

Progress Report
Marten re-introduction to Terra Nova National Park

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Introduction

The American marten (*Marten Americana*) at one time occurred throughout the four Atlantic provinces, but its range has recently been restricted to northern New Brunswick, Labrador and a few locations in Nova Scotia and insular Newfoundland. It is considered extirpated from the fauna of six of seven National Parks of the Atlantic Region. In April 1980, Parks Canada Atlantic Region initiated a program to determine if habitat suitable for marten was present in Atlantic Region Parks National Parks, and to re-introduce marten to any Parks capable of supporting a population. Evaluation of available habitat in all Atlantic Region Parks resulted in recommendations for re-introduction of marten to Terra Nova and Fundy National Parks (Bateman, 1982a). Accidental catches of marten by trappers just outside Cape Breton Highlands National Park suggested that a small population of marten occurs in that Park.

Re-introduction of marten into range from which the species had been extirpated has been attempted in other areas of North America. As early as 1944, marten were released into vacant habitat in Montana. Marten were observed in the release area in 1949 (Thompson, 1949) but the re-introduction was later considered a failure (Schubach, 1977). Marten tracks were observed in Sibley Provincial Park in Ontario several years after the release of 18 animals in 1950 (de Vos, 1952). A release into the Liscomb Game Sanctuary in Nova Scotia in 1956 (Dodds and Martell, 1971) was apparently a failure.

Shubach (1977) reported that the releases at the Hiawatha National Forest and Porcupine Mountain State Park in Michigan were unsuccessful. Recent releases to the Nicolet National Forest, Wisconsin in 1975-76 (Davis, 1978) and to the upper peninsula of Michigan in 1978-80 (Churchill et al. 1981) require more time before success can be evaluated. Some of the animals released into Wisconsin and Michigan were maintained in cages at the release site for a few days. Davis (1978) presented evidence that marten released after several days at the site in holding pens moved less than those released immediately.

Four marten, 2 male and 2 female, were released at Dunphy's Pond in Terra Nova National Park in spring of 1982. The release procedure was similar to that in 1982 (Bateman, 1982). One male marten (ear tag #563,564) released in 1982 was caught in a rabbit snare at upper Gambo pond in late February 1983. This report presents results to date on the on-going Atlantic Regional marten program and includes details of the second release to Terra Nova National Park and monitored in the Park.

Description of Study Areas

Terra Nova National Park is at the South-Western end of Bonavista Bay on the east coast of Newfoundland (Figure 1). The Park has an area of 392 km² (158 sq. mi) of which 38 percent is mature, dense, predominantly coniferous forest . The most common conifer species in the park are black spruce and balsam fir. Also occurring in the Park are open black spruce forests and scrubs, white birch stands, bogs and barrens.

Mammals that are considered important prey for Newfoundland marten, snowshoe hare and meadow vole, were abundant and common, respectively, at the time of first marten release in 1982. Snowshoe hare was less abundant during the winter 1983-84 but tracks indicated that the vole was more numerous. The number of red squirrel in the Park continues to increase following establishment. Masked shrew and ruffed grouse are other potential marten prey occurring in the park. Other predators in the Park include lynx, mink, otter, red fox, and black bear.

Acknowledgement

Terra Nova National Park Wardens were responsible for maintenance of the re-located marten while they were held captive at the release site in Terra Nova National Park and for most of the monitoring of movements after release.

Methods

Live-trapping and Transportation

Marten were live-trapped along the Southwest Brook in western Newfoundland using Tomahawk-style live traps (23 * 23 * 80cm). Traps were set near the road at selected sites and covered with conifers branches and birch bark to protect trapped animals from precipitation. Sardines and meat scraps were used as bait. Traps were checked early each morning and trapped animals were moved to Abitibi-Price woods camp, immobilized with 0.1cc ketamine hydrochloride, given an intermuscular injection of 90 000 I.U. of penicillin, ear tagged, sexed and weighed. When each animal has completely recovered, it was placed in a plywood holding box and supplied with food and water. The animals were kept in an unheated room until they were transported to the park by truck.

Release

A “gentle release” was used to introduce the marten to Terra Nova National Park. The animals were maintained at the selected release site in individual cages set on post one meter above the ground. The cages were approximately 1.8m * 1.2 * 0.9m and made of wood –frame-wire construction. A 60cm * 30cm * 33cm plywood nest box was attached at the top of the cage.

Captive marten were given food at two day intervals. Water was available at least once daily during cold weather and at 11 times during warm weather. The marten were fed chicken, road killed moose, and canned cat food.

One or two days before release three of the marten were live-trapped in the cage, immobilized with 0.1cc ketamine hydrochloride, and fitted with a 40g radio collar (prepared by Canadian Wildlife Services bio- electronics section, Ottawa) . Each animal was given an intermuscular injection of penicillin and weighed while immobilized.

Each marten were allowed to move out of its pen at its own speed after the doors were fastened open. Chunks of chicken were deposited at the release site for two weeks after the release.

Monitoring Released Marten

Approximate locations of radio-equipped marten were determined by triangulation using hand-held 3-element yagi antenna or an H-shaped hand-held antenna and an AVM LA 12 receiver. An attempt was made daily to locate each of the released

marten until July 1, after which locations were attempted less frequently. Locations were plotted on a 1:50 000 topographical map of the Park. The area traversed by released marten was determined by joining the outermost locations of each animal and measuring the minimum area required to enclose all locations.

Areas considered to be likely habitat for marten were searched for tracks when snow conditions permitted track identification. In addition, travelling trails and roads in selected areas, searches were conducted using straight line transects and following streams. Locations of marten tracks were recorded on 1:50 000 topographical maps. Pertinent information on snow and weather conditions, habitat type and track size was recorded.

Live trapping was conducted in Terra Nova National Park in November-December 1982 and November-December 1983. Traps were set in areas that were considered good marten habitat and/or where released marten were known to occur. Each trap was covered with conifer branches and birch bark, and was baited with sardines. Traps were checked early each morning. Captured marten were identified by their ear tag numbers and were released at the point of capture after being weighed.

Results and Discussions

Livetrapping and Transportation

Five were captured in 490 trap nights between February 13 and February 27, 1983. Four of the marten was male and one was female (Table 1). One of the male marten was released at the captured site because it was considered unnecessary to transport four males to the park.

Marten traps were checked between 07:30 and 12:00 hours each day. Minimum temperature ranged between -5° and -15° and weather conditions varied from flurries to clear and cold. Trapped animals were not adversely affected by the time they were in the traps.

Marten were held in individual plywood travelling pens and were kept in unheated room from the date of capture until they were trucked approximately 500km to Terra Nova National Park on February 23. Maximum time in confinement was six days. The truck travel time was six hours and the last 3km was traveled by snowmobile. (See Table 1.)

Table 1. Capture and release data for marten captured at Southwest Brook, Newfoundland and relocated to Terra Nova National Park.

Marten Eartag		1983			1983	
No.	No.	Sex	Capture Date	Weight(g)	Release Date	Weight (g)
83-1	546	m	Feb. 17	1175	30-Apr	1050
83-2	199,200	F	Feb. 19	725	30-Apr	860
83-3	197,198	M	Feb. 19	1075	30-Apr	1250
83-4	197,175	M	Feb. 20	1225	30-Apr	1150
83-5	174,127	M	Feb. 23	1175	Feb. 25 (at capture site)	

Release

Two of the male marten (#83-1, 83-3) were lived trapped, anesthetized, weighed, and fitted with radio collars on April 28 (Table1). The same procedure was followed with the female marten (#83-2) and the other male (#83-4) on April 29 except that the male was not collared. Male #83-4 was released on April 29. He moved out of his cage approximately one hour after the door was opened.

Marten #83-2, and 83-3 were released on April 30. Marten #83-1 moved out of his cage at 12:00 hr approximately one hour after the door was open. The female marten #83-2 did not leave her cage until evening (after 1730 hr) even though her cage was open at 11:00 hr. Marten #83-3 left his cage at 16:00 hr, 7.5 hr after the door was open. At

18:00 hr marten #83-3 was located close to ochre hill road junction with bread cove trail and 18:30 hr marten #83-1 was located near ochre hill and bread cove.

Monitoring Released Marten

Female marten #83-2

A more consistent record of movement is available for marten #83-2 than for the two collared males because she did not move as far (Figure 2), at least while her collar was still in place.

Forty-nine locations on marten #83-2 were mapped between May 1 and July 15, 1983. Signals after July 15 were from one site on the barren near ochre hill fire road (Figure 2). The marten had been recorded near there several times before she apparently lost her collar in a rock crevice.

The area used by marten #83-2 during her 11 weeks after her release was approximately 7.8km^2 (3.1 sq. mi). That area was very small compared to the marten studied in western Newfoundland (Bateman, 1982) where the average home range of two martens was 22km^2 (3.1 sq. mi.), and compared with the area used by three other martens released in Terra Nova National Park (average 76km^2).

Marten #83-2 must have moved more widely in Summer and Fall because she was caught in a rabbit snare in Charlottetown enclave (Figure 2) about December 12, 1983. She was alive when turned into the Park Warden but died at the veterinary clinic two days later after a mangled front paw was amputated.

Male marten #83-1

Thirty-seven locations of marten #83-1 were plotted between his release on April 30 till August 16, 1983 (Figure 3). It is thought that the transmitter in the collar did not work after August 16. The minimum area that the marten traversed during the time he was monitored was very large, approximately 126km^2 (50 sq. mi.). However, all locations after June 23 were within a much smaller area (Figure 3) of about 16km^2 (6.4 sq. mi.). There were many days that marten #83-1 was not located. During those times he may have moved outside the area traversed.

Male marten #83.3

Six locations were plotted on marten #83.3 between his release on April 30 and May 17, 1983. During this time the marten moved west up Big Brook and almost to the town of Terra Nova and then back to the mouth of the brook (Figure 4). On August 5 Warden Hardy picked up faint signal from marten #83.3 collar transmitter in the direction of Clode Sound and Bunyans cove across the sound. A sight record was reported to Park Wardens of a collared marten at Bunyans Cove on September 8, 1983. The marten was observed crossing the road and the observer had a clear view of it. An attempt was made on two occasions by radio telemetry in the Bunyans cove. But neither attempt was

successful. Those attempts to locate the marten on Bunyans Cove side of the Sound was some time after the sight record and the marten may have moved away.

Livetrapping

Live trapping between November 30 and December 6, 1982 resulted in 65 trap nights. Seven traps were set near the Trans Canada Highway: four at Cobblers Brook, two at Tidewaters Hill, and one at Bread Cove Brook. Seven traps were set along Dunphy's Trail. Two marten released in the spring 1982 (Bateman, 1982) were recaptured at Dunphys Pond on December 4: Female marten with ear tag #565566 and male marten ear tag #524,525. Weights at capture in December were 700g (female) and 1010g (male) compared to 780g (female) and 1150g (male) in February 1982 at southwest brook prior to relocation. Both animals were ten to twelve percent lighter in December at Terra Nova National Park than in February before relocation. However the male marten (ear tag #524,525) was recaptured during trapping in December 1983 and had regained weight of 1100g. Normal variation in weight caused by recent food ingestion is unknown.

Livetrapping between November 25 and December 5, 1983 in Terra Nova National Park resulted in 186 trap nights. Traps were set near good marten habitat and near release sites: at Ochre Hill, on the Dunphy's Pond trail, at Tidewaters Hill and Cobblers Brook. The male marten (ear tag #524,524) released at Dunphy's pond in the spring 1982 and recaptured in December 1982 was recaptured twice in December 1983, once at Tidewaters Brook and once on Dunphy's pond trail near Trans Canada Highway. No other marten was captured.

Winter Tracking

In March 1983, contractor R. Milton spent two weeks in Terra Nova National Park snow shoeing and travelling trails by snowmobile searching for marten tracks. Approximately 75km of transect was traveled through suitable marten habitat. General areas searched were Sandy Pond, Dunphy's Pond, Dunphy's Trail, Cobblers Brook, Saltons brook, Newman Sound, Friday Pond, and Trout Pond. Some areas were searched more than once.

Marten tracks were identified on three spots on the Dunphy's Pond Trail on March 2. At least one animal was in that area at that time. The only other marten track that was positively identified was near Trout Pond frequently moved the distance between Dunphy's and Trout Ponds, the same animal may have made all tracks.

Between February 2 and 12, 1984, contractors O'Brien and Evans traversed approximately 134km searching for marten tracks. Ten marten tracks were recorded. Five of those were recorded on the same day (February 2) on Dunphy's pond Trail and may

have been made by the same animal. Two tracks were recorded on February 3 at Ochre Hill; one near Bread Cove Pond, one close to Trans Canada Highway- Charlottetown Boundary on February 11; and one on Dunphy's Pond Trail on February 12. Marten activity in the Park was concentrated within 10km of the release sites at the time of the 1984 track survey.

Summary and Recommendations

Two relocations of marten at Terra Nova National Park have resulted in the release of six animals. Two male and two female were released in 1982 and three male and one female in 1983.

A male released in 1982 was snared in upper Gambo Pond in February 1983. The female released in 1983 was snared near Charlottetown.

About five months after the release. A male released in 1983 apparently moved out of the park to Buoyan's Cove.

Livetrapping in November-December 1982 resulted in recaptures of a male and a female released the previous spring. Livetrapping in November-December 1983 resulted in a re-capture of a male marten released in 1982.

Track records from winters 1983 and 1984 indicate that marten still occur in the park.

Monitoring the marten in Terra Nova National Park should continue for at least five years. Winter tracking should be carried out annually and hare traps or hare snares setup and set up and checked regularly.

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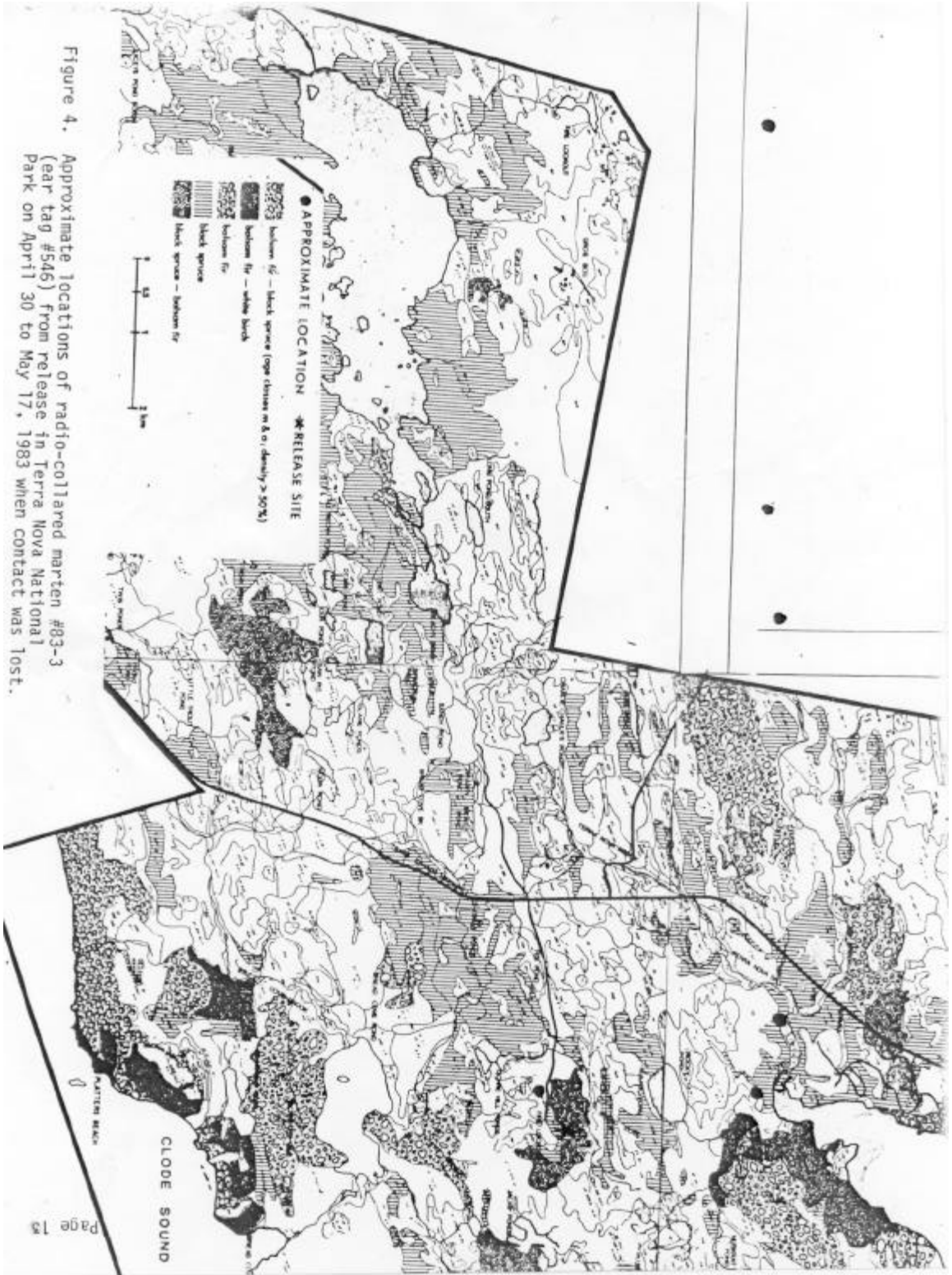


Figure 4. Approximate locations of radio-collared marten #83-3 (ear tag #546) from release in Terra Nova National Park on April 30 to May 17, 1983 when contact was lost.

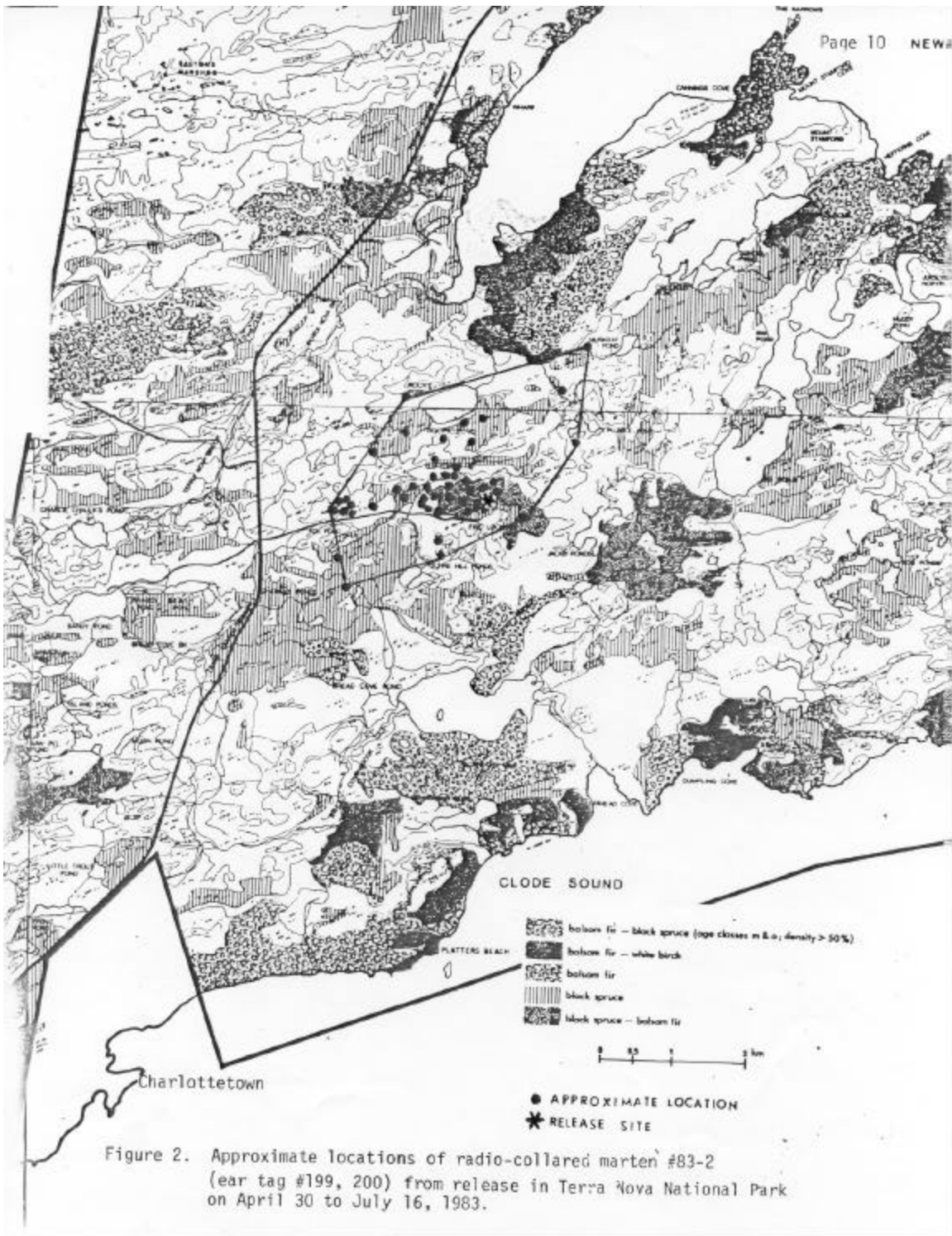


Figure 2. Approximate locations of radio-collared marten #83-2 (ear tag #199, 200) from release in Terra Nova National Park on April 30 to July 16, 1983.

