Best Management Practices

for Trapping Muskrats in the United States

ASSOCIATION *of*
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Figure MK1. Muskrat *(Ondatra zibethicus)*

Best Management Practices (BMPs) are carefully researched educational guides designed to address animal welfare and increase trappers' efficiency and selectivity. The extensive research and field-testing used to develop BMPs are described in the Introduction section of this manual. The evaluation methods used to develop BMPs have been standardized, enabling them to be easily updated and revised as new traps and techniques become available. All traps listed in the BMPs have been tested and meet performance standards for animal welfare, efficiency, selectivity, practicality and safety.

Trapping BMPs provide options, allowing for discretion and decision making in the field. BMPs are meant to be implemented in a voluntary and educational approach and do not present a single choice that can or must be applied in all cases. BMPs are the product of ongoing work that may be updated as additional traps are identified through future scientific testing.

The Muskrat at a Glance

Characteristics

The muskrat *(Ondatra zibethicus)* (Figure MK1) is a semiaquatic rodent and member of the Cricetidea family along with mice and voles. Adults weigh between $1\frac{1}{2}$ and 4 pounds, and range from 16 to 25 inches in total length. Adult males are generally larger than adult females. The muskrat has a laterally flattened tail and webbed hind feet, indications of its aquatic nature. Pelage color varies from light brown to black. A thick waterproof under-layer of fur is overlain by long, glossy guard hairs.

Range

Muskrats inhabit all of North America except the Eastern Gulf states, and much of Nevada, California and Texas. The species is rarely found in Mexico, but the range extends north to the Arctic Circle. Muskrats were introduced to Europe early in the 20th century, and now inhabit many parts of Eurasia.

Habitat

The muskrat is an aquatic mammal and prefers to inhabit still or slow-moving bodies of water. Common habitat types are marshes, sloughs, streams, lakes, ponds and various other types of wetlands. Typically, they prefer freshwater, but in coastal areas, muskrats will inhabit brackish marsh. Where bank slope is adequate, muskrats often build dens in the bank of a water body, but commonly build houses of vegetation in marshes and sloughs.

Food Habits

The muskrat is chiefly herbivorous, but in some parts of its range it is known to eat freshwater clams, crayfish, fish, frogs and other small animals. When consuming aquatic vegetation, muskrats often eat the shoots, leaves, bulbs and rootstocks of plants. They prefer emergent vegetation such as cattails, three-cornered sedge and bulrush, but often feed on submergent vegetation as well. Muskrats are also known to eat corn and other agricultural plants when available.

Reproduction

Depending on the geographic location of a population, a restricted breeding season may occur (northern part of range), or breeding may occur year round (southern part of range). After mating, there is a gestation period of 28 to 30 days. A litter normally consists of three to nine young. The muskrat may birth up to six litters per year, though most have only two or three litters annually. Weaning occurs at three to four weeks after birth. Young are the same size as adults at six months and normally breed after the first year.

Populations

Populations vary considerably depending on habitat availability, geographic location, weather conditions and variability in market demand. Muskrat populations undergo regular cycles of fluctuations varying from five years in some parts of the United States to 10 to 14 years in others. The prolific reproductive capabilities of the muskrat help in recovery from any population decline. Muskrats may cause extensive damage in dikes, pond dams and other hydraulic structures as a result of constructing bank dens.

General Overview of Traps Meeting BMP Criteria for Muskrats in the United States

Two basic types of traps were tested for muskrats: foothold traps (for submersion sets only) and bodygrip traps (Table MK1). Examples, brief descriptions and mechanical details of the various devices are given in the next section.

Table MK1. Overview of traps meeting BMP criteria** for muskrats in the United States.

Trap Category	**Jaw/Frame Characteristics**	**Inside Jaw/Frame Spread at Dog***	**Inside Width at Jaw/ Frame Hinge Posts***	
Coil-spring (Figure MK7a)	Unmodified	3 11/16	3 1/2	
Longspring (Figures MK7b and MK8)	Padded	3 3/8	3 5/8	
	Double-jaw	3 7/8	3 7/16	
	Unmodified	3 7/8	3 7/16	
	Height of Trap Window*	**Width of Trap Window***	**Frame Wire***	**Spring Wire***
Bodygrip (Figures MK9a – MK9f)	4 1/4 – 5	4 1/4 – 4 3/4	3/16 – 1/4	3/16 – 1/4

* Inches
**Any size foothold traps or bodygrip traps with the above measurements or larger measurements, which are commonly used for muskrats, also meet BMP criteria for use in submersion sets for this species; foothold sizes commonly designated as 11,1, 1.5, 1.65, 1.75, 2, 3 and bodygrip sizes commonly designated as 110, 120, 160 and 220.

General Considerations When Trapping Muskrats

Foothold Traps

- Many currently-used trap models meet specifications for use in submersion sets
- Loosening pan tension so that the pan moves freely may improve efficiency
- Can be used to capture several furbearer species

Bodygrip Traps

- Should be placed so that the rotating jaws capture the animal by closing on the top and bottom of the captured animal's neck (Figure MK2)
- Can be used in locations and in weather conditions where other traps are less effective
- May not be appropriate in some areas (captures and kills animals, no release)

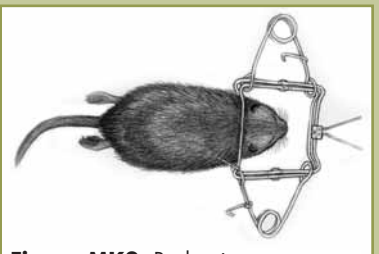

Figure MK2. Bodygrip, proper strike location

Figure MK3a. Setting tool

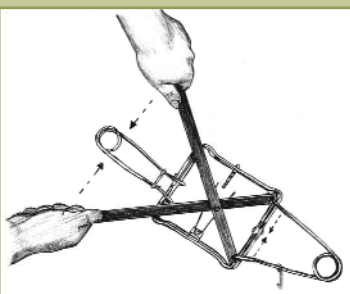

Figure MK3b. Using setting tool

Figure MK4a. Safety gripper

Figure MK4b. Using safety gripper

Safe Use of Bodygrip Traps

By design, bodygrip traps must close with considerable force to humanely dispatch and efficiently capture wild furbearers. This is particularly true of larger sized and "magnum" type bodygrip traps. As a result, users should take special precautions to avoid potential injury when using these devices. Trappers should be familiar with the safe and efficient use of bodygrip traps and these are best learned in trapper education courses.

A setting tool (Figure MK3a) should be used to compress trap springs when setting large and magnum bodygrip traps. Use of a setting tool will not only make setting traps easier, it will make setting traps safer by allowing the trapper to keep hands and fingers away from the jaws (Figure MK3b). Most bodygrip traps that have double springs are equipped with spring latches that hold each spring compressed, and the trapper should use these latches on both trap springs. A safety gripper (Figure MK4a) should also be attached to the jaws when the jaws are moved to the set position (Figure MK4b). This will prevent the trap from accidentally closing. The above safety devices protect the trapper and make it easier
to set, position and anchor the trap safely. Safety devices should be disengaged only when the set is completed.

If you are accidentally caught in a bodygrip trap you need to know how to free yourself. A setting tool is the most effective means to freeing yourself and should be used to compress the springs or jaws. You should always have one in reach when setting and placing bodygrip traps. In the event you are not able to reach one or use it with one arm, you should always carry a four foot piece of rope. The rope should have a loop tied on one end and should be stored in a pocket that can be easily accessed by either hand. You can use the rope to free yourself as follows:

1) Thread the rope through the eyes of one of the springs (Figure MK5a).
2) Bring the rope around and thread it back through the eyes a second time (Figure MK5b).
3) Place your foot in the looped end of the rope and pull the other end with your free hand until you can set the safety latch for that spring. (Figure MK5c). You may need to do this to both springs to completely free yourself.

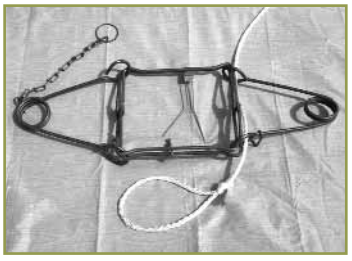

Figure MK5a. Step 1

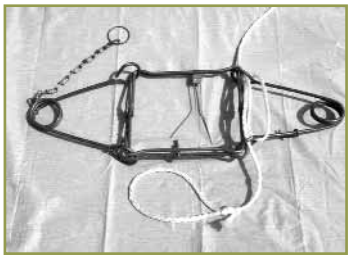

Figure MK5b. Step 2

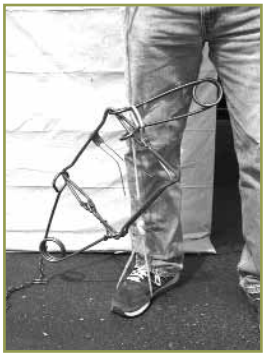

Figure MK5c. Step 3

Specifications of Traps Meeting BMP Criteria for Muskrats in the United States

As more capture devices are tested and new information becomes available, they will be added to an updated list. Mechanical descriptions of tested traps are given as an aid to trappers or manufacturers who may wish to measure, build or modify traps to meet these specifications (Figure MK6a and MK6b). Also, 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. References to trap names are provided to identify the specific traps tested. The following list is provided for information purposes only and does not imply an endorsement of any manufacturer.

Average mechanical measurements are rounded to the nearest $^{1}/_{16}$ inch. There may be up to a $^{1}/_{8}$ inch variation in specifications on the part of the manufacturer. Manufacturers use recognizable names, such as "No. 2" coil-spring, to identify certain traps. However, there is no standardized system linking mechanical design features with trap names. The mechanical features of these traps are listed so that similar traps may be identified. The performance of anchoring systems was not specifically evaluated, however, methods of attachment are described for informational purposes.

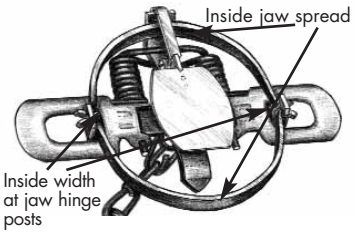

Figure MK6a. Coil-spring trap

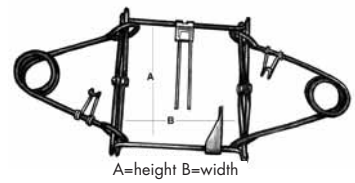

Figure MK6b. Bodygrip trap

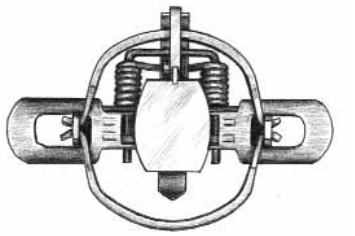

Figure MK7a. Unmodified jaw coil-spring trap (open)

Unmodified Jaws (Figures MK7a and MK7b)

Average Mechanical Description and Attributes

Inside jaw spread (at dog): 3 $^{11}/_{16}$ inches
Inner width: 3 $^{3}/_{16}$ inches
Inside width at jaw hinge posts: 3 $^{1}/_{2}$ inches
Jaw width: $^{3}/_{8}$ inch smooth round jaw
Jaw thickness: $^{1}/_{8}$ inch
Main trap springs: Two 0.113 inch diameter wire coil-springs
Base plate: Not reinforced
Pan stop: Yes

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Woodstream™ Victor No. 1 coil-spring.

Additional Information

- For use in submersion sets only.
- Chain attachment used in trap testing: six inch center-mounted with two swivels, one in-line shock spring, and anchored with a stake. When using submersion sets, chain length should be short enough to prevent captured animals from resurfacing.
- Selectivity features: Brass pan tension machine screw; pan tension was loosened so that the pan moved freely, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for raccoons in the southeastern United States, and mink and nutria in submersion sets.

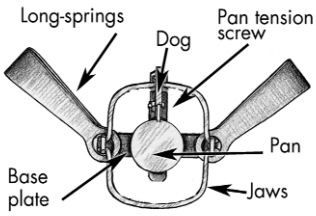

Figure MK7b. Unmodified jaw double-longspring trap (open)

Average Mechanical Description and Attributes
Inside jaw spread (at dog): 3 7/8 inches
Inner width: 3 1/8 inches
Inside width at jaw hinge posts: 3 7/16 inches
Jaw width: 1/2 inch
Jaw thickness: 1/8 inch
Length of main trap springs: 4 3/8 inches
Thickness of main trap springs: 1/16 inch
Width of main trap springs: 1 1/2 inches narrowing to 5/8 inch
Base plate: Not reinforced
Pan stop: Yes

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Sleepy Creek No. 11 double-longspring trap.

Additional Information
- For use in submersion sets only.
- Chain attachment used in trap testing: 12 inch center-mounted with two swivels, one in-line shock spring, and anchored with a stake. When using submersion sets, chain length should be short enough to prevent captured animals from resurfacing.
- Selectivity features: Brass pan tension machine screw; pan tension was set so two pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for beaver in submersion sets and for restraining or submersion sets for river otter.

Padded Jaws

Average Mechanical Description and Attributes
Inside jaw spread (at dog): 3 3/8 inches
Inner width: 3 1/4 inches
Inside width at jaw hinge posts: 3 5/8 inches
Jaw width: 5/8 inch
Jaw thickness: 3/8 inch
Length of main trap springs: 5 inches
Thickness of main trap springs: 1/16 inch
Width of main trap springs: 1 1/4 inches narrowing to 5/8 inch
Base plate: Not reinforced
Pan stop: No

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Woodstream Oneida Victor™ No. 11 double-longspring trap, padded.

Additional Information

- For use in submersion sets only.
- Chain attachment used in trap testing: 18 inch corner-mounted, and anchored with a stake. When using submersion sets, chain length should be short enough to prevent captured animals from resurfacing.
- Selectivity features: Pan tension was loosened so that the pan moved freely, and was checked and readjusted as needed after every capture.

Double Jaws (Figure MK8)

Average Mechanical Description and Attributes

Inside jaw spread (at dog): 3 7/8 inches
Inner width: 3 1/8 inches
Inside width at jaw hinge posts: 3 7/16 inches
Jaw width: 1/2 inch
Jaw thickness: 1/8 inch
Length of main trap springs: 4 3/8 inches
Thickness of main trap springs: 1/16 inch
Width of main trap springs: 1 1/2 inches narrowing to 5/8 inch
Base plate: Not reinforced
Pan stop: Yes

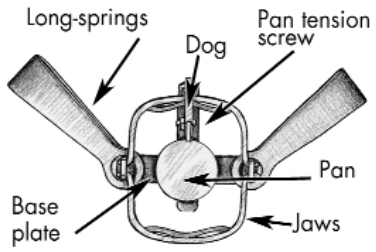

Figure MK8. Double-longspring trap with double-jaw

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Sleepy Creek No. 11 double-longspring, double-jaw trap.

Additional Information

- For use in submersion sets only.
- Chain attachment used in trap testing: 12 inch center-mounted with three swivels, one in-line shock spring, and anchored with a stake. When using submersion sets, chain length should be short enough to prevent captured animals from resurfacing.
- Selectivity features: Brass pan tension machine screw; pan tension was set so two pounds of pressure triggered the trap, and was checked and readjusted as needed after every capture.
- Special considerations for practicality: This device also meets BMP criteria for restraining and submersion sets for river otter, and submersion sets for mink, beaver and nutria.

Most bodygrip traps approved in this BMP were tested via computer simulation modeling relative to animal welfare performance. As a result, trap anchoring information does not exist for these traps. However, bodygrip traps should always be securely anchored. Anchoring information is provided on specific traps that were field tested.

Figure MK9a. Bélisle™ Super X bodygrip (set)

Figure MK9b. B.M.I™ 120 bodygrip trap

Bodygrip Traps (Figures MK9a, MK9b, MK9c, MK9d, MK9e and MK9f)

Average Mechanical Description and Attributes

Height of trap window: 4 7/8 inches
Width of trap window: 4 5/8 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: None, but does have a magnum bend which eliminates the gab between the jaws when the trap is closed.
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Belisle™ Super X 120 bodygrip trap.

Additional Information

- Safety considerations: Use of setting tongs and safety gripper is recommended.
- Special considerations for practicality: This trap also meets BMP criteria for marten and fisher.

Average Mechanical Description and Attributes

Height of trap window: 4 5/8 inches
Width of trap window: 4 3/4 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: None
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the B.M.I™ 120 bodygrip trap.

Additional Information

- Safety considerations: Use of setting tongs and safety gripper is recommended.

Average Mechanical Description and Attributes

Height of trap window: 4 5/8 inches
Width of trap window: 4 3/4 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: None, but does have a magnum bend
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the B.M.I™ 120 Magnum body-grip trap.

Additional Information

- Safety considerations: Use of setting tongs and safety gripper is recommended.

Average Mechanical Description and Attributes

Height of trap window: 4 3/4 inches
Width of trap window: 4 3/4 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: None, but does have a magnum bend which eliminates the gap between the jaws when the trap is closed.
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the B.M.I.™ 126 Magnum body-grip trap.

Additional Information

- Safety considerations: Use of setting tongs and safety gripper is recommended.
- Special considerations for practicality: This device also meets BMP criteria for marten.

Average Mechanical Description and Attributes

Height of trap window: 4 1/2 inches
Width of trap window: 4 1/2 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: None
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Bridger™ 120 bodygrip trap.

Additional Information

- Safety considerations: Use of setting tongs and safety gripper is recommended.

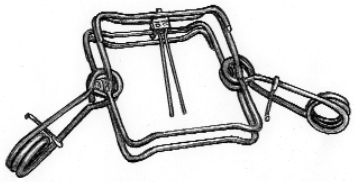

Figure MK9c. LDL™ bodygrip trap with additional clamping bar (set)

Average Mechanical Description and Attributes
Height of trap window: 4 1/2 inches
Width of trap window: 4 1/2 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: None
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see "Criteria for Evaluation of Trapping Devices": Introduction pp. 4-6) needs to be considered as well. The trap tested was the Duke™ 120.

Additional Information
- Safety considerations: Use of setting tongs and safety gripper is recommended.

Average Mechanical Description and Attributes
Height of trap window: 4 13/16 inches
Width of trap window: 4 3/4 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: Yes
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the LDL™ B 120 Magnum bodygrip trap.

Additional Information
- Safety considerations: Use of setting tongs and safety gripper is recommended.
- Special considerations for practicality: This device also meets BMP criteria for marten.

Average Mechanical Description and Attributes
Height of trap window: 4 1/4 inches
Width of trap window: 4 1/4 inches
Diameter of frame wire: 1/4 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: Yes
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Rudy™ 120 Magnum bodygrip trap.

Additional Information
- Safety considerations: Use of setting tongs and safety gripper is recommended.
- Special considerations for practicality: This device also meets BMP criteria for marten and fisher.

Average Mechanical Description and Attributes
Height of trap window: 4 1/2 inches
Width of trap window: 4 1/2 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 1/4 inch
Additional clamping bar: Yes
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Sauvageau™ C120 bodygrip trap.

Additional Information
- Safety considerations: Use of setting tongs and safety gripper is recommended.

Figure MK9d. Sauvageau™ bodygrip trap with additional clamping bar (set)

Average Mechanical Description and Attributes

Height of trap window: 5 inches
Width of trap window: 4 1/2 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 1/4 inch
Additional clamping bar: Yes
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Sauvageau™ C 120 Magnum bodygrip trap.

Additional Information

- Safety considerations: Use of setting tongs and safety gripper is recommended.
- Special considerations for practicality: This trap also meets BMP criteria for marten.

Average Mechanical Description and Attributes

Height of trap window: 5 inches
Width of trap window: 4 1/2 inches
Diameter of frame wire: 1/4 inch
Diameter of spring wire: 1/4 inch
Additional clamping bar: Yes
Safety features: Spring latches

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Sauvageau™ 2001-5 bodygrip trap.

Additional Information

- Safety considerations: Use of setting tongs and safety gripper is recommended.
- Special considerations for practicality: This trap also meets BMP criteria for marten and fisher.

Average Mechanical Description and Attributes
Height of trap window: 4 5/8 inches
Width of trap window: 4 3/4 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: None
Safety features: None

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Woodstream Oneida Victor 110 Conibear™ bodygrip trap.

Additional Information
- Chain attachment used in trapping: 18 inch, anchored with a stake.

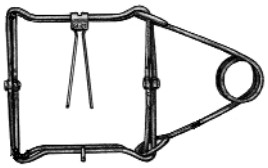

Figure MK9e. Woodstream Oneida Victor 110 Conibear™, bodygrip trap (open)

Average Mechanical Description and Attributes
Height of trap window: 4 5/8 inches
Width of trap window: 4 3/4 inches
Diameter of frame wire: 3/16 inch
Diameter of spring wire: 3/16 inch
Additional clamping bar: None
Safety features: Safety latches on springs

Any trap that has similar specifications may be considered a BMP trap regardless of brand or source of modification, although performance information on all other BMP criteria (see Introduction: "Criteria for Evaluation of Trapping Devices" pages 4-6) needs to be considered as well. The trap tested was the Woodstream Oneida Victor 120 Conibear™ bodygrip trap.

Additional Information
- Safety considerations: Use of setting tongs and safety gripper is recommended.

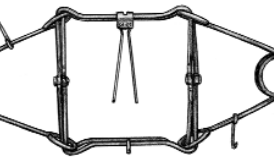

Figure MK9f. Woodstream Oneida Victor 120 Conibear™, bodygrip trap (open)