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PROBLEMS**

1989

VOL. 16

NO. 2

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Search and Rescue Dogs Are Ready To Respond to Disaster*

*Judy Graham** and Hatch Graham****

What makes for a well-trained and effective search-and-rescue dog? Lessons learned from disasters such as the Mexico City earthquake and Puerto Rico mudslides help set the standards.

For SAR dog handlers around the country, the search for survivors of the September 1985 killer earthquake in Mexico City was a tremendous learning experience. And so, two weeks later, was the search for victims of mudslides and flooding in Puerto Rico.

Different as those missions were, the common ground was perhaps a better understanding of what a disaster dog team—dog and handler—should be able to perform. They provided a sounding board for continuing debate on how best to accomplish it.

In the meantime, the dog teams have been pressed into service for domestic disasters, notably the November 1985 floods in Virginia and West Virginia, avalanches, mudslide and flooding during the February 1986 Pacific storm, and an explosion and fire that destroyed San Francisco's Bay View Industrial Park and killed eight people.

Handlers also recall past disaster searches: the 1977 Johnstown, PA flood; the Wichita Falls, TX tornado of 1979; the 1980 eruption of Mount St. Helens; the 1982 Pacifica and Santa Cruz County, CA mudslides; the avalanche at Alpine Meadows, CA, and a host of other searches for victims of flashflood, fire, mud- and rockslide, earthquake, tornado and plane crash.

All these experiences help define what a disaster dog team should be.

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On a national basis, under auspices of the National Association for Search and Rescue, dog handlers have begun talking about what sort of requirements—or expectations—there should be for disaster dog teams responding to a foreign mission. Or, for that matter, to the "Big One" predicted in California and other parts of the country, or any other major domestic disaster that goes beyond the capability of one or two local units to provide enough dog teams.

What are we aiming at, and how can we get there?

The aims, using Mexico City and Puerto Rico as hindsight, are fairly straightforward.

Like any search dog, a disaster dog should be highly motivated to find people, alive or dead. He should work off-lead, slowly and carefully moving over, under and through unstable, slippery, jagged debris, up and down ladders and into tight crawlspaces. From a safe distance, his handler should be able to direct him to search specific areas in a thorough manner. His actions should not endanger other rescuers in any way.

The dog, with his handler, should be able to be hoisted in a basket by crane or other means so they can search levels that can't be reached any other way.

The dog needs to work calmly and confidently among dozens, or even hundreds, of other rescuers: extrication crews using jackhammers, volunteers passing along buckets of rubble, bulldozers and other heavy equipment. Ignoring all the noise and confusion, he should concentrate on his job of finding people trapped in the rubble. To do so, he needs to discriminate against the scents of the rescuers.

A disaster dog's alert on victims should be clear and readable to his handler, and preferably to others as well. Moreover, his alert on live people (including seriously injured persons giving off smells of adrenaline and blood) should be readably different from his alert on dead bodies. In Mexico City, handlers discovered that the dogs' assignment was not simply to find victims, but to identify where there were *live* victims, often among the overwhelming smell of the dead. In virtually any mass casualty situation, first priority will be to find the living.

Mexico City and Puerto Rico demonstrated how the dogs can become goodwill ambassadors away from home, often attracting crowds eager to pet the dogs. The animals must be under their

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handlers' control. And, because a handler often leaves his own dog to help observe another dog and handler working, other members of the team should be able to control any of the dogs on down-stay or heeling.

There are expectations for the handler, too. As with any search mission, he should come equipped for the job. In a disaster situation, this means hard hat, goggles, dust mask and gloves, in addition to the sturdy boots he wears for wilderness searches. Many handlers recommend coveralls for disaster work; in any case, loose ends (pantlegs, shirt cuffs) should be secured so they don't get caught on rubble.

For a disaster mission, being equipped means bringing full search and survival packs for at least 10 days, including food for dog and handler and a means of providing a safe water supply (water-purifying pump or some other reliable system).

By the nature of overseas disaster missions, a handler should be prepared to be away from home for 10 days to two weeks. Handlers who "have to be back at work Monday" can really mess up plans.

Transportation home often depends on the availability of military flights, and officials trying to cope with the disaster have a lot of other things on their mind besides the convenience of searchers. The Mexico City mission lasted seven days, including travel time; teams that went to Puerto Rico were away from home 10 days.

Veterans of the Mexico City earthquake came to realize how much they drew on all their previous search experience—wilderness, water, body and evidence search—for this mission. A disaster dog team should regularly participate in a wide variety of actual search situations to keep its skills sharp and to help the handler function smoothly within the disaster Incident Command System.

Dogs and handlers should have the endurance—mental and emotional as well as physical—for an extended mission. In Mexico, teams put in 12-hour days for five days of searching. In Puerto Rico, in extreme heat, they searched for six days. Dogs as well as handlers found these missions unusually stressful and demanding.

So much for general expectations. How about the specifics?

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Off-Lead Guidability

As in almost all airscout work, the dog should work off-lead. Disaster search presents abundant hazards for rescuers. Handlers are often instructed to position themselves under a doorway, outside or in a comparatively stable part of a collapsed building, or at the edge of a potential landslide and direct their dogs from a distance to search areas that threaten to collapse or slide.

The dogs are lighter on their feet than their human partners; they're more attuned to slight movement and other warnings of imminent danger; and like it or not, the truth is that they're more "expendable" than human searchers.

Working off-lead is important for another safety reason. For disaster search, handlers routinely remove everything from their dogs that could possibly catch on debris. Collars and harnesses could too easily hang up on nails, boards or pieces of rebar. If this happens deep in a tunnel where the handler can't follow to free his dog, the results could be tragic.

Dogs need to learn direction by hand signal and voice command. This applies to wilderness search as well as disaster work; standing on top of a steep bank, a handler may want to send his dog down into a creek bottom or into an old dump site to check for human scent. Many handlers teach a directed send-out as an obedience routine to sharpen their dogs' guidability. The dog that performs a thorough search at some distance from his handler has achieved the objective, whatever the method of training.

Another thing some handlers find helpful is to teach a "check it out" command, so they can direct the dog to sniff specific holes and crevices in the rubble. Teams were doing a lot of that in Mexico City, as tunneling crews called the dogs in to see which direction their digging should proceed. "Check it out" has application, too, in search for buried bodies of homicide victims; the handler can probe likely sites and have his dog check the probe holes.

Building Search

Building search is good preparation for disaster work. Abandoned buildings often provide piles of debris for dogs to climb over and places for "victims" to hide where the dogs can't reach them, as well as the complexities of scent diffusion in an enclosed space. They create an opportunity for the handler to teach his dog a

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methodical hasty and fine-search of a defined area. This comes in handy when the handler has to stand outside an unstable structure and send his dog in to perform a thorough search.

Agility

Agility training is essential for the disaster dog. Obstacle courses are good, especially nonstatic obstacles that can be changed around for every training session. If dogs are always worked on the same obstacles, they soon become so familiar with them that they race through the course instead of learning to work slowly—the hallmark of a disaster dog. The Swiss, who are generally considered world leaders in disaster dog work, set up a new combination of obstacles for each training or testing session.

SAR dog handlers can take advantage of all kinds of obstacles to build their dogs' agility, confidence and guidability: playground equipment, junkyards, abandoned buildings and buildings under demolition, piles of lumber. Teams that regularly do wilderness search often encounter blowdown timber, logjams, boulder fields and scree slopes, cliffs and other terrain features that test the agility of handler as well as dog. These teach caution in potentially dangerous situations.

As in wilderness search, Mexico City proved that, in disaster work, agility isn't just something the *dog* needs. In order to reach some of the search sites, the handlers found themselves climbing ladders at odd angles and crawling through small holes cut to provide access to damaged buildings. They spent a good deal of time on hands and knees or their bellies, inching their way through tight passages tunneled into the rubble.

Suggestions from a veteran of Mexico City: "You and your dog should be able to ascend and descend a 16-foot fireman's ladder. Practice boosting your dog up on top of a four-foot wall and then climb up yourself; in some situations, there isn't enough room for the dog to jump up, or to land on top.

"You may have to temporarily put your dog's collar back on to provide a handle for lifting. Practice being hoisted in baskets on cranes. Practice going up and down open apartment-type fire escapes with your dog. Practice following your dog through 36-inch culverts with right angle turns."

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Alert

A readable alert—one that distinguishes living from dead—is essential for a disaster dog. The dog usually won't be able to make contact with his victims, who may be buried under tons of rubble, and he won't be able to lead his handler to them.

The Swiss discourage the refined for disaster work, reasoning that each time a dog negotiates dangerous footing, returning to the handler to lead him to the alert site, he puts himself at increased risk. Instead, they've developed a barking and digging alert to indicate buried victims. Barking is particularly helpful when the dog is working out of sight and the handler can't see his dog's body language.

Some wilderness-trained dogs will grab a stick or other object to indicate a live person buried under rubble.

Experience

Real search experience is a big plus for a disaster dog team. Wilderness, water, avalanche and body search all help a handler learn to read his dog in a wide variety of different situations, finding dead and injured victims as well as live, healthy people. This is an area where training, by itself, falls short.

Search for victims submerged underwater, buried in avalanches or homicide victims buried under dirt and debris has obvious application for the search for people trapped under rubble. Handlers who use their dogs in these situations learn to read all the nuances of their dogs' indications of corpses, which are different from their indications of live, training "victims."

"Looking back on Mexico, I think all our years of searching were a tremendous benefit in helping me read my dog as to the difference between live and dead and injured," one handler said. "In training you've only got live people who are just fine. You don't have the adrenalin, you don't have the injuries. And you don't have corpses."

Actual search experience familiarizes a handler with the Incident Command System that will probably be in effect during a major disaster mission and teaches the handler how he and his dog, along with the rest of the dog unit, fit into the larger scheme of things.

Handlers who regularly work with official agencies and other search-and-rescue units come to understand the interrelationship

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among the many different organizations that will be working together on a major disaster. They develop working relationships that can help things go much more smoothly in a disaster which, by definition, is organized chaos at best.

Wilderness search helps build the physical conditioning and endurance that are necessary for a disaster dog team but which can't be achieved in disaster training; there just aren't rubble piles large enough to challenge a team's physical fitness. Searching for hours over granite and other abrasive rock builds up a dog's pads so he can work over concrete rubble in a disaster without injury.

Field experience in a great variety of situations also teaches a handler how to judge wind conditions. This is as important in disaster as in wilderness work, for planning search strategy and for interpreting his dog's alerts; i.e., if the dog indicates at this point, where is the victim likely to be? Disaster rubble can cause as many vagaries of scent transport as do ridges and canyons, vegetation breaks, cliffs and other terrain features in the woods. Teams have only a limited number of rubble piles for disaster training; these are permanently located in specific topographic settings with their own local climates. Handlers who train and search in many different places have an edge over those who always work in the same place.

Search experience accustoms dog and handler to working under the many kinds of pressures of real-life emergencies. Responding to searches at all hours of the day and night, and often for long, difficult and sometimes dangerous assignments, creates a sense of teamwork between dog and handler that probably can't be achieved by training alone. The handler learns to trust his dog in life-threatening situations; the dog learns to keep working long past the demands of training, as he comes to sense how much his human partner depends on him.

There's also a sense of teamwork and camaraderie among dog handlers who have shared the fears, anxieties and successes of real searches, that can't be duplicated by months or years of training together. It enables them to slip easily into the cooperative group effort that's essential to a disaster operation.

Generally speaking, there aren't enough disaster missions to give any one dog/handler team extensive search experience doing disaster work alone. This is one reason many handlers advocate a well-rounded education for SAR dogs, rather than training exclusively for disaster or any other single aspect of search work.

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Mexico City and Puerto Rico taught the United States dog teams a great deal. Each mission was more than just one search. Every day in Mexico, each handler/dog team worked up to half a dozen separate searches in buildings scattered widely throughout the city.

"Our knowledge of disaster search grew exponentially in Mexico," one handler remarked. "And at the same time, it showed us we've been basically on the right track in our training. Now we can refine our methods so we'll be even better prepared next time."

EXAMPLES OF DISASTER DOG MISSIONS (a brief list)

Avalanche:

- Alpine Meadows, CA, 1982: Wilderness Finders (WOOF) dog teams searched for avalanche victims in disaster-type conditions (debris from a destroyed ski lift terminal). One of the dogs located Anna Conrad, who survived five days buried under snow and rubble.

Building Collapse:

- Brownsville, TX, 1988: Volunteer SAR K-9 and Texas EMT Assn. dog teams responded when a three-story clothing store collapsed in torrential rains. Working in high heat and humidity, the dogs reportedly alerted to an area where six survivors were rescued.

Earthquake:

- Coalinga, CA, 1983: California Rescue Dog Assn. (CARDA) dog teams cleared around destroyed buildings to ensure that no victims were buried before debris was bulldozed away. No victims were found, and no one was reported missing.

- Mexico City, Mexico D.F., 1985: Two CARDA teams worked for two-and-a-half days with the Swiss Disaster Dog Assn. In addition, an ad hoc U.S. Dog Team of 13 dogs and handlers from Maryland, New Jersey and California searched for five days; at least 15 survivors were subsequently rescued where the U.S. Team dogs gave "live" alerts; others could not be extricated alive. The

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dogs also indicated the locations of countless (over 100) dead bodies.

Fire:

- Rensselaer, NY, date unknown: An Adirondack Rescue Dog Assn. team searched the remains of a burned warehouse for a suspected arsonist; where the dog alerted, a human body was found under several feet of charred rubble.

Flood:

- Johnstown, PA, 1977: After torrential rains caused an earthen dam to give way and the Conemaugh River to go over its banks, Ramapo Rescue Dog Assn. teams searched woods, plains and residential areas. The dogs worked through a trailer court with trailers smashed and overturned, and personal belongings strewn over the area, and all covered with compacted clay-like mud. One dog alerted where a body had previously been removed.

- Barrio Mameyes, PR, 1985: A U.S. Dog Team made up of 21 dogs and handlers from six Eastern states searched dried, hardpacked clay and debris from destroyed homes after a portion of hillside gave way in torrential rains. Handlers marked 167 spots where their dogs alerted; close to 90 bodies were recovered from these spots. All bodies recovered after the arrival of the dogs were found where the dogs alerted.

Plane Crash:

- Alpine County, CA, 1986: WOOF dog teams located debris and one body buried under snow around the wreckage of a light plane that crashed near Burnside Lake Rd.

- Blue Ridge Parkway, NC, 1987: North Carolina SAR Dogs Assn. located the pilot of a light plane that crashed in heavy woods. The plane's interior disintegrated, and the fuselage—with the pilot's body—was partially embedded in the ground. Foot searchers found the wreckage, but it took a dog to find the body.

Rockslide:

- Yosemite National Park, CA, 1980: Working over unstable footing with small rocks still coming down, CARDA dogs searched a rockslide where three dead victims and seven injured had previously been found.

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Tornado:

- Wichita Falls, TX, 1979: A Texas ARDA dog team searched several collapsed buildings to determine if any victims were trapped there, clearing the areas for bulldozing. The dog team found no victims, and it was later determined no one was missing.

Train Wreck:

- Baltimore, MD, 1987: A DOGS-East team responded to search for victims of the collision of a freight train with an Amtrack passenger liner.

Volcano:

- Mount St. Helens, WA, 1980: German Shepherd Search Dogs (GSSD) and Search and Rescue Dog Assn. for Washington (SARDA) dog teams, as well as a police service K-9 searched sites where people were believed to have been at the time of the eruption. The dogs located remains of a number of victims among ash and burned debris and, at the edge of the destruction, two severely injured but live people.

Water:

Note: This list is not complete. If you would like further information on any of these missions or on missions that are not included, please send requests to P.O. Box 39, Somerset, CA 95684. Judy Graham.