Emergency Readiness and Crisis Management, Chapter 8, ZOOKEEPING

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INTRODUCTION

Zoo personnel can't control extreme emergencies such as extreme weather, etc. that are beyond their ability, but they can do their best to reduce injury and death by being prepared and also by prevention, such as 1) double-checking doors, gates, and locks, so that animals do not escape, 2) providing plenty of water for animals, staff and visitors during extreme hot weather to prevent heat exhaustion in both animal and man; 3) preparing their their equipment and animal housing to reduce risk of injury to both man and animal during storm and 4) keepers preparing their role in attending to animal injuries, human beings and animal escapes. Keepers can plan for effective reactions by observing more experienced keepers and staff during emergencies. They should drill all types of reaction so that they are able to provide rapid response.

All zoo staff must be trained to know the zoo's emergency response which should be written in detail, made available easily at accessible points available throughout the day and night, and practised faithfully. It is never known when an emergency will occur so instructions and equipment must be available all the time.

In this Chapter the reader will understand:
1) basic types of emergencies important in the zoo environment
2) the importance of being prepared to respond to an emergency
3) institutional versus individual responses to emergencies
4) the keeper's role in emergency response

CRISES TO CONSIDER

Zoo personnel, particularly zoo keepers, have to deal with four basic types of emergency
- fire/weather
- environmental emergency
- injury to staff or a visitor, and
- animal escape.

Other kinds of emergencies can be just as important, depending on your zoo or aquarium may include
- venomous animal bites,
- chemical spills,
- unauthorized human in animal exhibit,
- inappropriate human-animal interaction,
- bomb threat,
- missing child,
- armed robbery, and overaggressive visitor(s).

In many cases, zoo personnel will call local police or fire personnel for some of these emergencies, but it is important that all members of the zoo staff understand their roles and responsibilities during the response to each and every type of event.

INSTITUTIONAL READINESS

Levels of institutional readiness may be
- having a risk management policy and an emergency management manual to help zoo personnel understand all of the risks zoo leadership has provided and intends staff to use.
- zoo and aquarium leaders may regularly review these policies—along with emergency training, drills, and actual event responses to ensure that the institution is ready for any challenge—keepers will need to read and understand them.
- At the departmental level, keepers should have annual training and drilling plan so they espond effectively in emergency situations.
- Keepers can expect to go into more detail about individual facilities, animals and their behaviors, and giving input on appropriate responses.
- Preventing mistakes from becoming disasters may be accomplished through *good planning* for containment of a crisis, e.g., having fire extinguishers handy and having perimeter fences.
- One of the keeper's roles is to help ensure that these secondary escape-preventative devices are in place and in good working order and making regular checks of all fences in their work area, exhibit, and perimeter emergency containment systems.

CREATING A MODEL FRAMEWORK FOR AN INSTITUTIONAL CRISIS RESPONSE PLAN

A framework is any process used to create a self-sustaining program. One accepted "model framework" for zoo planning is the **SPIDER** model used for managing animal enrichment and training programs and based on a good small business model. Using the SPIDER model as a framework or an institutional crisis response plan has been beneficial.

The "S" in SPIDER stands for setting goals.

In this phase, the safety committee or some other leadership working group has defined the goals for a particular program, for example:
- to prevent animal escapes and generating sub-goals of examining and implementing locking and containment systems, and training keepers in basic safety and security.
- to have an escape response time of less than five minutes by appropriate staff, and to have other staff help visitors to "shelter in place" (i.e., take immediate secure shelter in the closest possible building) during that same five-minute period.

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- to train and drill on animal escapes at least quarterly so that different kinds of animals can be the subjects of drills throughout each year, and also so that all staff are exposed to drills.

The "P" in SPIDER stands for planning.
During the planning phase it is a good idea to identify all the resources—team members' abilities, tools, external help (police, fire), and so on—that are available for crisis response. It is also a good time to set a calendar for review of crisis response actions, training, drills, and such other necessary activities as safety committee meetings (a regular best practice for reviewing safety issues and emergency responses).

The* "I" *in SPIDER stands for implementation.
The biggest need in the implementation phase is role clarification, e.g., "Who does what by when?" You need to completely understand your role and what is expected of you, by what date or time, so that you can be successful at crisis preparation or crisis intervention.

The "D" in SPIDER stands for documentation.
Documentation gives safety teams proof of response times and other noteworthy events, gives the area team information for in-house review of crisis response, and may give the institution support in case the emergency is later reviewed by an external agency. Personal documentation, in keeper reports or other official notes, is very important to the self-sustaining program process; depending on the institution, sometimes it is better to document any concerns and offer them to the management team.

The "E" in SPIDER stands for evaluation.
Evaluation of activities will help provide answers to questions about the zoo's crisis response program. It is best to meet and discuss response to an emergency situation immediately after the event. A good evaluation, which can be documented, can also be done through discussion in your area's regular safety meetings, or in the zoo's monthly or quarterly safety committee meetings. This is a time to openly and honestly discuss which activities went well and which need adjustment.

The "R" in SPIDER stands for readjustment
If your team is not making steady progress toward crisis management goals, discuss what you need to adjust with the zoo's leadership so that the goals can be met. Note that the SPIDER process can be used effectively in a proactive (annual program review and training) or reactive way (e.g., to plan for an extreme weather event). Other examples of proactive use of SPIDER would be to

- set time of response goals, or calendars for training and drilling for animal escapes or venomous animal contacts.
- a team trains for response to an oil spill or an event of increasing security concern.

POLICIES AND PROCEDURES
Development of an institution's risk management policy and associated crisis response procedures requires significant time and includes important basic safety goals that must be learned by all members of the team; this is a professional responsibility of all staff, including keepers. The policy should include an institutional philosophy and vision: the philosophy might be that all employees are wholly important and deserve to return home whole at the end of the day, and the vision might be that lost-time accidents will be kept to a minimum, and that risk to employees, visitors, and animals will continually be reduced. All emergency procedures must be written and provided to staff and, where appropriate, to volunteers. Often this is done through an institutional safety or policy manual, and training is done *via* an accompanying employees' safety orientation.

Information on appropriate emergency procedures must be readily available within the institution for reference in the event of an actual emergency. These emergency procedures should deal with at least four basic types of emergencies—fire, weather/environment, injury to staff or a visitor, and animal escape — and also for additional emergencies to which the institution may be particularly vulnerable (e.g., venomous snakebite). Hard copies of institutional protocols should be available in each area and for each individual employee, so all policies and procedures can be accessed during emergencies. Supervisors should require keepers to review their updated hard copies at least quarterly.

TRAINING AND DRILLS
The training of staff in the above emergency procedures is undertaken regularly in every accredited zoo (and is encouraged in all other similar organizations), and records of such training are maintained. This training in emergency drills ensures that the institution's staff know their duties and responsibilities, and how to handle emergencies properly when they occur. Safety awareness training sessions should stress personal responsibilities for a safe and secure work environment, situational awareness during both standard operations and emergency situations, personal physical fitness, general communication techniques, and other elements required for a safe working atmosphere.

Each training session should be tailored for an individual unit; curators, supervisors, keepers should work together to incorporate situational issues.

Case Study 8.1. Emergency Preparedness Training At Smithsonian's National Zoo...some examples:

- training and preparations for animal escapes now take place through classroom training and drills that are scheduled for several times per year
- the zoo instituted department- specific training for everyone including non-animal department personnel.
- classroom training using an interactive PowerPoint presentation for maintenance staff, horticulture staff, and even seasonal or temporary guest services staff who work in cafes and parking lots.
- responses and response times of employees are assessed immediately after each drill in order to readjust response procedures as necessary so that response during a real event can be most effective.
- Supervisors should be responsible for follow-up inspections to assure compliance on safety protocols, but keepers are sometimes asked to help in this.
- Emergency drills should be conducted at least once annually for each basic type of emergency (fire, weather/environment, injury to staff or a visitor, animal escape) to allow the zoo's leadership to determine whether all staff are aware of emergency procedures, as well as to identify potential problem areas.
- These drills must be documented and evaluated to ensure that procedures are being followed, that staff training is effective, and that what is learned is then used to correct and/or improve the zoo's emergency procedures.
- Records of these drills must be maintained and improvements in the procedures duly noted; these documents may be assessed by regulatory agencies.

PREPAREDNESS FOR SITUATIONAL EMERGENCY RESPONSES

The institution must have a communication system that can be quickly accessed in case of an emergency, e.g., immediate access to designated persons via handheld radio, pager, mobile telephone, intercom, land telephone, alarm, or other electronic devices.

WEATHER PREPAREDNESS & FIRE RESPONSE PLAN

Each zoo will have a plan to minimize the occurrence of an accidental fire; keepers should know this plan and act accordingly. Alarms for fire, security, and other safety alerts must be in place and in working order, according to local laws and most zoo accreditation standards. Routine maintenance records should be kept, detailing safety checks of the equipment.

FIRE DRILLS

Fire drills should be performed at least annually.

- Keepers must know their roles and responsibilities for each and every situation.
- a keeper may be an active "building manager" responsible for counting the people who exit and meet in a designated area or to help direct fire trucks coming in through a perimeter gate that happens to be nearby.
- Keepers' responses during drills will be very close to their responses during a real emergency. Take each drill as seriously as if it were a real emergency.

HUMAN INJURY

Accredited zoos and aquariums will have a written plan available to all staff for first aid and other various health emergencies involving staff or visitors. The plan should include a list of all qualified first responders working at the zoo, and emergency numbers for local ambulance, police, etc.

HUMAN INJURY DRILLS

Keepers should know what their roles and responsibilities are in stabilizing and getting help for an injured person. Human injury drills should be performed annually in each facility, and keepers' roles must be practiced during these drills.

Sometimes human injury drills in a zoo or aquarium environment are very interesting, because they can incorporate many different scenarios or emergency protocols. If the injury drills take place in conjunction with an animal escape drill, keepers may expect to see multiple injuries as the "escapee" attacks and injures more and more people. These kinds of realistic drills help keepers refine their roles as critical members of their facility's response team.

As a general rule the animal collection must be protected from any weather that may be detrimental to its health. Animals not normally exposed to cold weather should be provided with heated enclosures and protection from excessive heat should be provided to all animals, particularly those normally occurring in cold climates. All animals need protection from snowstorms, extreme heat, hurricanes, tornadoes, ice and wind storms, and flooding.

What is a keeper's role? First, it is to check the zoo or aquarium's emergency manual for his or her responsibilities. Second, it is to ensure the best possible animal welfare at all times. This means that keepers need to monitor incoming weather as much as leadership does, and to ensure that the zoo's facilities and life support systems are sound under normal working conditions. Keepers need to notify supervisors and fellow keepers in advance of incoming weather if they are concerned about

facilities or system failure that could affect the lives of the animals in their care. Keepers may be deemed "critical staff " members in times of adverse weather and other emergencies.

WEATHER "TABLETOPS" AND DRILLS
A zoo or aquarium's leadership may do "tabletop exercises" for weather emergencies because it is so difficult to actually drill for these emergencies effectively. A "tabletop" is simply a detailed planning exercise in which all appropriate personnel walk through the crisis response plan (often with a large map of the facility on the table in front of them), and sequentially ensure roles and responsibilities for the plan, for personnel readiness and crisis management.

That zoo's emergency plan addresses windstorms and establishes roles and responsibilities on a departmental and individual basis. The zoo's leadership decides that it would be a good idea to have a "tabletop (planning) exercise" each year several months before the windstorm season, and an evaluation/ readjustment exercise for all staff a couple of months after the windstorm season. The keepers' role in this is to ensure the integrity of their exhibit areas (e.g., by securing animals indoors and checking the area's overall security before the storm), and to report deficiencies to supervisors at least two months before the windstorm season.

Every individual in the room has their personal role and responsibility in the weather event, and the zoo feels prepared. As the windstorm season gets closer, the zoo reviews keeper responsibilities and readiness on a weekly basis to ensure that everyone is ready; this is an extension of the tabletop.

EVACUATION PLAN
Each zoo and aquarium will have an evacuation plan. Evacuation plans are used for immediate threats including rapid-onset weather, bomb threat or other threat to human life, animal escape, and fire. As in other plans, each person will have a role and responsibilities in this procedure, and it is a keeper's responsibility to know theirs. The plan will provide for "zoo site" accesses and egresses, building security, who locks or secures areas and notifies the "communications team," and so on.

EVACUATION DRILLS
Each zoo and aquarium should have an evacuation drill on a regular basis. Good Practice Tip: Keepers can keep a copy of the zoo's emergency manual, including area protocols, and an up-to-date list of the zoo's emergency phone numbers at home or in a cell phone. This information could be needed at any time.

ANIMAL-HUMAN INCIDENTS
Note that animal- human incidents include "unauthorized person in exhibit" as well as "unanticipated animal-human contact."
AZA requires that institutions maintaining potentially dangerous animals (sharks, whales, tigers, bears, etc.) must have appropriate safety procedures in place to prevent attacks and injuries. Appropriate procedures must also be in place to deal with an attack resulting in an injury. These procedures must be practiced routinely according to the zoo or aquarium's emergency drill requirements. Whenever injuries result, a written account outlining the cause of the incident, how the injury was handled, and a description of any resulting changes to the safety procedures or physical facility should be prepared and maintained by the institution for a specific amount of time after the incident, as defined in the jurisdictional legislation.

An individual on staff should be responsible for inventory, disposal, replacement, and storage of antivenin. Venomous animal protocols should be established with local medical experts, and must be practiced with local police and ambulance personnel and the local responsible emergency room at least once each year. Drills for getting humans out of exhibits or out of encounters with animals must also be conducted.

RESPONSIBILITIES
Senior supervisor for animal care department
- establishes and implements the policies, procedures, and responsibilities relating to animal escapes.
- ensures that this zoo directive is reviewed annually with each keeper and all supervisors of zoo departments, the zoo's support organization, and police. Each new staff member shall be given a copy of this directive during orientation.
- ensures that the animal care staff emergency telephone list is current and available to the appropriate zoo staff and police.
- Recapture supervisor is primarily responsible for requesting the appropriate level of response, depending upon the species and individual animal, its location.
- maintains control of all radio transmissions and direct employees during the event.
- may designate another individual to assist with event logistics, including perimeter control and liaison with staff not directly involved with the recapture.

Veterinarian
- ensures that the veterinary staff maintains an animal escape protocol for equipment readiness, which shall be posted for hospital staff and revised annually, and which shall include anesthetic

dosages for all species considered potentially dangerous at the zoo.
- ensures that drugs and drug delivery systems suitable for recapture are available to the veterinary staff, that the veterinarians are trained for their use in escapes, and that contact numbers for the veterinary emergencies telephone list is current and available to the appropriate animal staff, veterinary staff, and police.
- assists the recapture supervisor as necessary.
- works with the recapture supervisor when chemical immobilization is required.
- ensures that each new officer shall be given a copy of this directive and that the contact lists cited above are available to the security supervisor in case of an escape at night.
- ensures that suitable caliber weapons and ammunition are available to the security team, and that security officers or curatorial and animal care staff are trained and qualified to use them to kill escaped animals.

Animal care (keeper) staff
Discusses passive containment strategies for their unit(s), and makes sure that the staff is familiar with behavioral management techniques that allow an animal to return to its home enclosure after an escape gates to allow animal to return on its own, baiting of the animal with food, negative reinforcement or "herding" of non- dangerous animals, veterinary use of tranquilizer darts, or finally destruction of a dangerous animal to protect human life).

DISCOVERY AND NOTIFICATION
Broadcasting the discovery. The person who discovers an escaped animal shall attempt to keep it under observation from a safe distance. Announcements of an animal escape shall occur as follows: The person who discovers an escaped animal should announce the appropriate code on the radio to alert all zoo staff of the situation. The initial announcement shall be made on the zoo's animal department radio channel, if the zoo has multiple channels.

Information to be conveyed. The first person to spot the escaped animal (whether a keeper or not) should state in the initial escape code radio announcement:
- the caller's name
- the escape phrase "code (__)"
- the best possible description of the animal including species, age, sex, and number of animals if there are more than one
- the animal's specific location and any direction in which it may be heading whether medical attention is needed
- The level of response requested, if known.

The first keeper or animal care supervisor responding to this call should confirm by repeating the transmission. Actions by recapture supervisor:
1. announce the animal's escape over the radio and request immediate perimeter gate closure if necessary.
2. request any necessary assistance from keeper staff, veterinarians, police, facilities staff, and health unit staff.
3. request that both the veterinarians and the police be contacted by telephone if immediate assistance is required.
4. contact the zoo director to tell of the situation.
5. Response team: keepers, animal care staff and supervisors, veterinary staff, police, health unit personnel, facilities staff shall respond to the code as requested by the recapture supervisor.
6. Keep the escape scene as clear and unencumbered as possible, employees should not report unless requested.
7. Director's office shall notify zoo personnel using the telephone numbers cited in the contact lists above and include public affairs staff.

IMMEDIATE ACTION BY ANIMAL STAFF
The discoverer of the escaped animal should keep it under observation and not attempt to recapture it. The on-scene senior animal keeper with knowledge of the animal is the recapture supervisor until the arrival of the unit curator or manager, who shall then assume the role of recapture supervisor. All keepers from the escaped animal's area should report to the scene but approach cautiously and listen for directions from the recapture supervisor. No attempt should be made to capture the animal until the recapture supervisor initiates a plan. Nets, gloves, and other capture equipment should remain hidden at this time because it otherwise might scare the animal into a fight-or-fllght response. All response protocols should be detailed and practiced.

ANIMAL ESCAPE PLAN
In all zoos and aquariums, it is best practice that all animal exhibits and holding areas be secured to prevent animal escape. Particular attention must be given to shift doors, gates, and keeper access doors to provide for staff and public safety. Locking or latching mechanisms as well as safety vestibules are necessary to meet this standard for dangerous animals. Two- person safety buddy systems for shift ing and lock checks are good safety practice. All exhibit service areas must be safely lighted, free of debris, and spacious enough to allow for safe servicing. Service exit doors must be clearly marked, and all locks and shift doors must be in good working order.

ANIMAL ESCAPE DRILLS
Like other drills, animal escape drills should not occur with untrained staff . Staff should first be trained in the animal escape emergency response process, and then practice it during announced drills. Then and only then should the zoo's administration have unannounced drills to test the real response time and abilities of the staff . The question of whether to involve the zoo going public is complex. Nervous administrators can have personnel respond to a papier-mâché animal using plastic equipment or equipment tags rather than the real thing, but drills need to happen when the public is present in the zoo so that zoo staff know how to work around visitors safely. Visitors also need to be "evacuated" or "sheltered in place" from the dangerous animal that has escaped. Tools, locations and local emergency response maps will vary among institutions, and therefore local protocols will vary.

COMMUNICATION
One of the most important communication strategies for a keeper is to be open, honest, and direct with supervisors or police response teams, especially during a crisis. Keepers need to use their entire life experience, assess the developing crisis situation, and react to a potential problem with a thoughtful, proposed solution that will add to the success of the team.

COMMUNICATIONS PLAN, PREPARATION, POLICIES, AND IMPLEMENTATION
"Crisis" is defined as a situation that could be of signifiant concern to the general public and has a high potential of resulting in extensive news coverage. The objective of a communications plan is to prescribe policies and procedures for the coordination of communications within the zoo, to the news media, and to the public in a time of crisis. When a crisis communications team is alerted, it should work quickly to develop a response for the news media that is as accurate and complete as possible. .

IMPROVING INSTITUTIONAL SAFETY CULTURE
Goals: 1. increasing the organization's safety culture (philosophy and practice of safe workplace conduct) 2. taking meaningful steps to improve safety and security 3. reducing accidents using personal commitments to daily safe practices 4. mitigating risks and injuries 5. focusing on and rewarding "near-miss" (near- hit) reporting in order to increase awareness of developing safety issues 6. developing stronger operational preparations for crisis and disaster situations, including both natural and man-made events. A zoo's safety committee can target reviews of current safety directives & propose steps for improved disaster preparation.

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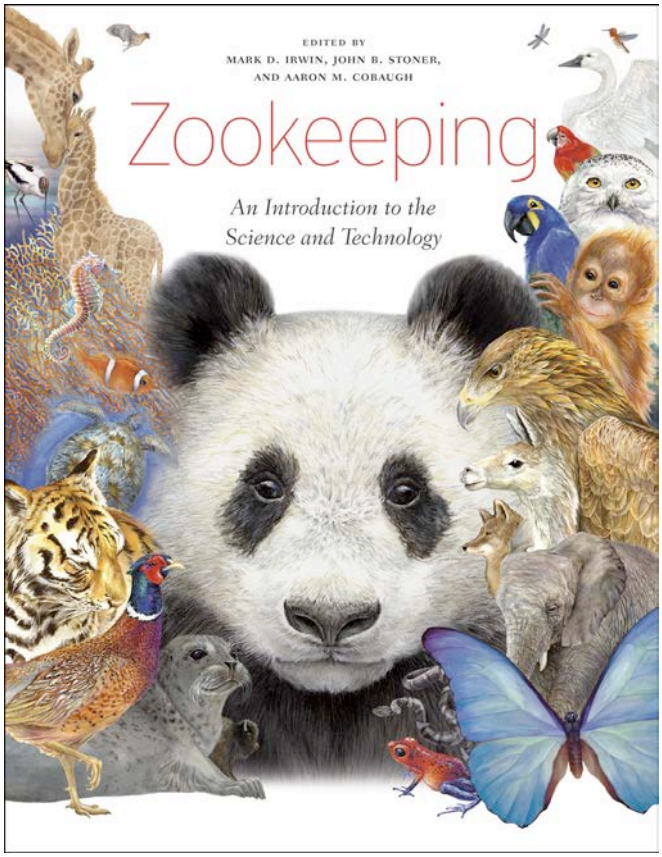

Zookeeping

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