Michigan Department of Natural Resources
Wildlife Division Report Number 3219

DNR

Simulated Howling Confirms Resident Wolves on Northern Michigan Islands

By:

David J. Wilson

Lake Superior State University

and

Gregory J. Soulliere

DNR Wildlife Division

December 1994

Printed by Authority of: PA 86 of 1980.
Total Number of Copies Printed: 200
Cost Per Copy: $0.269
Total Cost: $53.92
Michigan Department of Natural Resources DNR

SIMULATED HOWLING CONFIRMS RESIDENT WOLVES ON NORTHERN MICHIGAN ISLANDS

by

David J. Wilson
Lake Superior State University
MDNR Intern

and

Gregory J. Soulliere[1]
Michigan Department of Natural Resources
Wildlife Division

December 1994

WILDLIFE DIVISION REPORT NO. 3219

The timber wolf (*Canis lupus*) population in Michigan rebounded from near extinction to at least 57 animals in 1994 (J. H. Hammill, unpubl. data, Mich. Dept. Nat. Resources, Crystal Falls). Wolves recolonized the Upper Peninsula (U.P.) from Wisconsin, Minnesota, and Ontario, Canada. Ontario wolves migrate west into Michigan's Chippewa County, crossing the frozen St. Mary's River during winter. Large islands within the St. Mary's River, including Sugar, Neebish, and Drummond Islands, serve as travel corridors for transient wolves (Fig. 1). Evidence of wolves in the Lower Peninsula has not been recorded in recent decades.

During the winter of 1990-91, the Michigan Department of Natural Resources (MDNR) began conducting winter track surveys to determine the population status of wolves in the U.P. The first survey found 17 animals, 4 of which were located on Sugar, Neebish, and Drummond Islands. Subsequent surveys produced evidence of an increasing population with minimums of 21, 30, and 57 animals across the U.P. in 1992, 1993, and 1994, respectively (J. H. Hammill, MDNR, unpubl. data). During this same time frame, the estimated winter population of wolves using the islands fluctuated between 4 and 9 while evidence of 2 to 5 additional animals was documented on the adjacent mainland. Between 17 - 45% of all Michigan wolves recorded during 1991-1994 winter track surveys were located in eastern Chippewa County,

---

[1]For more information, contact Gregory J. Soulliere at Box 798, Sault Ste. Marie, MI 49783.

reflecting the importance of the St. Mary's River immigration route to Michigan wolf recolonization.

In addition to providing winter travel corridors, Sugar, Neebish, and Drummond Islands have supported resident wolves during the summer. One wolf was shot by a Neebish Island rancher in August 1990, and wolf sightings have been reported by human residents on all three islands between 1991 and 1994 (G. J. Soulliere, MDNR, unpubl. data). However, knowledge of summer population levels is lacking.

Wolf population estimates are important for management of wolves and perhaps their primary prey, white-tailed deer (*Odocoileus virginianus*) and beaver (*Castor canadensis*) (Recovery Plan for the Eastern Timber Wolf 1992). Spontaneous and induced howling surveys have been used to inventory wolves near traditional summer homesites on Isle Royale (Peterson and Page 1988). Summer howling surveys are especially useful for locating packs in small study areas (Fuller and Sampson 1988) and for determining wolf reproduction as indicated by howling pups. Pup howls are higher pitched and usually occur after an adult howl (J. H. Hammill, MDNR, unpubl. data). The goal of this study was to use simulated howling to determine summer populations and reproductive status of wolves on Sugar, Neebish, and Drummond Islands.

Acknowledgments -- J. H. Hammill, P. W. Brown, and J. H. Roese helped design the survey and T. R. Minzey, M. R. Wasilco, and T. F. Weise reviewed drafts of the manuscript. L. G. Sargent created figures. T. E. Maples and J. W. Gregg assisted in the field.

Study Area and Methods

Sugar, Neebish, and Drummond Islands lie in the St. Mary's River and are 72 km² (45 mi²), 37 km² (23 mi²), and 218 km² (136 mi²) in size, respectively (Fig. 1). The islands are primarily wooded with a mixture of upland hardwood and coniferous forests. Each island has a limited amount of agricultural use, including livestock, pasture, and hay fields. Because the St. Mary's River freezes over each winter, wolves can move freely between Ontario and Michigan.

We surveyed each island for wolf presence once in July and again in August. Road/trail systems were scouted before the survey to determine likely howling-stop locations. These stops were about 3 km (2 miles) apart (Harrington and Mech 1982) and located on "high ground" when possible. Human homesteads and other areas with potential noise interference such as creeks were avoided. Surveying began one hour after sunset and was completed before first light the next day. The survey was terminated when

wind velocity exceeded 12 km/hr (7 mi/hr) or in the event of rain (Harrington and Mech 1982). We used 4-wheel drive trucks and an off-road-vehicle (ORV) to reach howling stops.

At each stop the "howler" moved >10 m (33 feet) from the vehicle, waited one minute, and simulated wolf vocalizations using a series of 3 howls with a 10 second break between each howl. The howler then listened two minutes for a response. If no response occurred, the sequence was repeated. When a wolf responded, another howling series was completed to stimulate howling from additional wolves.

Results

Sugar and Neebish Islands were each surveyed in one night by a single person. The larger Drummond Island required two "howling parties" working different halves of the island to complete the survey in one night. On all survey nights skies were clear, winds <8 km/hr (5 mi/hr), and the temperature ranged from 10 - 12 °C (50 - 53 °F).

Two wolves responded to simulated howling on Sugar Island (Fig. 2) during the July survey. One howled while the other "yapped" for a period of 20 seconds. The howling sequence may have been disrupted, as howling stopped after a vehicle traveled between the surveyor and the wolves. Two wolves in the same vicinity were recorded an hour later in the survey. This time both individuals howled and the duration was 30 seconds. We suspect these responses were from the same 2 animals and both were adults. No wolves were heard howling during the August survey on Sugar Island (Table 1).

One wolf responded to simulated howling on Neebish Island (Fig. 2) during July. The response consisted of a series of 8 long howls, mixed with shorter "barking", and finished with yapping over a period of 25 seconds. We believe the same wolf responded 2 hours later with a howling series which lasted 40 seconds. This adult wolf apparently moved about 2 km (1 mile) west during the period of time between induced howls at these 2 locations (Fig. 2). No wolves were heard during the August survey of Neebish Island (Table 1).

Although no wolves were heard during the July survey of Drummond Island, 3 individuals responded during August (Fig. 2, Table 1). Their howls were adult-like, including 7 - 9 long howls per animal. Initially one animal responded to the howler. When the surveyor returned a howl, 2 additional wolves joined the chorus which lasted a total of 50 seconds.

Discussion

Wolves responded to simulated howling on Sugar, Neebish, and Drummond Islands. We are unsure why wolves did not respond during both July and August, but poor response to simulated howling may be a limitation to this survey technique (Crete and Messier 1987). Apparently single wolves and small packs can be intimidated by nearby loud howls and often retreat silently rather than respond (Harrington and Mech 1979).

Although a female wolf on Drummond Island was in estrous during January 1994 (MDNR, unpubl. data), we did not detect any high-pitched wolf pup howls associated with responding adults on any of the islands surveyed. Pups may not respond as readily as adults to simulated howling (T. F. Weise, pers. communication, MDNR, Lansing) except at rendezvous sites (Harrington and Mech 1982). Due to a lack of information on rendezvous sites we were unable to target them for surveying.

Coyotes were heard on each of the islands, but never near wolf locations. Wolves and coyotes were easily distinguished. Wolf howls were much deeper and longer in duration than coyote vocalizations. In addition, wolf responses consistently resulted in the human howler's scalp to erect, plus various levels of emotion.

Results from the howling survey reflected findings from winter track counts conducted during recent years (Table 2). Summer locations were also <7 km (4 miles) from recorded winter locations (G. J. Soulliere, MDNR, unpubl. data). However, July and August howling survey results were inconsistent even on the relatively small Sugar and Neebish Islands. This leads us to believe that a howling survey may be useful to confirm wolves in specific areas, but logistically impractical as an annual inventory technique for larger areas.

Literature Cited

Crete, M. and F. Messier. 1987. Evaluation of indices of gray wolf, *Canis lupus*, density in hardwood-conifer forests of southwestern Quebec. Can. Field Nat. 101:147-152.

Fuller, T. K. and B. A. Sampson. 1988. Evaluation of a simulated howling survey for wolves. J. Wildl. Manage. 52:60-63.

Harrington, F. H. and L. D. Mech. 1979. Wolf howling and its role in territory maintenance. Behavior 68:207-249.

_____, and _____. 1982. An analysis of howling response parameters useful for wolf pack censusing. J. Wildl. Manage. 46:686-693.

Peterson, R. O. and R. E. Page. 1988. The rise and fall of Isle Royale wolves 1975-1986. J. Wildl. Manage. 69:89-99.

U. S. Fish and Wildlife Service. 1992. Recovery Plan for the Eastern Timber Wolf. Twin Cities, Minnesota. 73 pp.

Table 1. Number of wolves responding to simulated howling on large islands in the St. Mary's River, Eastern Upper Michigan, 1994.

Island name	Survey date	Start time (p.m.)	Stop time (a.m.)	Wolves howling	Response time	Response duration (seconds)
Sugar	16 July	10:45	4:45	2	12:40am,1:45am	20,30
	22 Aug	10:15	1:30	0		
Neebish	15 July	10:45	3:30	1	11:20pm,1:30am	25,40
	24 Aug	10:15	3:00	0		
Drummond	28 July	10:45	4:45	0		
	26 Aug	10:15	3:00	3	11:30pm	50
Total	11 July-26 Aug	10:15	4:45	6	11:30pm-1:45am	20-50

Table 2. Number of wolves detected during summer howling (1994) and winter track (1992-1994) surveys on large islands in Eastern Upper Michigan.[a]

Island name	Summer Survey		Winter Survey[b]	
	Date	Count	Date	Count
Sugar	16 July, 1994	2	4 March, 1992	3
	22 August, 1994	0	23 February, 1993	1
			26 January, 1994	2
Neebish	15 July, 1994	1	6 March, 1992	2
	24 August, 1994	0	24 February, 1993	0
Drummond	28 July, 1994	0	14 March, 1992	4
	26 August, 1994	3	5 March, 1993	1
			1 February, 1994	3

[a]Only primary survey dates listed. Not included are survey dates terminated because of weather (summer) or limited data collection (winter).

[b]Winter track-count surveys have been coordinated by J.H. Hammill (MDNR-Wildlife Division, Crystal Falls).

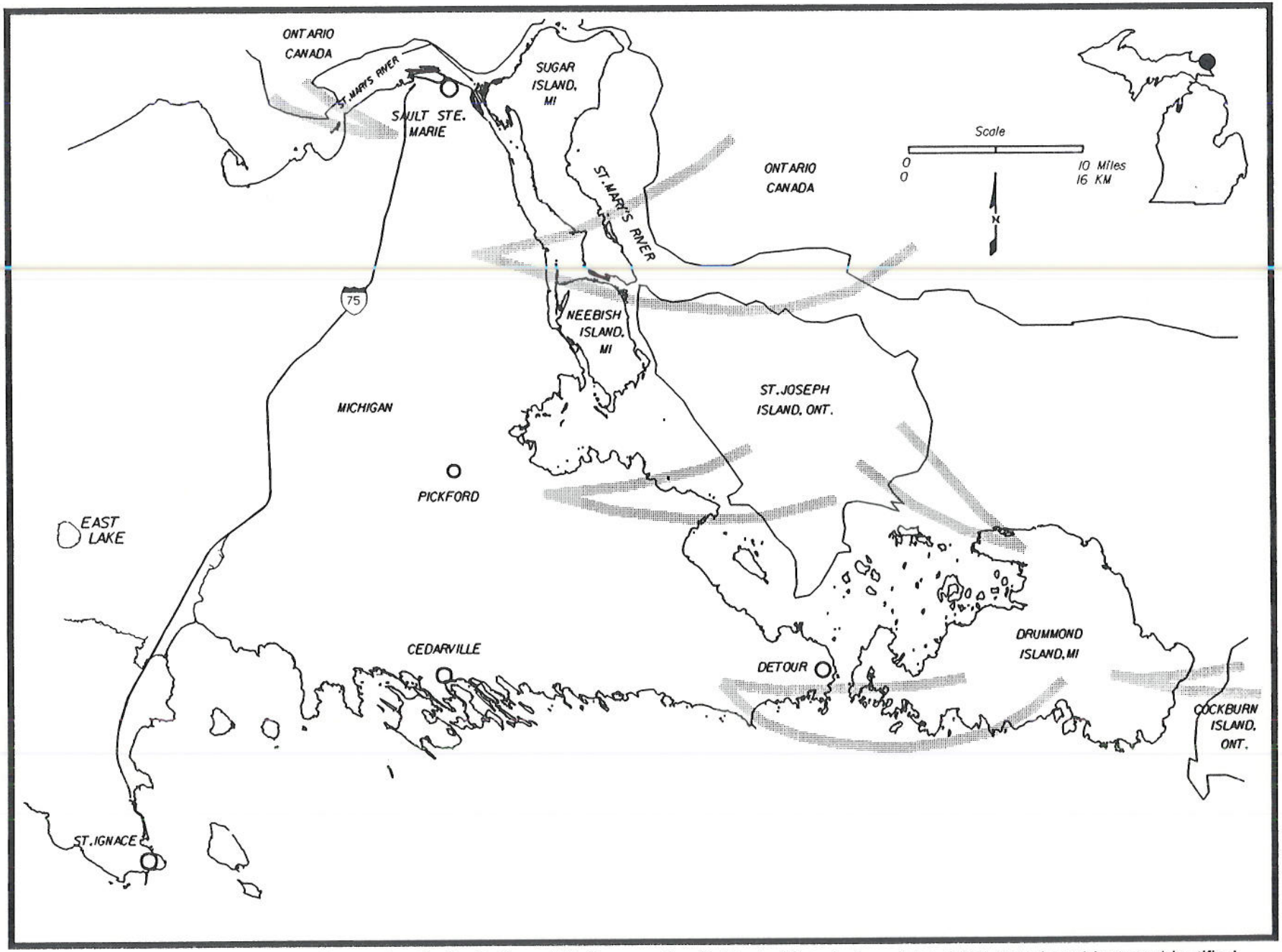

Figure 1. Ontario wolves move into Michigan using the ice bridge which forms on the St. Mary's River during winter. Likely travel corridors are identified.

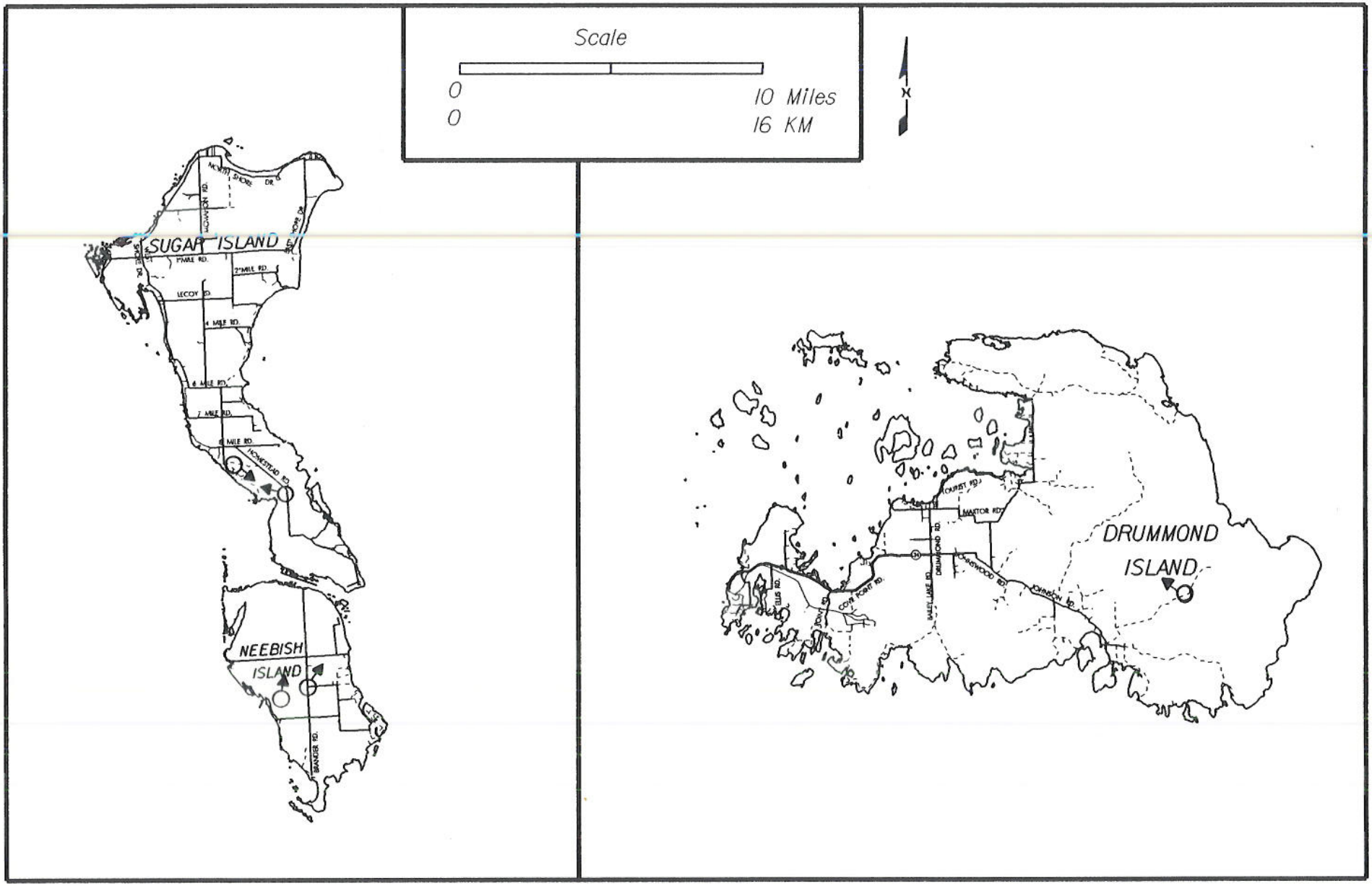

Figure 2. Sites where wolf responses were heard (circles) and direction of responses (arrows) during a survey using simulated howling to confirm wolves on Northern Michigan Islands, July and August 1994.