Recent Range Expansion of Ruffed Grouse, *Bonasa umbellus*, in Labrador

TONY E. CHUBBS[1, 2] and FRANK R. PHILLIPS[3]

[1]Department of Environment and Conservation, Wildlife Division, Government of Newfoundland and Labrador, Box 3014, Station B, Happy Valley-Goose Bay, Newfoundland and Labrador A0P 1E0 Canada
[2]Department of National Defence, 5 Wing Goose Bay, Box 7002, Station A, Happy Valley-Goose Bay, Newfoundland and Labrador A0P 1S0 Canada, email: techubbs@cablelab.net
[3]Department of Natural Resources, Government of Newfoundland and Labrador, Box 3014, Station B, Happy Valley-Goose Bay, Newfoundland and Labrador A0P 1E0 Canada

Chubbs, Tony E., and Frank R. Phillips. 2010. Recent range expansion of Ruffed Grouse, *Bonasa umbellus*, in Labrador. Canadian Field-Naturalist 124(1): 45–48.

The recent distribution of Ruffed Grouse, *Bonasa umbellus*, has not been documented in Labrador. Here we provide new records, extending northward the known contiguous distribution by 100 to 150 km, and identify three new, possibly discrete, populations.

Key Words: Ruffed Grouse, *Bonasa umbellus*, distribution, range expansion, Labrador.

Four species of the subfamily Tetraoninae (Class Aves) occur in Labrador: two migratory species (Willow Ptarmigan, *Lagopus lagopus*, and Rock Ptarmigan, *L. mutus*) and two non-migratory species (Spruce Grouse, *Falcipennis canadensis*, and Ruffed Grouse, *Bonasa umbellus*). Willow Ptarmigan generally breed on barrens of arctic and subarctic regions of Labrador, while Rock Ptarmigan breed along the north coast and inland at high elevations on some non-forested mountain ranges. Spruce Grouse are cyclically numerous throughout forested regions of Labrador.

Ruffed Grouse are widely distributed throughout deciduous and mixed forests of North America (Johnsgard 1983; Rusch et al. 2000). In eastern Canada, they are commonly associated with hardwood and mixed forests. Most research in Canada on the habitat requirements of Ruffed Grouse and on Ruffed Grouse populations has taken place around the Great Lakes in Trembling Aspen (*Populus tremuloides*) forests (McDonald et al. 1998; Rusch et al. 2000) west to Alberta (Keith 1963).

The distribution of Ruffed Grouse in Labrador has been poorly documented (Ouellet 1990), probably due to sparse human population, low numbers of birds, and limited suitable habitat in the region. The early literature contains little information on the distribution of Ruffed Grouse (Harper 1958; Todd 1963; Ouellet 1990). Most range maps depict the distribution inaccurately and show a contiguous range based on outdated records (Godfrey 1986; Rusch et al. 2000).

Todd (1963) documented Ruffed Grouse in only two regions of Labrador, along the Churchill River near Hamilton Inlet and near Cartwright on the coast of Labrador. However, a more recent study revealed a new subspecies of Ruffed Grouse (*B. u. labradorensis*), described as inhabiting southern Labrador and adjacent regions of Quebec (Ouellet 1990), most often associated with deciduous stands of poplar (*Populus* sp.), alders (*Alnus* sp.), and willows (*Salix* sp.) and small second-growth vegetation along rivers, islands, eskers, and roads (Ouellet 1990). Ouellet (1990) described the range as "the southeastern part of the Québec-Labrador Peninsula from approximately the Churchill River valley to Lake Melville, along the southern Labrador coast, the Strait of Belle Isle and the north shore of the Gulf of St. Lawrence west possibly to Havre Saint-Pierre, Québec." Here we present new sightings extending the known contiguous distribution across Labrador and identify two apparently isolated populations.

Methods

We compiled information on Ruffed Grouse sightings from conservation officers, hunters and trappers, avid birdwatchers, harvest records, and personal observations. We interviewed numerous residents throughout Labrador to determine the presence of the species and collected samples to confirm the presence of Ruffed Grouse, where possible. We combined historical records with our recent information to delineate the current range of the Ruffed Grouse in Labrador (Figure 1).

Results

Western Labrador

Ruffed Grouse have been observed at several locations near Labrador City and appear to have arrived in this area within the last 10 years. Males were observed drumming in spring at a site within the town limits in 2003 (G. Parsons, personal communication; Table 1). Females with broods were recorded along Smokey Mountain Road near Labrador City in the summer of 2005 and 2006 (Table 1). Observations were also made

TABLE 1. Harvest records and sightings of Ruffed Grouse in Labrador and adjacent areas from 1970 to the present.

Labrador Region	Coordinates	*n*, sex	Date	Source
Central				
1. Cache River	53°12.03'N, 61°12.96'W	1 unknown	1990s	J. Thomas
2. Popes Hill	53°02.00'N, 61°20.00'W	1 male	October 1995	T. Chubbs
3. Winokapau Lake	53°13.00'N, 63°15.00'W	1 unknown	1 April 2006	T. Chubbs
4. Double Mer River	54°02.00'N, 59°35.00'W	Several	1980s	B. Michelin
5. Seal Islands, Naskaupi River	54°05.25'N, 61°20.15'W	Several	1970s	L. Montague
6. Sandy Point	53°26.00'N, 60°02.00'W	1 male, 1 unknown	February 1997	T. Chubbs
7. Churchill Falls tailrace road	53°31.00'N, 63°58.00'W	2 unknown	20 May 2000	F. Phillips
8. Little Mecatina River	51°45.99'N, 60°07.65'W	1 unknown	9 July 2001	K. Hogan/C. Wilkerson
Coastal				
9. Port Hope Simpson	52°31.57'N, 56°30.34'W	1 male	October 1997	W. Smith
10. Charlottetown	52°44.49'N, 56°15.82'W	1 unknown	Fall 1999	D. Parr, J. Pretty
11. Postville	54°45.00'N, 60°15.00'W	Several	1980s	W. Lane, G. Gear
Western				
12. Oreway railway siding	52°34.00'N, 65°52.00'W	1 unknown	Late 1980s	K. Krats
13. Smokey Mountain Road	52°57.61'N, 66°55.31'W	2 females, 2 broods	2005, 2006	G. Parsons

along Cemetery Road in Labrador City in 2006. Sightings have been reported annually since 2003 (G. Parsons, personal communication).

Central Labrador

Several Ruffed Grouse sightings were recorded in the early 1990s just west of the Cache River, in central Labrador (J. Thomas, personal communication). In October 1995, a male Ruffed Grouse was harvested by TEC adjacent to the Trans Labrador Highway near the bottom of Popes Hill, approximately 90 km east of Goose Bay, Labrador (Table 1). On 20 May 2000, two individuals of unknown sex were observed on the tailrace road at Churchill Falls by FRP. This area is composed of regenerating White Birch (*Betula papyrifera*), Balsam Poplar, and willows, providing good habitat for Ruffed Grouse. A recent winter sighting along Winakapau Lake suggests the distribution between Happy Valley-Goose Bay and Churchill Falls may be contiguous adjacent to the Churchill River valley.

In the upper Lake Melville area, Ruffed Grouse have been harvested at the outflow of the Double Mer River, Sandy Point, and the lower Naskaupi River by several hunters since at least the 1970s (Table 1). A recent sighting on 9 July 2001 confirmed the presence of Ruffed Grouse on the Little Mecatina River just south of the Quebec-Labrador boundary.

Coastal Labrador

In October 1997, a male Ruffed Grouse was shot near Port Hope Simpson by a hunter (W. Smith) from Mary's Harbour. The specimen had grey phase plumage and was the first specimen recorded from the Port Hope Simpson area. It was collected and deposited in the Newfoundland Museum (catalogue number NFM ORN 195). Another bird was taken by a separate hunter in the same area in the fall of 1997. The location of these records is 110 km southeast of the Cartwright (Sandwich Bay) sighting reported in Todd (1963) and 136 km north of the specimen obtained at Bonne-Espérance, Québec, reported in Ouellet (1990). In recent years, hunters have reported taking several Ruffed Grouse along the Port Hope Simpson forest access road, indicating that the birds are likely now established in the area (D. Parr, personal communication).

In the fall of 1999, a single Ruffed Grouse was observed with a flock of five or six Spruce Grouse while the new forest access road for Charlottetown was being surveyed (Table 1). The observer (D. Parr) retrieved two feathers from the bird that confirmed it as a Ruffed Grouse.

We documented several records of Ruffed Grouse from the Postville area since the 1980s from both hunters and conservation officers (W. Lane and G. Gear, personal communication). Both individuals had previously observed Ruffed Grouse in the upper Lake Melville region, where they are relatively common.

Discussion

The first occurrences of Ruffed Grouse in the Sandwich Bay (Cartwright) and Lake Melville regions were recorded by Turner in 1885 and Low in 1896 (cited in Todd 1963). This distribution apparently remained unchanged through the late 1970s and early 1980s (Ouellet 1990). Ouellet (1990) suggested that the origin of Ruffed Grouse in Labrador goes back to one of the post-glacial periods of climate warming. When climatic conditions deteriorated, with ensuing changes in forest vegetation, he suggested that Ruffed Grouse were no longer capable of moving freely in all directions and eventually became isolated in the suitable habitats that they were occupying.

We suspect that our new records of Ruffed Grouse in Labrador constitute evidence of range expansion by the species rather than range extensions resulting from previously undocumented occurrences (*sensu* Frey 2009). In recent decades, the development of roads,

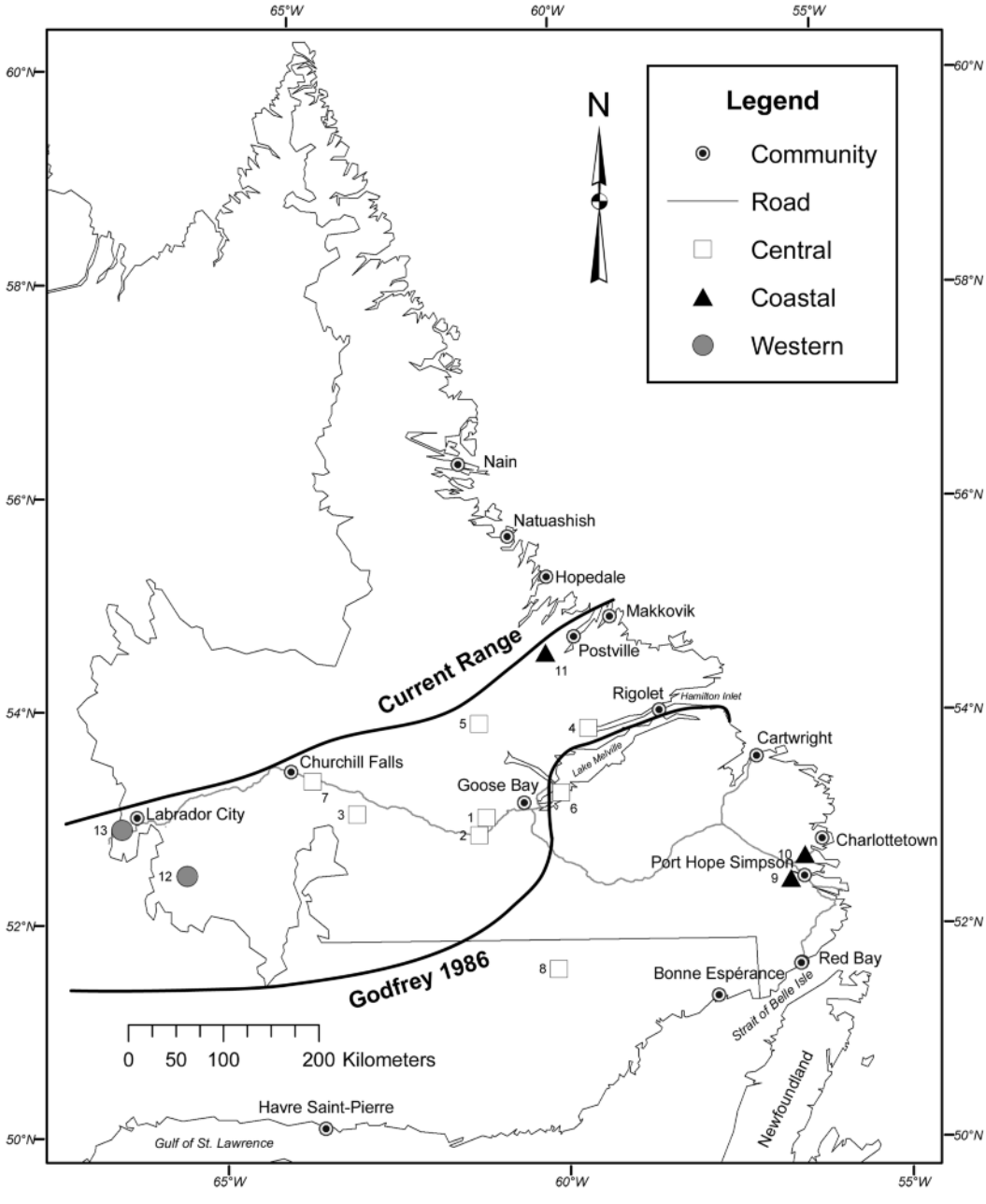

FIGURE 1. Current distribution and recent sightings of Ruffed Grouse in Labrador, and the northern most distribution described by Godfrey (1986). Roman numerals indicate the harvest and sighting locations from Table 1.

railways, expanding forest harvesting operations (Chubbs and Schaefer 1997), and perhaps climate change (Chaulk et al. 2009*) have again changed the forest composition in Labrador, increasing the amount of deciduous forests in some areas and undoubtedly resulting in an increase in habitat favourable to the Ruffed Grouse and a subsequent recent expansion in their range. Our records indicate that Ruffed Grouse have expanded their range since the early 1980s as described by Ouellet (1990) and Todd (1963) and are now established in Labrador West and at two new coastal locations at Postville and Port Hope Simpson.

It is unlikely that these three new populations went undetected, as all our informants were long-term residents of their communities familiar with the fauna of the regions.

The recent occurrence of Ruffed Grouse in Labrador West is likely the result of an increase in deciduous edge habitat created by human-caused forest alterations through mining and road building activities, forestry, and succession following forest fire. We suspect that the Labrador West population of Ruffed Grouse may have expanded north along roads, railways and southern flowing watercourses from eastern Québec, where the species is prevalent (Rusch et al. 2000). Recent forest harvesting operations in the Postville and Port Hope Simpson have probably created enough suitable habitat in the form of deciduous regeneration to support small populations of Ruffed Grouse. Suitable habitat also occurs near Snegamook (54°33'N, 61°30'W) and Shipiskan (54°37'N, 62°15'W) lakes, and we suspect that Ruffed Grouse may exist there as well. These areas are connected by riparian deciduous forests typical of those adjacent areas where populations have been confirmed (this study).

Acknowledgments

Thanks are extended to Gord Parsons for providing details of recent sightings in western Labrador and records from the late Karl Krats. Conservation Officer Dennis Parr collected the Port Hope Simpson specimen from hunter Wayne Smith from Mary's Harbour and confirmed the Charlottetown record. Tom Jung provided the Little Mecatina record observed by biologists Kathy Hogan and Corrine Wilkerson and commented on an earlier draft of the manuscript. Other observations were provided by hunters George Gear, Wilfred Lane, Bernard Michelin, and Wayne Smith; John Thomas, Forester; and Conservation Officers Louis Montague and John Pretty. Thanks to Leanne Elson for earlier drafts of the figure and thanks to David Elliott for the final figure. Comments provided by Paul Linegar and Bruce MacTavish greatly improved the manuscript. We thank reviewer Keith Chaulk for comments that improved the manuscript. Funding for this manuscript was provided through the Newfoundland and Labrador Department of Environment and Conservation, Wildlife Division.

Documents Cited (marked * in text)

Chaulk K. G., T. E. Chubbs, J. D. Jacobs, and **F. Phillips.** 2009. Animal range and climate shifts in Labrador, Canada: 1942-2008. Unpublished manuscript.

Literature Cited

Chubbs, T. E., and **J. A. Schaefer.** 1997. Population growth of Moose, *Alces alces* in Labrador. Canadian Field-Naturalist 111: 238-242.

Frey, J. K. 2009. Distinguishing range expansions from previously undocumented populations using background data from museum records. Diversity and Distributions 15: 183-189.

Godfrey, W. E. 1986. The Birds of Canada. Revised edition. National Museum of Natural Sciences, Ottawa, Ontario. 595 pages.

Harper, F. 1958. Birds of the Ungava Peninsula. University of Kansas Museum of Natural History, Miscellaneous Publication Number 17. 171 pages.

Johnsgard, P. A. 1983.The Grouse of the World. University of Nebraska Press, Lincoln. 413 pages.

Keith, L. B. 1963. Wildlife's ten-year cycle. University of Wisconsin Press, Madison, Wisconsin.

McDonald, J. E., G. L. Storm, and **W. L. Palmer.** 1998. Home range and habitat use of male Ruffed Grouse in managed mixed oak and aspen forests. Forest Ecology and Management 109: 271-278.

Ouellet, H. 1990. A New Ruffed Grouse, Aves: Phasianidae: *Bonasa umbellus*, from Labrador, Canada. Canadian Field-Naturalist 104: 445-449.

Rusch, D. H., S. Destefano, M. C. Reynolds, and **D. Lauten.** 2000. Ruffed Grouse, *Bonasa umbellus*. *In* The Birds of North America number 515. *Edited by* A. Poole and F. Gill. The Birds of North America, Inc., Philadelphia, Pennsylvania.

Todd, W. E. C. 1963. The birds of the Labrador Peninsula and adjacent areas. University Toronto Press, Toronto, Ontario, Canada.

Received 24 February 2009
Accepted 4 June 2010