

Blown Highlights: "How Much Is Acceptable?"

Some old curmudgeon of a photographer once said that any scene that has more contrast than slide film can handle isn't worth photographing anyway. I think he was exaggerating a bit, but there is an important point hiding in there.

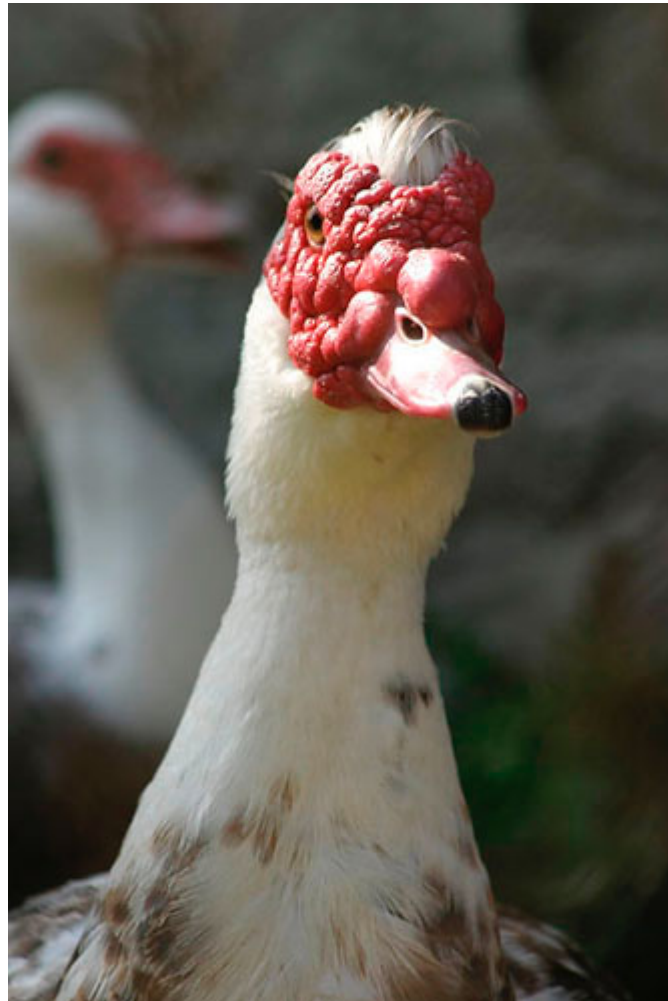
The point is that excessively contrasty pictures are rarely very appealing, and thinking in terms of exposure may not be the best way to approach the problem: the first thing to do would be to think in terms of composition -- try framing the picture in a way that the overall contrast is reduced. For example, leave out the sky, shoot either front-lit or back-lit (adding fill-in flash if needed), look for bright surfaces that'll reflect soft light into the scene, and so on.

In my opinion, the above holds only for color photography. B/W thrives on contrast -- blown-out whites and blocked shadows can actually give a picture a lot of pop, and B/W pictures are often printed intentionally to achieve this.



Run through time, Tyre, 2002 (Canon FD 50/1.4, Kodak T400CN)

However, blown highlights do happen in color photography as well, and when properly handled they're entirely acceptable. IMO the thing to watch out for is blown out *areas* -- like the entire sky, large swathes of sunlit area, and so on. Blown-out point-like or outline-like areas can actually add "pop" to the picture, and aren't distracting at all. While the beak is blown out in the picture below, there's enough detail retained to hint at the texture and color: the blow-out doesn't really constitute a defect.



Watch it, buster! (Canon EF 90-300/4.5-5.6 USM, Canon EOS 10D)

In night photography, of course, the light sources will blow out no matter what you do.

As to exposure technique, I do usually underexpose by 1/3 to 1 1/3 stops when shooting in bright daylight (center-weighted average mode). Then I pull up the curve in post-processing. There's so little noise in ISO100 that this doesn't visibly degrade the image.

But "how much is acceptable?" There's no answer to that... unless it is, "however much you manage to work into the composition or other aesthetic character of the picture." Personally, if I get a picture that has some merit otherwise but has lost the highlights, I try to see if it works better in B/W, and quite often it does.



Dead and fake (Canon EF 35/2, Canon EOS 10D)

Tips and tricks

Thanks to John Sack for writing the original summary of the thread that developed on DPRReview.

Blown highlights are usually caused by dynamic range exceeding that of the capture medium. This needs to be dealt with on several levels.

- **Pre-shot/composition:** avoiding the problem in the first place. Use aesthetic judgment about what highlights can be sacrificed, or try to set up the shot so that there's less dynamic range to start with.
- **In-camera:** how to reduce the problems of blow highlights. Generally 10d evaluative metering seems to give a lot of people this problem, perhaps because the algorithm derives from film cameras, where "expose for the shadows, develop for the highlights" is the working rule of thumb.
- **Post-processing:** How to bring back at least a part of what you had to sacrifice to deal with the blown highlights?

Pre-shot

The best way to deal with high-contrast scenes is to avoid them. A number of things can be done:

- Move around the subject to reduce overall contrast in the scene. Try either front-lit or back-lit.
- Try find a natural reflector: for example, put your subject next to a sunlit white wall (with the wall outside the frame).

- Angle the camera down to leave the bright sky out of the frame. This often gets more unusual and interesting compositions, too.
- Look for "hot spots," and recompose to leave them out of the picture, wherever possible.
- Use fill flash for backlit subjects, if the situation permits; with the 10D, you might have to watch the default auto-reduction of fill flash and add +FEC or turn off the auto reduction.
- Small areas of blown highlights are "allowed"; large expanse of sky would be a problem; subject detail (a wedding dress) would be a disaster.
- Hot spots in the background are much less distracting than hot spots on the subject.

In-Camera

- Use center-weighted metering of the area that must be exposed correctly, and -EC from there to bring exposure down -1/3 to 1 1/3 Ev, or...
- Use partial metering of the highlights and lock exposure (you may have to add +1/3 to 1 1/3 Ev of AEC, in case this puts the correction over the top!)
- Use low ISO: you'll need to minimize noise to be able to pull out the shadow detail afterwards
- If you have the time and the equipment, try a GND filter -- useful especially for landscapes, where sky/earth contrast is the problem
- If you have a tripod, bracket at different exposure values, and merge out-of-camera: you can get up to 10 stops of useful dynamic range this way. Bracket by changing shutter speed, not aperture -- otherwise, depth of field won't match in your shots.
- Shoot RAW whenever possible: it'll give you more bits to work with
- Always check your histogram/info display for highlights flashing and -EC from there

Post-processing

If you underexpose to retain the highlights, you'll need to pull out the shadow detail in post-processing. If you bracket, you need to merge.

- Do as much as you can for exposure in the RAW converter, because you've got more bits there. JPG's are good for about 1 stop of adjustment; RAW is good for 2 or even 3 stops.
- Convert the RAW file twice: once at 0 Ev, once at +1 to +2 Ev. Then merge these in post-processing. Alternatively, convert to 16-bit, and re-save as two 8-bit versions adjusted for the different areas in the picture.
- To pull up the shadow detail, simply pull up the centerpoint of the RGB curve.
- Simulate a GND: layer your darker and brighter version, and add a graded fill layer mask to blend them. You'd be surprised at how well this works!
- If the problem isn't too bad, deal with it in 8-bit: use a Curves adjustment layer to bring up the shadows, then add the graded fill layer mask to blend it with the correctly-exposed area.
- If the highlights are irrevocably gone, see how the picture looks in B/W: black and white loves contrast, and blown whites and blocked shadows are often done intentionally.

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