closely resembles the very popular EF 100–400mm lens. It is a compact zoom with a fairly modest 77-millimetre objective diameter. The lens telescopes out as you zoom in on the subject, which has the advantage of keeping the lens nice and small when set to 100mm and allows much closer focus than a lens with a fully internal zoom. Interestingly, it also makes the zoom more effective for subjects close to the camera. Sony has a 200–600mm lens with an internal zoom mechanism, but when photographing birds five metres away it gives little more magnification at 600mm than Canon's 100–500mm at 500mm.

The disadvantage of a telescoping zoom is that air has to move in and out, which could lead to issues with dust or moisture getting into the lens. This was somewhat problematic in the original 100–400mm, where zooming was achieved by simply pushing and pulling the objective end of the lens in or out. However, like the EF 100–400mm Mark II, the RF 100–500mm has a large rotating zoom ring and a torque adjustment ring to prevent the lens from extending while being carried. The lens is weather sealed like all Canon's top EF lenses and appears to be as tough as the EF 100–400mm Mark II, which I have used in all manner of weather conditions without incident. The RF 100–500mm was my stock lens on a recent trip to the Russian Arctic and I had no problem, even when moving between the heated interior of the ship and the frigid conditions on deck.

So how does the RF 100–500mm compare to the tried and trusted EF 100–400mm zoom lens? The Mark II version of Canon's 100–400mm lens caused many people to rethink the quality possible from telephoto zoom lenses. Its compact design produces sharp images across the full zoom range and has an incredible close focus distance compared to other super-telephoto zoom lenses (see *African Birdlife* 3(6): 44–52). Can this be improved upon?

The main difference between the two lenses is the extra 100 millimetres of 'reach' offered by the RF lens at the top end of the zoom range. This makes it effectively the same as a 10x pair of binoculars, compared to 8x for the EF 100–400mm. This extra magnification comes at the cost of a slightly smaller aperture when fully zoomed in: f7.1 at 500mm for the RF lens compared to f5.6 at 400mm for the EF lens. But in practice this difference is negligible and can be offset by simply moving the ISO up one stop.

Amazingly, this extra reach has been achieved without any significant change in the size of the lens. With the lens hood attached, the RF lens is fractionally shorter than the EF lens >

above *The amazing close focus coupled with eye-tracking focus allows intimate close-ups of confiding birds such as this Cape Spurfowl.*

opposite, above *A Cape Canary fluttering among weedy daisy heads is frozen, despite the modest f7.1 maximum aperture size.*

opposite, below *The most obvious feature distinguishing the RF 100-500mm zoom from the EF 100-400mm is the white lens hood.*

The RF 100-500mm zoom was hassle free, even in frigid Arctic conditions. The zoom facilitates capturing birds like this Ivory Gull in its landscape.

when set to 100mm. Even more impressive is that the RF lens weighs substantially less than the EF lens. I typically only use these lenses handheld, so the first thing I do is remove the tripod foot to make the lens lighter and easier to hold. In the new RF lens, the entire tripod collar can be removed. In this configuration, it weighs just over 1.5 kilograms, 10 per cent less than the EF lens. Coupled with an R6 body, the RF lens weighs around 2.2 kilograms, 15 per cent less than the EF lens on a 5D SLR body. This might not sound like much, but it makes it appreciably easier to carry on long hikes.

What about image quality? The EF 100–400mm Mark II is renowned for its impressive sharpness, suggesting that the RF can only hope to match the EF lens. Yet even here, Canon has managed to tweak out a smidge more sharpness. The improvement is subtle, but overall the images delivered by the RF lens are slightly crisper than those from the EF lens, irrespective of whether it is used on a 5D Mark IV or with an adapter on a R6 body. Another slight advantage of the RF lens is that it focuses even closer than the EF lens, to only 0.9 metres!

One slightly annoying issue is that if you want to use a teleconverter to boost the magnification, it can only be attached to the RF lens when it is zoomed in to at least 300 millimetres. This is fine in principle, because you're unlikely to want to use a converter at lower zoom settings. However, it does mean the lens can't be carried in its compact form with a converter attached and you can't quickly zoom out should the need arise. But personally I wouldn't consider using a converter with this lens, given the inevitable loss in image quality.

To me a more significant issue is the fact that the RF lens can't be adapted to work on an SLR body, so if you want to carry a spare body, both have to be mirrorless. That will be fine once the transition to mirrorless is complete, but it does require a substantial financial outlay. And of course the RF 100–500mm lens is not cheap either. If you can find one, expect to pay about R57 700, 40 per cent more than the EF 100–400mm lens.

So is the extra reach, reduced weight and slight increase in already brilliant image quality worth the extra cost? For someone moving to Canon to take advantage of its superior mirrorless offerings, I would absolutely recommend an R6 and RF 100–500mm lens. However, if you already have an EF 100–400mm Mark II lens, it's debatable whether the upgrade is worth the expense. I think it is, if you can afford it. ◆