Best Management Practices

Trapping Arctic Fox in the United States

Updated 2020

ASSOCIATION of FISH & WILDLIFE AGENCIES

Figure AF1. Arctic fox (*Alopex lagopus*)

Best Management Practices (BMP) are carefully researched recommendations designed to address animal welfare and increase trappers' efficiency and selectivity. Extensive research and field-testing used to develop BMPs are described in the Introduction of this manual. Evaluation methods used to develop BMPs have been standardized, enabling BMPs 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 based on varying circumstances in the field. They are meant to provide information for trappers that can be voluntarily implemented, and do not present a single choice that can or must be applied in all cases. BMPs are the product of on-going work that may be updated as additional traps are identified through future scientific testing.

The Arctic Fox at a Glance

Characteristics

The arctic fox (Figure AF1; shown in blue-phase) is a member of the Canidae (dog) family. Adults range in weight from 6.5-17 pounds, with an average length of 32-41 inches from tip of nose to tip of tail. The arctic fox has a bushy tail, short rounded ears, a short muzzle and heavily furred foot pads; all adaptations to the extremely cold climate where it makes its home. There are two very distinct color phases of the arctic fox, white and blue. Color phase is genetically determined and although both color phases are present in most populations, the proportion of white-phased and blue-phased fox varies widely from one geographic area to another. Winter pelage of white-phase arctic fox is snow white, except for some black-tipped guard hairs. Summer pelage (March-July) is two-toned and generally dark brown to gray on the head, back, tail, shoulders, and legs, and light blonde on the chest, sides, and belly. Winter pelage of the blue-phase arctic fox ranges from a light slate-gray to dark blue-black and summer pelage is a uniform dark blue-black. Various color-phases and seasonal pelage changes provide excellent camouflage and allow the arctic fox to blend in with its changing environment. The scientific name of the arctic fox, *Alopex lagopus*, is derived from the Greek language meaning "hare-footed fox", which refers to the dense hair found on the feet during winter, similar to that of a hare's foot.

Range

Within the United States, arctic fox are found only in portions of Alaska. On the Alaskan mainland, arctic fox are commonly found in coastal regions north of the Kuskokwim River delta, the entire region north of the Brooks Range and the arctic coastal plain. During the 19th and early 20th century, fur trappers introduced blue-phase arctic fox to many of the islands in the Aleutian archipelago, and possibly the Pribilof Islands, where the fox persists to this day.

Habitat

Arctic fox habitat can be broadly categorized as coastal or inland. Coastal habitat includes beaches, intertidal zones, and rocky outcrops. Coastal areas, including islands, provide abundant and diverse food resources for fox. Inland habitats occur in continental areas or the interior of large islands. The inland habitats commonly used by arctic fox are typically classified as tundra; areas with consistent permafrost below the shallow soils and often vegetated with low-growing shrubs, herbs, and grasses. During winter, arctic fox in coastal areas often spend time traveling and foraging on pack ice. Arctic fox are not generally common in the adjacent boreal forest areas except during times of food shortage in tundra regions. They can also be found near villages and other human habitations where they are attracted by anthropogenic food sources.

Food Habits

Arctic fox are omnivores. Although they are a top predator in the arctic region, they will scavenge and eat vegetation, opportunistically feeding on anything that is available. Lemmings are one of their preferred dietary items in areas where they are available. Arctic fox occupying tundra habitats feed primarily on small mammals (lemmings, ground squirrels and hares) and birds. Caribou carcasses are also an extremely important winter food source for tundra fox. Those occupying coastal/island habitats feed heavily on nesting seabirds and eggs in summer, and often cache these prey items for feeding later in the summer and early winter. Arctic fox in these maritime habitats also forage along beaches for marine invertebrates and carrion. In areas where arctic fox roam the sea ice, marine mammals are the most important source of food. Scavenging seal carcasses killed by polar bears has been widely documented, and it is likely that arctic fox follow polar bears to scavenge kills. In areas inhabited by humans, arctic fox commonly utilize refuse as an additional food resource.

Reproduction

Breeding season occurs from February through April, with the peak of breeding occurring during March and April. Gestation lasts approximately 52 days. Arctic fox are morphologically adapted to produce larger litters than other fox; they have more teats (12-14) than other North American fox (8). Litter size and pup survival can vary widely based on annual fluctuations in food abundance. Average litter size is generally 3-6 in coastal areas and 6-9 in inland areas. Arctic fox typically begin breeding at 2-3 years of age. Pups are born in dens which may be dug below ground. Natal dens are used year after year, with some having been in use for over 300 years. Young fox emerge from the den at 2-4 weeks of age. Parents abandon the natal den site between mid-August and late September, after which the young are on their own.

Populations

Arctic fox populations are subject to great fluctuations, primarily as a result of variability in abundance of small rodents or other primary food sources. Cycles in the arctic fox population occur at approximately 4-year intervals, consistent with cycles in many of their common rodent prey. Long-term, arctic fox populations have been stable and their primary threat is impacts from human encroachment (oil field development and associated activities) into arctic fox habitat. Development can result in a direct loss of habitat, but can also cause fox to congregate around human facilities to feed on refuse. These localized concentrations of fox can create conflicts and increase the potential for disease epidemics. It remains unclear how habitat alterations from climate change may impact coastal populations of arctic fox, but many projections suggest they will be negatively impacted by loss of pack ice for winter hunting, potential declines in tundra rodent populations, and encroachment of boreal forest and red fox.

Arctic fox were once used extensively for food and fur by Aboriginal peoples and were the most important species in the arctic fur trade until the mid-1930s. They remain an important species in the northern fur trade today, but not as significant as before.

Arctic fox historically transplanted to the Aleutian and Pribilof Islands have had a detrimental effect on nesting birds, nearly eliminating nesting birds on some of the smaller islands and negatively impacting sea otter populations. Aggressive programs to control island populations of arctic fox, and to control their numbers in areas where endangered seabirds nest have been undertaken since the 1950s. These programs have had some success and continue today.

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

Two types of traps were tested for arctic fox: foothold restraining traps, and a cage trap. Dimensional overviews (Tables AF1 and AF2) brief descriptions, and mechanical details of various devices are presented below.

Table AF1. Dimensional overview of foothold traps meeting BMP criteria for arctic fox in the United States.

Trap Category	Jaw/Frame Characteristics	Inside Jaw/Frame Spread at Dog*	Inside Width at Jaw/ Frame Hinge Posts*
Coil-spring	Padded	$3\frac{3}{16}$ - $4\frac{1}{2}$	$3\frac{7}{16}$ - 5

Table AF2. Dimensional overview of a cage trap meeting BMP criteria for arctic fox in the United States.

Trap Category	Total Dimensions* Length x Width x Height	Door Size* Width x Height	Mesh Size*/Gauge
Cage	32 x 10 x 12	10 x 12	1 x 2/12 gauge galvanized

* Inches

General Considerations When Trapping Arctic Fox

Foothold Traps

- Captures and holds animals alive, allowing for release.
- Can be used to capture several furbearer species.

Cage Traps

- Bulky;
- Can be used to capture several furbearer species;
- Generally require bait;
- Capture and hold animals alive, allowing for release.

Specifications of Traps Meeting BMP Criteria for Arctic Fox 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 AF2). 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 informational purposes only, and does not imply an endorsement of any manufacturer.

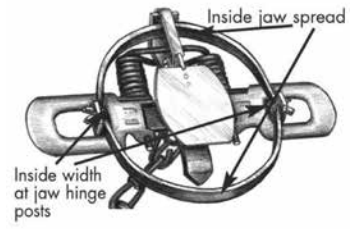

Figure AF2.

Average mechanical measurements are rounded to the nearest $^{1}/_{16}$ inch. There may be up to $^{1}/_{8}$ inch variation in specifications on the part of the manufacturer. Manufacturers use recognizable names, such as "No. 1" 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.

Padded Jaws

Average Mechanical Description and Attributes of the Woodstream™ Victor No. 1 Softcatch™ (Figures AF3a and AF3b)


Figure AF3a.

Inside jaw spread (at dog): $3\,^{5}/_{16}$ inches
Inner width: $3\,^{3}/_{16}$ inches
Inside width at jaw hinge posts: $3\,^{7}/_{16}$ inches
Jaw width: $^{9}/_{16}$ inch padded jaw
Jaw thickness: $^{1}/_{4}$ inch padded jaw
Main trap springs: Two 0.084 inch diameter wire coil-springs
Base plate: Not reinforced
Padding: Manufacturer-supplied rubber pads


Figure AF3b.

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 pages 4-6) needs to be considered as well. The trap tested was the Woodstream™ Victor No. 1 Softcatch™ coil-spring.

Additional information:

- Chain attachment used in trap testing: 6 inch, center mounted with two swivels, one shock spring and anchored with a stake. When anchoring traps in extremely cold temperatures in frozen ground, methods other than driving stakes into the frozen ground to anchor traps may be more appropriate.
- 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: Some damage to trap pads should be expected and will require occasional replacement as a normal part of trap maintenance and upkeep. Special care should be taken to prevent odor contamination of the rubber jaws. Avoid using petroleum-based dye directly on the rubber pads. This device also meets BMP criteria for use in submersion sets for muskrat and mink; nutria on land or in submersion sets; and gray fox.

Figure AF4a.

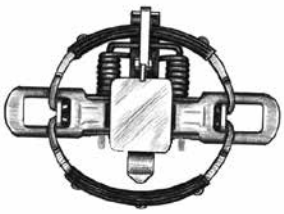

Figure AF4b.

Figure AF5.

Average Mechanical Description and Attributes of the Woodstream™ Victor No. 1½ Softcatch™ (Figures AF4a and AF4b)

Inside jaw spread (at dog): 4½ inches
Inner width: $4^{7}/_{8}$ inches
Inside width at jaw hinge posts: $4^{7}/_{16}$ inches
Jaw width: $^{9}/_{16}$ inch padded jaw
Jaw thickness: $^{3}/_{8}$ inch
Main trap springs: Two 0.135 inch diameter wire coil-springs
Base plate: Not reinforced
Padding: Manufacturer supplied rubber pads

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 pages 4-6) needs to be considered as well. The trap tested was the Woodstream™ Victor No. 1½ Softcatch™ coil-spring, with 0.135 inch diameter wire coil-springs.

Additional information:

- Chain attachment used in trap testing: 6 inch, center mounted with three swivels, one shock spring and anchored with a stake. When anchoring traps in extremely cold temperatures in frozen ground, methods other than driving stakes into the frozen ground to anchor traps may be more appropriate.
- 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: Some damage to trap pads should be expected and will require occasional replacement as a normal part of trap maintenance and upkeep. Special care should be taken to prevent odor contamination of the rubber jaws. Avoid using petroleum-based dye directly on the rubber pads. This device also meets BMP criteria for gray fox, red fox, opossum, raccoon; muskrat and mink only in submersion sets; nutria on land or in submersion sets

Cage Traps

Average Mechanical Description and Attributes the Tomahawk™ Cage Trap, No. 207 (Figure AF5).

Cage material, and mesh size: 12 gauge galvanized steel wire mesh, 1 x 2 inches
Cage size (length x width x height): 32 x 10 x 12 inches
Door size (width x height): 10 x 12 inches
Weight: 10 pounds
Collapsed size (if applicable): 32 x ½ x 24
Door closure: Spring operated

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 pages 4-6) needs to be considered as well. The trap tested was the Tomahawk™ Cage Trap, No. 207.

Additional Information:

- Selectivity features: Limited opening size and length precludes large animals.
- Special considerations for practicality: Versatile set options (baited sets; blind sets only with double doors); can be used for multiple furbearer species in same sets; large and easily seen (difficult to conceal completely); bulky- requires space for transport and storage; easy to operate—requires less training to become proficient than most other trap types; can be used to transport captured animals (where legal to do so); captured animals are easily released; continues to operate in freezing weather conditions. This device also meets BMP criteria for fisher, raccoon, gray fox and opossum.