



## Uniform Evolution: Green to Camo to Digital to Multi-Cam

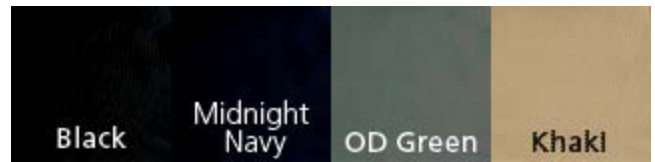
By Frank Borelli, 20 June 2005

**CREDIT WHERE CREDIT IS DUE:** This article was taken from the archives of Borelli Consulting, [www.borelliconsulting.com](http://www.borelliconsulting.com); written by Frank Borelli. Additional pictures and references at the end of the article added by Gruntgear staff. This article first appeared in Blackwater Tactical Weekly. Both Borelli Consulting and BTW are good resources for trainers, soldiers and police officers—check them out.

Last Veteran's Day, I happened to be in DC and saw veterans from all "recent" wars. As is almost expected in such a venue, their were bits and pieces of uniforms from the past fifty years being worn. From OD Green to digital desert camouflage, you could find pants here, a blouse there - and even a few woodland camo field jackets.

Typically, the commercial market is a few steps behind the Department of Defense when it comes to the development of new technologies—of *any* kind—but ahead of the DoD when it comes to marketing non-classified items (such as uniforms). If a soldier is wearing it in a current conflict, you can bet some model has it on walking Rodeo Drive in Beverly Hills. This week we're going to take a brief look at the evolution of uniforms over the past fifty years, and into the next generation.

I remember in Basic Training having that one Drill Sergeant who was wearing an OD Green uniform with a uniform shirt that actually tucked in. Everyone else was wearing woodland camouflage BDUs (Battle Dress Uniform). That was late 1982 and the fact that he could still wear it was a sure sign that he'd been in awhile - because it was a uniform issued to him before he left Vietnam. Of course, when I think about it now, in 1982, Vietnam was only over for seven years and if you take care of your uniforms they can last a good long while. So it wasn't that odd - except that he looked out of place as the only guy in OD Green.



Now that I've spent more years in law enforcement than I did in the service (even with my National Guard time added in), I've gotten used to a few basic colors. Let's face it, unless you're on a SWAT team, you probably wear black, blue, khaki or some shade of gray. Our choices aren't all that vast, but if we get lucky someone designs a uniform that mixes colors and patches / badges to create a really nice and professional looking uniform. Blue and Gray are the mix my own agency uses for day uniforms, but for evenings and midnights it's strictly navy blue or black.



Back to that Drill Sergeant and his OD Green uniform with the tuck in shirt. While I was skinny back then and didn't care for the way the BDU blouse I was issued hung so loosely on my frame, I thought it must be more comfortable than the tucked in shirt in OD Green - or any other color. Still, the woodland camouflage pattern was relatively new then and I didn't care for it all that much. It *did* blend in with a woodland / forested setting much better than plain OD Green, and even at eighteen years old I could see the benefit of that in combat. The woodland camo was a great improvement in our ability to blend into the greens, browns and blacks of a jungle or heavily wooded environment. In fact, tiger stripe uniforms cropped up in the Vietnam war and were used frequently. Even with that striped pattern of four colors it did a better job of hiding a soldier than the OD Green did.

Here is where we have to ask ourselves an important question though: since the Vietnam war, where have most of our military deployments occurred? In what environment are we doing most of our fighting? I had the privilege of attending a conference a few years ago where a man who had served in Somalia was giving a presentation. He made the statement that better than 80% of our military deployments in the last twenty years have been to urban environments - that's urban

as in not an open field; in or near a city; a built up area with buildings, dwellings, etc. A uniform that helps to blend into the jungle / forest won't help a whole lot against concrete structures, or brick or wood structures. For law enforcement, BDUs were suddenly available in mixes of "urban" colors: shades of gray, black and white.

But since 1990 our "biggest" and longest military involvements have been in the middle east - in a region dominated by one terrain feature: the desert sand. No matter what pictures you see of any building or locale, it has an overwhelming amount of tan in it... the color of sand. Naturally, if we're going to have soldiers fighting in the desert, they can't wear those green/brown/black uniforms, so everything had to be changed over for the environment. Because woodland camouflage and tiger stripe had worked so well - and were the predominant patterns prior to 1990 when we entered the first Gulf War, it only made sense to pattern desert BDUs in the same way, but using the appropriate colors. Hence, desert camo and desert tiger stripe were born.



As our technology evolved, two important things happened that affected uniform development:

- 1) We learned more about how our eyes and brain processed visual information and how we could better pattern camouflage to work more efficiently in hiding us, and
- 2) Manufacturing processes for making the uniform materials / patterns have improved and become more efficient as well.

The result was the digital revolution. It wasn't all that long ago that the military branches began adopting digital patterns for the uniforms: desert, woodland camo and even urban if appropriate. What we had learned was that even the "random" patterns in the woodland camouflage and desert camouflage BDUs *weren't* random - they had patterns too. And our enemies could learn to look for those patterns. One thing we'll always have a hard time overcoming is the fact that a man's shape looks like nothing else in any environment. We humans look like humans no matter how hard we try to blend into our environment. Until we learn how to bend or absorb light, we're stuck trying to break up our natural silhouette.

Still we're learning more every day. The next step in uniform evolution after digital camouflage was the selection of colors and digital pattern that, when combined, made it possible to create *just one* uniform that would blend in with multiple environments. Digital All Terrain was born. But how many terrains do we have to hide in? Think about all the varieties that exist naturally (desert, woods, jungle, prairie, etc) and then add to that all the ones we've created ourselves (cities, neighborhoods, inhabited caves) and realize that it isn't easy for a single group of colors in any given pattern to blend into them all.



**Digital Woodland Camouflage shown left: Digital All Terrain on the right.**

Our military hasn't stopped trying though. One of the best examples of the future of uniforms is the [Crye Precision](#) multicam pattern battle uniform. Reports show that in the environmental testing performed by the Army's Soldier Systems Command (PEO Soldier Systems), the Crye Precision MultiCam pattern was rated best in 98% of the environments tested. Further, true improvements to the clothing design

have been made - things that matter to the soldier in the field.

The Crye Precision design includes zippers like no other uniform has had:

One each arm and each leg, there is a zipper from the cuff up most of the length to the shoulder or hip. Why? Because soldiers get injured. Prior to this design, the medic most often had to cut away part of the uniform just to gain access to the wound site; treat it and then try to cover it back up if the uniform was usable in any way. Using the Crye Precision design, the medic can unzip the sleeve / pants leg, treat the wound and then zip the uniform back up.

Any soldier who has had to dig a hole to squat to relieve that lower abdominal pressure that usually builds up after eating a few MREs will appreciate not having to take his (or her) pants off just to perform a bodily function. The zipper usually found in any pant's crotch - or buttons on the BDUs - is replaced by a zipper that goes down through the crotch, to the back of one leg, up one cheek and across the top of the arse. Depending on your selection of undergarment, you may be able to "take care of business" without having to undress as much as you used to. I remember days when that mattered.



Crye Precision took the idea of an integrated uniform one step further and created two different types of uniform shirts: one is meant to be worn under their armor chassis / load bearing vest, and the other is a standard uniform shirt. The torso material of the battle uniform shirt (under the armor chassis) has a material that is more efficient in maintaining comfort. Very much like some other brands of clothing that can help retain body heat, or help keep you cool by wicking away moisture (sweat), this dull gray color material is covered by the armor chassis which is the same color / camo pattern as the rest of the battle uniform.

One last Crye design addition that I think is particularly useful, is the optional knee and elbow pads that can be integrated into the uniform. I remember a picture of an Airborne soldier from the beginning days of the Iraq War. He was down on one knee, M4 in hand, helmet on with NVGs turned up, and an overfull ruck on his back. The thing I remember is that his knee pads were around his ankles. Even if they had been around his knees, I'm familiar with how uncomfortable the straps can be - too loose does no good; too tight is even worse. Having the knee pads / elbow pads integrated into the uniform makes for an exceptional method of providing critical padding / protection to high impact points on your body without having to deal with the discomfort of added straps.

During that same conference a few years back where the conversation was about a shift in the focus of our deployments and operational environments, I saw a presentation on the future of military uniforms. I've no doubt that some day our uniforms will provide basic life support (QuikClot is already being built into test uniform fabrics and a vest exists that can provide

automatic defibrillation if your heart goes wacky on you). With technology advancing as it is, exoskeletons and integrated weaponry probably will be seen in the not-too-distant future.

Readers... soldiers... police officers... deputies... it's only been thirty years since our last troops pulled out of Vietnam. Look how far we've come. Look how different, and how much better, our uniform designs are. What will they be in 2040?

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Frank Borelli, Founder and President of Borelli Consulting, is an experienced police officer and former soldier, with a background in the MPs, the Light Infantry and Combat Engineers. He's been a trainer for at least 15 years, is a prolific writer (contributing to the Blackwater Tactical Weekly, Police One and other publications). In addition to writing articles on professional development, Mr. Borelli provides instruction and training through the auspices of his company. Visit Borelli Consulting, and read through the archives, at [www.BorelliConsulting.com](http://www.BorelliConsulting.com).

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## SOME ADDITIONAL SITES FOR RESEARCH:

[Military Morons: Digital Camouflage Uniforms](#)

[Federation of Military Scientists \(FAS\) Military Analysis Network: Battle Dress Uniforms](#)

[\(FAS\) Reducing Threats Through Camouflage](#)

[\(FAS\) Urban Camouflage](#)

[The Science of Digital Camouflage Design](#)

[Defense Review: CADPAT and MARPAT Uniforms](#)

[Dual Texture: US Army Digital Uniforms](#)

[Camouflage Uniforms of the World](#)

[A Brief History of Camouflage Uniforms](#)

