Fifty vs. Fifty: 1.8 MkI and 1.4 USM

Fifties are cult lenses. There's probably more variety in Fifties than any other prime. This is a shoot-out between two of Canon's best: the long-discontinued 50/1.8 Mk I and the top-of-the-line (now that the 1.0L's discontinued too) 50/1.4 USM.

Canon's EF line-up includes at least five Fifties: the 50/1.4 USM, 50/1.8 Mk I (discontinued, more's the pity), 50/1.8 Mk II, 50/2.5 Macro, and 50/1.0L (discontinued). The 50/1.8 Mk I was the original low-cost, high-quality prime. It's now replaced by the cheaper and optically somewhat inferior (but still very good) 50/1.8 Mk II. The design lives on in the 35/2, however: it's the same body and similar optics. I have a feeling Canon downgraded the Mk I to artificially create more of a difference between it and the much more expensive 50/1.4 USM: the build quality and ergonomics are so much worse, that professionals and serious amateurs will be tempted by the overpriced big brother. I know I was.

I had already bought the 1.4 when I discovered a pristine 50/1.8 Mk I knocking around a desk drawer at my parents' house. I appropriated it and did a test-shoot. Had I found it earlier, I probably wouldn't have bothered with the 1.4. Still, having both, I thought I might as well do a comparison. It was fun and rather illuminating... and at least it shows exactly what can, and cannot, be done with lenses in terms of optical quality. Since I also have the 35/2 as my "normal" (with the crop factor on the Canon 10D it's close to a real 50), I thought to include it in the shootout, despite the different perspective.

The Contenders



Here they are: from left to right, the 50/1.8, the 50/1.4, and the 35/2.

The two Fifties have different physical designs, although the innards are very similar. The main spec differences are that the 1.4 is 2/3 of a stop faster than the 1.8 (duh!), the 1.4 has an 8-blade iris while the 1.8 and the 35/2 have the cheap 5-blade one, the 1.4 uses micro USM and has real-time manual focus, whereas the 1.8 and the 35/2 use the louder, raspier (but no slower) DC with the focus ring disengaging when AF is enabled. The 1.4 is also a good deal bulkier. The 35/2 and the 50/1.8 are identical in build and

have very similar optics; the main visible difference is that the front element of the 50 is very deeply recessed, while it comes almost to the level of the filter threads on the 35.

The Experiment

I picked a scene with lots of small detail, trying to make it as easy as possible to judge sharpness and contrast. The day was something of a muggy and hazy one, so the scene itself isn't the contrastiest. I shot the same scene at two-stop intervals, off a tripod and with a cable release. I used JPG Fine, Adobe RGB, ISO100. All of the samples are unprocessed 100% crops at Adobe RGB, default settings. The only post-processing I applied was a conversion to sRGB for better viewing convenience from web browsers.

Observations

All of the three examined lenses are extremely good. They're quite usable even wide-open, and comfortably out-resolve the camera stopped-down. Corner-to-corner sharpness is impeccable, all are as contrasty as any lenses you're likely to see, and show negligible or no distortion or aberration. Nevertheless, some (actually rather trifling) differences emerged.

- 1. The 50/1.4 was marginally sharper than the 50/1.8 Mk I up to f/5.6, after which it maxed out the camera; the 1.8 showed some improvement still at f/8.
- 2. The 50/1.8 Mk I outperformed my 50/1.4 in one important respect: resistance to veiling. The 1.4 shows a magenta glow that spills over high-contrast edges at 1.4 and 1.8. It vanishes at 2.8. The 35 showed some veiling at 2; gone at 2.8. The 1.8 Mk I showed no veiling at all that I could see at any aperture.
- 3. Contrast and color-wise, there was no difference between the lenses that I could discern: all are superb.
- 4. Sharpness maxes out at f/5.6 for the 1.4, f/8 for the 1.8.
- 5. All three lenses show very even sharpness across the frame at all apertures.
- 6. The 1.8 shows significantly more light fall-off than the 1.4 at f1.8.
- 7. The 1.4 is a bit of a bitch to focus up to f/2. The mechanism just isn't precise enough to get it exactly on the nose every time -- there was significant variation across the frame. The 1.8 Mk I appeared better, although I shot too few frames to be able to tell for sure. (In practice, this probably won't matter too much: unless shooting still-lives off a tripod, circumstances will probably introduce more variance than the lens.)
- 8. For kicks, I shot the same scene with the Plastic Piston (90-300/f4.5-5.6) at 90 mm. It performed surprisingly well.

Conclusions

- 1. The 50/1.8 Mk I is in practical shooting jus' 'bout as good as the 50/1.4. The 1.4's edge in sharpness *may* be visible on large prints from about 1.4 to 2.8, beyond that, the differences are insignificant. However, the 1.8's better resistance to veiling goes a long way to make up for this. If you have the Mk I, save your money and don't bother with the 1.4, is my advice (unless silent focusing an RT-M are critical points).
- 2. The 35/2 is a really underrated lens: just about as sharp and contrasty as the 50's even wide-open, no lens artifacts worth mentioning, and near-50 field of view.

- 3. All lenses are totally usable wide-open, especially for hand-held low-light situationals where camera shake and subject motion will very likely mask any lens softness.
- 4. The Piston at 90 performs surprisingly well, even wide-open. Nope, it's not a prime, but the difference is really pretty small.

So, who's the winner?

I almost forgot: this being a shoot-out, there has to be a winner. This time, though, I think I'll call it a draw -- between the 50/1.8 Mk I and the 35/2.

While the 50/1.4 is slightly sharper at f/2.8 and below and has 2/3 stop more brightness, it is let down by the inaccurate focus mechanism (I'm not the only one to have commented on this, by the way -- Mishkin over at DPReview was complaining about it

[http://forums.dpreview.com/forums/read.asp?forum=1019&message=5281827] just today) and especially its rather outrageous price. It also loses out to both of the other competitors in one important respect: resistance to veiling-type flare. Not very surprising, actually: the 1.0L is reputed to be even worse in this respect -- it appears to follow from the greater brightness.

The other winner, the 35/2, is a forgotten marvel if ever there was one. With the FOV crop of the 10D, it does the traditional job of the 50, and it pulls it off with panache -- amazingly, at f/2 it's about as sharp as the 50/1.4 at one stop slower, and almost as flare-resistant as the Mk I. It's a fantastic, and highly usable lens. I'm liking it now even more than when I first reviewed it.

Update: Adam-T's Mk I vs Mk II results

Adam-T from the Canon SLR forum on DPReview was kind enough to provide the results of his 50/1.8 Mk I versus Mk II shootout, with the same scene from the 28-70L for comparison. I've added them to the samples below. It appears that his Mk I is very similar to mine. The differences between it and the Mk II are fairly subtle, but they're there -- the Mk I is visibly sharper wide-open, although the Mk II puts up a good fight. In color and contrast the lenses seem as good as identical. The L samples are within a hair's breadth of as good as the Mk I ones (although, of course, over a stop slower): this goes to show that nowadays it's possible to build a zoom that does not significantly lose out to a prime in optical quality (although it's a good deal more expensive). The lighting is different on the L shots, though, so it's hard to compare color and contrast.

In any case, I think the Mk II would've fared quite well in the shootout, although it probably would have been slightly behind the other two Fifties and the 35. It's clear that the Mk II is the current value-for-money champion: it costs less than a decent 77 mm polarizer, and puts up a good fight against the optically best lenses Canon has.

Samples

Here are the samples, in pairs where applicable. I've omitted some that IMO don't add a whole lot to the story.

50/1.4 wide-open





At 1.8, with 35/2 at 2 from the corner







At 2.8







At 5.6







At 8 (I've dropped the 1.4, because it looks just the same as at 5.6)





From then on, the lenses show identical characteristics, as far as I can tell. However, here are a few more. First, the horrible, feared effects of diffraction:





Adam-T's Shootout

All crops are wide-open.









The Piston

And finally, here are the Piston's valiant efforts to take on Canon's best (I've omitted the corner crops from the stopped-down ones, because sharpness was pretty even across the frame, as you can see from the first pair.)







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