Acknowledgments

We thank D. Stradley for his efforts to locate radio-monitored bears from the air during the fires, Steve and Marilynn French for their ground observations, and D. Cole, C. Servheen, and two anonymous reviewers for critically reading this manuscript.

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Received 10 April 1989
Accepted 10 March 1990

A Comparison of the Efficacy of Two Types of Live Traps for Capturing Muskrats, *Ondatra zibethicus*

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Lacki, Michael J., William T. Peneston, and F. Daniel Vogt. 1990. A comparison of the efficacy of two types of live traps for capturing Muskrats, *Ondatra zibethicus*. Canadian Field-Naturalist 104(4): 594–596.

The efficacy of double-door Havahart and Tomahawk live traps to capture Muskrats (*Ondatra zibethicus*) was studied in three sites in Clinton County, New York, from June through August, 1986. Adult ($P < 0.01$) and juvenile ($P < 0.05$) Muskrats were captured more frequently in significantly greater numbers with Tomahawk than Havahart traps. Recapture rates were lower for juveniles than for adults and were then trap-dependent, with lower recapture rates for Havahart than Tomahawk traps.

Key Words: Capture rate, live traps, age ratios, Muskrats, *Ondatra zibethicus*.

Selection of trap type for use in studying rodent populations must consider the efficiency of the trap in capturing the species studied, and individuals of different ages, and sexes in proportion to their availability. Variation in capture success of small rodents (< 300 g) has been demonstrated for Longworth traps (Grant 1970; Boonstra and Krebs 1978; Boonstra and Rodd 1982), between old and new model snap traps (West 1985), and among pitfall, snap traps and Sherman live traps (Williams and Braun 1983). Comparisons of the effectiveness of commercially available live traps for sampling larger rodents (> 300 g) have not been made. However, Parker and Maxwell (1980) suggested that the Tomahawk trap was superior to the Havahart trap when trapping Muskrats, and earlier studies by Takos (1943) and Aldous (1946) also suggested differential success at capturing Muskrats, but in all cases no data were provided. We tested and compared the success of Havahart (Woodstream Corp., Lititz, Pennsylvania) and Tomahawk (Tomahawk Live Trap Co., Tomahawk, Wisconsin) live traps for capturing Muskrats (*Ondatra zibethicus*) of different sex and age categories.

Havahart (18.5 × 18.5 × 62.5 cm) and Tomahawk (16.5 × 16.5 × 61.5 cm) live traps with two doors, one at each end, were set at 3 sites from 3 June to 22 August, 1986. Two sites were located along the Little Chazy River, Clinton County, New York (44°51′N; 73°35′W) on the William H. Miner Institute Estate. These sites were created by water back flows from a series of dams along the river, but had a steady and noticeable movement of water through the emergent vegetation. Water levels at these sites fluctuated slightly (< 10 cm) during trapping. The dominant emergent vegetation was

TABLE 1. Total captures of Muskrats with Havahart and Tomahawk live traps, from June to August 1986. Number of individual Muskrats captured are in parentheses.

Trap type	Trap nights	Adults			
		Males	Females	Juveniles	Combined
Havahart	515	0	0	16(14)	16
Tomahawk	583	11(8)	15(9)	34(28)	60

sedges (*Carex* spp.) and Burreed (*Sparganium eurycarpum*). The third trap site was a fen at the south inlet of Upper Chateaugay Lake, Clinton County, New York (44°42′N: 73°35′W). The south inlet was subject to greater water level fluctuation (20.5 cm) than the other sites, with the change being due primarily to a steady decline in water level thoughout the summer. Cattail (*Typha latifolia*) was the dominant emergent plant species. Surface water movement was not evident in the trapping area at the fen.

Bait was not used in the traps because food items and artificial lures may vary in their ability to attract individuals of different age and sex classes and could confound the design of our experiment. Traps were set deliberately in travel lanes and at other points of high Muskrat activity to improve capture success, as a grid placement approach during the previous summer proved inefficient. Both trap types were distributed throughout each locality and among all signs of Muskrat activity equally to avoid bias due to trap placement. Traps were set between 1100 and 1400 hours and sprung the following day between 0800 and 1100 hours. On a particular night, traps were opened either at the William H. Miner Institute or the south inlet, but never at both locations simultaneously. Trapping was conducted on 31 nights for a total of 1098 trap nights. Thirty-three Havahart and 39 Tomahawk traps were used during the study. Each animal was tagged with two numbered, metal ear tags. Prior to release, each animal was weighed, aged and sexed according to the methods of Baumgartner and Bellrose (1943).

Trap success was evaluated using the Z statistic, test for two proportions (Dunn 1964). Data for adults and juveniles were analyzed separately, with capture frequencies adjusted to account for traps rendered unavailable due to the capture of individuals from the other age class. Sexes were combined for analysis. Tests of trap success were based on all animals captured, including recaptures.

Our overall capture rate was 1 Muskrat/14.4 trap nights. Capture success of the two types of traps were significantly different. Tomahawk traps captured both adult ($Z = 4.90$, $P < 0.01$) and juvenile ($Z = 2.31$, $P < 0.05$) Muskrats in greater numbers and higher frequencies than did Havahart

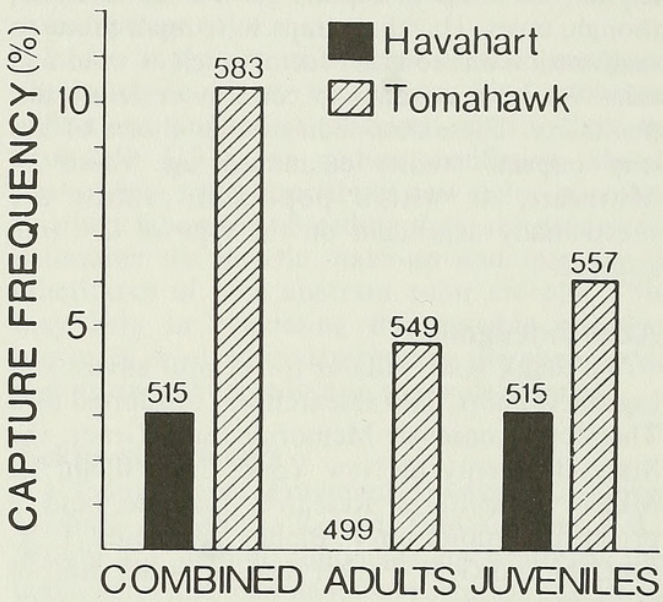

FIGURE 1. Frequency of capture of adult and juvenile Muskrats with Havahart and Tomahawk live traps, from June to August 1986. The number above each bar represents the number of trap nights.

traps (Table 1; Figure 1), thus rejecting the null hypothesis that both trap types are equally successful at capturing Muskrats. No adult Muskrats were captured with Havahart traps. Rates of recapture with Tomahawk traps, scaled against all individuals captured at least once in an age class, were lower for juveniles (14.3%) than adults (41.2%). The recapture rate of juveniles with Havahart traps was even lower (4.8%), reflecting the overall poor performance of this trap type. The low juvenile recapture rates were probably due in part to juveniles being transient, contrary to adults which tend to be territorial (Errington 1961). Parker and Maxwell (1980) found that capture success improved after switching from Havahart to Tomahawk live traps during a spring trapping season. However, this improved trap success may have been due to seasonal increases in Muskrat activity or increased Muskrat density from spring litters.

The difference in performance of the two types of traps may be due to the triggering mechanism. Boonstra and Rodd (1982) demonstrated that Longworth live traps were less efficient at capturing large Meadow Voles (*Microtus pennsylvanicus*) than smaller individuals in the same population.

Longworth traps operate on a gravity drop-door system as do Havahart traps, whereas Tomahawk traps operate by a spring-loaded door system. Boonstra and Rodd (1982) attributed the large number of empty, sprung traps to larger animals that were able to back out. The difference in trap success that we observed for adult muskrats may indicate a similar trap response, as Havahart traps were often found sprung and empty. This would not explain the different capture success for juveniles, though, unless Havahart traps were more prone to malfunction due to other factors such as wind and rain. We have no data to confirm or refute this possibility. These data indicate that choice of live trap impacts studies examining age ratios of Muskrats, as within population ratios are substantially dependent on the type of live trap selected.

Acknowledgments

We thank K. B. Adams for helpful advice and logistic support. This research was supported by a Theodore Roosevelt Memorial Fund Grant, the State University of New York, the William H. Miner Agricultural Research Institute, and a private donation from P. Blahey and family. T. R. McCabe and G. R. Parker read an earlier draft of the manuscript.

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Received 20 February 1989
Accepted 15 March 1990

"Blond" Color Morph of Meadow Voles, *Microtus pennsylvanicus*, from Massachusetts

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Holt, Denver W. 1990. "Blond" color morph of Meadow Voles, *Microtus pennsylvanicus*, from Massachusetts. Canadian Field-Naturalist 104(4): 596–597.

"Blond" color morphs of Meadow Voles were discovered on a Massachusetts island in conjunction with Short-eared Owl research. This is the only island in eastern North America where this color morph has been found to date.

Key Words: Meadow Vole, *Microtus pennsylvanicus*, blond morph, island.

The pelage in the genus *Microtus* varies from pale yellow to dark brown or black because of differences in the width of the subapical band of yellow pigment on black hairs, and the total number of completely black hairs (Gaines 1985). Variation in the pelage color of *Microtus pennsylvanicus* has been reported (Gaines 1985: 847-848, Table 1).

I analyzed Short-eared Owl (*Asio flammeus*) pellets collected on Monomoy National Wildlife Refuge (41° 38′ N, 60° 58′ W), from 1982-1987. Monomoy is an island off the "elbow" of Cape Cod, Chatham, Massachusetts. Because of Monomoy's location, it is subject to dramatic erosion and deposition and continuously changes configuration. It cur-