Best Management Practices for Trapping in the United States

INTRODUCTION

ASSOCIATION *of* FISH & WILDLIFE AGENCIES

The Association of Fish and Wildlife Agencies (AFWA), formerly the International Association of Fish and Wildlife Agencies (IAFWA), was founded in 1902. It is an organization of public agencies charged with the protection and management of North America's fish and wildlife resources. The 50 state fish and wildlife agencies, as well as provincial and territorial governments in Canada, are members. Federal natural resource agencies in Canada and the United States are also members. The Association has been a key organization in promoting sound resource management and strengthening state, provincial, federal, and private cooperation in protecting and managing fish and wildlife and their habitats in the public interest.

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Acknowledgments

Best Management Practices (BMPs) for Trapping in the United States was written by the Furbearer Conservation Technical Work Group of the Association of Fish and Wildlife Agencies. Development of this document would not have been possible without the cooperation and participation of many state wildlife agencies, expert trappers, and trapper organizations. State agency personnel provided on-the-ground coordination and supervision in those states where BMP trap testing occurred, and many agency staff members provided constructive comments on earlier drafts of this document. We thank the wildlife veterinarians at the University of Georgia, the University of Wyoming and Wildlife Health Associates who completed evaluations of captured animals.

We thank the members of trapper associations, individual trappers, and technicians who took part in field-testing that supported the development of these BMPs. Their hard work and commitment to the continued improvement of trapping in the United States was an essential contribution to the success of this project. We also appreciate the involvement of the National Trappers Association from the inception of the BMP process, and would like to acknowledge their continuing assistance and support.

We also extend our appreciation to the many cooperating landowners who permitted BMP trap testing to be conducted on their property. They have made a significant contribution to the future of furbearer management in the United States.

The U.S. Department of Agriculture (USDA) provided funding for trapping BMP research and development. The International Fur Trade Federation provided additional funding, and many state agencies made substantial in-kind contributions.

Mission Statement

The Furbearer Conservation Technical Work Group is composed of wildlife biologists from state fish and wildlife agencies throughout the United States. Regional representation is from the Northeast, Southeast, Midwest, West, and Alaska.

The mission of the Furbearer Conservation Technical Work Group of the Association of Fish and Wildlife Agencies is to maintain the regulated use of trapping as a safe, efficient, and acceptable means of managing and harvesting wildlife for the benefits it provides to the public, while improving the welfare of trapped animals.

Introduction

The purpose of the BMP process is to scientifically evaluate the traps and trapping systems used for capturing furbearers in the United States. Evaluations are based on animal welfare, efficiency, selectivity, practicality, and safety. Results of this research are provided as information to state and federal wildlife agencies and trappers.

The goals of this document are:

- To promote regulated trapping as a modern wildlife management tool;
- To identify practical traps and trapping techniques that continue to improve efficiency, selectivity, and the welfare of trapped animals;
- To provide specifications for traps that meet BMP criteria for individual species in various regions of the United States;
- To provide wildlife management professionals with information to evaluate trapping systems in the United States, and;
- To instill public confidence in, and maintain public support for, wildlife management and trapping through distribution of science-based information.

Best management practices serve as a reference guide to wildlife management agencies, conservation organizations, tribal nations, researchers, trapper organizations, individual trappers, and others interested in the continued improvement of traps and trapping systems.

Benefits of Trapping

Trapping is a highly regulated activity. Anyone who traps must follow strict rules established and enforced by state fish and wildlife agencies. Restrictions on species that may be harvested, harvest seasons, trap types, trapping methods, and areas open to trapping are some examples of the guidelines and regulations that state agencies regularly review, implement, and enforce.

Trapping is an element of many wildlife management programs. In some cases, local populations of furbearers are controlled, thereby helping to minimize human-wildlife conflicts and mitigate habitat changes brought about by certain furbearer species. Similarly, trapping contributes to the protection of threatened and endangered species by controlling predators. Trapping also is used to relocate animals to, and restore populations in areas where conditions are suitable for the species to thrive.

Scientists collect important ecological information about wildlife through the use of trapping. Preferred habitats, migration patterns, and population indices for some species of wildlife are determined through mark and recapture programs and by monitoring regulated harvest levels. In addition, trapping can help reduce the exposure of humans and pets to rabies and other diseases. Trapping is widely recognized by the wildlife conservation community as a beneficial outdoor activity, providing food, clothing, cosmetic items, artists' supplies, and other products.

BMPs are intended to inform people about traps and trapping systems considered to be state-of-the-art in animal welfare and efficiency. Through the use of BMP guidelines, trappers can continue to play an important role in furbearer management programs across the United States.

Best Management Practices are based on the most extensive study of animal traps ever conducted in the United States. Test traps were selected based on knowledge of commonly used traps, previous research findings, and input from expert trappers. Statisticians from universities and federal and state agencies developed rigorous study designs. Experienced wildlife biologists and trappers developed study procedures, supervised or participated in field research and provided insight and expert technical advice on trapping methods to ensure the completion of each project. Data collection, including safety evaluations, was undertaken following widely accepted international standards for testing traps specified in the International Organization for Standardization (ISO) Documents 10990-4 and 10990-5. Wildlife biologists and statisticians assisted in data analysis and interpretation during the development of this document.

Although many details of trap testing procedures and results are available in other documents, some understanding of the procedures is important and are explained in this document.

Best Management Practices

Wildlife professionals, trappers, and trapper associations historically have worked to improve trapping. Most of the advancements used today come from the efforts of trappers. Wildlife agencies have a long history of regulating trapping to assure that the traps and trapping systems being used are the best available. State fish and wildlife agencies must continue to take a lead role by establishing a practical and effective plan for the improvement of trapping systems in order to maintain trapping as a valuable wildlife management practice.

The BMP framework provides a structure and criteria for identifying and documenting trapping methods and equipment that will continue to improve trapping. The trapping BMP project is intended to provide wildlife management professionals in the United States with the data necessary to ensure improved animal welfare in trapping programs. Trapping BMPs are based on scientific research and professional experience regarding currently available traps and trapping technology. Trapping BMPs identify both techniques and traps that address the welfare of trapped animals and allow for the efficient, selective, safe, and practical capture of furbearers.

Trapping BMPs are intended to be a practical tool for trappers, wildlife biologists, wildlife agencies, and anyone interested in improved traps and trapping systems. BMPs include technical recommendations from expert trappers and biologists, and a list of specifications of traps that meet or exceed BMP criteria. BMPs provide options, allowing for discretion and decision-making in the field when trapping furbearers in various regions of the United States. They do not present a single choice that can or must be applied in all cases. The suggestions contained in this document include practices, equipment, and techniques that will continue to ensure the welfare of trapped animals, avoid unintended captures of other animals, improve public confidence in trappers and wildlife managers, and maintain public support for trapping and wildlife management.

Trapping BMPs are recommendations to be implemented in a voluntary and educational approach. The trapping BMPs are the product of on-going work that may be updated as additional traps are identified in the future. BMPs for trapping are intended to compliment and enhance trapper education programs. It is recommended that all trappers participate in a trapper education course. Trapping BMPs provide additional technical and practical information to help trappers and managers identify and select the best traps available for a given species and provide an overview of methods for proper use.

Criteria for Evaluation of Trapping Devices

For the purpose of developing trapping BMPs, thresholds were established by the Furbearer Conservation Technical Work Group of AFWA for several trap performance criteria. These thresholds were derived from reference standards annexed to the 1997 understanding reached between the United States of America and the European Community, and with input from wildlife biologists and wildlife veterinarians involved in this effort. These thresholds provide a common framework for evaluating progress toward the use of more humane traps and trapping methods. Assessments of injury were undertaken in the furtherance of such common framework.

Restraining Devices

All types of traps used on land to hold live animals were evaluated against five performance criteria: animal welfare, efficiency, selectivity, practicality, and safety. Live restraining devices included cage traps, foothold traps, enclosed foothold devices such as the EGG trap™, and powered and non-powered cable devices, including modified designs like the Belisle™ foot snare.

Animal Welfare

Trauma scales used to determine a level of animal welfare performance for restraining traps are presented as guidelines in ISO (the International Organization for Standardization) Document 10990-5. One scale allocates points to specific injuries, including a zero score for uninjured animals. The other scale groups specific injuries into classes ranging from none to severe. A combination of both systems was used in this evaluation process. The primary species captured in traps that meet BMP performance criteria must have an average cumulative score of 55 points or less according to one scale. According to the other scale, 70% or more of those in the sample must have no injuries, or only have trauma described as mild or moderate.

Efficiency

Traps meeting BMP criteria must be able to capture and hold at least 60% of the primary species of interest that activate the trap. An activated trap is one that has been sprung. An activated cable device is one that has the cable loop closed.

$$\text{Efficiency} = \frac{\text{Number of primary species captured}}{\text{Number of activations by primary species}} \geq 60\%$$

Selectivity

Traps should be set and used in a fashion that limits the risk of capturing non-furbearers, including domestic animals, while increasing the chances of capturing desired furbearer species. Data concerning selectivity were collected in field studies and used to identify those traps that have features that influence selectivity. These features and any special considerations are provided in the Mechanical Description and Attributes section for each BMP designated trap.

Practicality

Traps should be practical for use in the field under trapline conditions. After a particular BMP trap test, each trapper was asked for information regarding practicality. These comments were then reviewed to detect any traps with consistently poor scores. In addition, a panel of experienced trappers and wildlife biologists evaluated each trap and considered the following:

- Cost of initial purchase and maintenance;
- Replacement of parts, ease in setting and resetting;
- Ease of transport and storage;
- Weight and dimensions;
- Reliability;
- Versatility;
- Expected usable life span and;
- Need for specialized training prior to use.

Any special considerations are described in the Mechanical Description and Attributes section for each BMP designated trap.

Traps were selected for testing based on their relative use among trappers surveyed by the International Association of Fish and Wildlife Agencies in 1992 and 2004, and in consultation with wildlife biologists and expert trappers. Commonly used trap models and modifications and new, readily available designs that may improve animal welfare were given priority for testing. Experienced local trappers tested traps during regulated trapping seasons using daily trap checks, to provide for consistent, repeatable and reliable data for the most accurate analysis possible. Technicians accompanied trappers and recorded data. Teams worked under field conditions throughout the United States during regulated trapping seasons. Wildlife veterinary pathologists examined captured animals for trap-related injuries using full-body necropsies following international trap testing guidelines. A minimum of 20 specimens was examined for each trap evaluated.

The development of trapping BMPs is an ongoing work that is flexible and adaptable as existing trap models are improved and additional models are tested. Criteria to identify BMP traps are standardized. Trap models that were tested, and met these criteria, are included in the BMPs for individual furbearers.

Other commercially available traps, modified traps, or other capture devices not yet tested may perform as well as, or better than the listed BMP traps. Recommendations to wildlife agencies, biologists and trappers may be updated as additional devices are identified in the future.

Safety

Traps should not present a significant risk to the user, and if necessary, should have appropriate safety features, safety tools, or both that can be used easily under normal trapline conditions. Each trapper testing traps for the BMP project was asked to judge whether traps tested posed an unreasonable risk to the user or others who might come into contact with the trap. A panel of experienced trappers and wildlife biologists then evaluated each trap. Safety issues, if any, are described in more detail in the Mechanical Description and Attributes section for each BMP designated trap.

Mechanically Powered Killing Devices

Mechanically powered killing traps, also commonly called bodygrip or rotating-jaw traps (e.g., Conibear™ traps), are designed to kill an animal when two rotating jaws close on either side of the animal's neck or chest. Most of the mechanical testing and research on killing traps has been conducted at the Alberta Research Council facility in Canada. Field-testing of killing traps has been conducted throughout the United States. Killing traps are evaluated with the same five criteria as restraining traps (animal welfare, efficiency, selectivity, practicality, and safety), but killing traps must meet different performance standards for animal welfare and safety.

The animal welfare performance standard for killing traps set on land is that the trap must cause irreversible loss of consciousness in 70% of the sample animals within 300 seconds. Killing traps must meet two additional performance standards for safety. First, a trapper must be able to release him/herself from an accidentally fired trap without assistance, and second, the forces generated by the trap should not be likely to cause significant human injury. Performance standards for commonly used killing devices are comparable to those described for restraining devices.

Submersion Trapping Systems

Submersion trapping systems are frequently used for furbearers that are found in or near waterways. These systems consist of traps, equipment, and techniques that allow or cause furbearers, when trapped, to quickly and irreversibly submerge until death occurs. Submersion systems can employ bodygrip traps, cage traps, cable devices, or foothold traps of the appropriate size and weight. Traps are either set underwater at a depth that prevents the captured animal from reaching the surface, or they are set in shallow water near shore and attached with a one-way sliding lock to a cable anchored in deep water.

The animal welfare performance standard for submersion trapping systems is that the equipment must prevent the animal from surfacing once it has submerged. Performance standards for submersion trapping systems are comparable to those used for restraining and killing devices.

Capture Devices

Foothold Traps

Longspring and coil-spring traps (Figures 1a and 1b) are the most commonly used trap types, as they can be used in a myriad of set types on land and in water. The basic design of foothold traps has two jaws attached to a baseplate with a pan-trigger device. Longspring traps are powered by either one or two springs while the standard coil-spring trap is fitted with two small springs. Many modifications can be made to affect the performance of these traps, as described in the next section. Some coil-spring traps are designed to encapsulate the animal's foot and some have a bar trigger that is either pulled or pushed for activation. These foot encapsulating traps (Figure 2) are highly species selective by design.

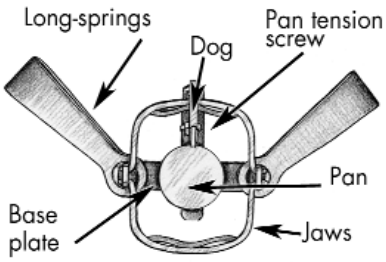

Figure 1a. Longspring trap

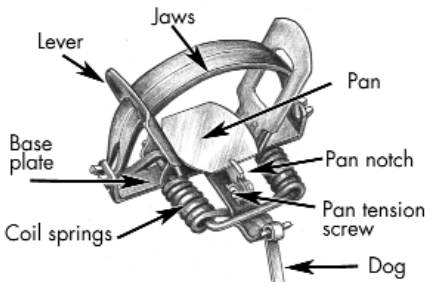

Figure 1b. Coil-spring trap

Cable Devices

A cable device is made of stranded steel cable set in a manner so that a loop of cable encircles the animal's body or limb. Like foothold traps, they can be used in a variety of set types on land and in water. Modern cable devices are made from stranded steel cable. Various sizes are used, three examples of which are: the 7 x 7 design that has seven bundles of seven wires each, the 7 x 19 design that has seven bundles of 19 wires each (Figure 3a), and the 1 x 19 single-strand design that consists of seven wires (twisted right) wrapped by twelve wires (twisted left) (Figure 3b). These cable types can be used effectively as cable devices.

A non-powered cable device uses the forward movement of the animal to place and close the loop on its body or limb. The powered cable device uses a mechanical feature, such as a spring, to place or close the loop of the cable on an animal's body or limb. An example of a powered cable device is the coil-spring activated Belisle™ Foot Snare (Figure 4a), which employs a foothold-like pan system to activate springs that throw a cable around the animal's foot.

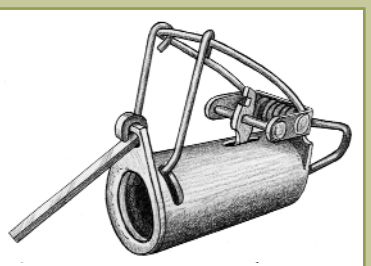

Figure 2. Enclosed foothold trap

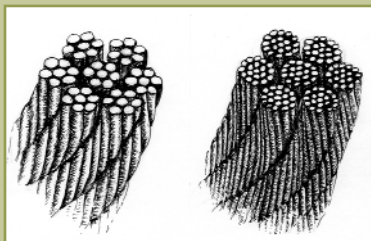

Figure 3a. 7 x 7 and 7 x 19 Cable strands

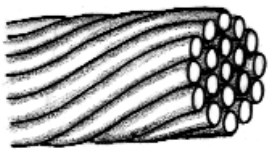

Figure 3b. 1 x 19 Single-strand cable

Each region of the country may have conditions that affect trapping, and BMPs are developed with this in mind. An example is the difference in coyotes—behavior, size, habitat, and management programs across the U.S.—resulting in two coyote BMPs (Eastern and Western). Both trappers and governmental agencies are encouraged to use BMP traps that are best suited for their purposes. All trappers should consult state trapping regulations to be sure the devices and techniques recommended in the BMPs are permitted in their state.

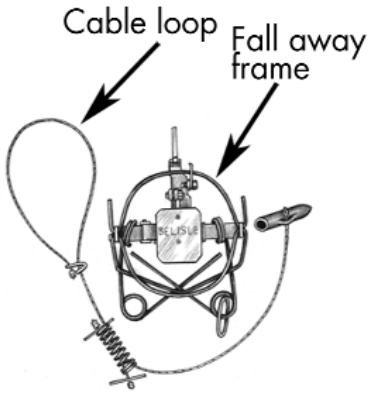

Figure 4a. Belisle foot snare

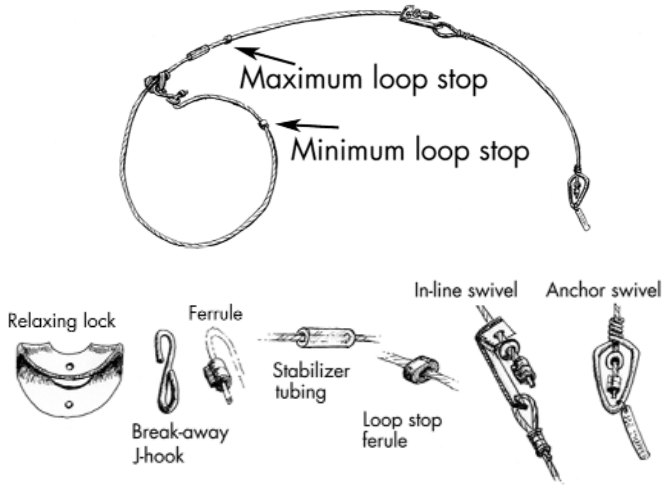

Figure 4b. Non-powered cable device components

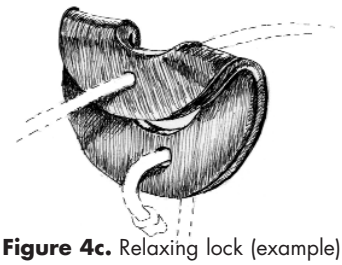

Figure 4c. Relaxing lock (example)

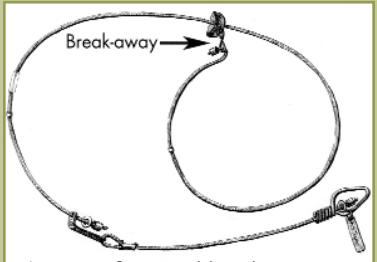

Figure 4d. Typical break-away

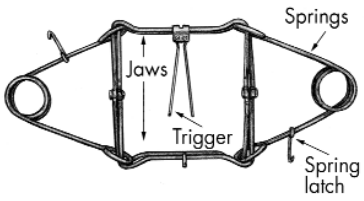

Figure 5. Standard bodygrip trap

Cable devices can be designed in several ways and may have one or more of the following components: relaxing lock; break-away J-hook, S-hook, or ferrule; stabilizer tubing; loop stop ferrule, in-line swivel; and/or anchor swivel (Figure 4b). Relaxing locks allow the loop of the cable device to draw smaller as the animal pulls against it but does not continue to close when the animal stops pulling (Figure 4c). Many types of relaxing locks are available. Ferrules are used for several purposes, such as to hold the lock or swivel on the cable, or as a break-away device. Ferrules can be made from many materials including a steel nut, wire or aluminum cylinders. Break-away devices are components that allow an animal to escape from the cable device if it pulls against it with sufficient force (Figure 4d). Ferrules and J-hooks are two examples of break-away devices. Loop stops may be made from heavy gauge wire, steel nuts or crimped ferrules and may be used to maintain the cable loop at a minimum or maximum diameter, or both (Figure 4b). The maximum loop stop prevents larger animals from entering the cable loop while the minimum loop prevents the cable loop from closing around an animal's foot.

Bodygrip Traps

Bodygrip traps (Figure 5) are designed to kill an animal quickly when one or two rotating jaws strike the animal's neck or chest. These traps may be powered by one or two springs. Bodygrip traps operate in a manner similar to the common mouse trap.

Cage or Box Trapping Systems

A cage trap or box trap is designed in such a manner that the animal enters the trap through a door which closes, preventing the animal from exiting (Figure 6). These traps can be used for multiple species, limited by the door size and length. They are difficult to conceal and may be avoided by some animals. Some of these traps can be used to transport animals where permitted by law.

Components of Foothold Trap and Cable Device Systems

Swivels

Proper swiveling is the key to preventing the chain or cable of an anchoring system from binding at the stake, drag, or grapple. This is important because it minimizes injury to the captured animal, reduces fur damage, and may prevent cable breakage. On a foothold trap, the anchoring system should be attached with a swivel to the center of the base plate of the trap. The anchoring system of most restraining devices should include one or more swivels along the length of the anchoring system, including one at the anchor point. At least two or more swivels are recommended along the anchoring system of a foothold trap (Figure 7a). For cable device systems, at least one swivel at the anchor point and one in-line swivel along the cable are recommended (Figure 7b).

Trap Anchoring Systems

The anchoring system should always be strong enough to hold the largest furbearer that might be captured. When stakes are used to anchor traps, they must be of sufficient length to prevent the captured animal from pulling the stake. If there is doubt that a stake will hold (e.g., in sandy soils), use two stakes with a cross-staking method to ensure the stakes will not move after the catch (Figure 8). Cable stakes are also effective. Drags or grapples may be used effectively in some terrain and may also allow the captured animal to find cover. Similarly, when using a submersion system, the chain length must be short enough and the terminal end of the anchoring system deep enough to keep the animal underwater.

The use of in-line shock springs on anchoring systems, whether they are stakes or drags, may reduce injury or prevent escape, or both (Figure 9). Shock springs should be of high quality and adequate strength to resist a captured animal's ability to destroy the spring. By cushioning lunges of a captured animal, shock springs may minimize the chance of cuts and joint injuries. This cushioning action may also decrease "stake pumping," reducing the chances that the captured animal will escape.

Foothold Trap Modifications

Several BMP traps are conventional models that have been modified. Examples of modifications include: laminating or offsetting the jaws, or both; adding extra coil springs; using pan-stops; or reinforcing the base plate. Most trap manufacturers and suppliers now offer modified traps or will modify traps upon request. Trappers also can modify their own traps to replicate the BMP trap models in this document. In any case, sturdy materials should be used to ensure durability in the field.

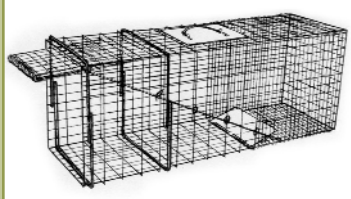

Figure 6. Cage trap

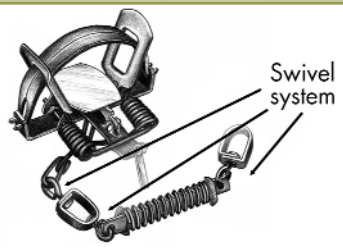

Figure 7a. Foothold trap

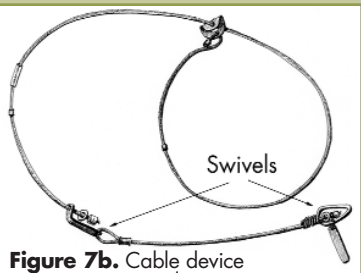

Figure 7b. Cable device swivel system

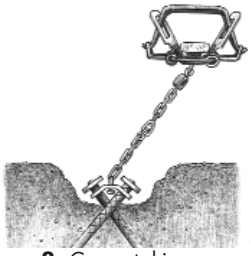

Figure 8. Cross-staking

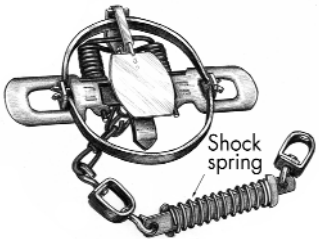

Figure 9. In-line shock spring

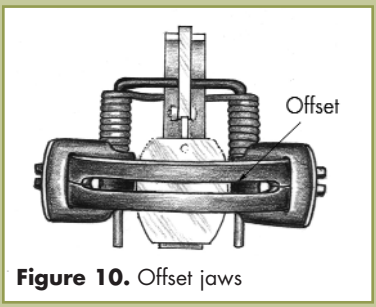

Figure 10. Offset jaws

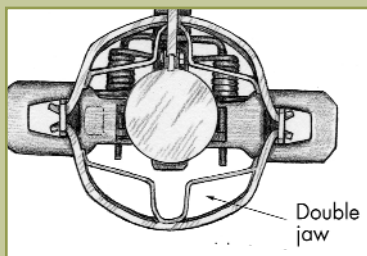

Figure 11. Double jaws

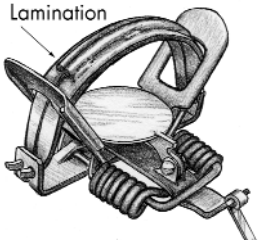

Figure 12. Laminated jaws

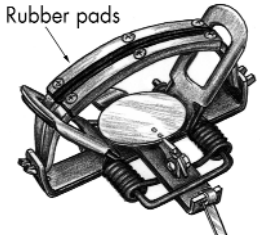

Figure 13. Padded jaws

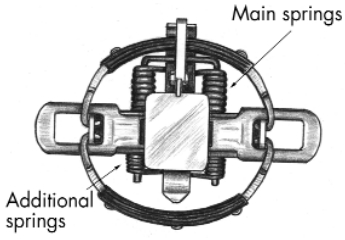

Figure 14. Additional springs (four coiling)

Offset Jaws

Offset jaws contain a space between the gripping surfaces on the closed jaws of a foothold trap. Typically, the offset ranges from 1/8 to 1/4 inch (Figure 10). Offset jaw models allow spring levers on coil-spring traps and spring eyes on longspring traps to close higher upon capture, thereby reducing the chance that the captured animal will escape. In addition, clamping pressure is slightly reduced when levers are fully raised which may improve animal welfare under some conditions.

Double Jaws

Using a foothold trap with a double jaw configuration improves animal welfare for some species. The double jaw configuration decreases the distance between the jaw and trap pan, limiting access to the restrained foot. Single jaw traps of the appropriate size can be modified to this configuration by adding a second jaw below the primary jaw (Figure 11).

Lamination and Padding

Expanding the trap jaw thickness with lamination or the addition of rubber pads will increase the surface area of the jaw on a trapped animal's foot and may influence both animal injury and capture efficiency. Lamination may be attached above or below the trap jaws, or both, to expand the jaw thickness by welding on an additional strip of metal rod (Figure 12). Lamination typically is an after-market addition, though some trap suppliers provide this service. Padded traps are usually pre-fabricated. Replacement or repair of rubber pads is periodically required, especially after captures (Figure 13).

Additional Springs

Sufficient trap strength is needed to hold an animal by the foot. Some coil-spring traps may perform better with the addition of two extra coil springs, commonly referred to as "four-coiling." Four-coiling also makes the trap more stable when bedded. Recommended spring wire diameters are provided in the Mechanical Description and Attributes Section for each trap meeting BMP criteria (Figure 14).

Pan Stops

The use of a pan stop assembly decreases the distance between the trap jaw and pan after the trap is sprung, limiting access to the restrained foot and reducing the chance of injury (Figures 15a and 15b). Pan stops also prevent the animal from stepping too far into the trap, ensuring optimal jaw placement on the restrained foot.

Reinforced Base Plates

Trap base plates can be reinforced by welding a piece of flat steel to the bottom of the trap frame, thereby strengthening the trap frame and preventing it from bending. The reinforcement plate also can be used as a point of attachment for center swiveling.

Trap Tuning, Preparation and Maintenance

Inspection of Foothold Traps

Most new traps require some minor adjustments to operate correctly. New traps may have sharp edges or burrs that must be removed to avoid injuries to the trapped animal. The upper and lower corners of jaw faces should be filed to remove sharp, squared edges. On offset jaw models, jaw contact points also should be rounded as necessary, though not so much as to reduce the width of the offset. Similarly, used traps and attachments should be inspected for wear before each season (Figure 16).

- Weak coil springs should be replaced;
- Trap components, such as swivels, J-hooks, and S-hooks, must be of sufficient strength, must operate freely without binding, and must not be damaged;
- J-hooks should be welded shut when trapping large, strong animals such as coyote;
- Sharp edges on jaws or any part of the trap should be smoothed with a file.

Leveling Trap Pans

A level pan is important because it optimizes the angle of capture of the animal's foot. When the trap is set, the trap pan should be level with the jaws. If the pan rests too high or too low, it should be adjusted (Figure 17).

Short Pan Throw

The amount of space where the trap dog (trigger) fits into the pan notch determines how far the trap pan must drop before the trap activates (Figure 18). A file can be used to "square" the trigger slot and the end of the dog to produce a short pan throw and crisp action. A short pan throw, used in conjunction with the correct pan tension for the target species, will result in desired capture positions on the animal's foot.

Inspection of Cable Devices

Cable devices and all components should be inspected before use for kinks or other imperfections that may keep them from closing smoothly. After capturing an animal, discard the used cable and inspect the other parts of the cable device for damage or weakening before using them again.

Treating and Handling Traps and Cable Devices

New foothold traps, bodygrip traps, and cable devices are often coated with oil that must be removed before use. A good method to remove the oil is to boil the devices in water mixed with baking soda (for cable devices), or mixed with detergent (for traps). This process will dull the finish, remove unnatural odors, and allow traps to begin forming a light coat of rust. Rusted traps can then be dyed and waxed, with the exception of bodygrip traps and cable devices, which should never be waxed. Some trappers also boil cable in water a second time with logwood crystals or other plant materials to darken the wire and add some natural scent. Cage or box traps are sometimes spray painted to help with concealment. After treatment, handle cable and traps with gloves that are free of scent and store them in a dry place where no unnatural odors will be absorbed. Many techniques for treating traps and cable are available and are best learned from trapper education materials or experienced trappers.

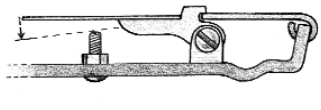

Figure 15a. Pan stop, set position

Figure 15b. Pan stop, closed position

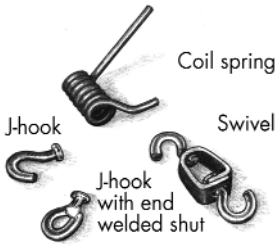

Figure 16. Trap components

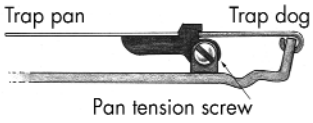

Figure 17. Level pan

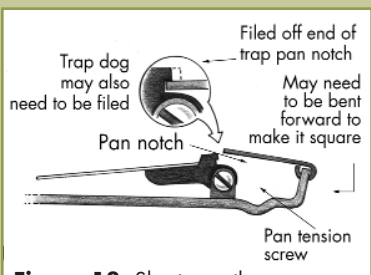

Figure 18. Short pan throw

Figure 19. Pan tension measuring device

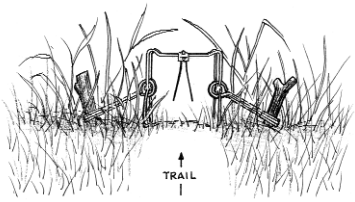

Figure 20a. Bodygrip, blind trail set

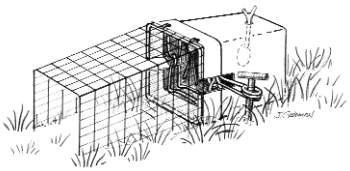

Figure 20b. Bodygrip, cubby set with restricted entry

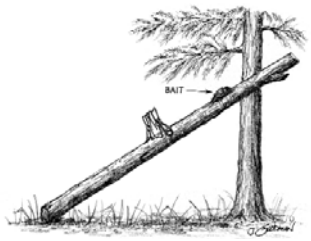

Figure 20c. Bodygrip, pole set

Trapping Techniques

Using the correct size and type of restraining trap is essential to achieving a high level of efficiency and minimizing risk of injuring the captured animal. How an individual trapper chooses to use a trap also is critical. Likewise, the correct size and type of bodygrip trap or cable device will allow for efficient capture while meeting animal welfare criteria.

Presented here are techniques and practices recommended by experienced trappers and wildlife biologists that provide for improved animal welfare, selectivity, efficiency, and user safety. These suggestions may be familiar to some, but new to others.

All trappers are strongly encouraged to use as many of these techniques as practical. More detailed information on recommended techniques is available through various trapper education manuals, manufacturer's documents, instructional videos, and trade publications.

Set Location for Traps

Careful choice of trap location can influence animal welfare, efficiency and selectivity of trap sets. Trappers should choose set locations that:

- Prevent entanglement with fences or other objects that might result in injury;
- Minimize the chance that objects or debris will prevent swivels from functioning properly;
- Minimize the capture of non-furbearers;
- Minimize the captured animal's exposure to domestic animals and human activities (e.g., avoid trails used by people).

Lure, Bait and Attractants

Careful placement and selection of baits, lures, and other attractants can greatly increase capture efficiency and selectivity. Certain baits or lures (e.g., meat-based attractants) may be more attractive to pets and hunting dogs and should be used cautiously.

Many states prohibit setting traps near large carcasses, or using exposed baits, or fur or feather attractants. Be sure to comply with state regulations concerning the use of baits and attractants. Consult trapper education material to learn how to use baits, lures, and attractants to improve the selectivity and efficiency of your sets.

Proper Pan/Treadle Tension – Foothold and Cage Traps

Pan tension influences trap selectivity. Most new traps have pan tension bolts and those that do not can typically be fitted with commercially available or homemade pan-tension devices. Pan tension can be adjusted so certain weights are required to depress the pan and trigger the trap, thereby affecting trap selectivity. The pan likely will need readjustment after each capture. Devices for measuring pan tension are commercially available or may be easily constructed (Figure 19). To test pan tension with the type of device shown in Figure 19, the proper amount/weight of material (sand, water, etc.) should be added to the jug to depress the pan at the desired pan tension weight (e.g., 2 lbs., 4 lbs., etc.). Recommendations for appropriate pan-tension are given in the species chapters.

Bodygrip Trap Considerations

Different species have different shapes and behaviors that influence how they approach bodygrip traps. Trigger systems on bodygrip traps can be configured to improve trap efficiency and animal welfare (time to irreversible unconsciousness) by affecting strike-locations. The selectivity of bodygrip traps also can be impacted by trigger configurations, as the shape and location of the trigger can be modified to avoid certain species while capturing others.

Bodygrip traps on land are sometimes used in blind trail sets (Figure 20a) or in conjunction with cubbies (Figure 20b) or in above-ground sets (Figure 20c) to avoid capture of certain species either because of species size or behavior. Further, many states prohibit setting bodygrip traps on land unless they are used in conjunction with one or more of these techniques. Be sure to comply with state regulations concerning the use of these traps. Consult trapper education material to learn how to use cubbies and trap placement to improve the selectivity and efficiency of your sets.

Avoiding Entanglements

Foothold traps and cable devices when staked should be set so the captured animal cannot entangle the anchoring system in any object. These devices should not be set near fences or farm equipment. Trap sites should be cleared of all objects (e.g., rocks, logs, and rooted, woody stems) that could be reached by the captured animal and become entangled in the anchoring chain or cable. This usually means some clearing work with pruning shears, hatchet, or saw. The area that needs to be free of entangling objects depends on the size of the target animal and the length of the anchoring system (Figure 21). If the trap anchoring system becomes entangled with objects at the set, the swiveling system may become inoperable.

Trap Safety

Restraining foothold devices have excellent safety records, but as with any tools, precautions should be taken in handling them. Use of available safety equipment, such as gloves and safety glasses, should be considered while setting traps.

Personal safety is more of an issue when handling bodygrip traps, especially the larger sizes. Bodygrip traps must close with considerable force to meet animal welfare performance standards. Trappers should be familiar with the safe and efficient use of bodygrip traps. We recommend the use of spring latches (Figure 22) on both springs and a safety gripper on trap jaws (Figure 23) when setting bodygrip traps. Most bodygrip traps are equipped with spring latches and these should be engaged when the springs are compressed. A variety of safety locks are available for the jaws and one should be attached when the jaws are moved to the set position. These safety devices protect the trapper and make it easier to position and anchor the trap. Safety devices should be disengaged only when the set is completed. It is also recommended that trappers carry one of the commonly available setting tools to help free oneself if accidentally caught.

Checking and removing the set should always be done carefully. Spring the trap or engage the safety latches before removing sets. Never reach under the ice to check bodygrip traps, particularly if the hole in the ice is too small to pull the trap through. Never use your hands or feet to locate a bodygrip trap that is underwater, under ice, or out of sight.

Releasing or Dispatching Captured Animals

Restraining devices give trappers the option of either releasing or dispatching captured animals. A capture pole is one of several tools that a trapper can use to release animals. Using these devices, animals can be safely released from restraining traps. Techniques for release and dispatch are best learned from a trapper education program or from experienced trappers.

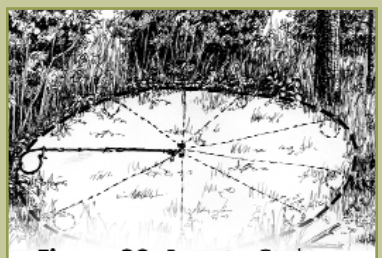

Figure 21. Restraint circle

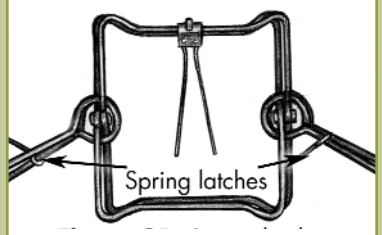

Figure 22. Spring latches

Figure 23. Bodygrip safety gripper