# GSA SPECIAL SESSION: A Dialogue on Field Safety in Memory of Alyssa Heberton-Morimoto

**By Lorraine Manz**

Last summer Alyssa Heberton-Morimoto, a graduate student at the University of Colorado and summer intern at the Colorado Geological Survey, was murdered while mapping in a remote area of the Pike-San Isabel National Forest. Her killer is now serving a life sentence without the possibility of parole.

Thankfully, wilderness encounters of this kind are exceedingly rare but Ms. Heberton-Morimoto's tragic death has prompted geological surveys and other agencies that send their employees into the field to seriously review their safety guidelines. In a special session dedicated to her memory at the recent Geological Society of America Annual Meeting in Denver, issues concerning all aspects of field safety were the subject of a one-and-a-half-hour open discussion.

Staying safe in the field goes beyond protecting ourselves from predators, feral or otherwise. It is about avoiding trouble of any kind and being prepared to deal with it if we can't. Jeff Rubin, Emergency Manager for the Tualatin Valley Fire and Rescue in Oregon, defined wilderness as anywhere that is more than one hour away from definitive care. How far this might be need not be measured in tens or hundreds of miles. Think about it. You are doing field work somewhere in North Dakota and you step in a badger hole and sprain your ankle. The truck is parked on a gravel road a couple of miles away and the country between you and it is trackless and rough. You've no first-aid kit (who needs one?). You didn't bring the cell phone with you because you'd let the battery go flat. It's getting dark, and the cloudless sky augurs frost (it's November). But darn it, you left your warm clothes in the truck – they're bulky and there wasn't room for them in your backpack anyway. Moreover, the decision to do field work today had been a last-minute one and you were in a hurry to leave. There wasn't time to let anyone know where you were going and the message you put on the staff in-out board simply said "field". It's fully dark now, your ankle has swollen to twice its size and the pain is excruciating. You can't walk, and even if you could, you've no flashlight and there's no moon to show you the way. Your water bottle's empty and there's nothing to eat. It's getting cold, and like the stars in the sky above you the lights of the farmsteads offer no comfort as your cries for help go unanswered. The vague shape of something large moves in the darkness and a pair of yellow eyes is studying you with interest… All a little farfetched, perhaps, but not an impossible scenario. I doubt that any of us would be this careless but at the same time how many of us can truthfully say that we are fully and properly equipped when we go into the field?

Avoiding trouble entails more than just carrying the right survival gear and keeping lines of communication open. It also requires a certain mental attitude. One way to assess a potentially dangerous situation is to conduct what Rubin calls a "stupidity analysis" or DBS (Don't be Stupid). The proposition is simply this: How stupid am I going to feel if I do this and it goes wrong? It's a sobering thought and a good way to keep things in perspective if we are given the choice, but predatory encounters are another matter because they are generally unexpected and, unless we have our wits about us, can turn very nasty. So what can we do to protect ourselves against such confrontations? Firstly, don't expect someone else to bail you out because they probably won't. It is up to each of us to:

- Be vigilant and aware of our surroundings at all times
- Listen to our instincts and gut feelings
- Know how to assess non-verbal communication
- Know how to respond to anxiety and aggression
- Know how to apply avoidance tactics
- Be prepared to defend ourselves when all else fails

Unless we are martial arts experts, self-defense is likely to mean arming ourselves with some means of protection. What that may be is very much a matter of personal choice. It may be a blinding flashlight, a sturdy hiking stick, mace or pepper spray – whatever you are comfortable with. If you are considering a firearm then make sure you comply with all laws (state and federal) and employer policies and understand the responsibilities that carrying one entails.

We cannot prepare for every eventuality and we have to ask ourselves how much inconvenience we are prepared to put up with for the sake of field safety. Next time you gather your field equipment for the day, do a quick DBS and make room for the appropriate survival gear – food, water, warm and/or waterproof clothing, a first-aid kit, flashlight, matches, and so on. Make sure someone (spouse, friend, colleague) knows where you're going and when you plan to be back. Have a contingency plan for missed calls. Carry some sort of communication device with you – a cell phone, two-way radio, personal locator beacon, whatever is available. Better still, work with a partner if you can, and don't do field work at night. In the words of Sergeant Phil Esterhaus: ("…let's be careful out there").

**For more information about field and general outdoor safey:**

**Books and Publications**


Lundin, Cody, 2003, 98.6 Degrees …, Gibbs Smith, Publisher, Layton (UT), 192 p.

National Safety Council, 1997, Wilderness First Aid, Jones & Bartlett Publishers Inc., Sudbury (MA), 80 p.

Oliveri, Stephen R. and Bohacs, Kevin, 2005, Field Safety in Uncontrolled Environments: AAPG, DEG, and ExxonMobil Upstream Geoscience, Product Code 811, 150.p. + CD.

U.S. Department of the Interior, Bureau of Land Management, 1998, Safety and Health for Field Operations: BLM Manual Handbook 1112-2, 139 p. Available at: http://www.blm.gov/nhp/efoia/wo/handbook/h1112-2.pdf. Accessed November 26, 2007.

U.S. Geological Survey, 2002, Safety and Health for Field Operations: USGS Manual 445-3-H, 414 p. Available at: http://www.usgs.gov/usgs-manual/handbook/hb/445-3-h.pdf. Accessed November 26, 2007.


**Web Sites**

The internet abounds with web sites that offer expert advice in field safety and wilderness survival. The following is just a sample, mostly compiled by the conveners of the GSA Special Session. Their inclusion in this article does not imply endorsement on my part or that of the DMR.

Becoming an Outdoors Woman http://www.uwsp.edu/cnr/bow/. For information on workshops in North Dakota contact Nancy Boldt at ND Game and Fish Dept. (701 328 6300).

Canada Safety Council http://www.safety-council.org/info/sport/wild.html.

National Association of Geoscience Teachers http://www.nagt.org/nagt/field/index.html.

National Outdoor Leadership School http://www.nols.edu/.

North Dakota Hunter Education Program http://www.gf.nd.gov/education/instruction/hunteredcourse.html.

NRA Refuse to be a Victim http://www.nrahq.org/rtbav/index.asp.

Safety Guidelines for Field Researchers http://www.ehs.berkeley.edu/pubs/fieldresearchsfty.pdf.

USGS Field Guide http://water.usgs.gov/owq/FieldManual/Chap9/A9.html.

Wilderness Survival http://www.wilderness-survival.net/

Woman's Wilderness Escape https://www.nrahq.org/women/wilderness_escape.asp.

## STATEMAP Update

The surface geology of three 7.5-minute quadrangles is being mapped under the FY2007-2008 STATEMAP program (fig. 1). Fred Anderson is working on the West Fargo South quadrangle, the third in a set of four that cover the Fargo metropolitan area. Lorraine Manz is focusing attention on the Valley City area and is currently mapping the Valley City West quadrangle. The remaining coverages encompassing both these urban settings are expected to be completed during the FY2008-2009 STATEMAP funding cycle. Having completed an extensive mapping program in the Hebron area this summer, Ed Murphy has moved on and is now mapping the Amidon quadrangle in southwestern North Dakota.

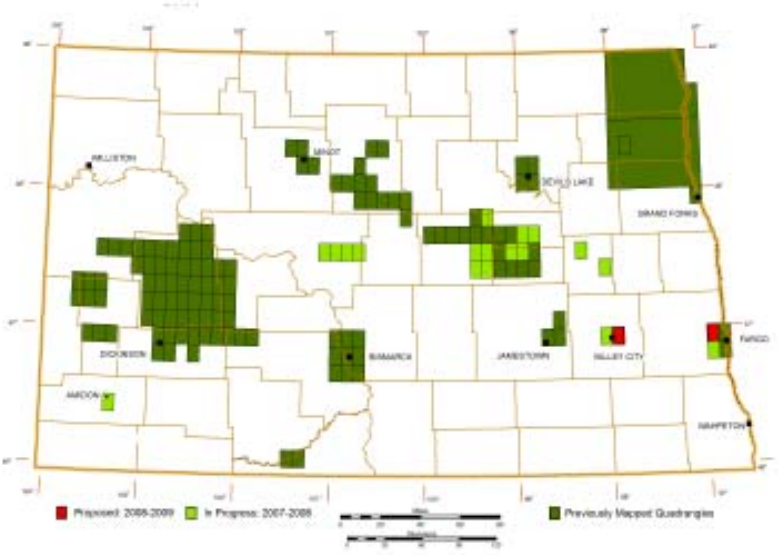


Figure 1. Areas mapped under the STATEMAP program. To date more than 140 quadrangles on the 1:24,000 scale have been completed.